

S&P Dow Jones Indices

A Division of **S&P Global**

S&P/BOVESPA Indices *Methodology*

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Introduction

Index Objectives, Highlights, and Index Family

S&P/BOVESPA Non-State Owned Enterprises Index. The index measures the performance of stocks listed on the BM&FBOVESPA (Brazilian stock exchange) that are not controlled, directly or indirectly, by public entities such as labor unions, states, the Federal District, or municipalities. To identify non-state-owned stocks S&P Dow Jones Indices ('S&P DJI') uses companies' self-reported data, as provided to the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários, CVM), in accordance with CVM Instruction 480.¹

S&P/BOVESPA Enhanced Value Index. The index measures the performance of stocks in the Brazilian equity market that are highly ranked on the basis of their value score, which is calculated based on three fundamental measures: book value-to-price, earnings-to-price, and sales-to-price (see *Appendix A*).

S&P/BOVESPA Inverse-Risk Weighted Index. The index measures the inverse-volatility-weighted performance of stocks in the Brazilian equity market. Volatility is defined as the standard deviation of the security's daily price returns in local currency over the prior one year of trading days (see *Appendix B*). Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

S&P/BOVESPA Low Volatility Index. The index measures the performance of the least volatile 25% of stocks within the Brazilian equity market. Volatility is defined as the standard deviation of the security's daily price returns in local currency over the prior one year of trading days (see *Appendix B*). Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

S&P/BOVESPA Momentum Index. The index measures the performance of stocks in the Brazilian equity market that were among the quartile demonstrating the best-realized performance during the specified measurement period.

S&P/BOVESPA Quality Index. The index measures the performance of stocks in the Brazilian equity market that are highly ranked on the basis of their quality score, which is calculated based on three fundamental measures: return on equity, accruals ratio and financial leverage ratio (see *Appendix D*).

The S&P/BOVESPA Indices are constructed from the constituents of the S&P Brazil BMI that are actively traded on the BM&FBOVESPA. The S&P Brazil BMI is a subset of the S&P Global BMI.

For more information on the eligibility criteria and index construction for the S&P Brazil BMI, please refer to the S&P Global BMI/S&P IFCI Index Methodology document located on our Web site, www.spdji.com.

Supporting Documents

This methodology is meant to be read in conjunction with supporting documents providing greater detail with respect to the policies, procedures and calculations described herein. References throughout the methodology direct the reader to the relevant supporting document for further information on a specific topic. The list of the main supplemental documents for this methodology and the hyperlinks to those documents is as follows:

¹ For information on CVM Instruction 480, please reference the following link: http://www.cvm.gov.br/export/sites/cvm/subportal_inqles/menu/investors/anexos/CVM-Instruction-480.pdf.

Supporting Document	URL
S&P Dow Jones Indices' Equity Indices Policies & Practices Methodology	Equity Indices Policies & Practices
S&P Dow Jones Indices' Index Mathematics Methodology	Index Mathematics Methodology
S&P Dow Jones Indices' Float Adjustment Methodology	Float Adjustment Methodology
S&P Dow Jones Indices' Global Industry Classification Standard (GICS) Methodology	GICS Methodology

This methodology was created by S&P Dow Jones Indices in agreement with BM&FBOVESPA to achieve the aforementioned objective of measuring the underlying interest of each index governed by this methodology document. Any changes to or deviations from this methodology are made in the sole judgment and discretion of S&P Dow Jones Indices and BM&FBOVESPA so that the index continues to achieve its objective.

Eligibility Criteria

Universe

For a security to be eligible for consideration for the S&P/BOVESPA Indices, it must, on the rebalancing reference date:

- Be actively trading on the BM&FBOVESPA as a local listing;
- Be an existing member of the S&P Brazil BMI.

Index Eligibility Criteria

S&P/BOVESPA Non-State Owned Enterprises Index. Stocks must, as of the rebalancing reference date:

- Have been listed for a minimum of three months and traded at least 95% of the days the exchange was in operation during the minimum three-month listing period.
- Have a minimum three-month median daily value traded (MDVT) of BRL 10 million (BRL 7 million for current constituents).
- Have a minimum float-adjusted market capitalization of BRL 1 billion (BRL 700 million for current constituents).
- Have a minimum IWF of 0.05.
- Not be a state-owned enterprise as self-reported to the Securities and Exchange Commission of Brazil (Comissão de Valores Mobiliários, CVM), in accordance with CVM Instruction 480.²

S&P/BOVESPA Inverse-Risk Weighted, Enhanced Value, Quality, Momentum, and Low Volatility Indices. Stocks must, as of the rebalancing reference date:

- Have a minimum six-month MDVT of BRL 5 million (BRL 4 million for current constituents).
- Have a minimum median value traded ratio of 2% for each of the prior 12 months (1.5% for current constituents). The median value traded ratio of each stock is defined as follows:
 - The monthly value traded ratio is calculated for each of the prior 12 months, by taking the median monthly daily value traded divided by its respective end of month float-adjusted market capitalization, where each month's value traded ratio must be at least 2% for non-constituents and 1.5% for current constituents.
 - Companies with less than 12 months of trading history will be considered for the **S&P/BOVESPA Enhanced Value, Momentum, and Quality Indices** as long as they have a trading history of at least six months and meet all other eligibility criteria. For the **S&P/BOVESPA Inverse-Risk Weighted and Low Volatility Indices**, each stock must have been issued and trading for at least one calendar year before becoming an index constituent.

² The list of state-owned companies is provided by BM&F/BOVESPA on an annual basis as of the last business day in July.

In addition the following are not eligible for index consideration:

- Brazilian Depository Receipts (BDRs);
- Companies not in compliance with resolution 3.792 as established by the Conselho Monetário Nacional (National Monetary Council).

Multiple Share Classes

S&P/BOVESPA Non-State Owned Enterprises and S&P/BOVESPA Momentum Indices. All publicly listed multiple share class lines are eligible for index inclusion, subject to meeting the eligibility criteria. For more information regarding the treatment of multiple share classes, please refer to Approach A within the Multiple Share Classes section of the S&P Dow Jones Indices' Equity Indices Policies & Practices document.

S&P/BOVESPA Inverse-Risk Weighted, Enhanced Value, Quality, and Low Volatility Indices. Each company is represented once by the Designated Listing. For more information regarding the treatment of multiple share classes, please refer to Approach B within the Multiple Share Classes section of the S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Construction

S&P/BOVESPA Non-State Owned Enterprises Index

Constituent Selection. All stocks in the eligible universe are screened to verify index eligibility as defined in the *Eligibility Criteria* section above. All stocks that meet all index eligibility criteria are selected and form the index.

Constituent Weightings. At each rebalancing, constituents are weighted by float-adjusted market capitalization subject to a maximum company weight of 10%.³

Please refer to S&P Dow Jones Indices' Index Mathematics Methodology for a detailed description of a capped market capitalization weighted index methodology.

Rebalancing. The index is rebalanced annually after the close on the third Friday of September. In addition, the index is re-weighted after the close of the third Friday of March. The rebalancing reference date for market capitalization and liquidity data is the last business day of August, while the reference date for state-owned company data from BM&F/BOVESPA is the last business day of July. Constituents' index shares are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date.

³ For history prior to the September 2014 rebalancing the index capped single stocks at 10% of the index and single companies at 20% of the index.

S&P/BOVESPA Enhanced Value Index

Constituent Selection. The top 25% of securities in the eligible universe, based on value scores, are chosen, subject to a minimum count of 25 stocks. The value score of each stock is derived from its book value-to-price, earnings-to-price and sales-to-price ratios. The value score of each stock is updated semi-annually at the June and December index rebalancings.

Buffer Rule. A 25% buffer is applied to stocks already in the index in order to reduce portfolio turnover and is implemented as follows:

1. Stocks are ranked based on value score and those ranked within the top 20% of the eligible universe stock count are automatically chosen for index inclusion.
2. All stocks which are current constituents that fall within the top 30% of the eligible universe stock count are then chosen for index inclusion in order of their value score.
3. If at this point the minimum stock count or 25% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their value score.

Constituent Weightings. For a given rebalancing date, all the securities eligible for inclusion in the index are weighted by the product of their market capitalization in the index universe and the value score, subject to a maximum GICS sector weight of 40% and a maximum single stock weight of 10%. Each stock's weight is floored at 0.05%.

Please refer to Appendix A for value score calculation details.

Rebalancing. The index is rebalanced semi-annually after the close on the third Friday of June and December. As part of the rebalancing process, constituent stock weights are updated. The rebalancing reference date is the last business day of May and November, respectively. Constituents' index shares are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date.

S&P/BOVESPA Inverse-Risk Weighted Index

Constituent Selection. All securities in the eligible universe are chosen.

Constituent Weightings. At each rebalancing, the weight, w , for each index constituent, i , is set inversely proportional to its volatility.

$$w_i = \frac{\frac{1}{Volatility}}{\sum_{i=1}^N \frac{1}{Volatility}}$$

where:

N = The number of constituents at each rebalancing

Please refer to Appendix B for volatility calculation details.

Rebalancing. The index is rebalanced quarterly after the close on the third Friday of March, June, September and December. As part of the rebalancing process, constituent stock weights are updated. The rebalancing reference date is the last business day of February, May, August and November, respectively. Constituents' index shares are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date.

S&P/BOVESPA Low Volatility Index

Constituent Selection. The top 25% of securities in the eligible universe, based on count and volatility, are chosen, subject to a minimum count of 25 stocks.

The selection of index constituents is done as follows:

1. Using available price return data for the trailing one year of trading days leading up to the index rebalancing reference date, the volatilities of the stocks within the eligible universe are calculated.
2. Stocks meeting eligibility requirements as described under *Eligibility Criteria* are, then, ranked in descending order based on the inverse of their realized volatility.
3. Stocks ranked within the top 20% of the eligible universe stock count are automatically chosen for index inclusion.
4. Stocks which are current constituents that fall within the top 30% of the eligible universe stock count are then chosen for index inclusion-
5. If at this point the minimum stock count or 25% of the stocks in the eligible universe based on count have not been chosen, the remaining stocks are chosen in descending order based on the inverse of their realized volatility.

Constituent Weightings. At each rebalancing, the weight, w , for each index constituent, i , is set inversely proportional to its volatility and no single stock's weight can exceed 10% of the index.

$$w_i = \frac{\frac{1}{Volatility}}{\sum_{i=1}^N \frac{1}{Volatility}}$$

where:

N = The number of constituents at each rebalancing

Please refer to Appendix B for volatility calculation details.

Rebalancing. The index is rebalanced quarterly after the close on the third Friday of March, June, September and December. As part of the rebalancing process, constituent stock weights are updated. The rebalancing reference date is the last business day of February, May, August and November, respectively. Constituents' index shares are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date.

S&P/BOVESPA Momentum Index

Constituent Selection. The top 25% of securities in the eligible universe, based on momentum scores, are chosen, subject to a minimum count of 25 stocks. The momentum score of each stock is updated semi-annually at the March and September index rebalancings.

Buffer Rule. In order to reduce turnover, a 25% buffer rule based on the winsorized z-score is applied to the security selection at each rebalancing and is implemented as follows:

1. Stocks are ranked based on momentum score and those ranked within the top 20% of the eligible universe stock count are automatically chosen for index inclusion.
2. All stocks which are current constituents that fall within the top 30% of the eligible universe stock count are then chosen for index inclusion in order of their momentum score.
3. If at this point the minimum stock count or 25% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their momentum score.

Constituent Weightings. For a given rebalancing date, all the securities eligible for inclusion in the index are weighted by the product of their market capitalization in the index universe and their momentum score, subject to security constraints. The maximum weight of each security is the lesser of 9% and three times its market capitalization weight in the index.

Please refer to Appendix C for details of the momentum score computation.

Float Adjustment. All issues in the index are assigned a float factor, called an Investable Weight Factor (IWF). The IWF ranges between 0 and 1 and is an adjustment factor that accounts for the publicly available shares of a company. IWFs are reviewed annually and the float-adjusted shares are used in the calculation of each stock's momentum weight.

Please refer to the S&P Dow Jones' Float Adjustment Methodology for a detailed description of float adjustment and Investable Weight Factor (IWF).

Rebalancing. The index is rebalanced semi-annually after the close on the third Friday of March and September. As part of the rebalancing process, constituent stock weights are updated. The rebalancing reference date is the last business day of February and August, respectively. Weights calculated as a result of the reference date data are implemented in the index using closing prices as of the respective rebalancing reference date.

S&P/BOVESPA Quality Index

Constituent Selection. The top 25% of securities in the eligible universe, based on quality scores, are chosen, subject to a minimum count of 25 stocks. The quality score of each stock is derived from its return-on-equity, accruals ratio and financial leverage ratio. The quality score of each stock is updated semi-annually at the June and December index rebalancings.

Buffer Rule. A 25% buffer is applied to stocks already in the index in order to reduce portfolio turnover and is implemented as follows:

1. Stocks are ranked based on quality score and those ranked within the top 20% of the eligible universe stock count are automatically chosen for index inclusion.
2. All stocks which are current constituents that fall within the top 30% of the eligible universe stock count are then chosen for index inclusion in order of their quality score.
3. If at this point the minimum stock count or 25% of stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their quality score.

Constituent Weightings. For a given rebalancing date, all the securities eligible for inclusion in the index are weighted by their quality score multiplied by their market capitalization, subject to a maximum GICS sector weight of 40% and a maximum single stock weight of 10%. Each stock's weight is floored at 0.05%.

Please refer to Appendix D for quality score calculation details.

Rebalancing. The index is rebalanced semi-annually after the close on the third Friday of June and December. As part of the rebalancing process, constituent stock weights are updated. The rebalancing reference date is the last business day of May and November, respectively. Constituents' index shares are calculated using closing prices on the Wednesday prior to the second Friday of the rebalancing month as the reference price. Index share amounts are calculated and assigned to each stock to arrive at the weights determined on the reference date.

Index Maintenance

Index Calculations

The indices are calculated by means of the divisor methodology used in all S&P Dow Jones Indices' equity indices.

For more information on the index calculations for a particular index, please refer to the Capped and Non-Market Capitalization Weighted Indices sections of S&P Dow Jones Indices' Index Mathematics Methodology.

Additions and Deletions

The majority of additions and deletions occur as part of the index rebalancings. Since the indices do not have a fixed number of constituents, additions to and deletions from an index may not be the same number.

S&P Dow Jones Indices believes turnover in index membership should be avoided when possible. At times a company may appear to temporarily violate one or more of the addition criteria. However, the addition criteria are for addition to the index, not for continued membership. As a result, an index constituent that appears to violate criteria for addition to the index may not be deleted unless ongoing conditions warrant an index change.

Spin-Offs. For all the indices in this methodology except the S&P/BOVESPA Non-State Owned Enterprises Index, the spun-off company is added to the index at a zero price and will be dropped from the index after the first day of regular way trading provided the drop event has been announced at least two days prior to the drop date. The S&P/BOVESPA Non-State Owned Enterprises Index will keep the spun-off company in the index to be reevaluated at the subsequent annual rebalancing.

Initial Public Offerings (IPOs). IPO additions to the indices take place at the index rebalancings. To be considered eligible for index inclusion, an IPO must first be a constituent of the index universe.

Corporate Actions

Corporate Action	Adjustment Made to the Index	Divisor Adjustment?
Rights Offering	The price is adjusted to the Price of the Parent Company minus (the Price of the Rights Offering/Rights Ratio). Index shares change so that the company's weight remains the same as its weight before the rights offering.	No
Stock Split	Index shares are multiplied by and the price is divided by the split factor.	No
Share Issuance or Share Repurchase	None. Actual shares outstanding of the company play no role in the daily index calculation.	No
Special Dividends	The price of the stock making the special dividend payment is reduced by the per share special dividend amount after the close of trading on the day before the dividend ex-date.	Yes
Delisting, acquisition or any other corporate action resulting in the deletion of the stock from the index universe.	The stock is dropped from the index. This causes the weights of the rest of the stocks in the index to change proportionately. Additions are made to the index only at the time of the index rebalancings.	Yes

For more information, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Other Adjustments

In cases where there is no achievable market price for a stock being deleted, it can be removed at a zero or minimal price at the Index Committee's discretion, in recognition of the constraints faced by investors in trading bankrupt or suspended stocks.

Currency, Currency Hedged, and Risk Control Indices

The indices are calculated in Brazilian reais and U.S. dollars.

Real-time spot Forex rates, as supplied by Reuters, are used for ongoing real-time index calculation.

WM/Reuters foreign exchange rates are taken daily at 04:00 PM London time and used in the calculation of the index. These mid-market fixings are calculated by the WM Company based on Reuters' data and appear on Reuters pages WMRA.

Additional currency, currency hedged, and risk control versions of the indices may be available. For a list of available currency, currency hedged, and risk control indices, please contact Client Services at index_services@spglobal.com.

For more information on currency, currency hedged, and risk control indices, please refer to S&P Dow Jones Indices' Index Mathematics Methodology.

Base Dates and History Availability

Index history availability, base dates and base values are shown in the table below.

Index	Launch Date	First Value Date	Base Date	Base Value
S&P/BOVESPA Non-State Owned Enterprise Index	06/01/2017	03/18/2005	03/18/2005	1000
S&P/BOVESPA Enhanced Value Index	04/30/2015	12/17/1999	12/17/1999	1000
S&P/BOVESPA Inverse-Risk Weighted Index	04/30/2015	09/17/1999	09/17/1999	1000
S&P/BOVESPA Low Volatility Index	04/30/2015	09/17/1999	09/17/1999	1000
S&P/BOVESPA Momentum Index	04/30/2015	06/30/1999	06/30/1999	1000
S&P/BOVESPA Quality Index	04/30/2015	12/17/1999	12/17/1999	1000

Index Data

Calculation Return Types

S&P Dow Jones Indices calculates multiple return types which vary based on the treatment of regular cash dividends. The classification of regular cash dividends is determined by S&P Dow Jones Indices.

- Price Return (PR) versions are calculated without adjustments for regular cash dividends.
- Gross Total Return (TR) versions reinvest regular cash dividends at the close on the ex-date without consideration for withholding taxes.
- Net Total Return (NTR) versions, if available, reinvest regular cash dividends at the close on the ex-date after the deduction of applicable withholding taxes.

In the event there are no regular cash dividends on the ex-date, the daily performance of all three indices will be identical.

For a complete list of indices available, please refer to the daily index levels file (“.SDL”).

For more information on the classification of regular versus special cash dividends as well as the tax rates used in the calculation of net return, please refer to S&P Dow Jones Indices’ Equity Indices Policies & Practices document.

For more information on the calculation of return types, please refer to S&P Dow Jones Indices’ Index Mathematics Methodology.

Index Governance

Index Committee

The indices are maintained by the S&P/BOVESPA Index Committee. The Index Committee meets regularly. All committee members are full-time professional members of S&P Dow Jones Indices and BM&FBOVESPA's staff. At each meeting, the Index Committee reviews pending corporate actions that may affect index constituents, statistics comparing the composition of the indices to the market, companies that are being considered as candidates for addition to an index, and any significant market events. In addition, the Index Committee may revise index policy covering rules for selecting companies, treatment of dividends, share counts or other matters.

S&P Dow Jones Indices considers information about changes to its indices and related matters to be potentially market moving and material. Therefore, all Index Committee discussions are confidential.

S&P Dow Jones Indices' Index Committees reserve the right to make exceptions when applying the methodology if the need arises. In any scenario where the treatment differs from the general rules stated in this document or supplemental documents, clients will receive sufficient notice, whenever possible.

In addition to the daily governance of indices and maintenance of index methodologies, at least once within any 12-month period, the Index Committee reviews the methodology to ensure the indices continue to achieve the stated objectives, and that the data and methodology remain effective. In certain instances, S&P Dow Jones Indices may publish a consultation inviting comments from external parties.

For information on Quality Assurance and Internal Reviews of Methodology, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Index Policy

Announcements

All index constituents are evaluated daily for data needed to calculate index levels and returns. All events affecting the daily index calculation are typically announced in advance via the Index Corporate Events report (SDE), delivered daily via ftp to all clients. Any unusual treatment of a corporate action or short notice of an event may be communicated via email to clients.

For more information, please refer to the Announcements section of S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Pro-forma Files

In addition to the corporate events file (.SDE), S&P Dow Jones Indices provides constituent pro-forma files each time the indices rebalance. The pro-forma file is typically provided daily in advance of the rebalancing date and contains all constituents and their corresponding weights and index shares effective for the upcoming rebalancing. Since index shares are assigned based on reference prices prior to the rebalancing, the actual weight of each stock at the rebalancing differs from these weights due to market movements.

Please visit www.spdji.com for a complete schedule of rebalancing timelines and pro-forma delivery times.

Holiday Schedule

The indices are calculated daily when the Brazilian equity markets are open.

A complete holiday schedule for the year is available at www.spdji.com.

Rebalancing

The Index Committee may change the date of a given rebalancing for reasons including market holidays occurring on the scheduled rebalancing date. Any such change will be announced with proper advance notice where possible.

Unexpected Exchange Closures

For information on Unexpected Exchange Closures, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Recalculation Policy

For information on the recalculation policy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Real-Time Calculation

Real-time, intra-day, index calculations are executed for certain indices, whenever the BM&FBOVESPA is open. Real-time indices are not restated.

For information on Calculations and Pricing Disruptions, Expert Judgment and Data Hierarchy, please refer to S&P Dow Jones Indices' Equity Indices Policies & Practices document.

Contact Information

For questions regarding an index, please contact: index_services@spglobal.com.

Index Dissemination

Index levels are available through S&P Dow Jones Indices' Web site at www.spdji.com, major quote vendors (see codes below), numerous investment-oriented Web sites, and various print and electronic media.

Tickers

The table below lists headline indices covered by this document. All currency, currency hedged, risk control, and return type versions of the below indices that may exist are also covered by this document. Please contact index_services@spglobal.com for a complete list of indices covered by this document.

Index (Currency)	Return Type	Bloomberg
S&P/BOVESPA Non-State Owned Enterprises Index (USD)	Price Return Total Return Net Total Return	SPBRXSUP SPBRXSUT SPBRXSUN
S&P/BOVESPA Non-State Owned Enterprises Index (BRL)	Price Return Total Return Net Total Return	SPBRXSBP SPBRXSBT SPBRXSBN
S&P/BOVESPA Enhanced Value Index (USD)	Price Return Total Return Net Total Return	SPEVBUP SPEVBUT SPEVBUN
S&P/BOVESPA Enhanced Value Index (BRL)	Price Return Total Return Net Total Return	SPEVBBP SPEVBBT SPEVBBN
S&P/BOVESPA Inverse-Risk Weighted Index (USD)	Price Return Total Return Net Total Return	SPBRRWUP SPBRRWUT SPBRRWUN
S&P/BOVESPA Inverse-Risk Weighted Index (BRL)	Price Return Total Return Net Total Return	SPBRRWBP SPBRRWBT SPBRRWBN
S&P/BOVESPA Low Volatility Index (USD)	Price Return Total Return Net Total Return	SPBRLVUP SPBRLVUT SPBRLVUN
S&P/BOVESPA Low Volatility Index (BRL)	Price Return Total Return Net Total Return	SPBRLVBP SPBRLVBT SPBRLVBN
S&P/BOVESPA Momentum Index (USD)	Price Return Total Return Net Total Return	SPBRMUP SPBRMUT SPBRMUN
S&P/BOVESPA Momentum Index (BRL)	Price Return Total Return Net Total Return	SPBRMBP SPBRMBT SPBRMBN
S&P/BOVESPA Quality Index (USD)	Price Return Total Return Net Total Return	SPBRQUP SPBRQUT SPBRQUN
S&P/BOVESPA Quality Index (BRL)	Price Return Total Return Net Total Return	SPBRQBP SPBRQBT SPBRQBN

FTP

Daily constituent and index level data are available via FTP subscription.

For product information, please contact S&P Dow Jones Indices, www.spdji.com/contact-us.

Web site

For further information, please refer to S&P Dow Jones Indices' Web site at www.spdji.com.

Appendix A – Value Score

Fundamental Ratios Calculation

The first step to determine the overall value score is to calculate, as of the rebalancing reference date, the three fundamental ratios below for each security in the index universe. They are defined as follows:

- **Book Value-to-Price Ratio.** This is calculated as a company's latest book value per share divided by its price:

$$\text{Book Value-to-Price} = \frac{BVPS}{P}$$

- **Earnings-to-Price Ratio.** This is calculated as a company's trailing 12-month earnings per share divided by its price:

$$\text{Earnings-to-Price} = \frac{EPS}{P}$$

- **Sales-to-Price Ratio.** This is calculated as a company's trailing 12-month sales per share divided by its price:

$$\text{Sales-to-Price} = \frac{SPS}{P}$$

Outlier Handling and Winsorization. Outlier fundamental ratios are winsorized to ensure that the average values used to calculate the overall value score are less distorted by extreme values. For a given fundamental variable, the values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable.

Z-score & Value Score Computation

Z-score Computation. Computing a z-score is a widely adopted method of standardizing a variable in order to combine it with other variables that may have a different scale or unit of measurement. After winsorizing all the three fundamental ratios, the z-score for each of the three ratios for each security is calculated using the mean and standard deviation of the relevant variable within the index universe.

The z-score is calculated as follows:

$$z_{\alpha} = \frac{(x_{\alpha} - \mu_{\alpha})}{\sigma_{\alpha}}$$

where:

z_{α} = Z-score for a given security

x_{α} = Winsorized variable for a given security

μ_{α} = Arithmetic mean of the winsorized variable in the index universe, excluding any missing values

σ_{α} = Standard deviation of the winsorized variable in the index universe

Average Z-score Computation. For each security, the average z-score is computed by taking a simple average of the three scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index.

Outlier Handling and Winsorization. Outlier average z-scores are winsorized to ensure that the average values used to calculate the overall value score are less distorted by extreme values. To do this, for a given average z-score, the values for all securities are first ranked in ascending order. Then, for securities that lie above 4 or below -4, their value is set as equal to 4 or -4, whichever is applicable.

Value Score Computation. Using the winsorized average z-scores for the three value factors, a value score is computed for each of the securities. For a given security, if its winsorized average z-score is above 0, then its value score will be the addition of 1 and the average z-score. On the other hand, if its winsorized average score is below 0, then its value score will be the result of the reciprocal of 1 subtracted by its average z-score.

If average $Z > 0$, Value Score = $1 + Z$

If average $Z < 0$, Value Score = $(1 / (1 - Z))$

If average $Z = 0$, Value Score = 1

Appendix B – Volatility

Volatility Calculation

Volatility is defined as the standard deviation of the security's daily price returns in local currency over the prior one year of trading days. It can be mathematically expressed as:

$$\sqrt{\frac{\sum_{i=1}^N (X_i - \bar{X})^2}{N-1}}$$

where:

$$X_i = \text{Price change} = \frac{P_t}{P_{t-1}} - 1$$

P_t = Closing price of the stock on day t

P_{t-1} = Closing price of the stock on day $t-1$

t = 1 to N

\bar{X} = Average price change

N = Number of trading days in a year based on local calendar

Appendix C – Momentum Score

Momentum Value Calculation

Momentum value is calculated for each of the securities in the index universe on each of the rebalancing reference dates. The momentum value is determined as follows:

1. The momentum value is computed as the 12-month price change, excluding the most recent month of the security in **local** currency. If 12 months of price history is not available, momentum value is calculated from nine months of price history. The effective rebalancing month is stated as month (M).

a. Momentum Value = $\left(\frac{price_{M-2}}{price_{M-14}} \right) - 1$

b. Or, Momentum Value = $\left(\frac{price_{M-2}}{price_{M-11}} \right) - 1$ if 12 months of price history is not available.

NOTE 1: For example, if the effective rebalancing date is on 03/24/2014, the reference date is 02/28/2014, and the momentum value will be calculated based on the prices from 01/31/2014 ($price_{M-2}$) and 01/31/2013 ($price_{M-14}$).

NOTE 2: If there is no price available on day $M-2$ or day $M-14$, the price from the day prior will be used. If there is no price available on any of the ten days prior, the momentum value will be calculated using formula (b) above. If the same condition exists for formula (b), the stock is excluded from the index.

NOTE 3: For a stock to be included in the index, it must be trading for at least ten months prior to the rebalancing reference date.

2. The momentum value is further adjusted by the security's volatility to arrive at risk-adjusted momentum value.

$$\text{Risk-Adjusted Momentum Value} = \frac{\text{Momentum Value}_i}{\sigma_i}$$

where:

σ = Standard deviation of daily price returns for the same date period used in Step 1 above.

Z-Score & Momentum Score Computation

Z-Score Computation. Computing a z-score is a widely adopted method of standardizing a variable. The z-score for risk-adjusted momentum value for each security is calculated using the mean and standard deviation of the relevant variable within the index universe.

The z-score is calculated as follows:

$$z_\alpha = \frac{(x_\alpha - \mu_\alpha)}{\sigma_\alpha}$$

where:

z_{α} = Z-score for a given security

x_{α} = Observed value for a given security

μ_{α} = Arithmetic mean of the winsorized variable in the index universe, excluding any missing values

σ_{α} = Standard deviation of the winsorized variable in the index universe

Winsorization reduces the impact of outliers on a data set by limiting them to a designated value or score. For the S&P/BOVESPA Momentum Index, the winsorized z-score of a security is capped at ± 3 .

Momentum Score Computation. Using the winsorized z-scores, a momentum score is computed for each of the securities. For a given security, if its winsorized z-score is above 0, then its momentum score will be the addition of 1 and the z-score. On the other hand, if its winsorized z-score is below 0, then its momentum score will be the result of the reciprocal of 1 subtracted from its z-score.

If $Z > 0$, Momentum Score = $1 + Z$

If $Z < 0$, Momentum Score = $(1 / (1 - Z))$

If $Z = 0$, Momentum Score = 1

Appendix D – Quality Score

Fundamental Ratios Calculation

The first step to determine the overall quality score is to calculate, as of the rebalancing reference date, the three fundamental ratios below for each security in the index universe. They are defined as follows:

- **Return on Equity (ROE).** This is calculated as a company's trailing 12-month earnings per share divided by its latest book value per share:

$$\text{ROE} = \frac{\text{EPS}}{\text{BVPS}}$$

- **Accruals Ratio.** This is computed using the change of a company's net operating assets over the last year divided by its average net operating assets over the last two years:

$$\text{Accruals Ratio} = \frac{(\text{NOA}_t - \text{NOA}_{t-1})}{((\text{NOA}_t + \text{NOA}_{t-1}))/2}$$

- **Financial Leverage Ratio.** This is calculated as a company's latest total debt divided by its book value.

$$\text{Leverage} = \frac{\text{Total Debt}}{(\text{BVPS} \times \text{Common Shares outstanding})}$$

Outlier Handling and Winsorization. Outlier fundamental ratios are winsorized to ensure that the average values used to calculate the overall quality score are less distorted by extreme values.

- **Return on Equity and Accruals Ratio.** For a given fundamental variable, the values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable. If the underlying data points for a given stock's ROE are both negative, leading to a positive ROE, its ROE value will be excluded and the stock will be assigned an ROE Z-score set as equal to the ROE Z-score value of the 2.5 percentile ranked security.
- **Financial Leverage Ratio.** The values for all securities are first ranked in ascending order. Then, for securities that lie above the 97.5 percentile rank or below the 2.5 percentile rank, their value is set as equal to the value of the 97.5 percentile ranked or the 2.5 percentile ranked security, whichever is applicable. If the underlying data point for a given stock's BVPS is negative, leading to a negative Leverage, its Leverage value will be excluded and the stock will be assigned a Leverage Z-score set as equal to the Leverage Z-score value of the 2.5 percentile ranked security.

Z-score & Quality Score Computation

Z-score Computation. Computing a z-score is a widely adopted method of standardizing a variable in order to combine it with other variables that may have a different scale or unit of measurement. After winsorizing all the three fundamental ratios, the z-score for each of the three ratios for each security is calculated using the mean and standard deviation of the relevant variable within the index universe.

- **Return on Equity.** The z-score is calculated as follows:

$$z_\alpha = \frac{(x_\alpha - \mu_\alpha)}{\sigma_\alpha}$$

- **Accruals and Financial Leverage Ratios.** The z-score is calculated as follows:

$$z_{\alpha} = -\frac{(x_{\alpha} - \mu_{\alpha})}{\sigma_{\alpha}}$$

where:

z_{α} = Z-score for a given security

x_{α} = Winsorized variable for a given security

μ_{α} = Arithmetic mean of the winsorized variable in the index universe, excluding any missing values

σ_{α} = Standard deviation of the winsorized variable in the index universe

Average Z-score Computation. For each security, the average z-score is computed by taking a simple average of the three scores. Where there is a missing value, the average z-score is computed by taking a simple average of the remaining two scores. A security must have at least one z-score for it to be included in the index.

Outlier Handling and Winsorization. Outlier average z-scores are winsorized to ensure that the overall quality scores are less distorted by extreme values. To do this, for a given average z-score, the values for all securities are first ranked in ascending order. Then, for securities that lie above 4 or below -4, their value is set as equal to 4 or -4, whichever is applicable.

Quality Score Computation. Using the winsorized average z-scores, a quality score is computed for each of the securities. For a given security, if its winsorized average z-score is above 0, then its quality score will be the addition of 1 and the average z-score. On the other hand, if its winsorized average score is below 0, then its quality score will be the result of the reciprocal of 1 subtracted by its average z-score.

If average Z > 0, Quality Score = 1 + Z

If average Z < 0, Quality Score = (1 / (1 - Z))

If average Z = 0, Quality Score = 1

Appendix E – Methodology Changes

Methodology changes since January 1, 2015 are as follows:

Index	Change	Effective Date (After Close)	Methodology	
			Previous	Updated
S&P/BOVESPA Low Volatility Index	Constituent Weightings	12/18/2015	At each rebalancing, the weight, w , for each index constituent, i , is set inversely proportional to its volatility.	At each rebalancing, the weight, w , for each index constituent, i , is set inversely proportional to its volatility and no single stock's weight can exceed 10% of the index.
S&P/BOVESPA Enhanced Value, Inverse-Risk Weighted, Low Volatility, Momentum, and Quality Indices	Corporate Actions: Spin-offs	09/30/2015	Spin-offs are ineligible for inclusion in the index. Any price adjustments that occur due to a spin-off are a market cap neutral event for the parent stock.	Spin-offs are ineligible for inclusion in the index. When the price of the spin-off is not known, the spun-off company is added to the index at a zero price. Once it trades, it is dropped from the index. For further information, please refer to the Treatment of Spin-offs in the S&P Dow Jones Indices' Equity Indices Policies & Practices document.
S&P/BOVESPA Low Volatility Index	Introduction: Index Purpose	09/18/2015	The index is designed to measure the performance of the least volatile 20% of stocks within the Brazilian equity market.	The index is designed to measure the performance of the least volatile 25% of stocks within the Brazilian equity market.
S&P/BOVESPA Enhanced Value, Inverse-Risk Weighted, Low Volatility, Momentum, and Quality Indices	Index Eligibility: Liquidity	09/18/2015	For index eligibility, a security must, on the rebalancing reference date, have a minimum three-month average daily value traded of BRL 2 million.	For index eligibility, a security must, on the rebalancing reference date have: <ul style="list-style-type: none"> • A minimum six-month median daily value traded of BRL 5 million with a buffer of BRL 4 million for current constituents. • A minimum median value traded ratio of 2% with a buffer of 1.5% for current constituents for each of the prior 12 months. The median value traded ratio of each stock is defined as follows: <ul style="list-style-type: none"> ○ The monthly value traded ratio is calculated for each of the prior 12 months, by taking the median monthly daily value traded divided by its respective end of month float-adjusted market capitalization, where each month's value traded ratio must be at least 2% for non-constituents and 1.5% for current constituents. ○ Companies with less than 12 months of trading history will be considered for the S&P/BOVESPA Enhanced Value, Momentum, and Quality Indices as long as they have a trading history of at least six months and meet all other eligibility criteria.

Index	Change	Effective Date (After Close)	Methodology	
			Previous	Updated
S&P/BOVESPA Enhanced Value Index	Constituent Selection: Minimum Stock Count	09/18/2015	The top 20% of securities in the eligible universe, based on value scores, are chosen, subject to a minimum count of 20 stocks.	The top 25% of securities in the eligible universe, based on value scores, are chosen, subject to a minimum count of 25 stocks.
S&P/BOVESPA Low Volatility Index	Constituent Selection: Minimum Stock Count	09/18/2015	The top 20% of securities in the eligible universe, based on count and volatility are chosen, subject to a minimum count of 20 stocks.	The top 25% of securities in the eligible universe, based on count and volatility are chosen, subject to a minimum count of 25 stocks.
S&P/BOVESPA Momentum Index	Constituent Selection: Minimum Stock Count	09/18/2015	The top 20% of securities in the eligible universe, based on momentum scores, are chosen, subject to a minimum count of 20 stocks.	The top 25% of securities in the eligible universe, based on momentum scores, are chosen, subject to a minimum count of 25 stocks.
S&P/BOVESPA Quality Index	Constituent Selection: Minimum Stock Count	09/18/2015	The top 20% of securities in the eligible universe, based on quality scores, are chosen, subject to a minimum count of 20 stocks.	The top 25% of securities in the eligible universe, based on quality scores, are chosen, subject to a minimum count of 25 stocks.
S&P/BOVESPA Enhanced Value Index	Constituent Selection: Buffer Rule	09/18/2015	A 20% buffer is applied to stocks already in the index: <ol style="list-style-type: none"> 1. Stocks ranked within the top 16% of the eligible universe stock count, based on value score, are automatically selected. 2. All current constituents that fall within the top 24% of the eligible universe stock count are then selected in order of their value score. 3. If at this point the minimum stock count or 20% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their value score. 	A 25% buffer is applied to stocks already in the index: <ol style="list-style-type: none"> 1. Stocks ranked within the top 20% of the eligible universe stock count, based on value score, are automatically selected. 2. All current constituents that fall within the top 30% of the eligible universe stock count are then selected in order of their value score. 3. If at this point the minimum stock count or 25% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their value score.
S&P/BOVESPA Momentum Index	Constituent Selection: Buffer Rule	09/18/2015	A 20% buffer based on the winsorized z-score is applied to the security selection: <ol style="list-style-type: none"> 1. Stocks ranked within the top 16% of the eligible universe stock count, based on momentum score, are automatically selected. 2. All current constituents that fall within the top 24% of the eligible universe stock count are then selected in order of their momentum score. 3. If at this point the minimum stock count or 20% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their momentum score. 	A 25% buffer based on the winsorized z-score is applied to the security selection: <ol style="list-style-type: none"> 1. Stocks ranked within the top 20% of the eligible universe stock count, based on momentum score, are automatically selected. 2. All current constituents that fall within the top 30% of the eligible universe stock count are then selected in order of their momentum score. 3. If at this point the minimum stock count or 25% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their momentum score.

Index	Change	Effective Date (After Close)	Methodology	
			Previous	Updated
S&P/BOVESPA Quality Index	Constituent Selection: Buffer Rule	09/18/2015	A 20% buffer is applied to stocks already in the index: 1. Stocks ranked within the top 16% of the eligible universe stock count, based on quality score, are automatically selected. 2. All current constituents that fall within the top 24% of the eligible universe stock count are then selected in order of their quality score. 3. If at this point the minimum stock count or 20% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their quality score.	A 25% buffer is applied to stocks already in the index: 1. Stocks ranked within the top 20% of the eligible universe stock count, based on quality score, are automatically selected. 2. All current constituents that fall within the top 30% of the eligible universe stock count are then selected in order of their quality score. 3. If at this point the minimum stock count or 25% of the stocks in the eligible universe have not been chosen, the remaining stocks are chosen based on their quality score.
S&P/BOVESPA Low Volatility Index	Constituent Selection: Steps 3-6	09/18/2015	3. Stocks ranked within the top 16% of the eligible universe stock count are automatically selected. 4. All current constituents that fall within the top 24% of the eligible universe stock count are then selected up to 20% of the eligible universe stock count. 5. If at this point 20% of the stocks in the eligible universe based on count have not been chosen, the remaining stocks are chosen in descending order based on the inverse of their realized volatility up to the 20% eligible universe stock count limit. 6. If at this point the minimum stock count has not been reached, the remaining stocks are selected in descending order based on the inverse of their realized volatility from the eligible universe until the index has a total of 20 stocks.	3. Stocks ranked within the top 20% of the eligible universe stock count are automatically selected. 4. All current constituents that fall within the top 30% of the eligible universe stock count are then selected up to 25% of the eligible universe stock count. 5. If at this point 25% of the stocks in the eligible universe based on count have not been chosen, the remaining stocks are chosen in descending order based on the inverse of their realized volatility up to the 25% eligible universe stock count limit. 6. If at this point the minimum stock count has not been reached, the remaining stocks are selected in descending order based on the inverse of their realized volatility from the eligible universe until the index has a total of 25 stocks.
S&P/BOVESPA Enhanced Value, Inverse- Risk Weighted, Low Volatility, Momentum, and Quality Indices	Index Eligibility: Additional Exclusion Rules	06/19/2015	--	In addition, the following are not eligible for index consideration: <ul style="list-style-type: none"> • Brazilian Depository Receipts (BDRs); • Companies not in compliance with resolution 3.792 as established by the Conselho Monetário Nacional (National Monetary Council).

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