

# Technical Regulations for the composition and calculation of the Stock Exchanges Indices administrated by Sociedad de Bolsas, S.A.

January 2025

#### BARCELONA STOCK EXCHANGE

BCN - GLOBAL 100

BCN - MID-50

BCN - INDEXCAT

BCN - PROFIT-30

BCN - ROE-30

BCN - PER-30

#### BILBAO STOCK EXCHANGE

BOLSA BILBAO 2000

#### MADRID STOCK EXCHANGE

PRICE INDICES:

IGBM – MADRID STOCK EXCHANGE GENERAL INDEX

SECTORIAL AND SUBSECTORIAL INDICES

PERFORMANCE INDICES:

TOTAL IGBM – MADRID STOCK EXCHANGE TOTAL INDEX

TOTAL SECTORIAL AND SUBSECTORIAL INDICES

#### VALENCIA STOCK EXCHANGE

IGBV – VALENCIA STOCK EXCHANGE GENERAL INDEX

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## Review History

**May 2021:** Changes in the Stock Exchanges Indices' Governance, whose administrator is Sociedad de Bolsas, S.A. New methodology document.

**February 2022:** Creation of the review history. Section: 0. Availability of a public procedure on substantial modifications of the methodology. Section: 1. Modification of the selection criteria of stocks in the IGBM. Section: 5.1.1. Exercise of discretion. Section: 1. Modification of the selection criteria of stocks in the IGBM. Sections: 5.1.1. Exercise of discretion. Section 4.1.1. Modifications of the Indices' date reviews in Sections 3. And 6.

**March 2023:** Update of inclusion criteria for the IGBM. Chapter 5.1.

## 1 Introduction

The present document contains the Technical Regulations for the Composition and Calculation governing the Indices for the Governing Bodies of the Stock Exchanges ("Stock Exchanges Indices") administrated by Sociedad de Bolsas, S.A.

Sociedad de Bolsas, S.A., a BME Group company, is responsible for the management and functioning of the Spanish Stock Exchange Interconnection System (SIBE) – a technical trading platform of the Spanish stock exchange market that also houses the order book. Sociedad de Bolsas is the primary source of information generated in SIBE and is responsible for its organization and management. It is also the administrator of the IBEX indices and the strategy indices on stocks, the benchmarks for the Governing Bodies of the Stock Exchanges, the fixed income and Public Debt indices, and the Latibex Index Series, and is responsible for their structure, management, calculation, and dissemination.

These technical regulations will be revised periodically within a period never to exceed one year.

The aim of these revisions will be first, to make sure that the indices continue to reflect the reality they are intended to measure, and second, to ensure their role as underlying assets in the trading of derivative products, i.e. that they continue to be appropriate, representative, and reproducible. Among others, any changes that involve a change in the type of calculation data, fundamental changes in the methodology, changes related to any interruption or suspension of the indices – including the transitional rules for the new index – as well as changes that affect the ability of index users to continue using them as established are considered substantial changes. Any modification or alteration of these technical regulations must be approved by the Board of Directors of Sociedad de Bolsas, S.A. following a report by the Technical Advisory Committee on the indices as proposed by the Management Committees (with reference to sections 3, 4, 5 and 6 thereof).

Such modifications or alterations are published no later than 48 hours after the corresponding decision is made and take effect within seven days of their publication, unless expressly agreed otherwise.

Sociedad de Bolsas, S.A. has a transition procedure for possible cessation of the indices cited in these technical regulations, which stipulates the conditions for its implementation. It also has a procedure to be implemented should a contingency arise and a procedure of public consultations about substantial changes in the methodology.

## 2 Indices' Governance

### 2.1 Technical Advisory Committee

The oversight function for the Stock Exchanges Indices is assigned to the Technical Advisory Committee. However, the periodic reviews of the Stock Exchanges Indices' constituents are assigned to the Management Committees, in accordance with these Technical Rules.

The Technical Advisory Committee responsible for the indices is composed of at least five and no more than nine members. If the number is even, the chair will cast the deciding vote.

The Board of Directors of Sociedad de Bolsas, S.A. is responsible for appointing the members of the Technical Advisory Committee, its chair, and secretary and for renewing the offices every four years, as established in the procedures for its appointment, replacement or cessation, and the establishment of its internal rules of operations.

### 2.2 Management Committees

The periodic review of the Stock Exchanges Indices' constituents is assigned to the Management Committees of the Stock Exchanges Indices.

It is also the responsibility of the Management Committees to propose to the Technical Advisory Committee any modification or alteration of the present Technical Rules, which will report through the Index Management Secretariat to the Board of Directors of Sociedad de Bolsas, S.A. for its approval.

Each Stock Exchange has a Management Committee for the periodic review of their Indices. The Stock Exchanges Management Committees are composed of two or more members belonging to different Spanish Stock Exchange Areas, being at least one member of the Index Management Secretariat of the Indices of Sociedad de Bolsas, S.A.

### 2.3 Index Manager

The Index Management Secretariat at Sociedad de Bolsas is responsible for management of the indices. Its main functions are the management, calculation, publication, and maintenance of the Sociedad de Bolsas Indices.

## 3 Barcelona Stock Exchange Indices

### 3.1 Composition and Calculation of the BCN GLOBAL 100 Index

The BCN GLOBAL 100 Index is designed to represent in a widely manner and in real-time the evolution of the stocks listed in the Spanish Stock Exchange and for its use as an underlying index for benchmarking in financial products. For these purposes, it constitutes an active market, when exchanging homogeneous goods, being a liquid market with transparent prices based on real transactions.

A general Index and seven indices for sectors are calculated:

- A) BCN GLOBAL 100
- B) Sectorial Indices:
  - 1. Oil and Energy
  - 2. Basic Materials, industry and construction
  - 3. Consumer Goods
  - 4. Consumer Services
  - 5. Financial Services
  - 6. Technology and telecommunications
  - 7. Real Estate Services

#### 3.1.1 Composition of BCN GLOBAL 100 Index

The BCN GLOBAL 100 is the large General Index of the Barcelona Stock Exchange, composed of the most liquid and trading frequency securities during the semester.

It is a fixed weightings Index reviewed semi-annually, modifying its composition and weightings of its securities after the last trading day of June and December.

The selection of the BCN GLOBAL 100 Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, on a semi-annually basis and on an extraordinary basis, when so decided, to adapt the aforementioned indicator to the reality of the market.

At each ordinary review, the selection of the securities is done according to the trading volume in the Barcelona Stock Exchange, as well as the trading frequency. The BCN GLOBAL 100 Index is composed of 100 securities.

At the extraordinary reviews, the Management Committees of the Barcelona Stock Exchange Indices may decide to include or remove a constituent from the Index, when special circumstances so recommend.

The decisions of the ordinary meetings will take effect on the first trading session after the last trading day of June and December, and the decisions of the extraordinary meetings, on the date agreed for this purpose.

The BCN GLOBAL 100 is a fixed weightings index. This means that at each semi-annually rebalance, the weightings of each security are set in the general and sector index, respectively. These weightings will remain constant throughout the semester until the next rebalance or end of period.

The weightings are set according to the trading volume in the Barcelona Stock Exchange of the securities.

The weighting is the result of dividing the volume of the security by the sum of the volume in the Barcelona Stock Exchange of all the Index' securities.

Given that the weightings are set based on trading data and not capitalisation data, the correction for free-float or for number of shares admitted, does not apply to the BCN GLOBAL 100 Index.

### 3.1.2 Formula for the calculation of the BCN GLOBAL 100 Index

#### a) Calculation of the Index

For the daily calculation of the Index, individual stock indices have to be calculated as a first step for each of the BCN GLOBAL 100 constituents.

The value Index, with a 100 base, is the ratio between the last traded price and the Reference Price for each constituent.

The Reference Price of a value is the closing price of the last day of the previous period, that is, the one with which the weightings were set in the rebalance of the Index (in the ordinary periods, the last session of June and December). It is modified because of adjustments for financial operations, so it remains constant between adjustments.

$$I_{i \text{ in } t} = \frac{P_{i \text{ in } t}}{P_{REF-i}}$$

Where,

$I_{i \text{ in } t}$  = Value Index of value i at the moment t

$P_{i \text{ in } t}$  = Price of the value i at the moment t

$P_{REF-i}$  = Reference Price of value i

#### b) Chaining Factors

Since the calculation of the Index occurs in a 100 base, a chaining factor is necessary to calculate the indices continuing the historical series.

For that purpose, the chaining factors of the general Indices and the closing values of the previous period are calculated and expressed as a decimal.

#### c) Sectorial Indices Calculation

The Sectorial Indices are calculated as the sum of the individual stock Indices weighted by their weighting in the sector by the chain factor:

$$IS_{k \text{ in } t} = \sum (I_{i \text{ in } t} \times \text{Weighting}_{i \text{ in } sk}) * f_{ISk}$$

Where,

$IS_{k \text{ en } t}$  = Sectorial Index corresponding to sector k at the moment t

$\text{Weighting}_{i \text{ in } sk}$  = Weighting of the value i in the sector k

$I_{i \text{ in } t}$  = Individual stock Index I at the moment t

$f_{ISk}$  = Chaining factor of the Sectorial Index k

#### d) General Index Calculation

So the BCN GLOBAL 100 Index will be calculated as follows:

$$\text{BCN GLOBAL100}_{\text{in } t} = \sum (I_{i \text{ in } t} \times \text{Weighting}_{i \text{ in BCN GLOBAL100}}) * f_{\text{BCN GLOBAL100}}$$

Or in other words:

$$\text{BCN GLOBAL100}_{\text{in } t} = \sum \left( \frac{P_{i \text{ en } t}}{P_{REF-i}} \times \text{Weighting}_{i \text{ in BCN GLOBAL100}} \right) * f_{\text{BCN GLOBAL100}}$$

Where,

$\text{BCN GLOBAL100}_{\text{in } t}$  = BCN GLOBAL-100 Index at the moment t

$I_{i \text{ in } t}$  = Individual stock Index i at the moment t

$Weighting_{i \text{ in } BCN \text{ GLOBAL}100}$  = Weighting of the value i in the BCN GLOBAL-100 Index

$P_{i \text{ in } t}$  = Price of the value i at the moment t

$P_{REF-i}$  = Reference Price of value i

$f_{BCN \text{ GLOBAL}100}$  = Chaining factor of the BCN GLOBAL-100 Index

### 3.1.3 Adjustments for financial operations affecting the Index' constituents

The BCN GLOBAL 100 Index will be adjusted due to certain financial operations in which the price of the securities is affected.

These adjustments are made to reflect the effect on the price of the securities of the BCN GLOBAL 100 Index by adjusting the Reference Price.

There is a Reference Price for each security that will be modified to reflect the following adjustments:

#### 3.1.3.1 Capital increases

The BCN GLOBAL 100 Index adjusts the capital increases that carries a discount in the price of the security.

In the capital increases with preemptive subscription right, is considered the effect that the discount of the theoretical value of the right has on the price of the security, and it is called the Subscription Right Effect (SRE), which is calculated:

$$SRE = \frac{P_a}{P_d}$$

$$P_d = P_a - TVS$$

$$TVS = \frac{N \times (P_a - P_n - d)}{(N + V)}$$

Where,

$SRE$  = Subscription Right Effect

$TVS$  = Theoretical Value of the Subscription

$P_a$  = Price before the capital increase

$P_d$  = Price after the capital increase

$P_n$  = Price of the new share

$d$  = Difference of dividends between the old and new shares

$N$  = Number of new shares

$V$  = Number of old shares

Once the SER is obtained, there is a New Reference Price of the value through the following ratio:

$$P_{REF\ n} = \frac{P_{REF\ a}}{SRE}$$

Where,

$SRE$  = Subscription Right Effect

$P_{REF\ n}$  = Reference Price of the value after the capital increase (new)

$P_{REF\ a}$  = Reference Price of the value before the capital increase (old)

The new Reference Price, as of the day when the market discounts the price of the theoretical value of the subscription right, will be used for the calculation of the individual stock Index. So, the adjustment will be implemented after the close of the session prior to the start of the capital increase.

### 3.1.3.2 Dividends and other shareholder remunerations

The BCN GLOBAL 100 Index is not adjusted for the payment of dividends or other similar remunerations.

### 3.1.3.3 Splits and reverse splits

The BCN GLOBAL 100 is adjusted for splits and reverse splits:

When the split becomes effective, the Reference Price of the affected security is divided by the established proportion. Or what is the same, the adjustment factor 4 is calculated as:

$$A = \frac{P_a}{S}$$

Where,

$P_a$  = Reference Price of the value in the session prior to the ex-split date

$S$  = Split proportion

When the reverse split becomes effective, the Reference Price of the affected security is multiplied by the established proportion. Or what is the same, the adjustment factor A is calculated as:

$$A = P_a * C$$

Where,

$P_a$  = Reference Price of the value in the session prior to the ex-reverse split date

$C$  = Reverse split proportion

### 3.1.3.4 Merger and absorptions

The Mergers and absorptions of the securities are not adjusted in the BCN GLOBAL 100 Index. The absorbed security or securities repeat price and weighting until the next index rebalance.

### 3.1.4 Base value of the Index

The base value of the Index is 100 at the close of trading on January 1<sup>st</sup> of 1986.

### 3.1.5 BCN GLOBAL 100 (Anual Base)

The BCN GLOBAL 100 Anual Base is the short General Index of the Barcelona Stock Exchange. It is a fixed weightings Index reviewed twice a year, modifying its composition and weightings of its securities after the last trading day of June and December.

The composition and the weightings of the securities are identical to those of the BCN GLOBAL 100 Base 86 Index.

As it is a Year Base Index, after the close of each December 31<sup>st</sup>, that is, with effects from the first trading session of each year, the Index restarts at 100 points.

A General Index and seven Annual Base Sectorial Indices are calculated in accordance with the previous formulas, being 100 the chaining factor for all of them.

### 3.1.6 BCN GLOBAL 100 (1963 Base)

Same index as BCN GLOBAL 100 Base 86 but with a different chaining factor. A General Index is calculated since this series does not have sectorial indices.

The chaining factor is calculated as the closing value of the index for the previous period expressed as a decimal.

The composition and the weightings of the securities are identical to those of the BCN GLOBAL 100 Base 86.

## 3.2 Composition and Calculation of the BCN MID 50 Index

### 3.2.1 Composition of the BCN MID 50 Index

The BCN MID-50 Index represents the middle segment of the Spanish Stock Exchange. Therefore, it is composed of medium and small values.

The criteria for the selection of securities are those that are listed on the Spanish Stock Exchange Interconnection System with the highest volume and trading frequency in the prior semester to the review, excluding those securities that are part of the IBEX 35® Index.

The selection of the BCN MID 50 Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

It is made up of 50 securities, which are reviewed every six months according to these criteria.

### 3.2.2 Formula for the calculation of the BCN MID 50 Index

The BCN MID 50 Index is calculated as the simple average of the percentage changes in the prices of the 50 securities.

$$Index(t) = \frac{\sum_{i=1}^n \frac{p(t)_i}{p(t-1)_i}}{n} * Index_j(t-1)$$

Where,

$t$  = Calculation moment

$t-1$  = Previous closing session

$p(t)_i$  = Price of the value  $i$  at the moment  $t$

$p(t-1)_i$  = Price of the value  $i$  at the closing of the previous session

$n$  = Number of constituents of the Index, normally 50

$Index(t)$  = Index value  $j$  at the moment  $t$

$Index(t-1)$  = Index value  $j$  at the closing of the previous session

### 3.2.3 Adjustments for financial operations affecting the Index' constituents

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to financial operations to ensure that the value of the Index is not altered in any way. The adjustments are calculated on their corresponding date depending on their nature, introduced once the market is closed and at the closing price of each security and effective as of the start of trading the next trading day.

#### 3.2.3.1 Dividends

The BCN MID 50 Index is not adjusted for the ordinary dividends or other similar remunerations.

#### 3.2.3.2 Capital Increases

The indices are adjusted for capital increases with preferential subscription rights, discounting the Theoretical Value of the Subscription from the closing price of the affected security.

#### 3.2.3.3 Splits and reverse splits

The Indices are adjusted by splits or reverse splits, modifying in the corresponding proportion the number of shares and the closing price of the affected security.

### 3.2.4 Base value of the Index

The base value of the Index is 4,000 at the closing of trading on January 1<sup>st</sup>, 1994.

## 3.3 Composition and Calculation of the BCN INDEXCAT Index

### 3.3.1 Composition of the BCN INDEXCAT Index

The BCN INDEXCAT Index is composed of the 15 most liquid stocks of the Stock Exchange Interconnection System of the four Spanish Stock Exchanges, which have their registered office or the main activity in Catalunya, with the higher market capitalisation adjusted by free float.

The selection of the BCN INDEXCAT Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

### 3.3.2 Formula for the calculation of the BCN INDEXCAT Index

It is calculated like an Index free float adjusted capitalisation. Therefore, the securities will be weighting with a certain number of shares in the Index, and their weightings will vary in real time as the prices of their securities.

$$Index_j(t) = \sum_{i=1}^N \frac{[a_i * p(t)_i]}{[a_i * p(t-1)_i]} * Index_j(t-1)$$

Where,

t = Calculation moment

t-1 = Previous closing session

N = Number of constituents of the Index

$a_i$  = Number of shares weighted at the Index for the value i

$p(t)_i$  = Price of the value i at the moment t

$p(t-1)_i$  = Price of the value i at the closing of the previous session

$Index_j(t)$  = Index value j at the moment t

$Index_j(t - 1) =$  Index value j at the closing of the previous session

There is a maximum weighting of 15% allowed for each component in the Index. This weighting limit shall be effective the same day on which the semi-annual reviews are effective.

### **3.3.3 Adjustments for financial operations affecting the Index Consituents**

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to financial operations to ensure that the value of the Index is not altered in any way. The adjustments are calculated on their corresponding date depending on their nature, introduced once the market is closed and at the closing price of each security and effective as of the start of trading the next trading day.

#### **3.3.3.1 Dividends**

The BCN INDEXCAT Index is not adjusted for the ordinary dividends or other similar remunerations.

#### **3.3.3.2 Capital increases**

The indices are adjusted for capital increases with preferential subscription rights, discounting the Theoretical Value of the Subscription from the closing price of the affected security.

#### **3.3.3.3 Splits and reverse splits**

e Indices are adjusted by splits or reverse splits, modifying in the corresponding proportion the number of shares and the closing price of the affected security.

### **3.3.4 Base value of the Index**

The base value of the Index is 10,000 at the closing of trading on January 1<sup>st</sup>, 2001.

### 3.4 Composition and Calculation of the BCN PROFIT 30 Index

#### 3.4.1 Composition of the BCN BCN PROFIT 30 Index

The BCN PROFIT 30 Index is composed of the 30 companies belonging to the IBEX 35® Index with the highest profits.

The selection of the BCN PROFIT 30 Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

Is a profit weighted Index that is reviewed semi-annually and in each review there is a maximum weighting of 10% allowed for each component of the Index.

#### 3.4.2 Formula for the calculation of the BCN BCN PROFIT 30 Index

$$Index_j(t) = \sum_{i=1}^N \frac{[a_i * p(t)_i]}{[a_i * p(t-1)_i]} * Index_j(t-1)$$

Where,

t = Calculation moment

t-1 = Previous closing session

N = Number of constituents of the Index

$a_i$  = Number of shares weighted in the Index for the value i

$p(t)_i$  = Price of the value i at the moment t

$p(t-1)_i$  = Price of the value i at the closing at the previous session

$Index_j(t)$  = Index value j at the moment t

$Index_j(t-1)$  = Index value j at the closing of the previous session

#### 3.4.3 Adjustments for financial operations affecting the Index constituents'

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to financial operations to ensure that the value of the Index is not altered in any way. The adjustments

are calculated on their corresponding date depending on their nature, introduced once the market is closed and at the closing price of each security and effective as of the start of trading the next trading day.

#### **3.4.3.1 Dividends**

The BCN PROFIT 30 Index is not adjusted for the ordinary dividends or other similar remunerations.

#### **3.4.3.2 Capital increases**

The indices are adjusted for capital increases with preferential subscription rights, discounting the Theoretical Value of the Subscription from the closing price of the affected security.

#### **3.4.3.3 Splits and reverse splits**

The Indices are adjusted by splits or reverse splits, modifying in the corresponding proportion the number of shares and the closing price of the affected security.

### **3.4.4 Base value of the Index**

The base value of the Index is 10,000 at the closing of trading on January 1<sup>st</sup>, 2001.

## **3.5 Composition and Calculation of the BCN ROE-30 Index**

### **3.5.1 Composition of the BCN ROE 30 Index**

The BCN ROE 30 is composed of the 30 companies belonging in the IBEX 35® Index that present the highest profit/equity ratio. Therefore, it is a ROE weighted Index that is reviewed every six months. To avoid excessive concentration in each review, a maximum weighting of 7% is allowed for each component of the Index.

The selection of the BCN ROE 30 Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

### 3.5.2 Formula for the calculation of the BCN ROE 30 Index

$$Index_j(t) = \sum_{i=1}^N \frac{[a_i * p(t)_i]}{[a_i * p(t-1)_i]} * Index_j(t-1)$$

Where,

t = Calculation moment

t-1 = Previous closing session

N = Number of constituents of the Index

$a_i$  = Number of shares weighted in the Index for the value i

$p(t)_i$  = Price of the value i at the moment t

$p(t-1)_i$  = Price of the value i at the closing of the previous session

$Index_j(t)$  = Index value j at the moment t

$Index_j(t-1)$  = Index value j at the closing of the previous session

### 3.5.3 Adjustments for financial operations affecting the Index' constituents

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to financial operations to ensure that the value of the Index is not altered in any way. The adjustments are calculated on their corresponding date depending on their nature, introduced once the market is closed and at the closing price of each security and effective as of the start of trading the next trading day.

#### 3.5.3.1 Dividends

The BCN ROE 30 Index is not adjusted for the ordinary dividends or other similar remunerations.

#### 3.5.3.2 Capital increases

The indices are adjusted for capital increases with preferential subscription rights, discounting the Theoretical Value of the Subscription from the closing price of the affected security.

### 3.5.3.3 Splits and reverse splits

The Indices are adjusted by splits or reverse splits, modifying in the corresponding proportion the number of shares and the closing price of the affected security.

### 3.5.4 Base value of the Index

The base value of the Index is 10,000 at the closing of trading on January 1<sup>st</sup>, 2001.

## 3.6 Composition and calculation of the BCN PER 30 Index

### 3.6.1 Composition of the BCN PER 30 Index

The BCN PER 30 Index is composed of the 30 companies belonging to the IBEX 35® Index that have the lowest price / earnings ratio. Therefore, it is a PER weighted Index that is reviewed every six months. To avoid excessive concentration in each review, a maximum weighting of 7% is allowed for each component of the Index.

The selection of the BCN PER 30 Index securities decision corresponds to the Management Committee of the Barcelona Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

### 3.6.2 Formula for the calculation of the BCN PER 30 Index

$$Index_j(t) = \sum_{i=1}^N \frac{[a_i * p(t)_i]}{[a_i * p(t-1)_i]} * Index_j(t-1)$$

Where,

t = Calculation moment

t-1 = Previous closing session

N = Number of constituents of the Index

$a_i$  = Number of shares weighted in the Index for the value i

$p(t)_i$  = Price of the value i at the moment t

$p(t-1)_i$  = Price of the value i at the closing of the previous session

$Index_j(t)$  = Index value j at the moment t

$Index_j(t - 1)$  = Index value j at the closing of the previous session

### **3.6.3 Adjustments for financial operations affecting the Index' constituents**

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to financial operations to ensure that the value of the Index is not altered in any way. The adjustments are calculated on their corresponding date depending on their nature, introduced once the market is closed and at the closing price of each security and effective as of the start of trading the next trading day.

#### **3.6.3.1 Dividends**

The BCN PER 30 Index is not adjusted for the ordinary dividends or other similar remunerations.

#### **3.6.3.2 Capital increases**

The indices are adjusted for capital increases with preferential subscription rights, discounting the Theoretical Value of the Subscription from the closing price of the affected security.

#### **3.6.3.3 Splits and reverse splits**

The Indices are adjusted by splits or reverse splits, modifying in the corresponding proportion the number of shares and the closing price of the affected security.

### **3.6.4 Base value of the Index**

The base value of the Index is 10,000 at the closing of trading on January 1<sup>st</sup>, 2001.

## 4 Bilbao Stock Exchange Index: BOLSA BILBAO 2000

The BOLSA BILBAO 2000 Index is designed to represent in real time the evolution of the prices of the most representative stocks of the Spanish Stock Exchange, constituting a reference behaviour of the market, and for its use as a reference in financial products. For these purposes, it constitutes an active market, when exchanging homogeneous goods, being a liquid market with transparent prices based on real transactions.

### 4.1 Composition and calculation of the BOLSA BILBAO 2000 Index

#### 4.1.1 Composition of the BOLSA BILBAO 2000 Index

The selection of the BOLSA BILBAO 2000 Index securities decision corresponds to the Management Committee of the Bilbao Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

The BOLSA BILBAO Index is composed of the 50 securities listed on the Stock Exchange Interconnection System of the four Spanish Stock Exchanges, which were most liquid during the control period. For the purposes hereof:

**A/** The control period for the securities included in the Index shall be, for ordinary and follow up reviews, the six-month interval prior to the date of the review. With respect to extraordinary reviews, the control period shall be that decided by the Management Committee at that time.

**B/** Equity securities admitted to trading on the Bilbao Stock Exchange may form part of the BOLSA BILBAO 2000 Index.

**C/** The Management Committee of the Bilbao Stock Exchange Index shall take into account as a liquidity factor the trading volume in Euros in the order-driven market (Spanish Stock Exchange Interconnection System market segment on the Joint Stock Exchange System called Main Trading Market) traded by members of the Bilbao Stock Exchange.

The Management Committee of the Bilbao Stock Exchange Index will, in all events, make the Index inclusion or exclusion decisions when deems appropriate with respect to any security, with consideration for special circumstances not set out in the present Technical Regulations, without prejudice to publication, where appropriate, of the relevant reports.

#### 4.1.2 Formula for the calculation of the BOLSA BILBAO 2000 Index

The formula used for the calculation of the Index is:

$$BB2000(t) = BB2000(t - 1) \times \frac{\sum Capi(t)}{[\sum Capi(t - 1) \pm J]}$$

Where,

$BB2000(t)$  = BOLSA BILBAO 2000 Index value at the moment  $t$  expressed in Index points

$t$  = Calculation moment

$i$  = Company included in the Index

$S_i$  = Number of computable shares of the company  $i$

$P_i$  = Price of the shares of the company included in the Index at the moment  $(t)$

$Capi$  = Capitalisation of the company included in the Index, i.e.  $(S_i * P_i)$ .

$\Sigma Capi$  = Aggregate capitalisation of all companies included in the Index

$J$  = Amount used to adjust the value of the Index due to capital increases, etc.

Coefficient  $J$  represents the capitalization adjustment required to assure Index continuity and is introduced in connection with certain financial transactions defined according to the Technical Regulations for the Composition and Calculation of the Index, section 4.1.3, as well as in ordinary, follow up and extraordinary redefinitions of the Index.

The function of the  $J$  component is to assure that the Index value is not altered by such financial transactions. The value of the  $J$  adjustment component shall reflect the capitalization difference of the Index before and after the adjustment.

The number of each company's shares taken for calculation of the Index will be the one objectively considered at the time. This number will vary whenever financial transactions take place involving the securities in the Index. This number will always be made public.

### **4.1.3 Adjustments for financial operations affecting the Index' constituents**

In addition to the ordinary semi-annual reviews of the Index, in which it is decided the inclusions or exclusions of the securities, being the adjustment effective from the session in which the Management Committee announces, the Index will be adjusted due to the following financial operations:

#### **4.1.3.1 Capital increases**

The Index will be adjusted whenever one of the companies included therein carries out a capital increase with preferential subscription rights.

Such adjustments shall be effective from the day on which the shares begin to trade ex-subscription right on the Spanish Stock Exchange Interconnection System. On that date, and for purposes of the Index calculation, the J adjustment shall be in accordance with the following detail:

The number of shares in that company will be increased on the assumption that the increase is going to be totally subscribed.

The market Price of the shares will be reduced by the amount of the Theoretical Value of the Subscription.

The Index is not adjusted as a consequence of capital increases where, as a result of the kind of transaction involved, the General Shareholders' Meeting decides to eliminate preferential subscription rights. Nonetheless, every six months, coinciding with the ordinary and follow up reviews of the Index, those shares issued and listed during the previous six months will be included.

Without prejudice to the foregoing, the issue of new shares of a company as a consequence of capital increases without preferential subscription rights, if the new shares admitted account for more than 10% of the total number of company shares used to calculate the value of the Index, shall be included in the Index at the time they are admitted to the Spanish Stock Exchange Interconnection System, and the (J) adjustment will be made for the amount of the capital increase.

#### **4.1.3.2 Reductions of Capital**

The Index is not adjusted when a company included therein reduces its capital by cancelling shares on the day the shares are excluded from the Spanish Stock Exchange Interconnection System. Nonetheless, every six months, coinciding with the ordinary and follow up reviews of the Index, the number of shares of the company will be reduced and, simultaneously, the (J) adjustment will be introduced for the amount of the reduction.

Without prejudice to the foregoing, the cancellation of shares of a company as a consequence of capital reductions, if the number of shares cancelled account for more than 10% of the total number of company shares used to calculate the value of the Index, shall be adjusted in the Index at the time they are excluded from the Spanish Stock Exchange Interconnection System, and the (J) adjustment will be made for the amount of the capital reduction.

#### **4.1.3.3 Issue of Convertible or Exchangeable Financial Instruments**

The Index is not adjusted as a consequence of the issue of financial instruments, which are convertible or exchangeable on the issue date. Nonetheless, every six months, coinciding

with the ordinary review of the Index, those shares converted or exchanged by the holders of such instruments during the previous six months will be included.

#### **4.1.3.4 Mergers and Absorptions**

The adjustment will be effective on the day the merger or absorption takes place. The following cases may occur:

The absorbing company is included in the Index and the absorbed company is not.

In this case, the Index shall be adjusted as a capital increase.

Where the absorbing company is not included in the Index and the absorbed company is.

As in the ordinary semi-annual reviews, the capitalisation of the absorbed company shall be excluded, and the capitalisation corresponding to the most liquid security of the control period shall be included (the first available candidate), unless terminated the inclusion of the company resulting from the merger in the replacement of the absorbed company.

Where both companies, the absorbing and the absorbed, are included in the Index.

As in the ordinary semi-annual reviews, the capitalisation of the absorbed company shall be excluded, assuming the new capitalisation of the company resulting from the merger and including the next most liquid security of the control period.

#### **4.1.3.5 Splits and reverse splits**

The Index shall be adjusted whenever a company included therein makes a split or a reverse split by reducing the par value of its shares. Such adjustments will be effective on the day the operation is discounted in the Spanish Stock Exchange Interconnection System, though, when applicable, the correspondent adjustment (J).

#### **4.1.3.6 Dividends**

Ordinary dividends shall not be adjusted in the Index.

### **4.1.4 Base value of the BOLSA BILBAO 2000 Index**

The base value of the Index is 20,000 at the closing of trading on January 1<sup>st</sup>, 2000.

## 5 Madrid Stock Exchange Indices: IGBM Family

The IGBM index family is designed to represent in a widely manner and in real-time the evolution of the stocks listed in the Spanish Stock Exchange and for its use as an underlying index for benchmarking in financial products. For these purposes, it constitutes an active market, when exchanging homogeneous goods, being a liquid market with transparent prices based on real transactions.

The IGBM indices are divided into two series: the first corresponds to all the series of price indices and the second, is equal qualitatively and quantitatively, but there are performance indices (i.e. taking into account reinvestments in the same stocks at the very time when dividends are distributed and capital increases take place). Composition and weightings are the same for Price and Performance Indices.

– Price Indices:

a) IGBM

b) Indices for Sectors and Subsectors:

1. Oil and Energy
  - 1.1 Oil
  - 1.2 Electricity and Gas
  - 1.4. Renewable Energy
2. Basic Materials, industry and construction
  - 2.1 Minerals, metals and conversión metallic products
  - 2.2 Manufacture and assembly of capital goods
  - 2.3 Construction
  - 2.5 Chemical industry
  - 2.6 Engineering and others
  - 2.7 Aerospace
3. Consumer goods
  - 3.1 Food and beverages
  - 3.2 Textile, clothing and fragrances
  - 3.3 Paper and graphic arts
  - 3.5 Pharmaceutical products and biotechnology
  - 3.6 Other consumer goods

- 4. Consumer Services
  - 4.1 Leisure, tourism and hotel trade
  - 4.2 Commerce
  - 4.3 Media and advertising
  - 4.4 Transportation and distribution
  - 4.6 Other services
- 5. Financial Services
  - 5.1 Banks and Saving Banks
  - 5.2 Insurance
  - 5.3 Portfolio and holding companies
  - 5.5 Investment services
- 6. Technology and telecommunications
  - 6.1 Telecommunications and others
  - 6.2 Electronic and Software
- 7. Real Estate Services
  - 7.1 Estate Agents and Others
  - 7.2 SOCIMI (REITS)
- Performance Indices:
  - a) Total IGBM
  - b) Total Sectorial and Subsectorial Indices:
    - 8. Total Oil and Energy Index
      - 8.1 Total Oil Index
      - 8.2 Total Electricity and Gas Index
      - 8.4 Total Renewable Energy Index
    - 9. Total Basic Materials, Industry and Construction Index
      - 9.1 Total Minerals, Metals and Conversion of metallic products Index
      - 9.2 Total Manufacture and assembly of capital goods Index
      - 9.3 Total Construction Index
      - 9.5 Total Chemical Industry Index
      - 9.6 Total Engineering and others

- 9.7 Total Aerospace Index
  
- 10. Total Consumer Goods Index
  - 10.1 Total Food and beverages Index
  - 10.2 Total Textile, clothing and fragrances Index
  - 10.3 Total Paper and graphic arts Index
  - 10.5 Total Pharmaceutical products and biotechnology Index
  - 10.6 Total Other consumer goods Index
  
- 11. Total Consumer Services Index
  - 11.1 Total Leisure, tourism and hotel trade Index
  - 11.2 Total Commerce Index
  - 11.3 Total Media and advertising Index
  - 11.4 Total Transportation and distribution Index
  - 11.6 Total Other services Index
  
- 12. Total Financial Services Index
  - 12.1 Total Banks and Saving Banks Index
  - 12.2 Total Insurance Index
  - 12.3 Total Portfolio and Holding Index
  - 12.5 Total Investment Services Index
  
- 13. Total Technology and Telecommunications Index
  - 13.1 Total Telecommunications and others Index
  - 13.2 Total Electronics and Software Index
  
- 14. Total Real Estate Services
  - 14.1 Total Estate Agents and Others
  - 14.2 Total SOCIMI (REITS)

## 5.1 Composition and calculation of the IGBM Index Family

### 5.1.1 Composition of the IGBM Index

The selection of the IGBM Index Family securities decision corresponds to the Management Committee of the Madrid Stock Exchange Indices, and their reviews must be held on an ordinary basis, every six months, coinciding with the calendar semesters and on an

extraordinary basis when so decided, to adapt the aforementioned indicator to the reality of the market.

The General Co-ordinator of the Management Committee is responsible for calling ordinary (every six months) or extraordinary meetings, in the week prior to the last one of the six months in the first case, and the date set in the event of an extraordinary meeting. The Committee's decisions, at both ordinary and extraordinary meetings, are published no later than 48 hours before the date new composition begins and come into effect on the first half of the natural six-month period, in the case of ordinary meetings, and on the date agreed, in the event of extraordinary meetings.

All securities admitted to trading in Bolsa de Madrid may be eligible to be part of IGBM. This index is not made up of a fixed number of securities as its number varies. At each six-monthly meeting all those securities that fulfil all the requirements are admitted and those that no longer do so are excluded.

Selection criteria:

**A.-** At each ordinary (six-monthly) meeting, all securities that meet at least two of the following liquidity criteria, regarding the previous six months, will join the IGBM:

- 1º.- Trading volumen of more than EUR 2 million.
- 2º.- Turnover velocity of more than 10% of capitalisation on an anual basis taken into consideration only the equity capital in free float.
- 3º.- Trading frequency of more than 50%.

**B.-** At the extraordinary meetings, those securities who, in the Committee's view, are likely to meet the requirements can join the IGBM before the next six-monthly definition. The Committee will particularly take into account:

- b.1.- The relative share of the security in the sector and subsector to which it belongs
- b.2.- Volume and dissemination of the placement, where appropriate.

The Management Committee will take decisions on admission or exclusion of companies when it deems convenient and under special circumstances which are not specified on the prior specifications. The Management Committee will then publish the corresponding reports.

## **5.1.2 Formula for the calculation of the IGBM Index**

### **5.1.2.1 Calculation of weightings: Capitalisation Adjustments**

The weighting of each company is calculated on the basis of the market capitalisation on the last day of the preceding six-month period. The following adjustments are taken into account:

**A) Capitalisation adjustment of Spanish securities in the IGBM:**

In order to calculate the weighting of a security in the IGBM, the percentage of free-float will be taken into account, rounding it up to the higher tens (ex. If a company has a free-float value of 29, 23%, it will be adjusted to a weighting of 30% of its capitalisation in the IGBM). The resulting figure will be the adjusted capitalisation of the company.

In order to determine the “free-float” the Management Committee will take into account the Registry for Significant Shareholdings of the Spanish Securities Markets Supervisory Authority (CNMV). This Registry records the direct significant shareholdings that have been communicated to the Supervisor; those that are considered as indirect significant shareholdings and show special circumstances in the share ownership of the company; and relevant facts that involve changes in the free float of the company.

In this way, distortion in the weighting and free float of companies will be avoided.

**B) Weightings of Sectors and Subsectors:**

In order to calculate the weighting of sectors and subsectors in the IGBM, the adjusted capitalisation of IGBM companies is taken into account.

**G) Adjustments for foreign securities:**

Companies that are listed, not just in the Spanish market but in another market, are given special treatment, according to the following cases:

- a. Most of the trading is in the Spanish market. When a security trades more than 50% of its total volume on shares in the Spanish market, the security is regarded as any other domestic securities.
- b. If the trading volumen in the Spanish market is less than 50% of the total, the security is included in the IGBM provided the trading meets the minimum requirements, but its weighting is limited to the percentage that its trading volume in Spain represents over the total world trading volume, whenever the percentage is no less than 1%. If the trading volumes are not expressed in a whole number; the figure will be rounded off to the following whole number and the percentages will be updated every six

months coinciding with the extraordinary meeting of the IGBM Management Committee.

For example, if a foreign security fulfils the minimum requirements and the trading volume in Spain represents the 3.45% of the world trading volume, the company will be admitted in the index and the weighting of the company will be calculated by rounding off the percentage of its trading volume in Spain to the following round number, a 4% in this case.

### 5.1.2.2 Phases of the Calculation of Weightings

1º.- Weighting of the security in the subsector: it is calculated as the corrected capitalisation, divided by the sum of all the corrected capitalisations of the subsector's companies selected to form part of the IGBM.

2º.- Weighting of the subsector in the sector: obtained by dividing the subsector's total capitalisation into that of the sector, on the basis of all the listed companies at that time.

3º.- Weighting of the sector in the IGBM: obtained by dividing the capitalisation of all the listed companies in the sector into the total capitalisation of the Bolsa de Madrid at that date.

The formulas for calculating the weightings are as follows:

$$Weighting_{i-en-SSJ} = \frac{C_i}{\sum C_{SSJ-SELECTED}}$$

$$Weighting_{SSJ-en-SJ} = \frac{C_{SSJ-IGBM}}{\sum C_{SJ-IGBM}}$$

$$Weighting_{i-en-SJ} = \frac{Weighting_{i-en-SSJ} * Weighting_{SSJ-en-SJ}}{100}$$

$$Weighting_{SJ-en-IGBM} = \frac{C_{SJ-IGBM}}{C_{TOTAL-IGBM}}$$

$$Weighting_{i-en-IGBM} = \frac{Weighting_{i-en-SJ} * Weighting_{SJ-en-IGBM}}{100} = \frac{Weighting_{i-en-SSJ} * Weighting_{SSJ-en-SJ} * Weighting_{SJ-en-IGBM}}{10000}$$

Where:

Weighting i-en-SSj : Weighting of security i in subsector j

Ci : Capitalisation of i

CSSJ-selected : Capitalisation of the companies of subsector J, selected for the IGBM

Weighting SSJ-en-Sj : Weighting of subsector J in sector J

CSSJ-IGBM : Total capitalisation of subsector J in the Madrid Stock Exchange

CSJ-IGBM : Total capitalisation of sector J in the Madrid Stock Exchange

Weighting i-en-Sj : Weighting of i in sector J

Weighting i-en-SSj : Weighting of i in subsector J

Weighting SSj-en-Sj : Weighting of subsector J in sector J

Weighting Sj-en-IGBM : Weighting of sector J in the IGBM

CTOTAL-IGBM : Total capitalisation of all Madrid Stock Exchange listed companies

Weighting i-en-IGBM : Weighting of i in the IGBM

In all cases – security, subsector, sector or IGBM – the capitalisation is the adjusted capitalisation.

### 5.1.2.3 Calculation of the IGBM

**1º.-** In order to calculate the IGBM on a daily basis, the daily indices of each IGBM listed security are used. The Index Value, with 100 base, is the quotient between the daily price and the so-called reference price, which is the price at the close of the day prior to the change in the composition of the IGBM (31/12 and 30/06 in the case of the Committee's ordinary meetings).

**2º.-** Then the Indices of the Subsectors are the sum of the Indices of companies weighted by their share in the Subsector.

**3º.-** From these Subsectorial Indices, the Sector Index is obtained as the sum of the Subsectors' Indices weighted by the share of each Subsector In the Sector.

**4º.-** The IGBM is obtained as the sum weighted by the share of each Sector in the IGBM of the Sectorial Indices.

This gives an IGBM figure with a 100 base, which is then linked to the series of the corresponding Index.

In the sequence of calculations, the following formulas are applied:

$$I_i = \frac{P_i}{P_{REF-i}} * 100$$

$$ISS_j = \sum I_i * Weighting_{i-en-j}$$

$$IS_j = \sum ISS_j * Weighting_{SSj-en-Sj}$$

$$IGBM = \sum IS_j * Weighting_{j-en-IGBM} = \sum \frac{P_i}{P_{REF-i}} * Weighting_{i-en-IGBM}$$

Where:

$I_i$  : Index company i

$P_i$  : Price of i

$P_{REF-i}$  : Reference Price of i

$ISS_j$  : Subsector Index J

$Weighting_{i-en-SSj}$  : Weighting of i in Subsector j

$Weighting_{SSj-en-Sj}$  : Weighting of Subsector j in Sector j

$IS_j$  : Index of Sector j

$Weighting_{Sj-en-IGBM}$  : Weighting of Sector j in the IGBM

$Weighting_{i-en-IGBM}$  : Weighting of i in the IGBM

### 5.1.3 Adjustments for financial operations affecting the Index' constituents

With reference to Corporate Actions that may be carried out by companies with securities listed on IGBM, dividends paid by companies will not be taken into account for the daily calculation of the Index. However, capital increases, or mergers an acquisition between two IGBM companies belonging to the same Subsector, or splits will be taken into account for the daily calculation of the Index.

If a corporate action carried out by one or more IGBM companies requires adjustments not described on these Technical Rules, or that the adjustment described therein does not clearly meet the Index' objective, the Management Committee may approve new adjustments.

### 5.1.3.1 Dividends

The Index is not adjusted for dividends.

### 5.1.3.2 Capital increases

The Reference Price of the company, which has carried out a capital increase, is corrected by effect of the subscription right, through the following calculations:

$$ESR = \frac{P_a}{P_d}$$

$$V_{tco} = N * \frac{(P_a - P_n - d)}{(N + V)}$$

$$P_d = P_a - V_{tco}$$

Where;

- ESR : Effect of the Subscription Right
- Pa : Price before the capital increase
- Pd : Price after the capital increase
- Vtco : Theoretical value of the subscription
- Pn : Price of the new share
- d : Difference of dividends between the old and new shares
- N : Number of new shares
- V : Number of old shares

The new Reference Price, as of the day when the market discounts the price of the Theoretical value of the Subscription Right, is the Reference Price of the previous day divided by the effect of the Subscription Right.

$$P_{R-N} = \frac{P_{R-A}}{ESR}$$

- PR-N : New Reference Price
- PR-A : Old Reference Price
- ESR : Effect of the Subscription Right

### 5.1.3.3 Mergers and Absorptions

Both in the case of mergers between two or more companies as well as the absorption by one company of others, at least for technical purposes, one of them is always regarded as the dominant party. In both cases, there is an identical technical adjustment of the Index, and the weighting of the resulting security is the sum of the previous weightings of the two securities.

The new Reference Price of the dominant security is:

$$Weighting_{REF-N} A = \frac{P_A * (Weighting_A + Weighting_B)}{\left(\frac{Weighting_A * P_A}{P_{REF} A}\right) + \left(\frac{Weighting_B * P_B}{P_{REF} B}\right)}$$

Where;

A : Absorbing company

B : Absorbed company

PREF-N A : New Reference Price of A

PREF A : Former Reference Price of A

PREF B : Former Reference Price of B

PA : Price of A

PB : Price of B

WeightingA : Latest weighting of A

WeightingB : Latest weighting of B

Depending on the former sector/subsector of the securities involved, the following cases can arise:

**A.-** All the companies belong to the Index

**A.1.-** The companies belong to the same sector/subsector:

The weighting of the resulting company is the sum of the weightings that the securities involved had before the merger. The weightings of the securities in the subsector change, although the sum remains, and the share of the subsectors in the sector and the sectors in the IGBM remain unchanged.

The adjustment of the Index will take effect the day following the corporate action.

**A.2.-** The companies belong to the same sector, but to a different subsector:

The dominant company determines the subsector of the resulting company. This, logically, changes the weightings of the companies of both subsectors and of the subsectors in the sector, but not that of the sector in the IGBM.

**A.3.-** The companies belong to different sectors:

The dominant company will determine the sector/subsector of the resulting company. This, logically, changes the weightings of the securities of both subsectors and of the subsectors in the sectors, as well as that of the sectors in the IGBM.

**B.-** One company belongs to the Index and not the other:

The resulting company logically forms part of the IGBM and is classified in the sector/subsector of the former company.

In cases A.2, and A.3 and B, the IGBM Management Committee will decide the date for the technical adjustment of the Index.

#### **5.1.3.4 Splits and Reversal Splits**

When the Split becomes effective, the base reference price for calculating the company's index is multiplied by the inverse of the factor or the proportion of the split.

When the reversal split becomes effective, the base reference price for calculating the company's index is multiplied by the factor or the proportion of the split.

#### **5.1.3.5 Suspension or Exclusion from trading**

When a security belonging to the IGBM is suspended or excluded from trading, during the time of the suspension, in the first case, or until the next revision, in the second, it will be used the price at which the last transaction was completed, and following the closing of the market, the closing price will be used for calculating the Index and the corresponding weighting.

#### **5.1.4 Formula for the calculation of the Total Index (ITBM)**

The method for calculating the Total Indices is the same as that for prices, except for corrections made when reinvesting dividend paid in the same company, at the price

discounted by the dividend, and equally for capital increases with the value of the Subscription Right.

#### 5.1.4.1 Calculation of the dividend yield

- Dividend reinvestment:

$$FR_A = 1 + \frac{d_A}{(P_A - d_A)} = \frac{P_A}{P_A - d_A}$$

The new total Reference Price is the result of dividing the old reference price by this reinvestment factor:

$$PR_{NTA} = \frac{PR_A}{\left(\frac{P_A}{P_A - d}\right)}$$

This is the treatment for any financial operation that involves a repayment of cash to shareholders.

#### 5.1.4.2 Calculation of the yield from capital increases

- First carry out the adjustment for discounting the Theoretical value of the Right described in the General Index.
- Then, the reinvestment of the Theoretical Right, in the same way as for dividends:

$$FR_A = 1 + \frac{V_{TCO-A}}{(P_A - V_{TCO-A})} = \frac{P_A}{P_A - V_{TCO-A}}$$

The new total Reference Price is again the result of dividing the old Reference Price by this reinvestment factor:

$$PR_{NTA} = \frac{PR_A}{\left(\frac{P_A}{P_A - V_{TCO-A}}\right)}$$

Once the company indices are calculated, the other phases are the same as those for the General Index.

### 5.1.5 Base value of the IGBM Index Family

The General Indices, both for prices as well as yields, do not change their base, and the calculations are linked to the current series with the 1958 base.

The base value of the Sectorial and Subsectorial Indices first introduced is 1,000 at the closing of the market, December 31<sup>st</sup>, 2004.

The base value of the Sectorial and Subsectorial Indices introduced later on is 1,000 at 31<sup>st</sup> of December of the year before the actual year they were introduced.

## 6 Valencia Stock Exchange Indices: Valencia Stock Exchange General Index

The Bolsa de Valencia General Index (IGBV) is designed to represent in real-time the evolution of the prices of the most representative stocks of the Spanish Stock Exchange, constituting a reference behaviour of the market, and for its use as a reference in financial products. For these purposes, it constitutes an active market, when exchanging homogeneous goods, being a liquid market with transparent prices based on real transactions.

The IGBV Index is a performance Index, taking into account reinvestments in the same stocks at the very time when dividends are distributed, and capital increases take place.

The General Index (IGBV), seven Sectorial Indices and 27 Subsectorial Indices are calculated:

1. Oil and Energy
  - 1.1 Oil
  - 1.2 Electricity and Gas
  - 1.4 Renewable Energy
2. Basic Materials, industry and construction
  - 2.1 Minerals, metals and conversión metallic products
  - 2.2 Manufacture and assembly of capital goods
  - 2.3 Construction
  - 2.4 Chemical industry
  - 2.5 Engineering and others
  - 2.6 Aerospace
3. Consumer Goods
  - 3.1 Food and beverages

- 3.2 Textile, clothing and fragrances
- 3.3 Paper and graphic arts
- 3.5 Pharmaceutical products and biotechnology
- 3.6 Other consumer goods
- 4. Consumer Services
  - 4.1 Leisure, tourism and hotel trade
  - 4.2 Commerce
  - 4.3 Media and advertising
  - 4.4 Transportation and distribution
  - 4.6 Other services
- 5. Financial Services
  - 5.1 Banks and Saving Banks
  - 5.2 Insurance
  - 5.3 Portfolio and holding companies
  - 5.6 Investment services
- 6. Technology and telecommunications
  - 6.1 Telecommunications and others
  - 6.2 Electronics and Software
- 7. Real Estate Services
  - 7.1 Estate Agents and Others
  - 7.2 SOCIMI (REITS)

### **6.1.1 Composition of the Valencia Stock Exchange General Index (IGBV)**

The IGBV is the General long Index of the Valencia Stock Exchange, composed of the highest volume and trading frequency securities in the semester.

The IGBV is a fixed weightings index, that is reviewed twice a year, modifying its composition and the securities' weightings after the last trading session of June and December of each year.

All securities admitted to trading in the Valencia Stock Exchange and traded by Valencia Stock Exchange members may be eligible to be part of the IGBV.

The selection of the IGBV Index securities decision corresponds to the Management Committee of the Valencia, Stock Exchange Indices, and their reviews must be held on an ordinary basis, semi-annually, and on an extraordinary basis when so decided, to represent the market reality.

In each ordinary review, the selection of the securities is made based on the effective volume on the Valencia Stock Exchange, as well as the trading frequency, that is, it is calculated as the product of the turnover traded in Valencia by the frequency (the number of days they have traded over the total), in descending order.

In the extraordinary reviews, the Management Committee of the Valencia Stock Exchange Indices may decide to include or remove a constituent from the Index, when special circumstances so recommend.

The decisions of the ordinary meetings will take effect of the first trading session of each year, and the decisions of the extraordinary meetings, on the date agreed for that purpose.

The IGBV is a fixed weightings index. This means that at each semi-annual rebalance, the weightings of each security are set in the general and sector index, respectively. These weightings will remain constant throughout the semester until the next rebalance or end of period.

The weightings are set based on the same criteria used for the selection of securities, that is, the product of the turnover by the trading frequency.

The weighting is the ratio of the frequency corrected volume of a security to the sum of the corrected volumes of all the constituents of a General or Sector Index.

Given that the weightings are set based on trading data and not on capitalisation, the correction for free float factor or the securities admitted for listing, does not apply to these IGBV Indices.

### **6.1.2 Formula for the calculation of the Valencia Stock Exchange General Index (IGBV)**

#### **a) Index value calculation**

In order to calculate the IGBV on a daily basis, the daily indices of each IGBV listed securities are used.

The Index Value, with 100 base, is the quotient between the last traded price and the so-called Reference Price for each constituent.

The Reference Price of a security is the closing price of the last trading day of the previous period, that is, the one with which the weightings were set in the rebalance of the Index (in ordinary reviews, the last trading day of June and December). It is modified as a result of adjustments for financial operations, so it remains constant between adjustments.

$$I_{i \text{ in } t} = \frac{P_{i \text{ in } t}}{P_{REF-i}}$$

Where,

$I_{i \text{ in } t}$  = Index value of the value i at the moment t

$P_{i \text{ in } t}$  = Price of the value i at the moment t

$P_{\text{REF-i}}$  = Reference Price of the value i

#### b) Chaining factors

Since the calculation of the Index occurs in a 100 base, a chaining factor is necessary to calculate the indices continuing the historical series.

For that purpose, the chaining factors of the general Indices and the closing values of the previous period are calculated and expressed as a decimal.

#### c) Subsectorial Indices calculation

The Subsectorial Indices are calculated as the sum of the Value Indices weighted by its weighting in the subsector by the chaining factor:

$$IS_{k \text{ in } t} = \sum (I_{i \text{ in } t} \times \text{Weighting}_{i \text{ in } sk}) * f_{ISk}$$

Where,

$IS_{k \text{ in } t}$  = Subsectorial Index of the subsector k at the moment t

$\text{Weighting}_{i \text{ in } sk}$  = Weighting of the value i in the subsector k

$I_{i \text{ in } t}$  = Index value of the value i at the moment t

$f_{ISk}$  = Chaining factor of the Subsectorial Index k

#### d) Sectorial Indices

The Sectorial Indices are calculated as the sum of the Value Indices weighted by its weighting in the sector by the chaining factor:

$$IS_{k \text{ in } t} = \sum (I_{i \text{ in } t} \times \text{Weighting}_{i \text{ in } sk}) * f_{ISk}$$

Where,

$IS_{k \text{ in } t}$  = Sectorial Index of the sector k at the moment t

$Weighting_{i \text{ in } sk}$  = Weighting of the value i in the subsector k

$I_{i \text{ in } t}$  = Index value of the value I at the moment t

$f_{ISk}$  = Chaining factor of the Sectorial Index k

#### e) General Indices Calculation

So, the IGBV Index will be calculated as:

$$IGBV_{in t} = \sum (I_{i \text{ in } t} \times Weighting_{i \text{ in } IGBV}) * f_{IGBV}$$

Or what is the same:

$$IGBV_{in t} = \sum \left( \frac{P_{i \text{ in } t}}{P_{REF-i}} \times Weighting_{i \text{ in } IGBV} \right) * f_{IGBV}$$

Where,

$IGBV_{in t}$  = IGBV Index at the moment t

$I_{i \text{ in } t}$  = Index Value of the value i at the moment t

$Weighting_{i \text{ in } IGBV}$  = Weighting of the value i in the IGBV Index

$P_{i \text{ in } t}$  = Price of the value i at the moment t

$P_{REF-i}$  = Reference Price of the value i

$f_{IGBV}$  = Chaining factor of the IGBV

### 6.1.3 Adjustments for financial operations affecting the Index' constituents

The IGBV Index will be adjusted due to certain financial operations in which the price of the constituents is affected.

These adjustments are made to reflect the effect on the price of the securities of the IGBV Index by adjusting the Reference Price.

There is a Reference Price for each security that will be modified to reflect the following adjustments:

#### 6.1.3.1 Capital increases

The IGBV Index adjusts the capital increases that carries a discount in the price of the security.

In the capital increases with preemptive subscription right, is considered the effect that the discount of the theoretical value of the right has on the price of the security, and it is called the Subscription Right Effect (SRE), which is calculated:

$$SRE = \frac{P_a}{P_d}$$

$$P_d = P_a - TVS$$

$$TVS = \frac{N \times (P_a - P_n - d)}{(N + V)}$$

Where,

$SRE$  = Subscription Right Effect

$TVS$  = Theoretical Value of the Subscription

$P_a$  = Price before the capital increase

$P_d$  = Price after the capital increase

$P_n$  = Price of the new share

$d$  = Difference of dividends between the old and new shares

$N$  = Number of new shares

$V$  = Number of old shares

Once the SRE is obtained, there is a New Reference Price of the value through the following ratio:

$$P_{REF\ n} = \frac{P_{REF\ a}}{SRE}$$

Where,

$SRE$  = Subscription Right Effect

$P_{REF\ n}$  = Reference Price of the value after the capital increase (new)

$P_{REF\ a}$  = Reference Price of the value before the capital increase (old)

The new Reference Price, as of the day when the market discounts the price of the theoretical value of the subscription right, will be used for the calculation of the individual stock Index. So, the adjustment will be implemented after the close of the session prior to the start of the capital increase.

### 6.1.3.2 Dividends and other shareholder remunerations

The IGBV Index is adjusted for liquid dividends, or what is the same, the net amount of the dividend is reinvested in the Index, and the adjustment factor is calculated as follows:

The net dividend discount is calculated:

$$P_d = P_a * \% \text{ Withholding}$$

$P_a$  = Closing Price of the value in the previous session to the ex-dividend date

$P_d$  = Price after the dividend

% Withholding = Withholding percentage established by the Treasury for the collection of securities income

The adjustment factor is calculated: The new Reference Price will be the result dividing the old Reference Price by the reinvestment factor:

$$A = \frac{P_a}{P_a - D_{neto}}$$

Any financial operation that involves a return of cash to the shareholder will be treated in this way.

### 6.1.3.3 Splits and reverse splits

The IGBV is adjusted for splits and reverse splits:

When the split becomes effective, the Reference Price of the affected security is divided by the established proportion. Or what is the same, the adjustment factor 4 is calculated as:

$$A = \frac{P_a}{S}$$

$P_a$  = Reference Price of the value in the sesión prior to the ex-split date

$S$  = Split proportion

When the reverse split becomes effective, the Reference Price of the affected security is multiplied by the established proportion. Or what is the same, the adjustment factor A is calculated as:

$$A = P_a * C$$

Where,

$P_a$  = Reference Price of the value in the session prior to the ex-reverse split date

$C$  = Reverse Split proportion

#### **6.1.3.4 Mergers and Absorptions**

The Mergers and absorptions of the securities are not adjusted in the BCN GLOBAL 100 Index.

The absorbed security or securities repeat price and weighting until the next index rebalance.

#### **6.1.4 Base value of the Index**

The General Index (IGBV) do not change its actual base, and the calculations are linked to the current series with 100 base at the closing session of the 31<sup>st</sup> of December of 1985.

The base value of the Sectorial and Subsectorial Indices first introduced is 1,000 at the closing of the market, December 31<sup>st</sup>, 2004.

The base value of the Sectorial and Subsectorial Indices introduced later on is 100 at 31<sup>st</sup> of December of the year before the calculation and publication effective start date.

#### **6.1.5 IGBV Anual Base**

The IGBV Base Year Index is the General short Index of the Valencia Stock Exchange. It is a fixed weighting Index that is reviewed twice a year, modifying its composition and the securities' weightings after the last trading session of June and December of each year.

The composition and the weightings of the securities are identical to those of the IGBV Index.

As it is a Year Base Index, after the close of each December 31<sup>st</sup>, that is, with effects from the first trading session of each year, the Index restarts at 100 points.

A General Index, seven Annual Base Sectorial Indices and 28 Subsectorial Indices are calculated in accordance with the previous formulas, being 100 the chaining factor for all of them.

## 7 Price of the Indices constituents'

As a general reference, the price will be that at which the last transaction was completed on the Spanish Stock Exchange Interconnection System. Nonetheless:

- The closing price of the securities will be the price established in the Regulations for Trading on the Spanish Stock Exchange Interconnection System.
- Where a security is suspended from trading for whatever reason (takeover bid, etc.), the valid price to be taken for the calculation of the Index shall be the price at which the last transaction was made prior to the suspension of the security in question. Following the closing of the market, the closing price will be calculated in accordance with the above paragraph.
- In market stress situations that affect all or part of the constituent securities, the Index will be calculated as established in the preceding paragraphs.

In addition, the Manager may, in exceptional circumstances, propose to the Technical Advisory Committee a solution different from those indicated above, if it is considered appropriate, bearing in mind the characteristics of each case.

## 8 Classification by sectors of the Indices' constituents

The unified sectorial and subsectorial classification for the four Spanish Stock Exchanges, which was implemented on January 1<sup>st</sup> of 2005, is the one that governs the securities included in the Stock Exchanges Indices

The definition of the economic activities included in each sector or subsector can be consulted in the document "Stock Exchange Sector Classification definitions by sector and subsector" published by the Madrid Stock Exchange, Barcelona Stock Exchange, Bilbao Stock Exchange, Valencia Stock Exchange and Sociedad de Bolsas.

## 9 Calculation of reference prices for associated products with the Indices

The financial products associated with the Index shall, in the judgement of the Manager and pursuant to the relevant agreement, be linked to the Index y any of the following methods:

- closing prices, or the arithmetic mean of several closing prices

- opening prices, or the arithmetic mean of several opening prices
- the simple arithmetic mean of all Indices generated during the sesión, or the arithmetic mean of several of them
- averages of specific Index references
- any other reference considered appropriate by the Manager according to the characteristics and outstanding volumes of the products.

## 10 Complaints regarding the calculation of the Indices

Any complaints regarding the calculation of the Indices should be addressed in writing, including electronic media established for this purpose, to the Technical Advisory Committee. The complaints will be resolved in a reasonable and fair time, according to the complaint's procedure available to these effects.

## 11 Information about the Indices

Sociedad de Bolsas, S.A., as Benchmark Administrator, shall publish information on the Indexes through the channels it establishes for such purpose. The information regarding the Indices shall include the publication of announcements on the same as well as the real-time data information included by Sociedad de Bolsas, S.A. in its vendor-feed data flow available to professional information distributors.

The Indices announcements shall include the principal data on the Indices at closing and all relevant official announcements pertaining to ordinary and extraordinary reviews.

Irrespective of the channels established by the Sociedad de Bolsas, S.A., the Indexes announcements shall be made public through the four Spanish Stock Exchanges through the Official Listing Bulletins.

Sociedad de Bolsas, S.A. shall issue the appropriate certificates on relevant prices of the Indexes at the request of parties to contracts that use such prices. For more information about the index, you can visit [www.bolsasymercados.es/bme-exchange/en/Indices](http://www.bolsasymercados.es/bme-exchange/en/Indices) or please contact the Indexes Manager at [ibex@grupobme.es](mailto:ibex@grupobme.es).

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