

# ***BELEXline Methodology***

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## 1. GENERAL INFORMATION

BELEXline is positioned as benchmark index of Belgrade Stock Exchange (BELEX) with a purpose to closely describe movements of the broad market.

After initial definition and methodology of calculating index BELEXline, this Methodology, which is published in March 2008, represents upgrade of the index methodology in the sense of adjusting characteristics of this index to characteristics of investable indexes on developed financial markets

### 1.1 Disclaimer

In view of information availability concerning issuers quoted on unregulated market of the Belgrade Stock Exchange, which can be included in the index basket, Belgrade Stock Exchange cannot guarantee that all data used during calculation of index, the calculation, as well as following coefficients and elements of index, will be completely protected from eventual errors, since errors can appear as consequence of inaccuracy of the issuer, incorrect information delivered to the exchange and to other institutions, as well as result of inadequate application of this methodology. In that sense, Belgrade Stock Exchange will calculate index and following coefficients with proper care, without accepting any responsibility for eventual direct and indirect losses, appearing as consequence of mistake in calculation of index and following coefficients. Content of any index of Belgrade Stock Exchange, cannot be considered as recommendation for investing in any component of index, and for that reason Belgrade Stock Exchange does not accept responsibility for the consequences of investment decisions, based on use of indexes and following coefficients.

Methodology of calculating index **BELEXline** is published bilingually, in Serbian and English language and Belgrade Stock Exchange guarantees only for Serbian language version of Methodology.

## 2. INDEX NAME

Official index name: **General share index of Belgrade Stock Exchange –BELEXline**

## 3. INDEX DEFINITION

**BELEXline** is free-float market capitalization weighted index, which is not adjusted for paid dividends, and is not protected from dilution effect, which appears as result of dividends payout. **BELEXline** is weighted only by free-float market capitalization. **BELEXline** consists of shares traded on the BELEX markets, which have satisfied criteria for inclusion in the index basket. Influence of the components in index is limited to

maximum 10% of index capitalization.

#### 4. INDEX PURPOSE

Purpose of the index is to measure price changes (*price index*) of shares which are traded on the Belgrade Stock Exchange, which have previously fulfilled criteria for index basket. **BELEXline** index is designed as basic benchmark for following of movements of prices on Serbian capital market. On the other hand, BELEXline is designed in a way which precisely describes broad market movements, and can serve as underlying for creation of structured products and derivatives on local and foreign market. The index is expected to be analytical tool for portfolio managers, professional analysts, professional public, investors, as well as for all other entities who are researching dynamics of price movements on this market.

#### 5. PRINCIPLES OF CALCULATION

Calculation and publishing of index **BELEXline** is carried out on every working day of the Exchange, after closing of trading scheduled for that day. In the case when trading of individual security included in the index basket is suspended on certain day or in the certain period, index is calculated on the basis of the last price of given security, from the last trading day which preceded suspension of its trading. Share price which is used for calculation of index **BELEXline** is auction price, or closing price from trading of shares which are included in the index basket.

#### 6. TYPES AND CLASSES OF SHARES WHICH ARE ELIGIBLE FOR INDEX BASKET

During calculation of index value in any moment, the relevant quantity of shares of certain issuer, which is used in calculation, includes total number of ordinary shares multiplied by free float factor (FFc), on the day of the last revision of index basket.

##### 6.1. Free float factor (FFc)

Free float factor (FFc) represents percentage of shares, which are in the free float, and which are publicly available to potential investors. Free float factor is calculated as the difference between total number of shares, and shares that are not in the free float. Non free-float shares are shares that are owned by:

- Persons (companies) which individually own more than 5 % of total number of outstanding shares, excluding shares in possession of mutual and pension funds, the custodian nominees, asset management companies, insurance companies, broker-dealer companies and other investment companies with short-term investment strategies;

- International organizations and institutions for development, if they own more than 5 % of the total number of outstanding shares;
- Republic of Serbia, including shares owned by State Funds and agencies if they own more than 5 % of the total number of outstanding shares.

Calculation of free float factor (FFc) and following coefficients:

$FFc (\%) = 100\% - \text{Non free float}\%$

Number of shares in free float =  $FFc * \text{total number of shares}$

Free float market capitalization =  $FFc * \text{Total market capitalization}$

Free float factor is calculated based on publicly available information from the web site of the Central Securities Depository, as well as data, which are published in the prospectus of the issuer, on date of revision of the index basket. Free float factor is calculated quarterly, and it is applied from the moment of updating of the index basket, and it is valid until the next update.

## **7. WEIGHT INFLUENCE LIMITATION**

### **7.1. Company Weight Influence Limitation**

In order to prevent dominant weight of certain shares in the index basket, the number of shares of certain issuer in the index basket is limited. Limitation of the number of shares of the certain issuer is carried out only on the day of (regular or extraordinary) revision of the index basket.

Limiting of the weight of certain issuer is carried out through the weight factor ( $A_i$ ), in the following way:

- if participation of free float market capitalization of individual share is smaller or equal 10% of the total free float market capitalization, the weight factor is equal to 1;
- if participation free float market capitalization of individual share is larger than 10% of the total free float market capitalization, then the weight is adjusted until participation of each component of the index basket became smaller or equal 10%;
- such weight factor multiplies number of shares in free float, and such result represents number of shares which will be included in the index basket;
- after procedure of limiting of the weights for issuers with initial weight larger than 10%, the weights of other issuers increase, and if their weight is larger

than 10%, their weight is limited in described way, until the moment when weights of all issuers become lower or equal to 10%;

- number of shares in the index basket is unchanged until the next index revision.

## 7.2. Sector Weight Influence Limitation

In order to prevent dominant weight of certain industrial sectors the index basket, the number of shares from the same industrial sector in the index basket is limited.

In that sense, an industrial sector is limited to 40% of total number of issuers in the index basket.

The Index Committee takes decision concerning limitation during revision of the index basket. In that case, process of selection of the security is not based only on quantitative indicators. Instead, a decision has to be made concerning content of the index basket. Limitation of the number of securities from the same industrial sector is carried out only on the day of (regular or extraordinary) revision of the index basket.

## 8. BASE PERIOD

Base date: 30.09.2004.

Base value of index: **1.000,00** points

Base value of the total market capitalization of index: 121.509.581.652,00 RSD (*market capitalization on the base date, after closing of the market*)

At the basis day, the value of index is defined at 1.000,00 index points, the influence of individual components is limited, and at the same time number of shares of each issuer in the index basket is defined, the total market capitalization is calculated, and divisor which represents result of total market capitalization of shares of the issuer included in the index basket divided by the index value which is previously defined (1.000,00 points). The divisor is calculated in this way, only at the basis day.

## 9. INDEX FORMULA

Index **BELEXline** is calculated by Laspeyer's formula:

$$BELEXline(t) = \frac{\sum_{i=1}^n C(i,t) * K(i,t) * FFc * Ai}{d(t)}$$

In the process of updating the index basket, divisor is calculated in the following way:

$$d(t) = \frac{\sum_{i=1}^n Cp(i,t) * Kp(i,t) * FFc(t) * Ai(t)}{\sum_{i=1}^n C(i,t-1) * K(i,t-1) * FFc(t-1) * Ai(t-1)} * d(t-1) = \frac{New\_index\_basket}{Old\_index\_basket} * d(t-1)$$

In which:

- BELEXline (t)** – value of index, in the moment **t**, rounded on two decimals;
- n** – Number of issuers whose shares are in the index basket - selected securities remains unchanged from the moment of updating;
- i** – Calculator takes values from **1** to **n** representing certain issuer with shares in the index basket;
- C (i,t)** – price of shares of the issuer **i**, in the moment **t**;
- K (i,t)** – quantity of shares of the issuer **i**, in the moment **t**;
- d (t)** – value of divisor in the moment **t** ;
- FFc (i,t)** - free float factor of issuer **i**, in the moment **t** ;
- A (i)** – adjusting factor of the issuer **i** (weight);

In order to avoid deviation of the index value from the real values, divisor is adjusted because of change of the index basket, as well as result of changes inside the components of the index basket. Adjustment of divisor is carried out in a way, so the value of index remains the same if the share prices from the index basket stay unchanged.

## 10. INDEX BASKET COMPOSITION

Procedure of the index composition is based on quantitative measures determined in this Methodology, although it is not solely guided by these measures. The process of final composition of the index basket is responsibility of the Index Committee, which decides about final number of securities included in the index basket, questions of revision, share inclusion and exclusion from the index basket. Index Committee is responsible to carry out selection of securities for the index basket, based on this

Methodology, and in the best interest of the Exchange as a producer of the index.

### **10.1. Index Basket - Definition and Criteria**

Index basket consists of **common** shares traded on the BELEX markets that have fulfilled criteria for the index basket.

1. regular price discovery - purpose of the index is to present price movement of shares with minimum 10% successful trading days (trading days with transactions) in previous quarter
2. free float market capitalization of the company

Number of issuers with shares included in construction of the index is fixed during period between the revisions of the index basket. Index basket can have at least 70 components, and upper limit for the number of components is not determined, for the purpose of better representation of the total market movements. Number of securities will depend of the decision of the Index Committee and market conditions, with tendency of creating representative sample with no more than 150 index components.

### **10.2. Number of Issuers with Shares in the Index Basket**

Number of issuers with shares included in construction of the index is fixed during period between the revisions of the index basket. Index basket can have at least 70 components, and upper limit for the number of components is not determined, for the purpose of better representation of the total market movements. Number of securities will depend of the decision of the Index Committee and market conditions, with tendency of creating representative sample with no more than 150 index components.

### **10.3. Index Basket Exclusion Criteria**

Shares of issuers are excluded from the index basket only on revision date, in the situations when:

- issuer stops to fulfill conditions anticipated by this Methodology,
- issuer submits request for exclusion from the regulated, or unregulated market,
- Procedure of bankruptcy or liquidation of issuer was started.

The Index Committee makes the final decision on exclusion of the share in question from the index basket.



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## 11. INDEX BASKET REVISION

Index revision is carried out semiannually. Revision dates are 15<sup>th</sup> of March and 15<sup>th</sup> of September. Implementation of revision is carried out after the end of trading day, on the following dates:

<i>Quarter</i>	<i>Index revision implementation dates</i>
I	31 <sup>st</sup> March
III	30 <sup>th</sup> September

If the date of the revision or the date of the implementation of revision is a non working day, activities based on this Methodology, which are carried out on the cited date, are carried out on the previous working day.

Index components can be changed only on revision or review dates.

Data on index components are updated on quarterly basis on review dates. Review dates are 15<sup>th</sup> of June and 15<sup>th</sup> of December,. Implementation of review is carried out after the end of trading day on 30<sup>th</sup> June and 31<sup>st</sup> December. Review dates include adjustment for the changes in the free float factor (FFc), changes in number of outstanding shares when the change is less than 5%, as well as adjustment of the adjusting factor (Ai) and divisor.

### 11.1. Procedures of Index Revision

Index revision begins after the end of trading scheduled for that day, after calculation of the index value.

During each index revision, following steps are taken:

1. analysis of all securities which in the previous quarter had 10% successful trading days;
2. all increases and decreases of number of shares are identified, number of shares of issuers included in the index basket is corrected;
3. New rank list is created based on the free-float market capitalization;
4. Index Committee makes final decision concerning composition of the index basket;
5. New number of shares of the issuer included in the index basket is determined;
6. after decision concerning change of the index basket is made, BELEX publicly announces:

- a) content of index basket,
  - b) list of shares of issuers which will be included in the index basket,
  - c) list of shares of issuers which will be excluded from the index basket,
  - d) explanation of reasons for inclusion and exclusion of the shares in and out of the index basket, and effective date.
7. On the day preceding the date of implementation of index revision, and after the end of trading day, the divisor is adjusted in the adequate way, as result of decrease or increase of the market capitalization of the new index basket.

Adjustment of divisor should preserve value of index in continuity, as result of corporate activities of the issuer of shares, which are in the index basket. By this way, changes in market capitalization that appeared because of corporate activities are neutralized, without producing effects on the index value.

## **11.2. Extraordinary Index Revisions**

In the case of extraordinary index revision, the procedure is identical to regular revisions of the index basket. In order to provide consistent values of indexes, extraordinary revisions will take place only in the cases of significant changes of the characteristics of the components of index. Procedure of extraordinary revision is carried out after the end of trading day. Changes are applied and become valid from the next trading day.

### **11.2.1 Data accuracy**

If in the period between two regular revisions, significant changes in the number of shares of issuers, or in the *free float* factor, take place, Index Committee has right to initiate procedure of the extraordinary revision. Significant change of number of shares is considered cumulative change between two regular revisions larger than 5%, or change of the value of free float factor FFC of more than 10%. Change of the number of shares can be result of subscription and payment of new issue, conversion of convertible securities in ordinary shares, etc.

In the case that information concerning change of number of shares and date of validity of decision concerning change in the number of shares were not delivered to the BELEX in advance, procedure of revision will be carried out only at the day when BELEX gets the official information from the issuer, or during the first regular revision, if such information is not delivered to the BELEX.

## **12. THE BELGRADE STOCK EXCHANGE INDEX COMMITTEE**

Members of the Index Committee of the Belgrade Stock Exchange are selected by the decision of the Director of the exchange, with unlimited mandate. Members of the Index Committee can be elected among the employees of the Exchange, representatives of Universities, representatives of institutions that use licenses on the Exchange indices, and other experts who can improve decision-making processes concerning index politics of the Belgrade Stock Exchange.

The Index Committee can organize meetings, and invite third persons and can use their advising services. The direct competence and responsibility is exclusively on members of the Index Committee.

### **12.1. Index Committee Authorization**

Index Committee is authorized for application of this Methodology and composition of index.

Index Committee organizes meetings on dates preceding regular revisions of the index basket. In the periods between the revisions, the Index Committee can delegate authorizations for managing the indexes, in situations that require urgent reactions on changes originated from the market.

### 13. INDEX PUBLISHING

Value of **BELEXline** is calculated and published in the real time.

Value of **BELEXline** at the end of the day is released in the in the following form:

- value **BELEXline** (in the time **t** ) in format *n.nnn,nn*;
- percent change compared with index value from the previous day in the format (+/-) *n,nn* %;
- absolute change of the index value.

Belgrade Stock Exchange will calculate and publish the following parameters:

- total traded value of all index components,
- historical maximum index value,
- historical minimum index value,
- percent change from the beginning of the month,
- percent change from the beginning of the year,
- maximum index value in the last year,
- minimum index value in the last year,
- graphic presentation of the index value and turnover value,
- foreign investors participation in trading with the index components.

**BELEXline** is published on the web site of the Belgrade Stock Exchange, on BELEX.info service, on the internet tickers of Belgrade Stock Exchange as well as on all reports published by BSE.