

**MACEDONIAN STOCK EXCHANGE INC.  
SKOPJE**

**M E T H O D O L O G Y**

**FOR CALCULATION OF THE BOND INDEX  
OF THE MACEDONIAN STOCK  
EXCHANGE  
(OMB)**

**Skopje, December 2010**

# BOND INDEX OF THE MACEDONIAN STOCK EXCHANGE (OMB)

## 1. Name of the index

Full name: Bond Index of the Macedonian Stock Exchange

Short name: OMB

## 2. Composition of the index:

The OMB index is consisted of listed bonds on the Macedonian Stock Exchange Inc. Skopje selected according to this Methodology.

## 3. Type of the index:

Price index weighted with the turnover, with limit that on the day of revision the stake of each bond-part of the index is not over 30%.

## 4. Formula for calculation of the index:

$$OMB_t = \frac{\sum_{i=1}^n p_{i,t} * w_{0,i}}{\sum_{i=1}^n p_{i,0} * w_{0,i}} * 100 * C_T$$

where:

$i = 1 \dots n$ ;

$n$  = number of bonds that comprise the index;

$t$  = trading day;

$R$  = index revision day;

$w$  = participation of the turnover with bond  $i$  in the last quartile regarding the total turnover in bonds;

$T$  = day before the calculation of the index with a new composition;

$p_{i,t}$  = daily average price of the bonds in the index, on the day  $t$ ;

$p_{i,0} = p_{i,j}$  = official average price on the day  $j$ ;

$p_{i,0}$  = base price;

$j$  = day of the regular or exceptional revision.

For the continuation of the index, every time before its calculation with a new composition, a correction factor is calculated according the following formula:

$$C_T = C_{T-1} * \frac{\text{Value of the index with the old composition on the day before the calculation of the index with the new composition}}{\text{Value of the index with the new composition on the day before the calculation of the index with the new composition}}$$

$C_0 = 1$ .

The correction factor provides a chronological compatibility of the index besides the change in its composition. Thus, it is provided that the index reflects the price changes that occurred in the period from the revision day until the day of the calculation of the index with a new composition.

## 5. Criteria for including of bonds as components of the index

The Bond index of the Macedonian Stock Exchange, OMB, includes listed bonds on the Macedonian Stock Exchange that have been listed at least 30 days before inclusion in the index and have at least one year till maturity. The selection of the bonds which are included in the composition of OMB is made by the Stock Exchange Index Commission, according to the following factors:

- Interest rate;
- Maturity and
- Other factors.

## 6. Determination of the stake of each bond in the index

The stake of each bond in the index is calculated by dividing the amount of the turnover of that bond in a period between two revisions of the index, with the total turnover in bonds in that period. The maximum allowed stake of each bond is 30%. If the stake of some bond exceeds 30%, the value of the stake of that particular bond is adjusted to 30%, and the stakes of the other bonds included in the index are adjusted using the following formula:

$$D_{i,R} = T_{i,R} * \frac{((1 - (k_j + m)) * 0,3)}{T_R}$$

where:

$D_{i,R}$  = adjusted stake of the bond  $i$  in the index (after the limitation of 30%)

$i = 1, \dots, n - m - k_j$ ;

$n$  = number of bonds which comprise the index;

$T_{iR}$  = primary stake of the bond  $i$  in the index with out 30% limitation (or the stake at the previous step, in a case of the second or further step);

$k_j$  = number of bonds whose stakes in the index during the previous adjustments were lowered to 30%;

$k_0 = 0$ ;

$k_{j+1} = k_j + m$ ;

$j$  = number of steps =  $0, \dots, J$ , where  $J$  is the definite number of steps;

$m$  = number of bonds whose stake in the first (or previous, in a case of the second or further step) calculation of composition of the index exceed 30%;

$T_R$  = sum of the primary stakes (or stakes in the previous calculation of index's composition, in a case of the second or further step) of the bonds within the index, whose stakes in the calculation of the index composition without 30% limitation do not exceed the 30% limit.

The procedure is repeated until the stakes of all bonds are not greater than 30%.

## **7. Revisions of the index**

The Stock Exchange Index Commission is authorized for execution of the revision of the index.

Dates of regular revision of the index are: 15.06 and 15.12.

If the revision date is not a trading day, the revision of the index will be made on the first following trading day.

Dates of implementation of changes in the indices are: 30.06 and 30.12. If the implementation date is not a trading day, then the implementation is done on the next trading day.

In a case of extraordinary circumstances, the Stock Exchange Index Commission can perform an extraordinary revision of the index. If an extraordinary revision is made, changes are applied and become valid from the next trading day.