

# STOCK EXCHANGE INDICES IN BULGARIA

Elitsa PETROVA<sup>1</sup>

**Abstract:** *The article presents a brief development of the Bulgarian capital market and examines several indices of market value in the Republic of Bulgaria, calculated by the Bulgarian Stock Exchange-Sofia. Currently BSE evaluates four own index - SOFIX, BGBX40, BG TR30 and BG REIT. The main stock index is SOFIX, where the calculation began on 20 October 2000 with base value of 100 points. It is based on the market capitalization of the included 15 issues of ordinary shares.*

**Keywords:** stock index, stock market, indices of market value

**JEL Classification:** G14, G24, E44

## 1. Introduction

*Stock index* (indicator of stock market or stock market index) is a method for measuring the value of a sector of the stock market. It is often calculated from the prices of selected stocks as an average value. It is a tool that is used by investors and financial managers to describe the market and compare ROI.

Stock market indices can be classified in different ways. Examples of international or global indices are MSCI World [1] and S&P Global 100 [2]. The national index represents the stock market of a national economy and reflects investors' assessments for its condition. The most famous national

---

<sup>1</sup> National Military University, Bulgaria, Veliko Tarnovo,  
e-mail: elitsasd@abv.bg, tel. +359 888 316205

indices are the American S&P 500, the Japanese Nikkei [3], the Brazilian Bovespa [4], the Russian RTSI [5], the Indian Sensex [6] and the Britain's FTSE 100 [7]. There are also specialized indexes to track the performance of specific sectors of the market. For example, "Morgan Stanley Biotech" [8] is an index, which is composed of 36 American companies from the biotechnology industry.

Charles Dow created the first, most widely known index in May 1896. At that time, the Dow index contains 12 of the largest public companies in the USA. Before the digital era, calculating the price index of the stock market is supposed to be relatively simple. Original DJIA was calculated by summing the prices of 12 companies and then dividing that sum into their number - 12. Thus, the calculated indicator is an arithmetic mean value. The most indices currently used different methodology called cost-based weighting. In this system, the weight of each security's share price relative to the sum of the prices of all shares, i.e. all stock prices. The problem with determining the price burden is that it changes the weight of a company in the index, although there is no fundamental change in the business itself. For this reason, many of the indices do not use weighting the base price of financial assets, but evaluate companies on their market capitalization.

## ***2. Development of Bulgarian capital market***

The Bulgarian stock market began its functions in the early years of 20th century. The first Stock Exchange Act was passed in 1907 and regulated the structure and activity of stock and commodity exchanges. A royal decree of 15 April 1914 officially established the Sofia Stock Exchange as marketplace where members meet to exchange corporation and brokers for the sale and purchase of public and private securities. After the World War II, the Bulgarian stock market was closed. The Bulgarian capital market resumed its existence in 1991 with the adoption of Bulgarian Constitution. There were around 20 stock exchanges in the country between 1992 and 1994. The market is unregulated and without clear rules till the adoption of the Law on Securities and Stock Exchange in July 1995. In 2003, he created the Financial Supervision Commission, comprising regulatory authorities in the field of securities, insurance and social security.

Bulgarian Stock Exchange - Sofia is licensed by the State Securities Commission to carry on business as a stock exchange in 1997 year and is currently the only one operating stock exchange in the country. Over 600

participants and over 5,000 brokers have the opportunity to gain access to the local market. Members of the Bulgarian Stock Exchange-Sofia can be foreign or local entities - banks and investment firms permitted to conclude transactions in financial instruments on the Exchange. The main activities of the Bulgarian Stock Exchange include:

1. Organizing trade in securities and other financial instruments;
2. Organizing and maintain an information system for trading securities;
3. Establishment and maintenance of a clearing system to ensure commitments on securities transactions carried out on it. [9]

The indices of BSE include issues of securities traded on the organized markets. Only issues of public companies that are not in liquidation or bankruptcy do not perform rehabilitation program and not suspended from trading can participate on the Stock Exchange. The minimum number of issues included in the indices is five.

The object of BSE is to organize a regulated market of financial instruments as a trading system that matches or contributes to matching interests for buying and selling financial instruments, which are admitted to trading on a regulated market in many third parties, within system and based on rules, resulting in transactions with these instruments. The system operates regularly in accordance with the requirements of law.

The *mission* of BSE is to promote the creation and development of organized capital market, to provide exchange members and their clients' equal access to market information, and to provide equal conditions for participation in trading of financial instruments.

*Members of the Bulgarian Stock Exchange-Sofia* can be investment firms authorized under the terms and conditions of the Act of Markets of the Financial Instruments to provide investment services and investment activities and also can be banks, which professionally provide investment services and/or perform investment activities licensed to perform such services and activities of the Bulgarian National Bank.

Attracting new *issuers* is among the main priorities of BSE-Sofia. The offering of quality issues of financial instruments is a key to solving the problem of low liquidity of the Bulgarian capital market.

*The main laws* regulating the activities of BSE and the functioning of the capital market in the country are the Act of Markets of the Financial Instruments and the Act of Public Offering of Securities. The Law on

Corporate Income Taxation and the Law on Personal Income Taxation shall govern taxation of income from trading in financial instruments. Specific to the Bulgarian capital market is that the capital gains of individuals and legal persons coming from transactions with securities listed for trading on a regulated market are exempted from taxation while dividend income is taxed at the rate of 5%. [10]

### **3. Indices of market value in Bulgaria**

Currently BSE estimated four own index - SOFIX, BGBX40, BG TR30 and BG REIT. The main stock index SOFIX, as its calculation began on 20 October 2000 with base value of 100 points. It is based on the market capitalization of the included 15 issues of ordinary shares, adjusted for free-float of each.

**SOFIX (SOFIX)** is the Bulgarian stock market index. It is calculated from October 2000. Its base value is 100. It is calculated as ratio of the daily amount of the market capitalization of companies included in it and the sum of the market capitalization of these companies for the previous day. Companies base on which the index is calculated can vary from 5 to 50 pieces.

The index for the day is calculated as the base value is multiplied by the ratio of the sum of the market capitalization of companies included in SOFIX at the current moment and the sum of the market capitalization of companies for the base period. The market capitalization of each issue of the companies shall be the multiplication on between the number of issued shares and the last weighted-average price. The weighted-average price is determined after the end of the trading session, as the ratio of turnover to number of shares traded from each issue of the companies included in the index. [11]

In selecting are permitted issues of public companies, which have not been declared bankrupt or into liquidation, are not carrying out a company recovery plan or have not been temporarily suspended from trading.

**Table 1. Emissions in SOFIX and their odds from 26.01.2015[12]**

<b>Ticker</b>	<b>Issue</b>	<b>The free-float</b>	<b>Weight you factor</b>	<b>Number Securities papers</b>	<b>Price</b>	<b>Capitalization</b>
3JR	Sopharma AD-	0.3588	.6557	132000000	3.65	481800000

Ticker	Issue	The free-float	Weight you factor	Number Securities papers	Price	Capitalization
	Sofia					
3NB	Neohim Dimitrovgrad	0.2361	1	2654358	38	100865604
4CF	CB Central Cooperative Bank AD-Sofia	0.2154	1	113154291	1.077	121867171
4EH	Eurohold Bulgaria AD-Sofia	0.3053	1	127345000	0.9	114610500
4I8	Industrial Capital Holding AD-Sofia	0.4908	1	15551960	3.321	51648059
4ID	Industrial Holding Bulgaria AD-Sofia	0.3807	1	67978543	1.05	71377470
5BU	Real Estate Fund Bulgaria REIT	0.7801	1	60450000	0.53	32038500
5F4	CB First Investment Bank AD-Sofia	0.15	1	110000000	2.59	284900000
5MB	Monbat AD-Sofia	0.2796	1	39000000	8	312000000
5MH	M + S Hydraulic AD Kazanlak	0.2262	1	39055200	5.22	203868144
5SR	Stara Planina Hold AD-Sofia	0.5926	1	21000000	4.1	86100000
6A6	Advance Terrafund REIT	0.5717	1	85110091	2.43	206817521
6AB	Albena AD resort. Albena	0.2542	1	4273126	53.622	229133562
6C4	Chimimport AD-Sofia	0.2607	1	150858809	1.658	250123905
T43	Cereals Bulgaria AD-Sofia	0.2223	1	195660287	0.47	91960335

Formula for SOFIX [13]

$$\text{SOFIX}_t = \text{SOFIX}_{t-1} \times \left[ \frac{\sum_{i=1}^n N_{i,t} \times P_{i,t} \times \text{FF}_{i,t} \times W_{i,t} \times D_{i,t}}{\sum_{i=1}^n N_{i,t-1} \times P_{i,t-1} \times \text{FF}_{i,t-1} \times W_{i,t-1} \times D_{i,t-1}} \right] \times K$$

Wherein:

SOFIX is an index of the regulated markets of BSE;

$N_{i,t}$  is the number of shares in issue of the company on the day  $t$ ;

$N_{i,t-1}$  is the number of shares in issue of the company on the day  $t-1$ ;

$P_{i,t}$  is price of the last transaction for the  $i$ -th security for the day  $t$ ;

$P_{i,t-1}$  is price of the last transaction for the  $i$ -th security for the day  $t-1$ ;

$FF_{i,t}$  is the free-float of the  $i$ -th security for the day  $t$ ;

$FF_{i,t-1}$  is a free-float of the  $i$ -th security for the day  $t-1$ ;

$W_{i,t}$  is weight factor of the  $i$ -th security for the day  $t$  ( $W_i = 1$ , unless the weight of the security would exceed 15% of the index);

$W_{i,t-1}$  is weight factor of the  $i$ -th security for the day  $t-1$ ;

$n$  is the number of issues included in the index;

$i$  is the indicator of the specific security;

$t$  is the day on which the index is calculated;

$D_{i,t}$  is divisor for the current trading session for the  $i$ -th security;

$D_{i,t-1}$  is divisor of  $i$ -th security for the day  $t-1$ ;

$K$  is the correction factor ( $K = 1$ , unless a change in the index).

**BG TR30** is an index based on the price of 30 issues of ordinary shares, each of them with equal weight. In selecting are permitted issues of public companies, which have not been declared bankrupt or into liquidation, are not carrying out a company recovery plan or have not been temporarily suspended from trading.

**BG BX40** is an index composed of 40 issues of ordinary shares of the companies with the greatest number of transactions and the highest median value of the daily turnover for the last 6 months. The calculation of BG BX40 started on January 1, 2014. In selecting are permitted issues of public companies, which have not been declared bankrupt or into liquidation, are not carrying out a company recovery plan or have not been temporarily suspended from trading.

**BG REIT** is a sectorial index, consisting of 7 issues of common shares of companies with special investment purpose for securitization of real estate or land with the highest market value of the free-float and the highest median value of the weekly turnover during the last 6 months. In selecting are permitted issues of public companies, which have not been

declared bankrupt or into liquidation, are not carrying out a company recovery plan or have not been temporarily suspended from trading. [14]

**Table 2. Emissions in BGREIT and their odds from 26.01.2015 [15]**

<b>Ticker</b>	<b>Issue</b>	<b>The free-float</b>	<b>Weight factor</b>	<b>Number of securities</b>	<b>Price</b>	<b>Capitalization</b>
<b>5BD</b>	Bulland Investments REIT	0.5937	1	13017889	0.957	12458120
<b>5BU</b>	Real Estate Fund Bulgaria REIT	0.7801	0.3028	60450000	0.53	32038500
<b>5ER</b>	ERG Capital - 3 REIT	0.3282	1	2100000	4.49	9429000
<b>5EX</b>	Exclusive Property REIT	0.4104	1	9452340	0.56	5293310
<b>6A6</b>	Advance Terrafund REIT	0.5717	0.0663	85110091	2.43	206817521
<b>6SB</b>	Super Borovets Property Fund REIT-Varna	0.5456	0.8287	10580000	1.6	16928000
<b>E7P</b>	Expat Beta REIT	0.4642	1	5143190	0.999	5138047

#### **4. Conclusion**

The index is a statistical measure of the changes in the portfolio of financial assets (stocks of financial assets), representing the position of the market. Because it would be too difficult to track each financial asset that is traded in a particular country to obtain the necessary information to examine only a certain part of the market, i.e. sample of the market, which is representative of the whole market. As sociologists use political studies to assess the mood of the population, investors use indexes to track the performance of the stock market.

Currently in Bulgaria there are estimated four own indexes – SOFIX, BGBX40, BG TR30 and BG REIT. The main Bulgarian stock index is SOFIX.

## References

1. MSCI Inc. (2012). *Indices*. Available at: [http://www.msci.com/products/indices/country\\_and\\_regional/dm/#....](http://www.msci.com/products/indices/country_and_regional/dm/#....) [accessed 01 January 2012].
2. Standard & Poor's Financial Services LLC, a part of McGraw Hill Financial (2012), S & P Global 100. Available at: <http://www.standard-andpoors.com/home/en/eu ...> [accessed 01 January 2012].
3. Nikkei Inc. (2012). *Market*. Available at: <http://e.nikkei.com/e/app/fr/market/constituents.aspx?INDEX=NAVG ...> [accessed 01 January 2012].
4. BM & FBOVESPA (2012). *Market Activity*. Available at: <http://www.bmfbovespa.com.br/home.aspx?idioma=pt-br ...> [accessed 01 January 2012].
5. Moskovskaya Birja (2011-2012). *Index*. Available at: <http://www.rts.ru/en/index/rtsi/ ...> [accessed 01 January 2012].
6. BSE Ltd. (2012). *Indices*. Available at: <http://www.bseindia.com/ ...> [accessed 01 January 2012].
7. FTSE (2012). *Indices*. Available at: [http://www.ftse.com/Indices/UK\\_Indices/index.jsp ...](http://www.ftse.com/Indices/UK_Indices/index.jsp ...) [accessed 01 January 2012].
8. Morgan Stanley (2012). *About*. [press releases] Available at: <http://www.morganstanley.com/about/press/articles/7079.html...> [accessed 01 January 2012].
9. Bulgarian Stock Exchange - Sofia (1998- 2013). *About BSE*. Available at: <http://www.bse-sofia.bg/?page=AboutBSE....> [accessed 24 February 2015].
10. Bulgarian Stock Exchange - Sofia (1998- 2013). *Rules and Regulations*. Available at: <http://www.bse-sofia.bg/?page=RulesAndRegulations....> [accessed 24 February 2015].
11. Bulgarian Stock Exchange - Sofia (1998- 2013). *SOFIX*. Available at: [http://www.bse-sofia.bg/?site\\_lang=bg&page=SOFIX....](http://www.bse-sofia.bg/?site_lang=bg&page=SOFIX....) [accessed 24 February 2015].
12. Bulgarian Stock Exchange - Sofia (1998- 2013). *SOFIX constituents and their respective free-floats and weight factors*. Available at: <http://www.bse-sofia.bg/?page=IndexProfile&code=SOFIX&target=Constituents ...> [Accessed 24 February 2015].
13. Bulgarian Stock Exchange – Sofia (1998- 2013). *SOFIX formula*. Available at: [http://www.bse-sofia.bg/download/files/pdf/SOFIX\\_formula\\_en.pdf ....](http://www.bse-sofia.bg/download/files/pdf/SOFIX_formula_en.pdf ....) [accessed 24 February 2015].

14. Bulgarian Stock Exchange - Sofia (1998- 2013). *Indices*. Available at: <http://www.bse-sofia.bg/?page=Indices...> [accessed 24 February 2015].
15. Bulgarian Stock Exchange - Sofia (1998- 2013). *BGREIT*. Available at: [http://www.bse-sofia.bg/?page=IndexProfile&code=BGREIT&target=Constituents ...](http://www.bse-sofia.bg/?page=IndexProfile&code=BGREIT&target=Constituents...) [Accessed 24 February 2015].