DESIGNING THE INVESTMENT PROFILE OF THE SHARES TRADED ON THE BULGARIAN STOCK EXCHANGE IN THE PERIOD FROM AUGUST 2016 TO DECEMBER 2017

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Abstract: *The analysis of shares performance is normally focused on risk and yield, while the third investment parameter, market liquidity, is usually ignored. In contrast to the world's biggest stock exchanges where market liquidity is taken for granted, it seems to be a major issue for developing capital markets, such as the stock exchanges in new Balkan economies. This research paper introduces and employs a model of complex market liquidity assessment of the traded companies. We employ the Frequency Analysis of Volatility to add to the research value of Risk analysis, the coherent alternatives of VaR and the investment profile of traded shares. Based on the complex set of methods employed in our research, we present comprehensive investment profiles of the companies with the highest and the lowest market capitalization which are constituents of the four Bulgarian Stock Exchange indices about the period from August 2016 to December 2017.*

Key words: *investment profile; investment parameters; primary and secondary micro measurers of market liquidity; traded volume; coefficient of trading days; coefficient of traded volume; market risk; capitalization income; capital income; frequency analysis of the volatility; VaR; dynamic coefficient; coefficient of the average frequency of the unidirectional movement; coefficient of the prevailing tendency.*

JEL: G11; G12; G14; G17.

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Introduction

The period from the middle of 2016 till the end of 2017 was characterized by GDP growth; growing stock indices; various initiatives of the BSE[3] to attract investors; the appearance of new stock instruments – the first ETF[4] on the Bulgarian capital market which tracks SOFIX; improved information provided by the Central Depository[5]; comparatively low interest rates; an increase in bank deposits; a low inflation rate; a liberal taxation regime; income growth in most sectors of the economy; overall optimistic forecasts for 2018 and no imminent threats to the political stability in the country. At the same time, a disturbing trend of withdrawal of foreign direct investments from Bulgarian economy started.

Despite those generally positive processes, there was little improvement in investment activity which remained unsatisfactory. The major challenge faced by the Bulgarian capital market was the small number of transactions, small traded volumes and low exchange turnover. In our opinion, these processes were due to the lack of investor confidence. That contradiction between the poor investment activity on the BSE and the overall positive macroeconomic situation provoked us to examine more closely the investment characteristics of the shares traded on the Bulgarian capital market. From a more analytical perspective, the question we raise is – what is/are the problematic parameter(s) of the investment instruments? Is it their yield, the risk they relate to, and/or the market liquidity? Some authors even consider a fourth investment parameter – market ability (Adamov, 2013, pp 40 - 43). Horne, J. relates market ability to the opportunity to trade larger volumes over shorter periods of time (Horne, 1970). We agree that market ability is in essence a combination of the three major parameters - good liquidity with a guaranteed minimum income at a minimum risk. Although renowned specialists in investment analysis put an emphasis on market liquidity, it is usually ignored as a parameter.

In contrast to developed financial markets where market liquidity is not a major issue of investor interest, since that liquidity is assumed to be good, the market liquidity of the companies listed on the BSE poses a number of issues to be considered. The significance of that investment parameter should not be approached in isolation since there is a direct relation between market liquidity and risk, and, hence, the yield of investment instruments.

Sonya Sayari and Ab. Omri /Omri, S./ (Omri, 2017) study the relation between revenue management, capital accumulation and the liqudity of shares.

The *aim* of this research is to design a complex investment profile of different companies of the four BSE indices that would be both scientifically sound and supported by empirical evidence. We fulfil the objective of our

[3] Bulgarian Stock Exchange – Sofia AD.

[4] Exchange Traded Fund.

[5] The publication of the free-float of traded companies, etc.

research by decomposing it into four major *tasks*: designing conceptual investment profiles of shares traded on the stock exchange; developing and employing a methodology for complex and comparable assessment of the market liquidity of companies; determining the yield over the researched period; assessing the risk of selected shares; summarising the findings for the three investmnet parameters in a comprehensive investment profile of each share.

1. The Selection of Analytical Instruments

In order to characterize investment instruments objectively, i.e. the shares traded on the stock exchange in our case, we select primary measurers, analytical secondary measurers and some models of investment analysis for each of the three major investment parameters. Our choice of selected primary and secondary measures and models of analysis is explained in the points that follow.

1.1. Selection of Secondary Measurers of Micro-market Liquidity

The market liquidity of listed companies is not an issue for investors who are interested in actively trading stock exchanges. In contrast, in the case of newly emerging capital markets, like small Balkan stock exchanges in general and the Bulgarian stock Exchange (BSE) in particular, market liquidity is a major issue to consider. At the same time, market liquidity is a comparable secondary measurer which determines investment activity and is indicative of investor interest and confidence.

We employ a wide range of selected primary measurers and analytical secondary measurers to analyse micro-market liquidity. Most of them have been discussed in detail and systematized in a monograph (Simeonov S., 2016). Some secondary measures of market liquidity at a micro-market level have also been reviewed (Naydenova, 2014). Another author, Amihud, (Amihud, 2002) defines market illiquidity, i.e. 'the illiquitity ratio', in terms of the daily yield of a share and its exchange volume, whereas Amivest defines it as an aggregate value for the stock exchange market. For the purposes of our research, micro-market liquidity and its comparability for companies of a different size, we employ a selection of well-known measures and also introduce some new secondary measurers and design a new model for the complex assessment of micro market liquidity. A detailed justification of our choice of measurers and their analytical significance to market liquidity assessment is presented in point 4 of the paper.

1.2. Regarding the Yield of Shares

To determine the yield of selected public companies which are constituents of the four BSE indices, we take into account two possible types of income generated from the capital instruments: market capitalization and

dividends. Data about daily changes in the stock exchange prices are computed through logarithms and approached as continuous yield[6] so that they could be employed in the risk model.

1.3. Selection of Secondary Measurers and Models of Risk Assessment

To assess risk, we employ statistical secondary measurers of dispersion; the absolute and relative VaR, CVaR, MVaR and the Frequency analysis of the volatility and trend.

1.3.a. The secondary measures of ***descriptive statistics*** (and especially those of volatility and dispersion) are very popular, yet their employment in investment decisions is based on relative judgment. We select the coefficient of variation, the skewness and the kurtosis as being the most significant to risk analysis. As a measure of dispersion, we prefer to employ the coefficient of variation, which, unlike the commonly used standard deviation, renders it possible to compare different variables, i.e. shares with different prices, in our case.

1.3.b. The VaR concept has gained popularity despite its relatively recent occurrence. It is prescribed in regulatory requirements applicable to the assessment of bank risk (Basel III), therefore we shall not discuss it in detail in this paper. A number of authors have already reviewed the historical development of VaR (Adamko, 2015)***,*** (Chen, 2013)***,*** (Patev, 2008), (Patev. P. i Kanaryan, 2002), etc. In addition to the multiple methodological publications by leading authors (Kontodheorghes, 2008), there are also a lot of practical research papers about companies on the Bulgarian capital market by Bulgarian authors (Georgiev, 2012) and (Krasteva, 2017) where market risk is approached in terms of the VaR. The *historical VaR* is the maximum loss which could be incurred by a particular investment instrument over a specified period of time at a certain confidence interval. The historical VaR is widely employed in forecasting short-term market risk, yet, despite its popularity, its reliability has been subject to certain criticism in academic circles.

In the sphere of risk management, several modified versions have been designed, or the so-called 'g-entropic' modifications (Ahmadi-Javid, A., 2011) in an attempt to reflect the development of market rates more objectively. Nikolaev (Nikolaev, 2018) points out the advantages of different coherent alternatives of the VaR models. The *Conditional VaR (CvaR)* is a model of market risk assessment which shows the average loss that could be incurred for a particular financial instrument over a given period of time at a set confidence interval. The *modified VaR (MVaR)* is an upgraded version of the historical VaR. Its main advantage is in terms of the improved methodology for

[6] The compute the yield for the purpose of risk assessment, we employed a natural logarithm in MS-Excel, by dividing the daily closing price of a financial instrument into the closing price of the same instrument on the previous trading day.

computing the confidence interval by taking into account the skewness and the kurtosis, and thus accounting for the dispersion of the return from the analysed financial instruments. In order to provide a more comprehensive and objective risk assessment, we employ CVaR and MVaR in addition to the absolute relevant VaR.

1.3.c. In addition to these popular yield-based secondary measurers and models, we employ the ***Frequency analysis of the volatility and trend*** to assess risk. The Frequency analysis of the volatility and trend is still not very popular. It has been reviewed in a number of studies of macro-market activity[7] and the assessment of risk of individual investments (Simeonov S., April, 2017). In general, commonly employed yield-based statistical secondary measures and risk assessment models mainly seek to identify the size of potential loss. In contrast to them, the aim of the Frequency analysis of the volatility and trend is to assess the consistency of a trend and identify any opportunities for changes in that trend. The underlying methodology of the Frequency analysis of the volatility and trend takes into account the number of changes in the direction of the trend and the ratio between registered increases and decreases which are measured by three primary measures:

The dynamic coefficient indicates the ratio between the number of changes in the direction of the trend and the total number of observations. For the purposes of our research, changes in the variable are reported in daily values, as it is the usual practice.

$$D = \frac{D_{Ch}}{D_{n-1}} \quad (1)$$

where:
D is the Dynamic coefficient;
D_{Ch} is the number of observations (days) on which a change has been registered in the direction of the trend (in daily values);
D_{n-1} is the number of possible changes (i.e. the total number of observations during the entire period minus 1).

The coefficient of the average duration of the unidirectional movement (AD_{UM}) (equivalent to the average Frequency of Direction Change)[8] is computed reciprocally to the dynamic coefficient:

[7] Several conference papers in the period from 2014 to 2016, summarized in a monograph by Simeonov, St. 'Izmeriteli na borsovata aktivnost – izsledvane na indikatorite i analiz na pazarniya trend', Biblioteka Stopanski svyat, br. 131, 2016 g., Akademichno izdatelstvo Tsenov– Svishtov.

[8] In earlier publications, the coefficient was put down as AF_{DC}, i.e. Average Frequency of Direction Change. The new symbol draws a clearer distinction between the meaning of the coefficient and that of the dynamic coefficient.

$$AD_{UM} = \frac{D_{n-1}}{D_{Ch}} \quad (2)$$

The coefficient of the prevailing tendency (PT) is the ratio between the number of increases and the number of decreases in the value of the variable over the specified period (Simeonov S., 2016).

$$PT = \frac{D_{Increase}}{D_{Decrease}} \quad (3)$$

where:
D_{Incr} is the number of days with an increase; D_{Decr} is the number of days with a decrease.

The Frequency analysis of the volatility and trend employs a specific logarithm of several iterations with hundreds of computations for a single variable (a share, in our case) to calculate each of the three frequency coefficients. Accordingly, a software model was designed.[9]

2. Designing the Theoretical Investment Profiles

We use the concept ***investment profile*** to refer to the analytically systematic and empirically realistic complex assessment of any of the three major investment parameters (market liquidity, yield and risk). Designing an investment profile is necessary in order to align properly private (personal and institutional) investment motives to the specific features of a particular investment instrument, which is a major requirement when choosing an appropriate investment instrument and implementing a successful investment strategy. Different investment strategies are suitable for different risk preferences, different time horizons and different trade commitment and are implemented (or avoided) in a specific market environment. Investor preference for a particular group of strategies, e.g. conventional, portfolio, speculation, scalping, arbitrage, hedging, etc., results in focusing on instruments with similar investment profile, which renders it necessary and possible to define the concept of an ***investment profile***.

[9] The software for computing the frequency coefficients with Excel was developed by IT specialist A. Bozhikov.

Table 1
Designing theoretical investment profiles

Market liquidity	**Yield**	**Risk**			**Investment profile**
		Descriptive characteristics	**VaR, CVaR, MVaR**	**FAVT**	
High	Variable capitalisation, the dividend is not determining	High **V%**; **K** is above the normal value	High	High **D**; low **AD$_{UM}$**; neutral **PT**	High risk and high speculative potential
Not determining	Low or declining capitalisation, more likely lack of dividends	High **V%; - S**	High	Negative **PT**	High risk, more likely decapitalization
High	Guaranteed dividend and tendency of capitalisation	Comparatively low **V%**; **+ S**	Low	Neutral **PT**	More likely capitalization
Good market liquidity is helpful, but not determining	Small, but sustainable capitalization	Low **V%; K** is below the normal value	Low	Low **D** and high **AD$_{UM}$**	Low risk and weak speculative potential
Impeccable	Small, but sustainable capitalization	Low **V%**;	Comparatively low	High **D**; Low **AD$_{UM}$**; Positive **PT**	Low risk and speculative potential, potential for scalping

Meaning of the symbols in Table 1:

V(%)	Coefficient of variation;
K	Kurtosis;
S	Skewness, (-) left, (+) right;
VaR	Value at Risk;
FAVT	Frequency Analysis of the Volatility and Trend;
D	Dynamic coefficient;
AD$_{UM}$	Coefficient of the average frequency of the unidirectional movement;
PT	Coefficient of the prevailing tendency.

When defining the investment profiles in this research, we carry out a comprehensive analysis of different analytical secondary measures and models so as to describe the basic investment parameters and determine investment strategies precisely. Based on market liquidity, (capitalization and capital) yield and the complex assessment of market risk, we identify five major investment profiles (Table 1). We should also note that the five major investment profiles we define here match the capital instruments which we selected in advance as appropriate for the opportunities provided by Bulgarian capital market. Should the subject of our research or the range of investment instruments be changed (for example, larger or more developed markets or instruments from a different class), there will be more investment profiles to analyse and define in greater detail.

The set of secondary measures and models we have selected and presented in Table 1 is not finite, i.e. other analytical models could also be employed depending on the investment instrument that is subject to analysis. When there are options and/or futures exchanges, a credit derivatives market, etc., the investment profiles of analysed instruments will include speculation, hedging and arbitrage-guided motives (and related subcategories). Derivative instruments exclude capital and capitalization income; liquidity should be as good as possible, etc., which requires employing different models of assessment.

An ultimate investment decision should align the types of investment profiles to the preference for a particular fundamental investment motive. In terms of the shares which are traded on the Bulgarian Stock Exchange, investment motives and profiles are rather limited due to the long-term characteristics of the financial market in Bulgaria. The lack of a forward market segment, the inefficient short sales options and the absence of an options or futures market render impossible hedging, dynamic and multivariate speculation, or arbitrage through synthetic positions. Therefore, available possibilities for the shares traded on BSE are limited to primary sources of income from capital instruments, i.e. capital and capitalization income.

3. Selected Investment Instruments and Data Employed

For the purposes of our research we have selected two companies for each of the four BSE indices, those with the highest and the lowest exchange value (market capitalization). These are:

Table 2
Selected companies for the four BSE indices

Stock market index	Company with the highest stock exchange value	Company with the lowest stock exchange value
SOFIX	Sopharma AD – Sofia	Doverie United Holding AD - Sofia
BGBX40	Sopharma AD – Sofia	Sparky Eltos Ad – Lovech
BGTR30	CB First Investment Bank AD-Sofia	Elana Agrocredit AD – Sofia
BGRATE	Bulland Investments REIT - Sofia	Balkan and Sea Properties REIT-Varna

Due to the scope of the samples we use from SOFIX and BGBX40, i.e. the fact that the fifteen SOFIX constituents are also constituents of BGBX40, Sopharma AD – Sofia is naturally the leader in terms of market capitalization for both indices. In order to avoid any repetition, we will only include the company with the lowest stock exchange value in the next points for the BGBX40 index, Sparky Eltos AD – Lovech.

In order to analyse the investment characteristics of each company we employ daily stock quotes, closing stock prices over a sixteen-period month (i.e. the period from 22nd August 2016 to 22nd December 2017). The selected length of the time period renders it possible to employ multiple models for conducting a reliable and comprehensive investment analysis and design long-term strategies. The period of time which we cover in our research stretches from the first occurrence of tentative investment activity on BSE to the growth of the four indices that was registered after the eight-year period of little activity on BSE which began in 2008. It is therefore essential to conduct an analysis of yield and risk. We use daily data about the trading activity of the selected companies over the researched period and employ a wide range of primary measures and analytical secondary measures, such as: the number of shares in the stock of the companies; the number of transactions; the number of traded shares; the number of trading days; free-float; market capitalisaton; dividend payments, etc. The values for the primary measures at end of the researched time period (i.e. 22nd December 2017) were reported for the last trading day, which was different for each company (Table 3).

4. Determining the Market Liquidity of Selected Companies

In order to determine the market liquidity of companies so that they could be objectively compared to one another, we select a set of primary measurers and a group of analytical secondary measurers. We also take into account the logics underlying the categorization of measures into primary and analytical secondary ones (Simeonov S., 2016, pp. 43-48). The sequence in

which these measures are employed in any of the group is determined by their informational and analytical significance.

Table 3
Market capitalization as of the last trading day for the period

Company	Last trading day	Stock exchange share price	Market capitalisation
Sopharma	22.12.17	4.283	577,339,401
Doverie United Holding	22.12.17	2.081	38,989,822
Sparky Eltos	12.12.17	0.270	4,518,536
First Investment Bank	22.12.17	5.45	599,500,000
Elana Agrocredit	22.12.17	1.33	25,140,195
Bulland Investments	22.12.17	0.890	11,585,921
Balkan and Sea Properties	21.12.17	14.500	9,425,000

Source: Bulgarian Stock Exchange, market performance statistics.[10]

4.1. Primary Measurers of the Market Liquidity of Companies

In business practice, provided data and regulatory requirements focus on market capitalization and free float. This is a reasonable approach to employ to active stock exchanges, as it is the case in developed economies. In the case of smaller markets and uncertain liquidity like that of the BSE, it is necessary to take into account a wider set of primary and secondary measurers with higher significance in the following sequence: Number of shares; Number of shareholders; Free-Float as a percentage; Free-Float in the number of shares; Free-Float in market capitalization; Market capitalization.

The sequence in which we employ the primary micro measurers is determined by their informational significance and by their nature, i.e. whether they are basic or trading measures. The category of **basic primary micro measurers** includes the number of shares and free-float which depend on the decisions of majority owners and corporate managers and are therefore less dynamic. The category of **trading primary micro measurers** includes the number of trading days; the number of transactions; the traded volume and the stock turnover. In terms of this categorization, market capitalization is of intermediate significance since it is a function of the basic measure ‘number of shares’ and the prices of shares.

[10] http://www.bse-sofia.bg/?page=QuarterlyBulletin

*The analysis of stock exchange performance should take into consideration the fact that **basic primary measurers** are chiefly employed to evaluate the market liquidity potential and the attractiveness of an investment.*
***Trading primary micro measurers**, on the other hand, depend on the real investment activity and are therefore far more dynamic measures.*

4.1.1. Analysis of the Basic Primary Measurers of the Market Liquidity of Companies

The number of shares: *Sopharma* and *First Investment Bank* stand out with the number of their shares exceeding 100,000,000. *Sparky Eltos* ranks far behind them with 40,000,000 shares. The number of shares of *Elana Agrocredit* and *Doverie United Holding* is half as low – about 19,000,000. *Balkan and Sea Properties* is at the bottom with less than 7,000,000 shares (Table 4).

The free-float percentage: companies rank differently in terms of that measurer - *Doverie United Holding* is at the top with 66.12%, followed by *Bulland Investments* with 62.15%, *Elana Agrocredit* and *Balkan and Sea Properties*.The lowest free-float percentage is that of *Sparky Eltos* – 12.78 % (Table 4).

Table 4
Basic primary measurers of the market liquidity of companies

Stock exchange index	**Company**	Number of shares	Free-float percentage	Free-float in number of shares
SOFIX	Sopharma	134,797,899	31.87	42,960,090
	Doverie United Holding	18,736,099	66.12	12,388,309
BGBX 40	Sparky Eltos	39,985,608	12.78	5,110,161
BGTR30	First Investment Bank	110,000,000	15.00	16,500,000
	Elana Agrocredit	18,902,402	56.05	10,594,796
BGRATE	Bulland Investments	15,008,125	62.15	9,327,550
	Balkan and Sea Properties	6,925,156	36.85	2,551,920

Free-float in number of shares: According to this basic primary measurer, *Sopharma* ranks first with free-float of nearly 43,000,000 shares. Next come *First Investment Bank, Doverie United Holding* and *Elana Agrocredit* with more than 10,000,000 free-float shares. The two companies at the bottom

are *Sparky Eltos*, whose free-float percentage is low, and *Balkan and Sea Properties*, since the company has the smallest number of shares (Table 4.).

In terms of ***Market capitalisation (MC),*** *First Investment Bank* ranks at the top with BGN 599.5 million, followed by *Sopharma* with BGN 577.34 million. *Sparky Eltos* ranks third with only BGN 39 million, while *Sparky Eltos* is at the bottom with a value of the measure being as low as BGN 4.52 million.

Table 5
Market capitalisation

Company	Market capitalisation
Sopharma	577,339,401.00
Doverie United Holding	38,989,822.00
Sparky Eltos	4,518.536.00
First Investment Bank	599,500,000.00
Elana Agrocredit	25,140,195.00
Bulland Investments	11,585,921.00
Balkan and Sea Properties	9,425,000.00

Source: Website of the Bulgarian Stock Exchange.[11]

Table 6
Number of shareholders

Stock exchange index	**Company**	Number of shareholders
SOFIX	Sopharma	5,987
	Doverie United Holding	147,403
BGBX40	Sparky Eltos	5,557
BGTR30	First Investment Bank	1,934
	Elana Agrocredit	385
BGREIT	Bulland Investments	178
	Balkan and Sea Properties	47

Data provided by the Bulgarian Stock Exchange.

According to the priority we gave to the primary measures earlier, the **number of shareholders** is the most significant one. It should be noted that although it is normally approached as a market measure, the number of shareholders shares a major feature of any basic primary measure, that is, the ability of corporate management and majority owners to determine, though indirectly, the number of the rest of the shareholders through the free-float. Other, market-related, measurers include stock buyback, stock split, etc. In the last few months of 2017 some of the companies, like Sopharma, for example, actively implemented a policy of share repurchase.

[11] http://www.bse-sofia.bg/?page=QuarterlyBulletin

As of 29th December 2017, *Sopharma AD* ranked as low as in the seventh place among the SOFIX constituents, the number of its shareholders amounting to 5,987 (five thousand, nine-hundred eighty-seven).[12] The leader according to this primary measurer was *Doverie United Holding AD*, the company with the lowest exchange value, with 147,403 shareholders, which was 24.62 times as high as that of *Sopharma AD*. The number of shareholders of *Sopharma AD* was also four times as low as the average number of shareholders of the narrow-based index constituents, which was 22,661, according to data provided by Investor.bg. *Balkan and Sea Properties* is at the bottom with only 47 shareholders at the end of the researched period.

4.1.2. Analysis of the Trade Primary Measures of the Market Liquidity of Companies

The stock exchange turnover is among the most accessible and disclosed stock exchange indices, yet this primary measure has greater significance when analysing investment activity, and especially as an aggregate measure employed in macro-market analyses. This is the primary measure we employ last in the assessment of market liquidity since, in our opinion, the number of transactions, the traded volume and the other primary measures listed above are far more indicative of the market liquidity of companies. What is more, exchange turnover tends to misrepresent market liquidity due to the differences between the exchange rates of different companies. Therefore, we do not consider the stock exchange turnover to be very significant to the practical assessment of market liquidity in our research and exclude it from the model for assessing the complex market liquidity.

Sopharma AD is the absolute leader according to all four trade primary measures of market liquidity. *Doverie United Holding* ranks second with slightly different values for three of the major trade primary measures (Table 7). The lowest values in terms of trading days and the number of shares were registered by *Balkan and Sea Properties,* whereas *Sparky Eltos* was the company with the lowest exchange volume and turnover.

4.2. Average Daily Values of Trade Primary Measures of Market Liquidity

We compute the average daily values of the primary measures based on the total number of exchange days over the researched period, i.e. from 26.08.2016 to 22.12.2017, which was 332 (three hundred thirty two) days according to the trading calendar of the BSE[13].

[12] According to data provided by Investor.bg in an analysis conducted by V. Vassileva - https://www.investor.bg/sofix-novini/362/a/dve-treti-ot-kompaniite-v-sofix-izprashtat-2017-g-s-po-malko-akcioneri-253070/

[13] Data selected from the trading calendar of the BSE for 2017 http://down-

Table 7
Trade primary measures of the market liquidity of companies

Stock exchange index	**Company**	Number of trading days	Number of transactions	Traded volume	Exchange turnover
SOFIX	Sopharma	326	4,873	27,892,418	107,948,113.00
	Doverie United Holding	289	4,334	9,267,688	15,466,907.40
BGBX 40	Sparky Eltos	112	357	286,002	139,973.11
BGTR30	First Investment Bank	305	3,719	3,770,932	14,554,180.31
	Elana Agrocredit	207	862	2,053,304	2,832,208.21
BGRATE	Bulland Investments	114	327	634,061	575,953.54
	Balkan and Sea Properties	40	91	1,525,912	21,872,619.99

Source: Market performance statistics of the Bulgarian Stock Exchange and Investor.bg.

Table 8
Trade primary measures of the market liquidity of companies, average daily values

Stock exchange index	**Company**	**Average daily number of transactions**	**Average daily traded volume** (number of shares)
SOFIX	Sopharma	14.68	84,013.31
	Doverie United Holding	13.05	27,914.72
BGBX40	Sparky Eltos	1.08	861.45
BGTR30	First Investment Bank	11.20	11,358.23
	Elana Agrocredit	2.60	6,184.65
BGRATE	Bulland Investments	0.99	1,910.00
	Balkan and Sea Properties	0.27	4,596.12

Average daily number of transactions (average number of transactions in shares of the company / the number of exchange days during the period).

load.bse-sofia.bg/others/Calendar_BSE_BG_2017.pdf; and 2016 http://download.bse-sofia.bg/others/Calendar _BSE_BG_2016.pdf

Average daily traded volume (the number of traded shares of the company / the number of exchange days during the period).

The average daily values of the transactions and the traded volume complement the market liquidity profile of BSE companies. Obviously, even the companies with the best values for the secondary measures were lagging far behind the companies listed on Central and West European stock exchanges.

4.3. Secondary Measurers of the Market Liquidity of Companies

We add several new coefficients to the secondary measures of market liquidity to ensure the more objective and comprehensive characterization of market liquidity.

4.3.1. The coefficient of trading days

In the first place, we add to the group of analytical secondary measures of market liquidity a simple measure that is not mentioned in textbooks in investments[14] or in professional stock exchange analyses. The coefficient of trading days is the ratio between the number of days on which transactions in shares of a company were made and the total number of exchange days during the period *(Trad.D/Exch.D)*. The values of the secondary measure are presented as a percentage for greater convenience. Table 9 presents the values of the coefficient for researched companies which were computed based on 332 exchange days (i.e. the number of exchange days over the researched period, as we noted earlier).

Table 9
The coefficient of trading days

Stock exchange index	**Company**	D_T / D_E *(%)*
SOFIX	Sopharma	98.19
	Doverie United Holding	87.05
BGBX40	Sparky Eltos	33.73
BGTR30	First Investment Bank	91.87
	Elana Agrocredit	62.35
BGRATE	Bulland Investments	34.34
	Balkan and Sea Properties	12.05

[14] This could be accounted for by the fact that research workers and authors of scientific literature around the world focus primarily on developed capital markets which do not face such problems, as we noted at the beginning of the research paper.

4.3.2. The Coefficient of Traded Volume

The traded volume, presented as a percentage of the number of shares issued by a company may also be interpreted as a coefficient of turnover, i.e. the tradability of an issue of shares. The dividend, i.e. the traded volume, may be presented as an aggregate value (the number of shares) or as an average daily value for the period. This secondary measure, which we introduce in our research for the first time, may be associated to the well-known coefficient of turnover (Simeonov S. , Izmeriteli na borsovata aktivnost - izsledvane na indikatorite i analiz na pazarniya trend, 2016), yet we consider the coefficient of traded volume to be more objective and significant. Analytically, this secondary measure indicates the ratio between the relative value of investment interest and the volume of an issue of shares. The number of traded shares as an absolute value is of greater significance when analysing aggregate investment activity, whereas the coefficient of traded volume can be interpreted more narrowly – in terms of the market liquidity of a company.

Based on available data about the exchange volume and the number of shares in the issues, which were presented in Table 4 and Table 7, we compute the following values of the coefficient of traded volume (Table 10).

Table 10
Coefficient of traded volume

Company	Exchange volume	Number of shares	TV/SN (%)
Sopharma	27,892,418	134,797,899	20.692
Doverie United Holding	9,267,688	18,736,099	49.464
Sparky Eltos	286,002	39,985,608	0.715
First Investment Bank	3,770,932	110,000,000	3.428
Elana Agrocredit	2,053,304	18,902,402	10.863
Bulland Investments	634,061	15,008,125	4.225
Balkan and Sea Properties	1,525,912	6,925,156	22.034

Doverie United Holding is the leader, with nearly 50% of traded volume during the researched period, followed by *Balkan and Sea Properties* and *Sopharma AD* with similar coefficients of slightly above 0.20. The lowest value of the coefficient of traded volume was registered by *Sparky Eltos* - only 0.007.

It should be noted that the sixteen-month period included in our research is very long. Nevertheless, the company with the highest coefficient of traded volume, *Doverie United Holding,* registered a value of the coefficient of only 49.5 %.

4.3.3. Relative Weight of Market Capitalisation

Market capitalisation (the value) of a company is computed as a percentage of the aggregate market capitalization for a stock exchange or a market segment $(MC_x / MC_{Agr})*100$.

The market capitalization for the entire BSE market (i.e. for both segments – the main market and the alternative market) in the last trading session in December 2017 equaled BGN 23.620.968.144, or nearly BGN 23.621 billion.[15] With reference to the stock value of each company, which is presented in Table 3, the relative weights of their market capitalization are presented in Table 11.

Table 11
Relative weight of market capitalization

Company	Share of market capitalization (%)
Sopharma	2.444
Doverie United Holding	0.165
Sparky Eltos	0.019
First Investment Bank	**2.538**
Elana Agrocredit	0.106
Bulland Investments	0.049
Balkan and Sea Properties	0.040

In terms of market capitalisation, *First Investment Bank* and *Sopharma* clearly rank at the top, each of them with a share of nearly 2.5% of the total value of the companies listed on the BSE. The shares of *Doverie United Holding* and *Elana Agrocredit* are slightly above 0.1%, while the shares of the other three companies range between 0.05 and 0.02 %.

As we noted earlier in this part of the paper and in part one, there are also other secondary and primary measures of the market liquidity of traded companies. In our opinion, the combination of selected measurers we employ in our research are sufficient for establishing objective and comparable profiles of the market liquidity of shares.

4.4. A Model for the Complex Assessment of the Market Liquidity of Companies

The large number of primary and secondary measurers which are employed in assessing the market liquidity of companies renders it necessary to select an objective criterion for comparing different companies. We will therefore use a complex formula to assess market liquidity which consists of three major stages:

a) Selecting the necessary and sufficient number of primary and secondary measurers;

b) Converting the natural primary and secondary measurers into coefficients with comparable values; and c) Assigning relative weights to each primary and secondary measurer.

[15] According to the market performance statistics of the BSE, http://www.bse-sofia.bg/?page=AnnualStatistics

4.4.a. Selection of Significant and Objective Measurers

Based on the analysis we conducted in the previous parts of this paper, we select nine primary and secondary measurers as being most significant for assessing market liquidity and ensuring the objective comparison between companies. These are:

Trading days coefficient	$TD(K)$
Average daily number of transactions (Coefficient)	$Tract.N_{DA}(K)$
Average daily traded volume (Coefficient)	$TV_{DA}(K)$
Traded value (Coefficient)	$TV(K)$
Free float in number of shares (Coefficient)	$Ff_{NS}(K)$
Free float as a percentage	$Ff(\%)$
Market capitalization relative weight in aggregate	MC_{RW}
Number of shares in the entire issue (Coefficient)	$S_{NI}(K)$
Number of shareholders	$SH_N(K)$

4.4.b. Converting the Natural Primary and Secondary Measures into Comparable Coefficients

On the one hand, data about primary measures differ in scope, while, on the other hand, the values of computed secondary measurers are expressed differently (as absolute values, coefficients or percentages). In order to provide a complex assessment, we need to employ coefficients with comparable values. We therefore convert absolute values like market capitalization, the number of shares, the number of shareholders, etc. into coefficients. The value recorded by the company with the highest score for each primary or secondary measurer will be employed as equal to 1, hence, the values recorded by the rest of the companies for each primary measure will be expressed as a percentage of the indicator with the highest value. We employ the trading days coefficient and the traded volume coefficient without changing them, and express the free-float percentage as a coefficient.

Table 12
Primary and secondary measurers as coefficients

Company	$TD(K)$	$TN_{DA}(K)$	$TV_{DA}(K)$	$TV(K)$
Sopharma	**0.9819**	**1.0000**	**1.0000**	0.2069
Doverie United Holding	0.8705	0.8890	0.3323	**0.4946**
Sparky Eltos	0.3373	0.0736	***0.0103***	***0.0715***
First Investment Bank	0.9187	0.7629	0.1352	0.3428
Elana Agrocredit	0.6235	0.1771	0.0736	0.1086
Bulland Investments	0.3434	0.0674	0.0227	0.4225
Balkan and Sea Properties	***0.1205***	***0.0184***	0.0547	0.2203

Company	$Ff_{NS}(K)$	*Ff(%)*	MC_{RW}	*SN(K)*	$SH_N(K)$
Sopharma	**1.0000**	0.3187	0.9630	**1.0000**	0.0406
Doverie United Holding	0.2884	**0.6612**	0.0650	0.1390	**1.0000**
Sparky Eltos	0.1190	***0.1278***	***0.0075***	0.2966	0.0377
First Investment Bank	0.3841	0.1500	**1.0000**	0.8160	0.0131
Elana Agrocredit	0.2466	0.5605	0.0418	0.1402	0.0026
Bulland Investments	0.2171	0.6215	0.0193	0.1113	0.0012
Balkan and Sea Properties	***0.0594***	0.3685	0.0158	***0.0514***	***0.0003***

4.4.c. Assigning Relative Weights to Selected Primary and Secondary Measurers

In order to provide a complex assessment of market liquidity, we assign weights to selected ***secondary measurers***. Their weights in the complex formula should be an objective expression of both the relative significance of each primary and secondary measurer,[16] and the overall significance of complementary and similar primary measurers (such as: the coefficient of traded volume and the average daily traded volume; free-float as a percentage and free-float in number of shares; the number of free-float shares and the number of all issued shares). We therefore compute the **Complex Market Liquidity Coefficient** with the formula:

$$CML(K) = TD(K) * 0{,}26 + TN_{DA}(K) * 0{,}24 + TV_{DA} * 0{,}11 + TV(K) * 0{,}11 + Ff_{NS} * 0{,}08 + Ff(\%) * 0{,}08 + MC_{RW} * 0{,}04 + SN(K) * 0{,}04 + SH_N(K) * 0{,}04$$

Before analysing summarized specific results about the companies we have included in the scope of our research, we need to point out that this model seeks to determine and specify the relative market liquidity of companies. It therefore meets the criterion of objective comparability, yet it does not provide an absolute value of the market liquidity of each company. The latter is evaluated based on reviewed primary and secondary measurers.

Table 13 presents the results we obtain after making the relevant substitutions in the formula for computing the complex market liquidity of companies.

Sopharma has the highest values for five out of nine secondary measurers employed in the complex market liquidity formula and a coefficient of 0.814.

[16] The analytical significance of each primary or secondary measurer was pointed out when employing them in points 4.1.; 4.2. and 4.3.

Table 13
Company rating according to the complex market liquidity ratio

Rating	Company	Stock exchange index	***CML(K)***
1	Sopharma	SOFIX	**0.814**
2	Doverie United Holding	SOFIX	**0.655**
3	First Investment Bank	BGTR30	**0.590**
4	Elana Agrocredit	BGTR30	**0.297**
5	Bulland Investments	BGRATE	**0.227**
6	Sparky Eltos	BGBX40	**0.148**
7	Balkan and Sea Properties	BGRATE	**0.103**

The company is followed by *Doverie United Holding,* with a complex market liquidity coefficient of 0.655 and the highest values registered for two of the primary measurers – the number of shareholders and the traded volume coefficient.

First Investment Bank ranks third with a complex market liquidity coefficient of 0.590 and the highest value of the secondary measure relative weight of market capitalization.

Elana Agrocredit ranks fourth in terms of complex market liquidity, the value of the coefficient being 0.297.

Bulland Investments is in the fifth place, with a value of its complex market liquidity coefficient equal to 0.227.

Sparky Eltos is sixth with a complex market liquidity coefficient of 0.148.

Balkan and Sea Properties is at the bottom with the lowest complex market liquidity coefficient of 0.103.

Ranking the seven selected companies according to their complex market liquidity leads us to similar conclusions about the related stock exchange indices, i.e. SOFIX; BGTR30; BGBX40 and BGRATE. A sample about two companies (the one with the highest and the one with the lowest stock exchange value) confirms that SOFIX is the primary measure composed of the companies with the highest liquidity. BGTR30 ranks second in terms of the market liquidity of the companies included in it. With a large number of constituents, the sector index BGBX40 predictably ranks third for this investment parameter, followed by BGRATE.

The investors interest in (and the liquidity of) the sector index may be accounted for by the small number of constituents, their specialization, etc. They are indicative of the investor interest, rather than objective factors.

Based on the comprehensive analysis we have conducted in this part of the paper, **the market liquidity of researched companies may be assessed as follows**:

Sopharma – very good;

Doverie United Holding and *First Investment Bank* – good;

Elana Agrocredit and *Bulland Investments* – low;
Sparky Eltos and *Balkan and Sea Properties*– poor.

5. Taking into Account the Yield of Shares

In order to analyse the yield of selected shares over the researched period, we take into account two types of income – capitalization and capital income, with the following secondary measurers:

a. Capitalisation for the period:
   - Absolute;
   - Relative capitalization in terms of the stock exchange index of which a company is a constituent.

b. Payment of dividends:
   - Occurrence and number of dividend payments during the researched period;
   - Absolute value of the dividend;
   - Dividend/price ratio.

Table 14
Capitalization income for the period

Stock exchange index	**Company**	Capitalisation for the period (%)	Index growth (%)	Capitalisation in terms of the weighted index (%)
SOFIX	Sopharma	56.31	41.81	+ 14.50
	Doverie United Holding	200.72		+ 158.91
BGBX 40	Sparky Eltos	- 51.57	43.80	- 95.37
BGTR30	First Investment Bank	128.22	41.43	+ 86.79
	Elana Agrocredit	18.12		- 23.31
BGRATE	Bulland Investments	04.71	10.64	- 5.93
	Balkan and Sea Properties	0.00		- 10.64

As evident from the data presented in Table 14, *Doverie United Holding* is the company with the highest capitalization income of nearly 200.1 % and relative yield exceeding that of SOFIX by 159 % SOFIX. *First Investment Bank* ranks second with capitalization income of nearly 130%, followed by *Sopharma* with 56.3%. *Sparky Eltos* is the only company with an absolute loss (-51.6%) and yield below that of the BGBX40 index by 95.4 %. The other three

companies have negative income in comparison to the index of which they are constituents. *Elana* Agrocredit is the only one of them with slightly higher absolute yield of a little more than 10%, while *Balkan and Sea Properties* closed the period with zero absolute yield.

In general, global corporate policy has not relied on dividend payments for the last few decades, even before the global recession hit in 2008. This was the policy followed by most public Bulgarian companies during the researched period of slight economic upsurge. Only two out of the seven selected companies paid a dividend for 2017, which was rather small and therefore did not significantly affect the overall yield of their shares (Table 15).

Table 15
Capital income

Stock exchange index	**Company**	Number of dividend payments for the period	Gross dividend per share (BNG)	Dividend / price ratio
SOFIX	Sopharma	1	0.0229	0.0054
	Doverie United Holding	0	-	-
BGBX 40	Sparky Eltos	0	-	-
BGTR30	First Investment Bank	0	-	-
	Elana Agrocredit	1	0.0513	0.0386
BGRATE	Bulland Investments	0	-	-
	Balkan and Sea Properties	0	-	-

6. Analysis of the Market Risk for the Researched Shares

As a starting point in the analysis of market risk we determine the secondary measurers of statistical dispersion; pay attention to the VaR and complement the description of the risk profile with the Frequency analysis of the volatility and trend. Our analysis of market risk by employing secondary measurers of descriptive statistics and VaR is based on the continuous growth (logarithmic relative price changes) which is approached as a more objective method than employing the absolute values of prices.

6.1 Descriptive Statistics of Researched Shares

In point one, we noted and justified the analytical significance of the coefficient of variation, kurtosis and skewness as secondary measurers of descriptive statistics.

Table 16
Statistical variation, skewness and kurtosis

Stock exchange index	Company	*V%*	*K*	*S*
SOFIX	Sopharma	10.13	3.2143	0.0399
	Doverie United Holding	9.92	5.7668	0.9993
BGBX40	Sparky Eltos	13.79	3.2070	- 0.2786
BGTR30	First Investment Bank	7.06	2.9672	1.0396
	Elana Agrocredit	24.59	1.6227	- 0.1671
BGRATE	Bulland Investments	17.81	20.4837	1.3061
	Balkan and Sea Properties	1.65	5.6069	- 0.2527

6.1.a. Variation

The leader in the dispersion presented with the coefficient of variation was *Elana Agrocredit* with 24.6, followed by *Bulland Investments*, *Sparky Eltos* and *Sopharma*, with values of the coefficient exceeding 10. *Balkan and Sea Properties* had low values of the coefficient of variation of their yield – 1.65%.

6.1.b. Kurtosis

The dispersion of the yield from the shares of five out of seven companies is characterized by kurtosis which is above the normal value. We need to account for the fact that the researched sixteen-month period is a long one and although many of the companies did not trade every day, we have more than one hundred to three hundred observations about six of the companies. *Bulland Investments* registered a strikingly high kurtosis of 20.48, followed by *Doverie United Holding* with a kurtosis of 5.77 and *Balkan and Sea Properties*c with a kurtosis of 5.61. *Elana Agrocredit* registered the lowest, yet positive, kurtosis.

6.1.c. Skewness

Four of the companies registered right (positive) skewness which was most notable for the shares of *Bulland Investments, First Investment Bank* and *Doverie United Holding.* The skewness registered by *Sopharma* was close to neutral – 0.04. The most marked left skewness was predictably registered for the shares of the decapitalising *Sparky Eltos* (although the position of the statistical median, mode and mean should not be approached as indicative of a trend).

6.2. Research of the VaR

The employment of VaR models is characterized by the objective dependence that higher confidence intervals and the higher number of days about which a forecast is valid result in higher values, i.e. higher losses. The computations made for some of the companies in Table 17 deviate from that

principle due to the presence of decapitalsiation sub-periods during the researched period.

Table 17
Absolute, relevant VaR

Stock exchange index	**Company**	Confidence interval 99%			Confidence interval 95%		
		10 days	15 days	20 days	10 days	15 days	20 days
SOFIX	Sopharma	-10.24	-10.48	-11.74	-7.24	-6.81	-7.49
	Doverie United Holding	-27.91	-28.45	-31.83	-19.73	-18.44	-20.26
BGBX 40	Sparky Eltos	**-73.72**	**-101.19**	**-118.79**	**-52.12**	**-74.74**	**-88.25**
BGTR30	First Investment Bank	-14.10	-13.20	-14.51	-9.97	-8.14	-8.67
	Elana Agrocredit	-14.62	-16.70	-19.06	-10.34	-11.45	-13.01
BGRATE	Bulland Investments	-52.86	-64.14	-73.95	-37.38	-45.17	-52.05
	Balkan and Sea Properties	-18.40	-22.54	-26.02	-13.01	-15.94	-18.40

According to the results obtained from the absolute, relevant VaR for the different time periods (i.e. 10, 15 and 20 days), the highest risk for both confidence intervals (95% and 99%) was registered by the shares of *Sparky Eltos*. The extreme values of the risk measurer are mainly due to the negative yield during the period (continuous logarithmic yield of 7.27), accompanied by significant dispersion (coefficient of variation 15.54). The multiplication of the two negative factors determined the high VaR values which were computed about *Sparky Eltos*. The high risk values of the absolute and relevant VaR of *Sparky Eltos* were directly confirmed by the decline in the stock exchange price of the company which continued for a month after the researched time period.

In contrast to the absolute and the modified VaR, the confidence interval about the **conditional VaR (CVaR)** is determined in advance and the time period is set accordingly. The small number of the days included in the forecast is due to the sample data about the returns of each company. There was weak investor interest in the shares of some companies, for example *Balkan* and *Bulland,* as obvious from the primary and secondary measurers of market liquidity that we analysed earlier. The conditional VaR determines as the most risky the

Table 18
Conditional VaR

Stock exchange index	**Company**	Confidence interval	**Days**	CVaR (%)
SOFIX	Sopharma	99	3	- 4.94
		95	16	**- 3.01**
	Doverie United Holding	99	3	- 8.21
		95	14	- 7.61
BGBX40	Sparky Eltos	99	1	**- 38.81**
		95	5	**- 22.02**
BGTR30	First Investment Bank	99	3	**- 4.73**
		95	15	- 3.20
	Elana Agrocredit	99	2	- 6.35
		95	10	- 4.54
BGRATE	Bulland Investments	99	1	**- 32.03**
		95	6	- 16.17
	Balkan and Sea Properties	99	1	- 21.04
		95	2	- 7.49

shares of *Sparky Eltos* – 38.81% per day at 99% confidence interval and 22.02% per five days at a confidence interval of 95%. The lowest values of losses were predicted for *First Investment Bank* - 4.73% in a three-day forecast at 99% confidence interval, and *Sopharma* – 3.01% at 95% confidence interval in a sixteen-day forecast.

Table 19
Modified VaR (MVaR)

Stock exchange index	**Company**	Confidence interval 99%			Confidence interval 95%		
		10 days	15 days	20 days	10 days	15 days	20 days
SOFIX	Sopharma	- 12.99	- 15.90	- 18.36	**- 6.47**	**- 7.93**	**- 9.15**
	Doverie United Holding	- 29.55	- 36.20	- 41.79	- 13.50	- 16.53	- 19.1
BGBX40	Sparky Eltos	- 105.34	- 129.02	-148.98	**- 54.83**	**- 67.16**	**- 77.5**
BGTR30	First Investment Bank	**- 10.35**	**- 12.67**	**- 14.64**	- 6.83	- 8.37	- 9.7
	Elana Agrocredit	- 17.46	- 21.38	- 24.69	- 10.17	- 12.46	- 14.4
BGRATE	Bulland Investments	**- 125.14**	**- 153.26**	**- 176.97**	- 18.69	- 22.89	- 26.4
	Balkan and Sea Properties	- 30.05	- 36.80	- 42.50	- 12.68	- 15.52	- 17.9

As we know, for the ***modified VaR***, a set of more objective methods are employed to compute the confidence interval by taking into account the skewness and kurtosis. According to that model, the least risky company is *Bulland Investments*, the value of MVaR increasing for longer time periods. The extreme values are due to the high values of the kurtosis and the skewness coefficient of the returns of the company (20.4831).

The two least risky companies, as we found out by employing the conditional VaR, are *First Investment Bank* for 99% confidence interval and *Sopharma AD* for 95% confidence interval.

For all three VaR modifications, *Sopharma AD* and *First Investment Bank* generated the lowest levels of forecasted market risk, either of the companies being the leader for different confidence intervals and time periods. The major determinants which have an impact on the low values of risk are the lowest standard deviation of yield and the positive yield.

6.3. Risk Assessment through Frequency Analysis of the Volatility and Trend

6.3.a. Dynamic Coefficient

The value of the dynamic coefficient for five of the companies is average. For four of them the value is slightly below the average, and only one of the companies included in the research, *Bulland Investments*, registered values which were slightly higher (i.e. by only 1%) than the average values of the dynamic coefficient (Simeonov S. , Izmeriteli na borsovata aktivnost - izsledvane na indikatorite i analiz na pazarniya trend, 2016, pp. 101-117). The lowest dynamic coefficients were registered by *Balkan and Sea Properties* – only 0.29.

6.3.b. Average Frequency of the Unidirectional Movement

According to the definition of frequency coefficients, the average frequency of the unidirectional movement is reciprocally related to the dynamic coefficient. The value of the coefficient for *Balkan and Sea Properties* is higher than the average 3.45, whereas *Bulland Investments* registered slightly less than two trading days of unidirectional movement of the stock exchange rate.

6.3.c. Coefficient of the Prevailing Tendency

Balkan and Sea Properties had a positive coefficient of the prevailing tendency of 3.33. The two constituents of the SOFIX index also registered a positive prevailing tendency, yet the values of the coefficient were nearly neutral (i.e. 1). Sparky, First Investment Bank and Elana registered a slightly negative prevailing tendency.

Obviously, the two companies which are constituents of the sector index determine the extreme values of the three frequency coefficients. The leading position of *Bulland Investments* in terms of the dynamics and the negative prevailing tendency render the shares of the company as highly risky and not

Table 20
Frequency analysis of the volatility and trend

Stock exchange index	Company	*D*	AD_{UM}	*PT*
SOFIX	Sopharma	0.49	2.02	1.30
	Doverie United Holding	0.49	2.05	1.13
BGBX40	Sparky Eltos	0.47	2.12	0.88
BGTR30	First Investment Bank	0.48	2.09	0.95
	Elana Agrocredit	0.42	2.36	0.98
BGRATE	Bulland Investments	**0.51**	**1.96**	**0.77**
	Balkan and Sea Properties	**0.29**	**3.45**	**3.33**

attractive to conventional investment interests. The shares of *Balkan and Sea Properties* can be identified as most suitable for long positions in terms of speculation.

The first conclusion that is confirmed in practice by the findings of our analyses is that none of the popular models and even less so any of the secondary measures for risk assessment would be sufficient to reliably and univocally assess risk as an investment parameter.

6. Groups of Investment Instruments for Different Complex Investment Profiles

Aggregate results about the market liquidity, yield and risk of any of the researched companies need to be carefully assessed. On the other hand, the objective system characteristics of the financial market should not be ignored either. As we pointed out at the beginning, when we designed theoretically the major types of investment profiles, the lack of forward and derivatives market and the Ordinance on short sales which is not applied in practice excludes a wide variety of opportunities for real speculation. The low market liquidity which was established for most of the companies in our research further reduces the potential for employing speculation techniques.

Based on the analysis of three investment parameters for the period from August 2016 to December 2017, the companies relate mainly to two of the designed major investment profiles which have the following characteristics:

- *Sopharma* and *Doverie United Holding* match the profile with more likely capitalization, which is determined both by the higher value of capitalization and the positive coefficient of the prevailing tendency, in addition to the low risk levels according to the VaR and moderate dynamics. This is most clearly demonstrated by the highest interest of investors in the shares of these companies.

- *First Investment Bank* relates to a slightly higher potential for speculation. The shares of the company have e negative coefficient of the prevailing tendency despite the value of absolute capitalization for the period.
- *Elana, Balkan and Sea Properties, Sparky* and *Bulland Investments* are associated with high risk and more likely decapitalization. The low market liquidity further reduces the interest of investors in these companies.

We need to point out that the nature of investment portfolios is dynamic and their employment as investment recommendation in the long-run requires that they should be duly updated. A higher average daily number of transactions could make daily speculation possible as well, which would multiply the trading primary measurers of market liquidity and would subdue risk 'noises'. Further potential for raising the investor interest and making more attractive the stock exchange portfolio (the market performance profile) presented here could be sought in investor confidence which depends on implementing a consistent overall economic policy.

CONCLUSION

The findings of this research enable us to draw several major conclusions of theoretical, methodological and practical significance.

From a **theoretical and methodological perspective**, we have defined the concept 'investment profile' to refer to the complex assessment, which is both analytically correct and empirically justified, of any of the three basic investment parameters – market liquidity, yield, and risk. Designing an investment profile is essential for matching individual (personal and institutional) investment motives to the specific features of a particular investment instrument. This is a major requirement for selecting an appropriate investment instrument and implementing a successful investment strategy according to different investment preferences, time horizons or trade commitment.

Based on the combination of the different characteristics of the three fundamental investment parameters, we **have identified five major investment profiles of the shares which are traded on the stock exchange**.

The low investment activity which was initially observed on the Bulgarian Stock Exchange provoked us to seek for more specific analytical methods and propose some new, unconventional, measurers of the market liquidity of companies. In addition to the ***primary micro measurers***, which we ranked according to their informational significance, we employed **two more categories of measurers according to their nature, i.e. *basic and trade*.** Our long-term observations indicate that regulatory requirements and comments published by professionals normally focus on basic primary measurers. Our research provides methodological and practical evidence that trade primary micro measurers should be employed with priority when analysing market liquidity. The primary micro measurers which we identify as

most significant when analysing shares traded on low-liquidity markets include: the number of trading days; the average daily number of transactions; the average daily traded volume. **We also add three new measurers to be employed in the assessment of market liquidity**: ***the coefficient of trading days; the coefficient of traded volume and the relative weight of market capitalization***, **which we consider to be the most important**. **In order to compare the market liquidity of companies adequately and objectively, we have designed a model of a complex assessment of micro market liquidity.**

We also emphasized and proved the importance of micro market liquidity within the set of the three major parameters of any investment profile. We support the thesis **that the research of market liquidity is another criterion to be met when selecting a portfolio of companies on emerging capital markets and stock exchanges with low investment activity,** as this would contribute to achieving successful results.

In terms of **risk analysis**, in addition to the well-known statistical primary measurers and those based on the income (the VaR in our case), we propose the Frequency analysis of the volatility and trend. Employing the Dynamic coefficient; the Average frequency of the unidirectional movement and the Prevailing tendency made it possible to design a much more comprehensive profile of risk in comparison to the traditional one which relies solely on yield-based models.

For the **purposes of out practical research**, we selected the companies with the highest and the lowest stock exchange value which are constituents of the four stock exchange indices calculated by the BSE. Based on the analyses we conducted of the period from 2016 to December 2017, the companies can be grouped into two major investment profiles. SOFIX constituents and BGBX40 and BGTR30 constituents with the highest market capitalization are to be selected by investors who seek to obtain capitalization income at a relatively low risk and good market liquidity. Smaller BGBX40 constituents and constituents of the BGRATE sector index demonstrate poor market liquidity and, some of them, a high level of risk, which renders them less attractive due to the limited opportunities provided by a conservative capital market.

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