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The Small Stock Exchanges in South - East European Countries: The Future after the Crisis

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Abstract

The aim of this paper is to identify the effects of the regional and global stock exchange mergers and integrations, and to recommend options that South-East European stock exchanges should consider in future. The global financial crisis brought considerable economic decline in 2008, and this has remained the case until today, putting the future existence of South-East European stock exchanges into question. The paper will focus on the impact that these mergers/integrations have on market liquidity, and the required rate of return. We have made a comparative analysis of selected SEE and worldwide-developed stock exchanges in terms of some market indicators. To calculate the Stock Exchanges' required rate of return we developed a modified Capital Asset Pricing Model suitable for emerging market economies. Then, we determined the breadth, depth and liquidity of the Macedonian Stock Exchange using a number of different liquidity measures. Based on the results from these analyses, we recommend several options for SEE stock exchanges: developing on their own for which aggressive policy measures for developing internal financial markets must be devised; building links with substantially larger and better developed markets to establish virtual trading venues, borrowing advanced platforms and visibility; and, to a start regional integration process (mergers/acquisitions).

Keywords: Financial markets, stock exchange, South-East Europe, modified CAPM, mergers, breadth, depth, liquidity, cost of capital, market indicators, Macedonia.

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1. Introduction

The aim of this paper is to identify the effects of regional and global stock exchange mergers and integrations, and to recommend options that South-East European stock exchanges should consider in future. The paper will focus on the impact that these mergers/integrations have on the market`s breadth, depth and liquidity, and the required rate of return. We expect that mergers/integrations will decrease the required rate of return, and increase stock exchange liquidity, investor base and the number of quoted companies that help the development of stock exchanges, and thus the future economic development of those countries.

After more than two decades since their opening, the SEE stock exchanges did not succeed in attracting the attention of the developed European Union exchanges because of their small market capitalization and insignificant turnover. Now, as the world is coming out of the crisis and some positive trends are becoming slightly visible in SEE, it seems it is the right time to reaffirm the efforts to persuade regional or global co-operation.

This paper focuses on seven SEE security markets (Macedonia, Serbia, Croatia, Slovenia, Bulgaria, Hungary and Romania). These markets started trading in the mid – 1980s and mid 1990s with a slight number of stocks, many of which were illiquid. In spite of significant progress over the past years, there are still key challenges to ensure future growth. Liquidity in both equity and bond markets remains thin, and there is no tendency among large enterprises to make debt or equity cost-efficient issuances. The investor's protection is not yet suitable, pricing limitations still exist, while benchmark yield curves are "incomplete" and unreliable in many cases. In addition, EU accession is raising questions about the development, consolidation and integration of emerging European capital markets.

The remainder of the study is organized as follows. Section 2 reviews the related literature. Section 3 describes our Model and data. Section 4 reports the empirical results and Section 5 concludes on the main findings.

2. Literature Review

The first step towards merger is the Copenhagen and Stockholm stock exchange merger in 1997, (the NOREX alliance) later renamed in OMX. A few years later, Oslo, Island, Riga, Tallinn, Helsinki and Vilnius joined the OMX. The American stock exchange NASDAQ has integrated with the stock exchange from Helsinki. In 2000, a merger of the Amsterdam, Paris and Brussels stock exchange created EURONEXT. The Lisbon and London International (LIFFE) Stock Exchanges joined EURONEXT in 2001. According to Padilla & Pagano (2005), the system harmonization within the EURONEXT stock exchanges, lead to a 27% decrease in the bid-ask spread for the shares of 104 companies that are part of their research. Arnold et al. (1999) came to a similar conclusion, by examining the bid-ask prices of the shares from three regional stock exchanges that had entered into the merger process. On April 4, 2007, the first transatlantic stock exchange was created, with the merger of the New York Stock Exchange and EURONEXT, because of the coherent industrial strategy towards wide offer of securities and geographical diversification. In Central Europe, the process of the regional integration of stock exchanges started with the merger of the Hungarian, Slovenian, Czech, and Austrian stock exchanges, establishing the CEE Exchange Group (CEESEG).

During this last decade in all of the previously mentioned mergers, there is evidence of increased trading volume, an increased number of traded securities and decreased trading costs (Polato & Floreani, 2008). By contrast, Nielsson (2008) from the EURONEXT liquidity effects of mergers discovered that a merger is not in the best interest of all companies, but only of the big and international companies. Pagano et al. (2002) confirmed these conclusions. Contrary to these findings, according to OMX research (2007, p. 15), the real benefits from the mergers (increased trading volume and liquidity) belongs to the small and medium sized companies, but only if they had international sales before the merger. For Jain (2005), the improved liquidity and company performance after the merger does not depend on their size and exposure, but on the implementation of technological innovations in the merger process.

The prime aim of the linkages of stock exchanges is to reduce costs and increase liquidity. Domowitz & Steil (1999) highlight the impact

of the reduction of trading costs on turnover (as experienced in many markets), and more importantly the indirect effects of the reduction of trading costs on the required rate of return. Market size and liquidity are important factors for market efficiency, as well (La Porta et al., 1997), thus, the smaller and illiquid markets have difficulty in achieving this objective. Stijn et al. (2002) believed that most of the stock exchanges will be forced to choose between several options: developing on their own by reducing costs and increasing revenues; building larger virtual markets by establishing cross-border links of some kind with other exchanges; or merging / taking over by one or more of the other exchanges.

Claessens et al. (2002) examine three market indicators related to stock exchange development: market capitalization over gross domestic product (GDP), value traded domestically over gross domestic product (GDP), which complements the market capitalization ratio by showing whether market size is matched by trading, and value traded domestically over market capitalization. In this study, we will estimate how these market indicators for the selected SEE security markets were evolving during the last 15 years.

Liquidity and trading activity are important features of financial markets, yet we know little about their evolution over time or about their time-series determinants (Chordia et al., 2001). Their fundamental importance is exemplified by the influence of trading costs on required returns (Amihud & Mendelson (1986)) which implies a direct link between liquidity and the corporate cost of capital. Therefore this chapter examines both the liquidity and required rate of return of the Macedonian Stock Exchange in order to determine the level of development.

Chordia *et al.* (2001) and Alrabadi (2012) have shifted the focus of liquidity research from the individual stock level to the overall market level. The authors introduced a new phenomenon called commonality in liquidity and defined it as the co-movement between individual stock liquidity and market liquidity. Commonality is found to exist in developed markets (Hubennan & Halka, 2001; Hasbrouck & Seppi, 2001; Giouvris, 2003) as well as in emerging markets (Brockman & Chung, 2002; Sujoto *et al.* 2005; Qin, 2007). Launching this area of research, authors have moved toward analyzing aggregate market liquidity, (Chordia *et al,* 2001)

and investigating whether its variations affect stock retums (Jones, 2002; Amihud, 2002; Bekaert *et al,* 2003; Pastor & Stambaugh, 2003; Gibson & Mougeot, 2004; Acharya & Pedersen, 2005; Liu, 2006). In our analysis, we will also calculate and analyze the aggregate market liquidity.

The models for estimating the cost of equity (required rate of return) thrive in the literature of financial economics. According to Neves & Pimentel (2011), they can follow an ex-post or an ex-ante approach. Ex-post models based on the relationship between risk and return, were first developed by Sharpe who determines the market price of risk and the measure of risk for a single asset. This is the well-known CAPM, that assumes perfectly liquid markets. In spite of the controversy and criticism of the *CAPM* including Fama & French (1992) and Ross (1976), this model is still a standard and the one most used by practitioners, according to the surveys of Bruner *et al.* (1998) and Graham & Harvey (2001). This is the major reason for using it as a base for the adapted model used in this chapter.

3. Model and Data

For our comparative analysis among SEE and worldwide-developed Stock Exchanges, we use four market indicators.

To measure the level of stock market development, we utilize stock market capitalization as a percentage of GDP, and total value of shares traded as a percentage of GDP, which complements the market capitalization ratio by showing whether market size is matched by trading. Turnover velocity, is computed as the total value of shares traded during the period divided by the average market capitalization for the period.

The cost of capital is of utmost importance in fundamentals-based models for valuing many different assets. Some conceptual problems with CAPM as pointed out by Pereiro (2002) include flaws in its professed objectivity, irrelevance and its inability to capture unsystematic risk. With the increasing interest in emerging markets throughout the 1990s, academics and practitioners have developed a number of CAPM models to compute the cost of capital in an international setting. The most used CAPM variants for business valuations in emerging markets are the global CAPM variant, local CAPM variant, adjusted local CAPM variant,

adjusted hybrid CAPM variant and Godfrey-Espinosa Model. Non-CAPM based models in use include the Estrada model and Erb-Harvey-Viskanta Model. There is no single correct model that is recommended, and the choice lies with the investor or appraiser (Pereiro, 2002).

The finance literature describes a number of empirical anomalies and suggests that, beyond the systematic risk embodied in the CAPM beta; other factors may have an influence on stock returns and should be priced as well. Pereiro outlines the following factors: the relative or absolute size of the firm's market capitalization, the ratio of price to book value, the illiquidity or lack of marketability of the stock, the trading volume, the momentum and the diversification discount,.

Since we want to investigate the required rate of return of the selected SEE stock exchange indexes, where according to our findings they characterize with low market capitalization, low liquidity, and small trading volume, it is convenient to use modification of the basic Sharp's CAPM model:

$$Re = Rf + \beta \times (Rm - Rf)$$

Modified CAPM that we create:

$$Re = Rf_L + Rc + \beta_{LG} \times (Rm_G - Rf_G) \times Rv$$

where, *Re* is the stock exchange required rate of return, Rf_L is the local risk free rate of euro denominated sovereign bonds, *Rc* is the country risk premium, β_{LG} is the country beta, Rm_G is the global market return, Rf_G is the global risk free rate, and *Rv* is the relative volatility.

We compute the country risk premium as a spread of euro denominated sovereign bonds and the German government bond – proxy for the global bonds. The country risk premium is the additional systematic risk for investing in the stock exchanges of emerging markets. Country beta we calculate as slope of the regression between the local equity market index and the DJ EUROSTOXX 600 – proxy for the global market index. We use the return of DJ EUROSTOXX 600 as a proxy for the global market return and the German government bonds as a proxy for the global risk free rate. We calculate relative volatility as a ratio between the standard deviation of the local equity market index and the DJ EUROSTOXX 600. Relative volatility represents unsystematic risk – additional risk for investing in the stock exchanges of emerging markets.

Required rate of return, the risk free rate of return for euro denominated sovereign bonds, the rate of return of DJ EUROSTOXX 600, and the risk free rate of return of the German government bonds we calculate as an annual geometric mean from the monthly rate of returns. We calculate the country risk premium as an average spread from the monthly rate of returns of the euro denominated sovereign bonds and the German government bonds.

Descriptive statistics and charts are used to describe the behavior of aggregate Macedonian stock exchange market breadth, depth and liquidity in the study period. Eight liquidity measures are employed, the absolute quoted bid-ask spread (SPR), the proportional quoted bid-ask spread (PSPR), the quoted quantity depth (DEP), the quoted denar depth (DDEP), Amihud's (2002) illiquidity ratio (AM), the number of trades (NO), the quantity trading volume (QTY) and the denar trading volume (VOL). Obviously, the study uses a number of different measures in order to reflect the different dimensions of liquidity. SPR and PSPR reflect the cost dimension, DEP and DDEP indicate by definition the quantity dimension, QTY, VOL and NO are related to the trading activity aspect of liquidity and AM is a proxy for price impact.

$$SPR_{i,t} = P^{A}_{i,t} - P^{B}_{i,t}$$

Where $SPR_{i,t}$ is the Absolute Quoted Bid-Ask Spread, $P^{A}_{i,t}$ is ask priée of stock *i* at time *t.* $P^{B}_{i,t}$ *is* bid price of stock *i* at time *t*

$$PSPR_{i,t} = \frac{P^{A}_{i,t} - P^{B}_{i,t}}{(P^{A}_{i,t} + P^{B}_{i,t})/2}$$

Where $PSPR_{i,t}$ is the Proportional Quoted Bid-Ask Spread

$$DEP_{i,t} = \frac{Q^{A}_{i,t} + Q^{B}_{i,t}}{2}$$

Where $Q^{A}_{i,t}$ is ask quoted quantity of stock *i* at time *t*. $Q^{B}_{i,t}$ is bid quoted quantity of stock *i* at time *t*.

$$DDEP_{i,t} = \frac{Q^A_{i,t} * P^A_{i,t} + Q^B_{i,t} * P^A_{i,t}}{2}$$

Where $DDEP_{i,t}$ is the Quoted Denar Depth

$$AM_{i,t} = \frac{|R_{i,t}|}{VOL_{i,t}}$$

Where $AM_{i,t}$ is Amihud's (2002) illiquidity Ratio, $R_{i,t}$ is the return on stock *i* at time *t*. $VOL_{i,t}$ is the denar volume of stock *i* at time *t.*

Aggregate market values of SPR, PSPR, DEP, DDEP and AM on a certain day are calculated by averaging their values for all the stocks that are traded on that day. However, aggregate market values of QTY, VOL and NO are calculated by summing their values for all the stocks traded on a certain day.

For the comparative analysis among SEE and worldwide-developed Stock Exchanges, we use annual data from the World Bank Database. For the stock exchange required rate of return, we use monthly data throughout the period January 2005 – December 2012 (8 years), inclusive. For each stock exchange, it includes the monthly rate of return of the 10-year euro denominated sovereign bonds, including the German government bonds used as a proxy for the global risk free rate of return. It also includes the monthly rate of return of each stock exchange index including the DJ EUROSTOXX 600, used as a proxy for the global market rate of return. We calculate the rate of return of bonds from the monthly data for bond prices obtained by the Bloomberg Data Base. For the computation of the stock exchange indexes' rate of return, we use monthly data from Budapest, Bucharest, Sofia, Ljubljana, Zagreb, Belgrade and the Macedonian Stock Exchange.

For the determination of the breadth, depth and liquidity of MSE the data set consists of daily closing trading data for all 161 stocks that are registered and traded in MSE throughout the period January 2005 – December 2012 (1.927 trading days), inclusive. For each stock, it includes the daily quantity and denar trading volume, the average prices for the day, the daily number of trades and the best quoted bid

and asking prices and their corresponding quoted quantities. All the companies that are traded in any day are included without any any exception. In the calculations we exclude the shares that do not have bid-ask spread or trading volume for that day. In comparative analysis, we use the following exchange rate: 1 € = 61.35 MKD - Macedonian denar.

4. Empirical Results

4.1. Comparative Analysis

To measure the level of stock market development, as we mentioned before, we use three market indicators. The data for the first indicator, stock market capitalization as a percentage of GDP, we present in Table 1, and show that stock markets in those SEE countries grew significantly over the last 15 years.

Table 1: SEE Stock Exchange Development 1996-2011 (Market capitalization / GDP)

Country	1996	2001	2006	2011
Macedonia	2.2	1.3	16.7	5.9
Serbia	0.0	0.0	37.6	18.3
Croatia	12.7	14.4	58.2	34.9
Slovenia	3.1	13.9	39.0	12.8
Bulgaria	0.1	3.6	31.1	15.4
Hungary	11.5	19.7	16.7	13.4
Romania	0.2	5.3	26.7	11.8

Source: World Bank Database

These values are far below the levels of the well-established market economies (the total world stock exchanges ratio is 68.8%, while in the EU it is 52.7% and in Germany 32.9% in 2011). If we look at the data from 2006 (the year before the beginning of the global financial

crises) and 2011, although maybe surprisingly, we can conclude that the most developed stock exchange of SEE group is the Croatian one, followed by the Slovenian and Serbian stock exchanges.

Despite the robust growth rates, the SEE stock markets remain small in terms of market capitalization compared to the developed markets. At the end of 2011, the capitalization of all these markets together amount to 5.3% of the German and 4.0% of the French stock market capitalization.

Table 2: SEE Stock Exchange Development 1996-2011 (Trading volume / GDP)

Country	1996	2001	2006	2011
Macedonia	0.0	1.4	3.0	0.5
Serbia	0.0	0.0	4.6	0.7
Croatia	1.0	0.5	3.7	1.5
Slovenia	1.9	3.9	2.6	1.0
Bulgaria	0.0	0.5	4.5	0.5
Hungary	3.6	9.1	27.7	13.9
Romania	0.0	0.6	3.5	1.8

Source: World Bank Database

This indicator shows the other side of stock market development, and different results from the previous market indicator - very low trading volume and overvalued stock prices. From the examined countries, only the Hungarian stock exchange shows a significant level, while for the other six countries we can conclude a high level of illiquidity. These results confirm our hypothesis, that merged/integrated stock exchanges (such as the Hungarian one) have higher/increased stock exchange liquidity, and that the single SEE stock exchanges are driven to the brink of extinction with this low level of trading volume.

Table 3: SEE Stock Exchange Development 1996-2011 (Trading Volume / Market Cap.)

Country	1996	2001	2006	2011
Macedonia	0.0	177.1	22.4	2.0
Serbia	0.0	0.0	16.3	3.7
Croatia	12.8	3.9	8.7	4.1
Slovenia	82.3	29.5	8.8	6.5
Bulgaria	0.1	12.5	19.6	3.4
Hungary	42.8	43.0	83.7	83.9
Romania	7.6	16.0	16.0	12.0

Source: World Bank Database

If we look at the data in Table 3 from 2006, the turnover ratio is very high for Hungary, and the rest of the SEE countries that we examined are some way behind Hungary, which confirms the findings in the previous market ratio. This is even more evident if we look at 2011, where Hungary has 83.9%, while the others less than 12%, which is the real measure of their illiquidity. In 2011, the German stock exchange had a 134.5% turnover ratio.

In Table 4, we present the results for the SEE stock exchanges' required rate of return using the modified CAPM formula we create:

$$Re = Rf_L + Rc + \beta_{LG} \times (Rm_G - Rf_G) \times Rv$$

Table 4: SEE Stock Exchanges' required rate of return 2005-2012

Country	M-CAPM	Rf_L	Rc	β_{LG}	Rm_G	Rf_G	Rv	SD_L	SD_G
Macedonia	13.13	5.18	4.28	0.86	5.60	4.19	3.02	12.52	4.14
Serbia	15.23	7.57	2.81	1.30	5.60	4.19	2.64	10.95	4.14
Croatia	12.24	6.09	2.32	1.22	5.60	4.19	2.22	9.21	4.14
Slovenia	8.29	4.61	2.11	0.73	5.60	4.19	1.53	6.33	4.14
Bulgaria	8.73	2.31	1.79	1.40	5.60	4.19	2.35	9.71	4.14
Hungary	10.43	4.02	2.88	1.35	5.60	4.19	1.85	7.67	4.14
Romania	14.63	6.04	3.13	1.57	5.60	4.19	2.47	10.21	4.14

Source: Authors own calculations

From the data in Table 4, we find out that the Slovenian Stock Exchange has the lowest required rate of return of 8.29%, followed by the Bulgarian and Hungarian Stock exchanges at 8.73%, and 10.43% respectively. We must point out that the good results for Bulgaria are due to the very low risk free rate of return and consequently the very low country risk premium. However, standard deviation data correct this abnormality and place Slovenia and Hungary much farther ahead than the rest of the elaborated SEE countries. This conclusion goes also ahead with our hypothesis that stock exchange mergers/integrations decrease the required rate of return. As we point out previously Slovenia and Hungary are part of the CEE Exchange Group, and additionally they are the only ones from the elaborated stock exchanges that entered any merger process until now.

High historical required rates of return, together with the low market capitalization and turnover, are some of the reasons why the indexes of all the elaborated stock exchanges are still around their bottom in March 2009. In order to achieve these high expected rates of return, with this high level of volatility, and very low liquidity, investors ask for low prices, which keep the indexes nailed almost on their lowest historical values.

1.1. Breath, Depth and Liquidity of Macedonian Stock Exchange - Descriptive Statistics

Descriptive statistics of liquidity variables are reported in Table 5.

Table 5: Descriptive Statistics of Liquidity for MSE 2005-2012

	SPR	PSPR	DEP	DDEP	AM	NO	QTY	VOL
Mean	1.261,33	8,25	243,87	207.615	2,98E-06	162,02	17.687,32	26.710.891
Standard Error	21,33	0,06	4,34	3.057,06	2,87E-07	4,26	608,76	942.639,72
Median	999,71	8,14	191,74	161.820	7,37E-07	100,00	9.612,00	11.750.347
Mode	340,39	#N/A	111,07	#N/A	#N/A	80,00	7.341,00	#N/A
Sta. Deviation	936,12	2,66	190,55	134.198	1,26E-05	186,90	26.722,90	41.379.629
Kurtosis	2,15	0,12	14,26	6,34	285,39	16,04	47,55	29,39
Skewness	1,62	0,13	3,30	1,91	15,19	3,46	5,48	4,28

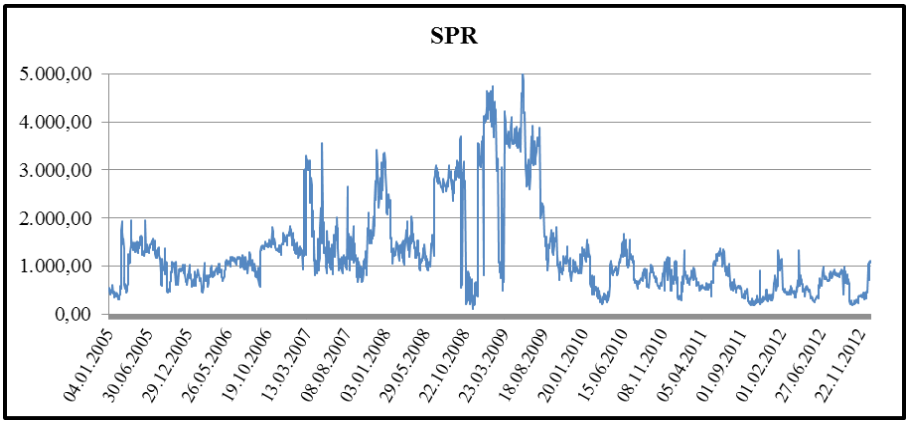
Minimum	107,33	0,93	36,00	63.784	2,55E-09	5,00	128,00	237.500,00
Maximum	5.034,26	16,52	1.533,68	1.409.743	2,72E-04	1.650,00	408.386,00	575.933.503
Count	1.927	1.927	1.927	1.927	1.918	1.927	1.927	1.927
C. Level (95.0%)	41,82	0,12	8,51	5.995	5,64E-07	8,35	1.193,89	1.848.702
C of V %	74,22	32,20	78,14	64,64	422,97	115,36	151,09	154,92

Source: Authors own calculations

Breadth variables SPR and PSPR as well as the depth variables DEP and DDEP, show moderate volatility, and the illiquidity and trading variables AM, NO, QTY, and VOL very high volatility indicated by the high values of the coefficient of variation. Means and medians (except for the PSPR) differ significantly, demonstrating that none of these liquidity variables is normally distributed. Furthermore, for all liquidity variables Skewness positive values show asymmetric distribution to the right. This means that all variables, most of the trading days, have negative values. AM, NO, QTY and VOL very high Kurtosis values indicates very high variability in stock exchange liquidity.

Figure 1 and 2 plot breath variables SPR and PSPR, that reflect the cost dimension of liquidity.

Figure 1: MSE Absolute Quoted Bid-Ask Spread 2005-2012

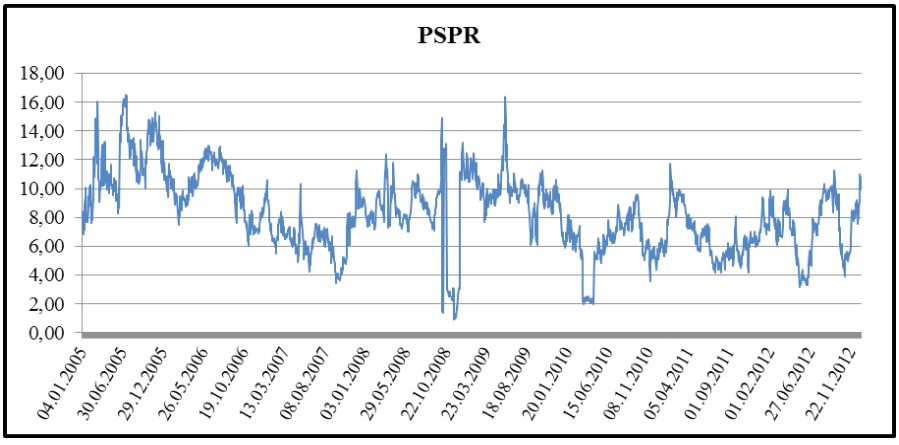


Source: Authors' own creation

SPR shows the absolute quoted bid-asking spread. The higher the spread the higher the transaction costs for the investors. From Figure 1 we can see that in 2005 and 2006 SPR is around its Mean value (1.261). In 2007 and 2008, SPR increases substantially - almost double the Mean value. The highest values and range of SPR we see in 2008 and 2009, which is understandable having in mind the start of the global financial crises in 2007 that scared all investors and thus caused a very high spread. In March 2009, when the MSE drops for more than 80% from its peak in 2007, SPR stabilized, and kept these low values until today. We explain the low level of absolute spreads by the low historical level of prices.

PSPR is the proportional quoted bid-ask spread. This measure is a more realistic picture of the stock exchange breath and transaction costs because we calculate it as a percentage. The higher the values of this variable the lower the stock exchange breadth and the higher the transaction cost. From Figure 2 we can see that in 2005 and 2006 transaction costs were very high. The range from 8% to 16% is above the PSPR Mean. In 2007, the best year of MSE, transaction costs dropped to only 4%. After the global financial crises starts, in the second half of 2007, PSPR escalates again, reaching its peak of 16% in 2008, and then declining to the end of the sample period. This conclusion confirms our findings for SPR.

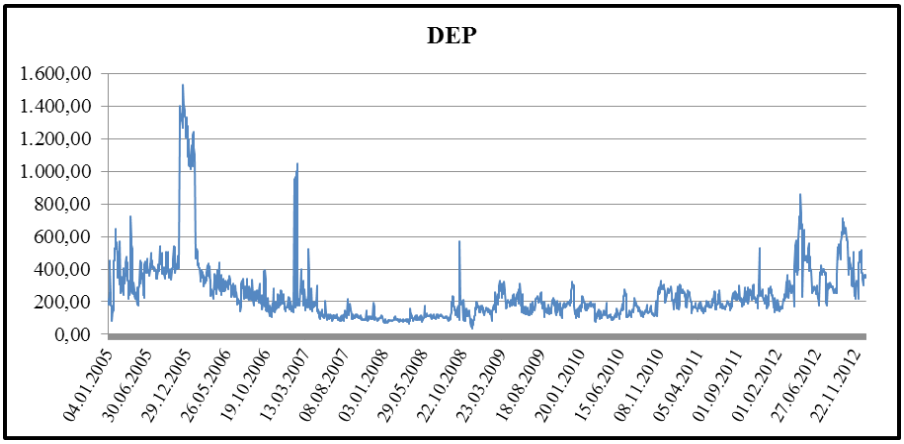
Figure 2: MSE Proportional Bid-Ask Spread 2005-2012



Source: Authors own creation

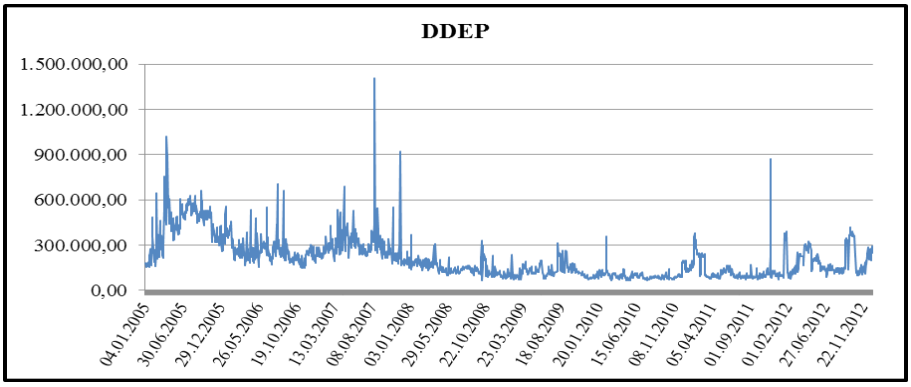
DEP and DDEP variables presented in Figure 3 and 4, indicate by definition the quantity dimension. The higher values of these variables impose higher liquidity. In 2005 and 2006 many state-owned companies were privatized , the most important of which was the ESM (National Electricity Company) in 2005, which maintained a high level of security exchange depth. In 2007, because of the stock market boom, the quoted depth reached a high level. From 2008, until the second half of 2012, the level of quantity variables was very low which explained the illiquidity and the stagnant levels of the MBI 10 index during the same period. The Mean is very low – only 207 thousand MKD or 3.500 €, which means that on average the stock exchange index can be influenced by just a small amount of money.

Figure 3: MSE Quoted Depth 2005-2012



Source: Authors own creation

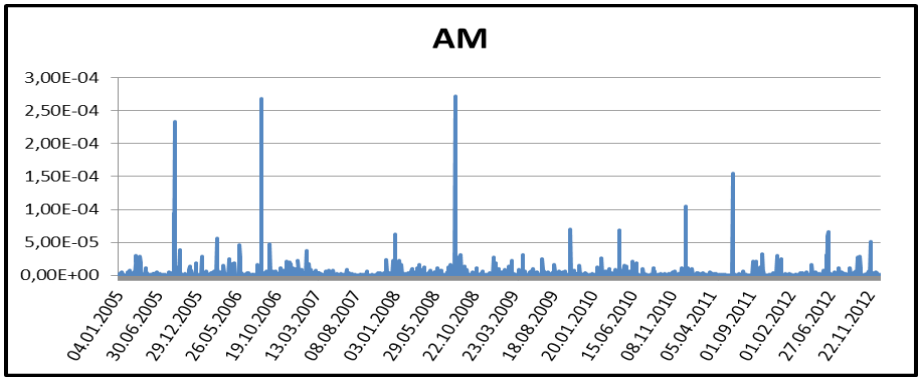
Figure 4: MSE Quoted Denar Depth 2005-2012



Source: Authors own creation

According to the findings of Amihud (2001), that are based on data on NYSE stocks for the period 1964-1997, illiquidity has a positive effect on expected stock return both cross sectionally and over time. It can be interpreted as the daily price response associated with one dollar of trading volume, thus serving as a rough measure of price impact. Since this is an illiquidity measure, higher value means higher ex-ante expected rate of return, which consequently results in lower stock prices. AM values for MSE, given in Figure 5, are almost equal and even lower than the ones of Amman Stock Exchange documented by Alrabadi (2012).

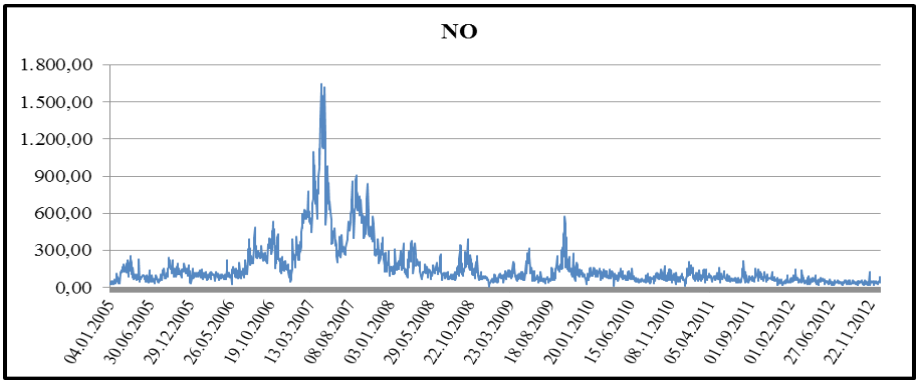
Figure 5: MSE Amihud's (2002) Illiquidity Ratio 2005-2012



Source: Authors own creation

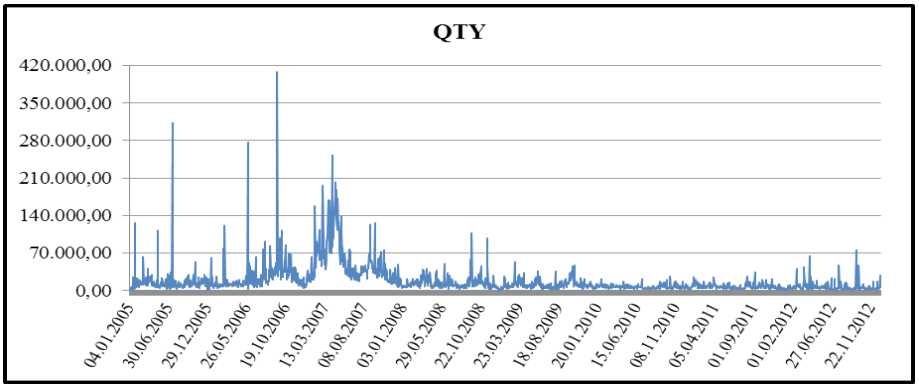
QTY, VOL and NO variables are related to the trading activity aspect of liquidity. Figure 6, 7 and 8, plots these variable values for the MSE. The higher the value of these variables indicates higher liquidity. From the results in all three figures, we can conclude that only 2007 MSE has dissent levels of concluded transactions, quantity trading volume and MKD trading volume. Their Means: 162 number of trades, 17,687 traded shares, and 26.7 million MKD (approximately 435 thousands €) confirm our statement. It means, with less than a half million euro, you can move the MSE. If we exempt 2007, this amount would be much lower.

Figure 6: MSE Number of Trades 2005-2012



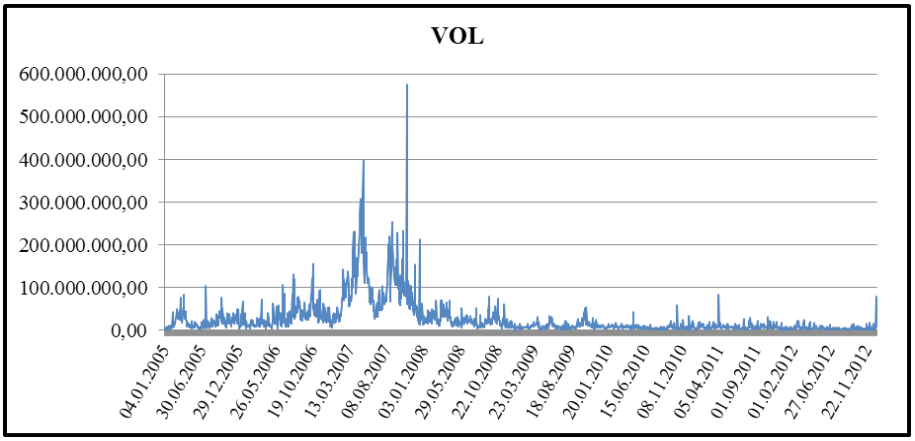
Source: Authors own creation

Figure 7: MSE Quantity Trading Volume 2005-2012



Source: Authors own creation

Figure 8: MSE Denar Trading Volume 2005-2012



Source: Authors' own calculations

Overall, aggregate market liquidity has improved through 2005-2007 because of the technical and legal developments of the MSE, and the entrance of foreign institutional investors, mostly from the Balkan Countries. However, a significant brake happened in 2008. Liquidity dried up swiftly through 2009-2012. Foreign institutional investors in order to cover their liquidity needs, raised from investor's requests for stepping out of their investment funds, sold their stock positions especially those in Macedonia where they made the highest returns (Lazarevski, 2011).

5. Conclusions of the Main Findings

In order to measure the level of stock market development in the seven selected SEE Stock Exchanges, we used three market indicators and the required rate of return. Based on results from the comparative analysis we can conclude that the values are below the acceptable levels in the developed and well-established market economies. In the case of Croatia, Slovenia and Serbia the higher market capitalization over GDP is achieved with very low trading volume and overvalued stock prices. Only the Hungarian and the Slovenian stock exchange show a significant level of liquidity and the required rate of return, which is not the case with the other five countries. These results confirm our hypothesis that the

merged stock exchanges (such as those of Hungary and Slovenia have higher/increased stock exchange liquidity, while, on the other hand, the profitability of the other SEE stock exchanges that did not go through the merging process has been driven to the brink of extinction.

Descriptive statistics of the Macedonian Stock Exchanges (MSE) deliver the following conclusions: the breadth variables SPR and PSPR, and the depth variables DEP and DDEP show moderate volatility, whilst the illiquidity and trading variables AM, NO, QTY, and VOL show very high volatility indicated by the high values of the coefficient of variation. Furthermore, the PSPR variable value of 8.25% indicates an extremely low stock exchange breadth and high transaction costs. Those low levels of quantity variables explain the low depth of stock exchanges, their MSE illiquidity and the stagnant levels of the MBI 10 index. Amihud's (2002) illiquidity ratio values are relatively high for the whole of the period under study. QTY, VOL and NO variables that relate to the trading activity aspect of liquidity, present in 2007 alone a relatively standard number of transactions, quantity trading volume and trading volume. Aggregate market liquidity has improved through 2005-2007 as a consequence of international stock market booms. However, a significant brake happened affected by heightened risk aversion on the part of international investors after September 2008 and liquidity was drying up all through 2012.

Based on the results of the analyses, we strongly believe that if they want to alleviate their future operation and existence, the SEE stock exchanges have to decide for one of the following options: (a) a "stand-alone" development of each SEE market, in parallel with aggressive policy measures in order to develop the internal financial market; (b) a bilateral connection of individual SEE exchanges with a developed market for establishing virtual trading venues sharing advanced platforms and visibility; (c) merging with some SEE exchanges, by harmonizing and negotiating the rules and regulation within the group. The first option is the one with less prosperity considering the constant pressure from the competition of the European stock exchanges, and in the interest of staying economically viable in such a competitive environment, the SEE stock exchanges will be forced to cut costs. It may be possible for the relatively small markets to link or merge their trading systems with some of the global markets. However, having in mind the insignificant

size and its preferences, it is less likely that this will be the option for the Macedonian Stock Exchange. Also, even though it is understood that the regional exchanges have the utmost chance for being viable in the long run, at the same time they are also extremely difficult for negotiating because of the usual political obstacles.

Regardless of the option they will choose, it is unavoidable that major changes have to be implemented on the financial markets, which will reinforce the listing standards, improve the trading systems and enhance the corporate governance rules. These changes are necessary to create a liquid and dynamic stock exchange that will be open to meet the needs of companies and investors.

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Tables

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