CAPITAL MARKET AND ECONOMIC ACTIVITY – RELATIONS AND ASYMMETRY IN SERBIA AND BULGARIA

Stefan Simeonov[*]

Abstract: With the current review we aim to discover the relations between the activity on the financial markets and on the other side the real sector and economy as a whole. We look for the origin of economic recession, considering the investment activity indicators. And vice-versa, we also seek for the impact of the last economic crisis over the stock exchanges, funds and the usage of financial instruments. In these directions we examine the significance of the Belgrade Stock Exchange for the Serbian economy, and we compare them to the Bulgarian exchange and economy.

Key words: *investment activity, exchange indices, market capitalization, exchange turnover, transactions number, IPO, GDP.*

Introduction

The global world economic recession which started in 2008 in the highly developed world economies and their capital markets reached with small delay the Bulgarian and Serbian economy. Although, still suffering a second wave recession in the real sector, the capital markets of the world developed economies succeeded to recover their activity more quickly. The case with the Bulgarian Stock Exchange and economy is fairly different. This crisis overcome in Serbia shows some similarity to the developed economies, despite the close scales of all indicators between the Serbian and the Bulgarian economies.

In conditions of an economic instability the financial markets are the first which indicate the expected risks and incoming changes. At the same time, fulfilling their original functions, the financial markets influence economic activity and more quickly they form investment decisions by virtue of their informative function. In the current paper we examine the Belgrade and the Sofia Stock Exchange indicators in parallel with the Serbian and the Bulgarian GDP movements. We look for relations, that may discover the direction of their influence and this way we try to find the real significance of the financial markets for both economies. The comparative analysis between the Serbian and the Bulgarian economies and stock exchanges, is objectively facilitated having in mind the close scales of their measures.

[*] D. A. Tsenov Academy of Economics, Svishtov, Bulgaria, Department of Finance and Credit; ✉ simeonov@uni-svishtov.bg

1. Belgrade Stock Exchange and Serbian Economy

Here we examine the main capital market indicators: the two head exchange indices; market capitalization; exchange turnover; transactions number, all together with GDP. Thanks to the Serbian Stock Exchange for the provided serial data, which allowed us to trace through the whole crisis period - from the beginning of the recession, till now.[1] For the formulated purpose, we trace the values of the chosen indicators and we calculated the percents of their annual movement, which are the basis of the followed analysis.

Table 1.1. Belgrade Stock Exchange & Serbian economy - data

	2007	2008	2009	2010	2011	2012	2013
BELEX 15	2.318,37	565,18	663,77	651,78	499,05	523,89	557,97
% change	*38,4*	*-75,6*	*17,4*	*-1,8*	*-23,4*	*5,0*	*6,5*
BELEX Line	3.830,84	1.198,34	1.311,84	1.282,66	977,19	1.005,56	1.104,92
% change	*44,1*	*-68,7*	*9,5*	*-2,2*	*-23,8*	*2,9*	*9,9*
Market Capitaliz. *total, million EUR*	12.464,5	7.931,3	8.067,5	8.077,3	7.073,5	6.716,2	6.686,3
change	*78,1*	*-36,4*	*1,7*	*0,1*	*-12,4*	*-5,0*	*-0,4*
Exch. turnover *million EUR*	2.059,8	882,5	441,9	222,5	280,2	219,7	267,0
% change	*70,0*	*-57,2*	*-49,9*	*-49,7*	*25,9*	*-21,6*	*21,5*
Transact. number	301.210	119.001	77.215	725.550	2.887.538	483.013	344.109
% change	*112,9*	*-60,5*	*-35,1*	*839,6*	*298,0*	*-83,3*	*-28,8*
New Listings (IPO)							
% change							
GDP – billion EUR	31,29	32,52	31,42	31,74	32,25	31,70	32,27
growth	*5,4*	*3,8*	*-3,5*	*1,0*	*1,6*	*-1,7*	*1,8*

Source: Belgrade Stock Exchange [2]; National Bank of Serbia [3]; Trading Economics [4]; Global Finance [5].

Reading the data in table 1.1.:

1) As it is obvious from the data, all observed indicators move in positive direction for 2007 (the world's best before the crisis);

---

[1] This paper have been limited of some data insufficiency concerning the indicators new listings and IPOs on the Serbia Stock Exchange, which confined the possibility of equivalent comparative analysis with the Bulgarian Stock Exchange.
[2] http://www.belex.rs/eng/trgovanje/izvestaj/godisnji
[3] http://www.nbs.rs/internet/english/index.html
[4] http://www.tradingeconomics.com/serbia/gdp-growth
[5] http://www.gfmag.com/global-data/country-data/serbia-gdp-country-report

2) In the year of the recession beginning - 2008 all exchange indicators fall down dramatically – between 36 and 76 percent, but GDP stays positive, only lowering its pace. In 2008 GDP stays positive, while the financial market indicators are not only more sensitive, but also negative. We may consider that the exchange indicators already reflect the negative economic information and lower income expectations – before they are reached in the real sectors.

3) One of the first apparent data **-** only the indicator *number of exchange transactions* recovers its value from the beginning of the period (tabl. 1.1.) (not accounting for GDP). All other exchange indicators stay away below their basic values at times.

4) *The number of exchange transactions*, as the most dynamic indicator, looms again (tabl. 1.1. and fig. 1.1. and 1.2.). It moves between minus 83 and plus 840 percent, and in 2010 jumps from minus 35,1 to 839,6 percents. The second volatile indicator is *exchange turnover.*

5) Both together, *transactions number and turnover,* we apprehend as an investment activity indicators which may raise although there are positive or negative economic and income expectations. Further, they rise when the investment environment changes, which may reflect in higher risk or higher income expectations.

6) Market capitalization – here we decipher more long-term meaning and it is closer to real economy movement. Having in mind this indicator reflects not only the stock prices, but also the number of instruments, including new listings (IPO)[6] etc.
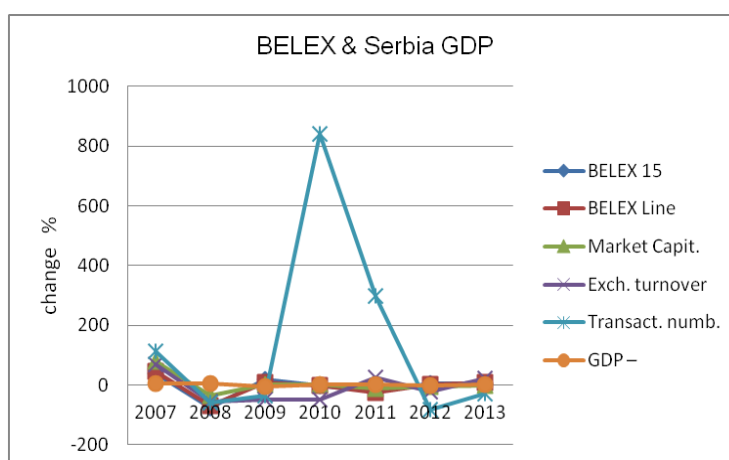

Figure 1.1.

Ignoring the transaction number - as the highest range volatile indicator, we may easily trace through the movement of the other indicators.

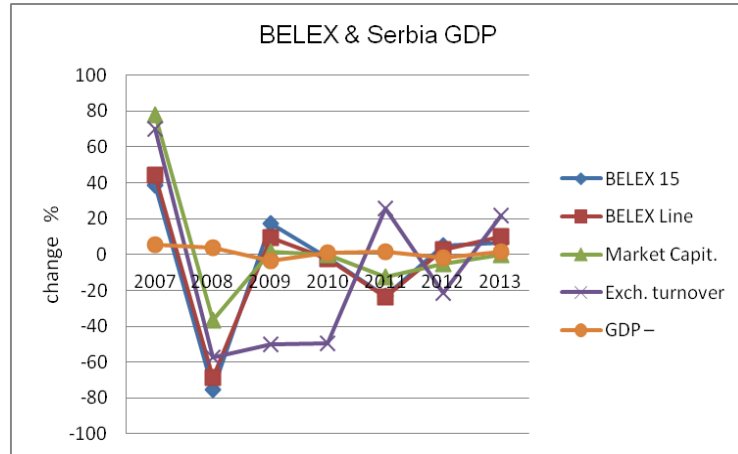[6] Initial Public Offering - missing data on Belgrade Stock Exchange.

Figure 1.2.

7) We may outline two steps of recession, in the Serbian real sector for 2009 and 2012. They are accompanied by falling capital market indicators (Belgrade SE), some of which last a year while other - two. Only market capitalization and exchange turnover marked downturn for a three-year period.

8) From this background the investment activity on BSE-Sofia suffers a long-term bearish[7] wave. *Transactions number* appears the worst Bulgarian indicator, which keeps its downtrend for whole five years. *Exchange turnover*, *market capitalization* and *new listings* mark negative movement during four of the observed seven years.

The statistic indices add some more characteristic to the relations of the observed indicators.

Table 1.2. Covariance coefficients

	BELEX 15	*BELEX Line*	*Market Capit.*	*Exch. turnover*	*Transact. numb.*	*GDP*
BELEX 15	1135,77					
BELEX Line	1079,54	1045,43				
Market Capit.	880,83	905,91	1073,15			
Exch. turnover	766,75	848,44	1065,92	2028,57		
Transact. numb.	600,11	507,35	564,03	-1518,21	94827,39	
GDP	- 19,52	- 7,09	33,52	67,95	93,92	7,92

---

[7] Bullish and bearish market.

The leading exchange indexes and market capitalization have the highest positive correlations between three of them, fully understandable having in mind their informative meaning.

We consider the negative and highest correlation between exchange turnover and transactions number as very indicative about investment behavior, in risky and positive expectations.

It's not surprising; the covariance coefficients, shown between exchange indicators are higher, than the relations between GDP and exchange indicators. The comparatively high range correlations between GDP and exchange turnover and GDP and transactions number are interesting.

In the same time we observe negative correlations between GDP and both exchange indices. This last relation we consider as a result of: the shorter strategy term of the exchange investments the direct economy investments; a manifestation of the exchange natural aptitude to overrate and underrate the real economy incomes; and partially of the small frequency and number of the current observations. In the current situation Serbian GDP falls only in two years (2009 and 2012) in which years both of the Belgrade exchange indices rise.

Table 1.3. Regression Statistics

Multiple R	**0,996**
R-Square	**0,993**
Adjusted R-Square	**0,956**
Standard Error	**0,638**
Observations	**7**

In table 1.3. we give regression coefficients between GDP and all five observed exchange indicators. *Multiple R, R-Square and Adjusted R-Square* with their values above 0,95 and 0,99 represent exclusively high (close to theoretical maximum) relation. The separate, consecutive testing of the exchange indicators (tabl. 1.4.) shows far lower relations with GDP.[8]

Table 1.4. Determination & Correlation coefficients

	GDP	
	R-square	Correlation
Exchange turnover	28,73	0,536
Market Capitalization	13,22	0,364
BELEX 15	4,24	- 0,206
Transactions number	1,17	0,108
BELEX Line	0,61	- 0,078

---

[8] We reckon, that more frequent observations will give higher value of determination and correlation coefficients.

Despite the comparatively low values of the determination and correlation coefficients we may deduce the follow relations:

- The Exchange turnover is highly influenced and correlated with GDP (which confirms the second high covariance coefficients);
- The Market Capitalization is the second by significance indicator.

Spreading the analysis to include new listings (IPOs), direct investments, savings and crediting - will give us more definite conclusions about capital movement, investment expectations and their relation with the economic activity.

2. Bulgarian Stock Exchange - Sofia and the Bulgarian economy, comparative analysis

1) All observed Bulgarian exchange and economy indicators move in positive direction for 2007 – which is the same like the Serbian Exchange and economy.
2) In the real sector we have one year more negative movement – tree years with drop of GDP (from the all seven years), against two years in Serbia.
3) The movement of all other observed exchange indicators on BSE-Sofia is far worse.
4) Transactions number appears to be the worst Bulgarian indicator, which keeps its downtrend for five years.
5) Exchange turnover, market capitalization and new listings mark negative movement for four years.
6) Exchange turnover is the most volatile Bulgarian exchange indicator, while the Serbian most volatile one is the number of exchange transactions.
7) Generally, the investment activity on the Bulgarian Stock Exchange - Sofia suffers total disappointment and mistrust – typical for the last fuse of a bearish[9] wave, but here we eyewitness an exclusively long-term one.
8) On the background of the studied indicators, during the observed period, the Belgrade Exchange is more vital and more attractive for investors, than the Bulgarian capital market.
9) Accounting for the GDP and stock exchange interrelations, we may find more successful functioning of the Serbian capital market, than the Bulgarian one.

Table 2. Bulgarian Stock Exchange - Sofia & BG Economy

	2007	2008	2009	2010	2011	2012	2013
SOFIX	1.767,88	358,66	427,27	362,35	322,11	345,46	491,52
% change	*44,42*	*-79,71*	*19,13*	*-15,19*	*-11,1*	*7,25*	*42,28*
BG 40	518,06	107,81	117,16	114,70	113,69	125,11	158,92
% change	*159,19*	*-78,59*	*8,67*	*-2,10*	*-0,88*	*10,04*	*27,02*
Market Capitaliz. *BGN million*	28.986,86	12.461,7	11.795,5	10.754,1	12.435,9	9.826,8	9.961,8
EURO million	14.797,35	6.362,9	6.022,8	5.491,0	6.349,8	5.017,6	5.086,5
% change	*89,28*	*-57,01*	*-5,35*	*-8,83*	*15,64*	*-20,98*	*1,37*

---

[9] See Dow Principles of market behavior, Stevens L. Essential Technical Analysis, Tools and techniques to spot market trends. John Wiley & Sons, Inc. 2002.

Capital Market and Economic Activity -
Relations and Asymmetry in Serbia and Bulgaria

Exchange Turnover *BGN million*	9.945,81	2.129,13	868,00	682,94	622,99	681,30	1.521,77
EURO million	5.077,18	1.087,13	443,20	348,71	318,10	347,87	777,02
% change	*295*	*- 76,3*	*- 64,0*	*- 17,2*	*- 12,6*	*9,3*	*123,36*
Transact.Number	490.551	389.589	199.257	109.738	109.260	67.451	86.576
% change	*175*	*- 17,3*	*- 49,9*	*- 45,8*	*- 1,4*	*-38,27*	*28,35*
New Listings, equity only	42	41	18	8	9	14	8
% change	*10*	*-2.38*	*-56,10*	*-28.00*	*12,5*	*55,55*	*-42,86*
GDP[10] *bill. BGN*	42,21	51,82	48,57	47,73	53,54	51,3	53,01
GDP[11] *bill. EUR*	28,9	37,2	35,7	35,1	39,4	37,5[12]	39,9
growth	*6,1*	*5,9*	*-5,5*	*-0,4*	*1,7*	*-1,5[13]*	*0,9*

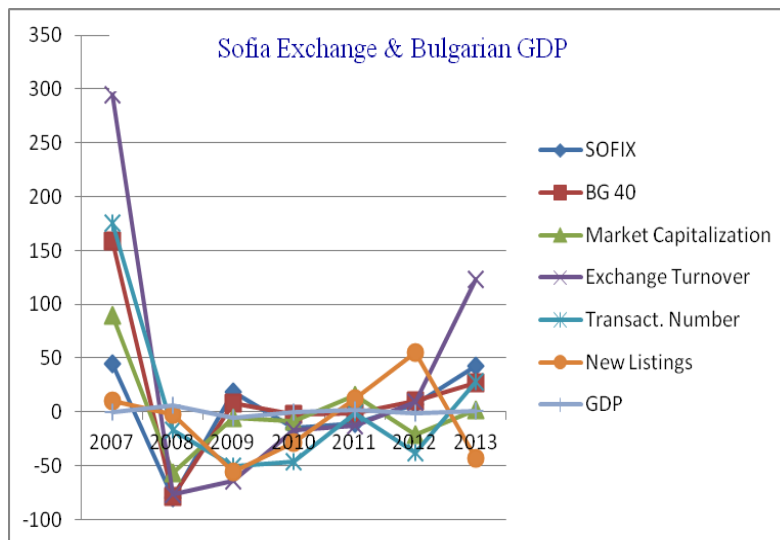*Source:* Bulgarian Stock Exchange – Sofia[14]; World bank; BNB; NSI[15]

Figure 2.1.

Considering the absolute values of the exchange indicators it is interesting to trace their recovery, from the first year before recession to the last year of the observed period. The Belgrade and Sofia stock exchanges show the followed comparative values (table 3):

---

[10] The Global Economy.bg, http://www.theglobaleconomy.bg/Bulgaria/indicator-NY.GDP.MKTP.CD
[11] Current prices,
[12] Data provided from The World Bank, http://data.worldbank.org/indicator/NY.GDP.MKTP.CD.
[13] According to Bulgarian NSI there is positive growth with 0,6 percent for 2012, while the World Bank data is negative 4,0 %. That's why we assume an average value of -1,5.
[14] http://www.bse-sofia.bg/?page=AnnualStatistics
[15] http://www.nsi.bg/bg/content/2206/%D0%B1%D0%B2%D0%BF-%D0%BF%D1%80%D0%BE

1) The blue chips indexes stay accordingly: at 24 percent for *BELEX 15*, toward almost 28 percent for *SOFIX,* of their basic values.
2) The large scope market indexes are close and little better, with insignificant preference again of the Bulgarian exchange: *BELEX Line* - 29 % toward 31 % for *BG 40.*
3) *The Market Capitalization* on the Belgrade Stock Exchange succeeds to recover 54 % compared to 34 only for the Bulgarian Exchange.
4) The *Exchange turnover* is also dramatically behind the basic values on both exchanges: 13 – Belgrade and 15 Sofia.
5) *The Transactions number* is the best Serbian indicator, very important for the market liquidity (as we commented above) and the only one above the basic value – 114 percent. At the same time the Sofia Exchange *transactions* stay at the problem level of 18 percent.
6) The number of *New equity Listings* at the BSE-Sofia are at the same unenviable level of 19 percent.[16]
7) The summary economic indicator: Serbian GDP is symbolically positive 103 %, while the Bulgarian GDP marks the incredible percent of 138.

Table 3. Belgrade and Bulgarian Stock Exchange –recovery and comparison

		2007	2013	Recovery %	
				Belgrade	*Sofia*
BELEX 15		2.318,37	557,97	*24,1*	
SOFIX		1.767,88	491,52		*27,8*
BELEX Line		3.830,84	1.104,92	*28,8*	
BG 40		518,06	158,92		*30,7*
Market Capitaliz. *mill.EURO*	*Belg.*	12.464,5	6.686,3	*53,6*	
	Sof.	14.797,35	5.086,5		*34,4*
Exchange Turnover *mill.EURO*	*Belg.*	2.059,8	267,0	*13,0*	
	Sof.	5.077,18	777,02		*15,3*
Transact. Number	*Belg.*	301.210	344.109	*114,2*	
	Sof.	490.551	86.576		*17,6*
New Listings (equity only) *number*					
	Sof.	42	8		*19,05*
GDP *bill. EUR*	*Serbia*	31,29	32,27	*103,1*	
	Bulgaria	28,9	39,9		*138,1*

Conclusions

The Serbian economy and Belgrade Stock exchange have scales similar to the Bulgarian economy and the Bulgarian Stock exchange – Sofia, which advantage their comparative analyzing.

During the period of current world recession the Serbian economy marks only two years (2009 and 2012) of regress. These lowerings in the real sector are preceded and

---

[16] Data missing to the New Listings on the Belgrade exchange.

followed by comparatively short-term regresses on the Belgrade Stock Exchange. The capital market indicators keep falling consecutively only in two years (excluding market capitalization and turnover). Compared to the Bulgarian Stock Exchange – Sofia, where transactions, turnover and market capitalization fall consecutively during, respectively: five, four and tree years. Despite the normally highly volatile capital markets, we may conclude that the Serbian investment activity is more vital and more optimistic, than the Bulgarian, which supports the real sector and the economy as whole. While, the investors on the BSE-Sofia are expressively disposed to undervalue the economic activity, they have continued to behave markedly timorous since 2008. The last fact is a result partially of the naive optimism, spread by the end of 2007.

According to the determination, correlation and covariance coefficients: the exchange turnover, followed by the market capitalization - they are the investment activity indicators, which reflect closely to the real economy movements. Unlike the common understanding, and probable expectations, the exchange indexes follow different movement, which is the same for Serbia and Bulgaria. That is why we conclude that the exchange indexes reflect long-term expectations, consisting partially the current mistrust of fundamental factors. In the same time the transactions number opposite movement shows certain vital ability of the capital market. We observe some similar behavior on the other large exchanges, as the Russian and some West European (Euronext).

Although the high volatile behavior of all exchange indicators, render an account to the better value of the transactions number, we may assume the investment activity mostly supports the real sector in Serbia. Compared to the situation in Bulgaria, where the reflux of investment activity on the BSE dominates over the positive movement of the economic indicators (GDP, savings and crediting).

All general findings made here allow us to support the known conception for Integrated Balkan exchange but it is the object of a particular study.

Literature

1. Адамов, В., Дж. Холст и А. Захариев, Финансов анализ. Абагар, В. Търново, 2006.
2. Jungman, J. and B. Sagemann. Financial Crisis in Eastern Europe Road to Recovery. Gabler Verlag/Springer Fachmedien Wiesbaden GmbH 2011.
3. Stevens, L. Essential Technical Analysis, Tools and techniques to spot market trends. John Wiley & Sons, Inc. 2002.
4. Ţepus, Ana-Maria and Elena-Adriana Andrei - The impact of financial crisis on the relation between the stock market and the real economy. Academy of Economic Studies, Bucharest;
5. Belgrade Stock Exchange, http://www.belex.rs (10.07.2014);
6. Bulgarian Stock Exchange - Sofia AD, http://www.bse-sofia.bg (5.08.2014);
7. National Bank of Serbia (5.07.2014);
8. Eurostat, http://www.bing.com (18.07.2014);
9. Global Finance, http://www.gfmag.com/global-data (12.07.2014);
10. The Global Economy.bg, http://www.theglobaleconomy.bg (15.08.2014);
11. Trading Economics, http://www.tradingeconomics.com/serbia/gdp-growth (12.07.2014);
12. World Bank, http://data.worldbank.org/indicator (22.07.2014);

13. Bank for International Settlements http://www.bis.org/search/?q=serbia+gdp (14.07.2014);
14. Institute for Market Economics http://ime.bg/en/search/text:bulgaria%20gdp%20/ (7.10.2014);
15. Business Monitor, http://www.businessmonitor.com/searchbox (20.08.2014).

TRŽIŠTE KAPITALA I EKONOMSKA AKTIVNOST – ODNOSI I ASIMETRIJA U SRBIJI I BUGARSKOJ

Rezime: Ovim radom pokušavamo da utvrdimo odnos između aktivnosti na finansijskim tržištu i sa druge strane realnog sektora i privrede u celini. Tragamo za uzrocima ekonomske recesije, razmatrajući indikatore ekonomske aktivnosti. Sa druge strane, istražujemo i uticaj poslednje ekonomske krize na tržište akcija, kretanje finansijskih resursa i upotrebu finansijskih instrumenata. Takođe istražuemo značaj Beogradske berze za srpsku privredu, u komparaciji sa Bugarskom privredom i tržištem akcija.

Ključne reči: investiciona aktivnost, berzanski indeksi, tržišna kapitalizacija, promet na berzi, broj transakcija, IPO, GDP.