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Impact of the Financial Crisis on the Romanian Capital Market in the European Context

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Abstract. *This paper aims at analyzing the impact of financial crisis on the capital market in Romania in order to establish the main financial developments. There is clearly a phenomenon of contagion leading to different manifestations of the global capital markets. Our objective is to highlight by statistical linear regression the factors that influence the evolution of capital market. Surprisingly, the results will show that investors are not always rational and do not react according to statistics.*

Keywords: risk; volatility; financial crisis; capital market.

JEL Codes: G01, G11.
REL Code: 11B.

1.1. The substance of the current financial crisis

Crises can be defined as situations characterized by a pronounced instability, being subsequently accompanied by volatility and increasing uncertainty. The problem in defining them is to estimate the dimensions of the market volatility and of market fall impact in order to pinpoint such an evolution in the category of a crisis. How high should inflation, unemployment or GDP decrease of a country be as to pave way for the assessment that it is on the verge of undergoing a crisis? It has conventionally been established that the use of the term recession is required after the fall in GDP of a country or region after two successive quarters. National Bureau of Economic Research (NBER) defines crisis as "a significant decline of economic activity for several months reflected in lower GDP, lower individual income, employment reduction, reduction of industrial production and consumption." Experts classify these crises into social crises (increasing inflation, unemployment, poverty), financial crises (increased volatility in capital markets, falling stock markets and their spectacular return), political crises (which may degenerate into war), local or international crises, as well as crises caused by natural disasters or generalized economic crises. We consider that an economic crisis is basically generated by financial, political or social causes; the financial crisis is only a form of manifestation of economic crisis and reflects a mistrust in the financial system, a significant decrease in the volume of transactions on the stock exchange, a disfunction of the market mechanisms. According to the economist Hyman Minsky' theory of financial instability, financial crises follow a predictable course. Thus, the first sign announcing a future financial crisis is the external shock on the economy, which may take the form of a war, of a very rich or very poor harvest, of the invention of new technology. This exogenous factor strongly increases the chances of profit in one of the major sectors of the economy and reduces economic opportunities in other fields. Increased profit opportunities in a given economic sector attract funding sources, creating an explosion or an investment mania. Investment fever is fueled by a substantial increase in bank lending as well as by attracting personal and private firms funds.The attraction of loans leads to an increased urge to speculate, manifested by rising the prices of assets and of highly demanded goods. In turn, rising prices determine increased profit opportunities, attracting new investors to the market. In search for profit, more and more investors ignore the rules of rational behavior and invest in a market that is already at risk for the overstatement of assets. In a next step, some investors note that the market has reached a maximum and seek to transform their overvalued assets in cash or in high quality assets. Subsequently, a larger number of investors can grasp the danger and try to sell their risky and overvalued assets, leading to a collapse in prices. The event announcing the danger and creating a state of panic may be a bank or a corporate bankruptcy. After the crisis in investment there follows a credit crisis caused by the fact that banks would not extend credit. As a result, chained bankruptcies are triggered and economy may go into recession or even depression.

1.2. The impact of financial crisis on international capital market

Capital markets crisis began in the early months of 2007 on the capital market for mortgages, for loans directly related to the market of structured finance products. Then, in the summer of 2007, it continued on the market of buyout type of corporate loans, also linked to the structured financial products market. As the number of traditional investors in the market gradually diminished, the value of the existing products on the market began to decline. Due to the fact that the global investment banks have not only the investor role but also the intermediary role on this market, falling prices have forced them to account for large losses in record time since the last months of 2007. These losses caused both a lower value of the banks and their need for private recapitalization, the action being carried in the first eight months of 2008. When investors of capital in these banks vanished, public trust in these institutions disappeared as well. Because investment banks were the main driver of capital markets, loss of confidence in them enhanced by Lehman Brothers bankruptcy led to the blocking the entire global financial system. That moment marked the beginning of the economic crisis exacerbated by the global capital markets crisis that had been under way for three years. Lehman Brothers marked an important moment not only because of losses caused by bankruptcy but because of that sudden extinction of confidence in banks at the heart of the financial system. It then became clear to any investor, either individual or institution that any bank is suddenly at risk of bankruptcy, no matter how large and famous it is. For the first time it was shaken the belief that “what it is too big cannot fall.” Confronted with this new reality, investors decided to keep their money, refusing to lend it to anyone and in any way. The credits for buying a house, a car, durable household products almost instantly disappeared and so did education loans, loans to governmental agencies and subdivisions of any kind, as well as one day loans between banks. The sudden paralysis of the financial system could not avoid affecting the real economy. Conversely, the effects of the deepening financial crisis were almost immediately felt in all the fields of the global economy, leading to the lowering of the gross global product for the first time since the war. Once triggered, any economic crisis becomes a long lasting process. Economic growth and decline take place in stages that are measured in many months. Healing solutions for the crisis are very complicated, relatively difficult to control and take a long time to be implemented and materialized. Yet, the capital market crisis is different. On the capital market, crises are short lived, they can often be sudden but they can also be healed fairly quickly. This significant difference between the economic crisis and the capital market crisis is given by the fact that economic recovery requires coordination of actions of an extremely large number of participants.

1.3. Capital market developments in Romania after 2008 in the context of European capital market

The financial crisis has affected capital market development in Romania since 2008 because of the contagion phenomenon manifested in the European capital market and beyond. On the capital market in Romania in 2008 there was an increase in the number of participants, as intermediaries, being registered five new participants (four credit institutions: BCR, MKB Romexterra Bank, Credit Europe Bank, BRD - GSG and an intermediary from another member state, Raiffeisen Centrobank AG Vienna). However this could not prevent the decrease in interest in exchange transactions.

In 2009 the number of participants decreased compared with the end of 2008 because of the characteristics of the economic crisis in Romania where the local crisis superimposed over a global one.

Table 1

Romanian stock market agents, the period 2008 - 2009

Stockbrokers	2008	2009	2010
Authorized agents	87	58	65
Agents withdrawn	89	76	59
Stockbrokers	310	292	262

Source: BSE, BSE Annual Reports, 2008-2010.

At the end of 2009, the Bucharest Stock Exchange consisted of a number of 306 shareholders, of which 87 were corporate shareholders and 219 individual shareholders with a share capital worth 76,741,980 ron. All shares issued by S.C. S.A. BSE are dematerialized and made part of the class of ordinary shares. Thus, in 2009 the total number of shares issued by SC S.A. Bucharest Stock Exchange was 7,674,198, each worth 10 ron per share. Analyzing the dynamics of capital market in Romania in the context of EU integration and in other systems of similar size, in 2009 there were reductions in the total number of intermediaries that act as trading participant in BSE as follows:

- four new participants were enrolled in the BSE trading system;
- three credit institutions (OPT Bank, Piraeus Bank and RBS Romania);
- an intermediary from a state member of the European Union, Balkan Advisory Company IP - EAD - Bulgaria;
- the quality of participant has been withdrawn to a number of nine financial intermediaries.

Table 2 was made in order to highlight the sharp decrease in the evolution of the total number of participants on the capital market in Romania:

Table 2

Participants in the years 2009 and 2010 on the capital market in Romania

Type of participants	Participants 2008	Participants 2009	Participants 2010
SSIF	70	61	54
Credit Institutions	5	8	7
Remote member (foreign SSIFs)	2	3	3
Credit institutions operating through branches in Romania	1	1	1
Total	78	73	65

Source: BSE, annual reports 2008-2010.

According to the evolution of the number of participants on the BSE, the number of Romanian capital market agents is situated in the same downward trend, decreasing with 48 agents within two years' time.

Table 3

Presentation and performance of European stock exchanges in 2010(1)

EUROPE	Capitalization (USD million)	% of global capitalization	% of regional GDP	GDP / capita USD (PPP)	GDP per capita USD (constant prices)
England	2.662.852	6.14	75.43	35.445	28.489
France	1.538.747	3.55	52.25	34.045	24.362
Germany	1.188.010	2.74	29.49	35.613	25.420
Switzerland	967.300	2.23	174.43	42.536	37.789
Spain	555.617	1.28	39.69	31.954	16.330
Italy	529.993	1.22	23.67	30.756	19.580
Russia	508.373	1.17	16.50	16.139	3.074
Austria	104.271	0.24	21.91	38.152	27.132
Romania	17.129	0.02	19.97	27.605	13.662
Bulgaria	4.804	0.01	12.31	12.393	2.570

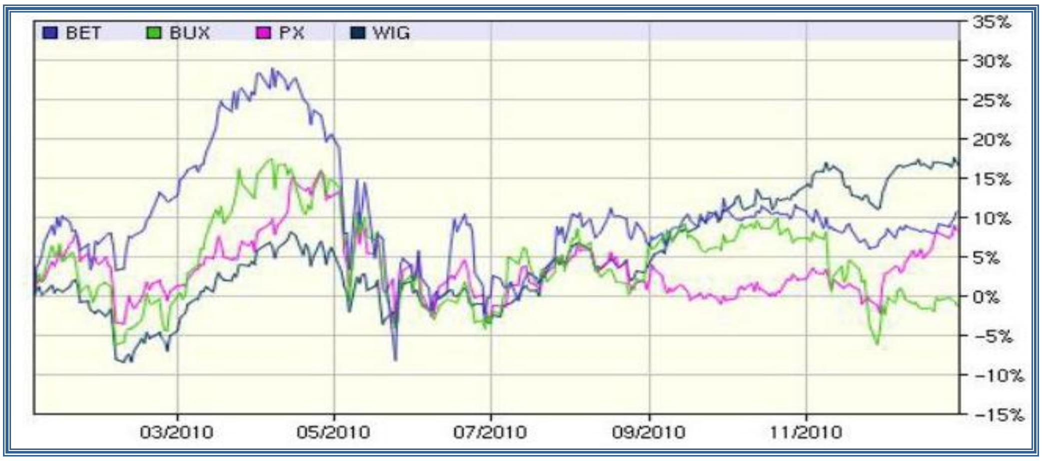
Source: Capital Market Development in 2010, report by Intercapital Invest SA.

Table 3 shows a comparison of the developments in the main European stock exchanges, the main criteria being the capitalization, the share of global capitalization for each state, the share of regional GDP, GDP per capita, 10 European markets being included in this comparative analysis. One can notice that Romania has some of the lowest share of global capitalization with a rate of only 0.02%, lower values belonging to states such as Bulgaria, Iceland, Latvia, Estonia, Malta, etc.

The highest level of capital is held by the stock in England, with a rate of 6.14% and capitalization of 2,662,852 million dollars.

Unlike other periods of time, the correlation between the capital market in Romania and the regional markets weakened its intensity in 2010, this fact being based on the correlation between the three indices and the external market indices, namely PX,WIG and BUX, indices of stock exchanges in the Czech Republic, Poland and Hungary.

The values of these coefficients recorded in 2010 (correlation coefficients between BET and WIG, BUX and PX indices) were 0.16, 0.67 and 0.74, compared with 0.97, 0.99, 0.98 in 2009. As a result, the correlation between the developments on the Romanian market with the evolutions of the developed markets also decreased: the correlation coefficient between the BET and S & P500 American index was 0.49 in 2010 compared to 0.98 in 2009 and 0.94 in 2008. These values are presented in Figure 1:



Source: Analytical report, BSE Listing, 2010, p. 9, available at www.kmarket.ro.

Figure 1. *The evolution of BUX, PX and TIG indices compared to BET in 2010*

This development shows that in 2010, local factors were more and more important in the evolution of shares listed on the BSE against external factors, the only ones that really mattered in previous years. Therefore, low economic performance achieved by our country have determined many of the non-resident investors to adopt a general strategy of waiting, which was subsequently adopted by local investors as well. These measures did not fail to affect the level of liquidity: the average daily share transactions in the last quarter of 2010 was down with over 50% of the value recorded in the first two quarters of the year, ie 29.9 million ron.

1.4. Progress analysis of the stocks on the Romanian capital market in the context of the financial crisis

Although the evolution of economics in recent decades has undergone significant progress and although monetary and governmental authorities have established a diverse palette of instruments able to anticipate and to influence economic developments, the current economic and financial crisis has demonstrated once again that economy as a whole retains areas that are not sufficiently investigated, among them obviously being the economic cycles. In this turbulent context, the market development activities in Romania also experienced the same difficult, winding trajectory, full of uncertainties. For example, in 2009, the dynamics of Bucharest Stock Exchange indices had the following features, summarized in Table 4.

Table 4

The dynamics of BSE indices in 2009

BSE index	31.12.2009 Value (points)	Index change in 2009 (%)
BET	4,690.57	+ 61.68
BET - XT	461.95	+ 66.55
BET – C	2,714.77	+ 37.31
BET – FI	23,885.96	+ 90.33
BET – NG	596.16	+ 71.10
ROTX	9,674.67	+ 46.80
RAQ – I	2,382.57	+ 5.52
RAQ – II	5,491.44	+ 12.43
Rasdaq composite	2,239.51	+ 8.13

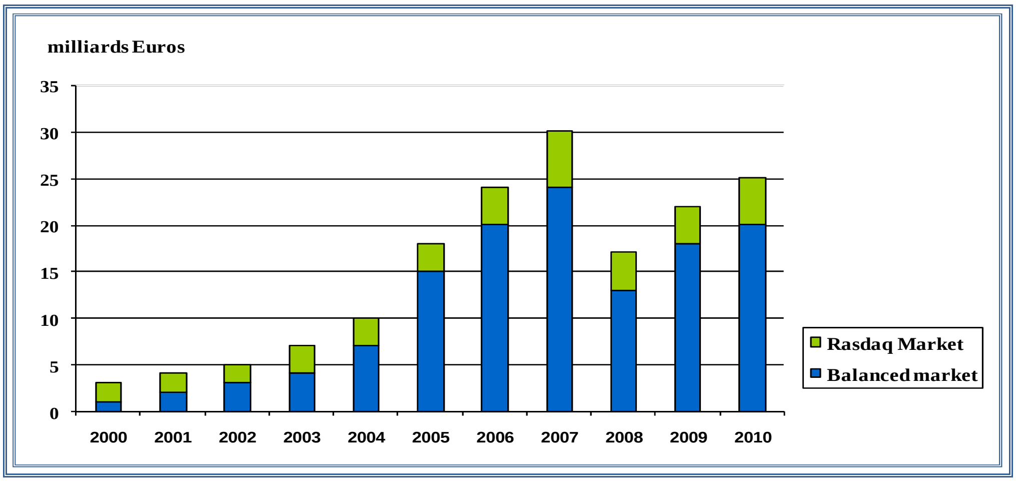
Source: Annual Report of the Bucharest Stock Exchange, 2009, www.bvb.ro, p. 5.

Thus, at the end of 2009, all the indices calculated by BSE expressed significant appreciation compared to the year 2008. The most dramatic increase was recorded by two sectoral indices, BET FI (+90.33%) and BET - NG (+71.10%).

The evolution of the indices presented above for 2009 was particularly influenced by the main guiding trend in European stock exchanges.

In this respect, the development of BET - C was above the European average, with a value of +37.31%, which positions the Bucharest Stock exchanges among the most dynamic ones in Europe. Regarding the evolution of market capitalization in 2009, one can say that this was mainly influenced by dynamic trading prices of securities already listed, since that year there was no admission to the trading of new shares in Romanian companies, which could have significantly altered the value of market capitalization.

Moreover, while at the end of 2008 cumulative capitalization of the two markets administered by the BSE was estimated at about 15 milliard euros, at the end of 2009 the aggregate capitalization reached almost 22 milliard euros, registering an increase of 50%, also due to the market value reached at the time by Erste Group AG, the only foreign company whose shares were admitted to trading on the Romanian stock market. This situation is revealed in Figure 2. for the period 2000-2009, as follows:



Source: Annual Report of the Bucharest Stock Exchange, 2009, www.bvb.ro, p. 6.

Figure 2. *The evolution of market capitalization in Romania during 2000-2010*

Market capitalization growth in recent years has represented a positive sign. As evident from the chart above, although the pace of capitalization of national companies traded in stock exchanges was above the European average in 2009, its nominal value remains relatively low compared to the potential of the Romanian capital market. So, amid diminishing value of transactions with shares, increasing liquidity in the market segment dedicated to financial instruments with fixed income has significantly changed the structure of the stock transactions made by Romanian Stock Exchange. For example, the share of bonds in the total BSE transactions ranged to18% in 2009 compared to 2% in 2008. Thus, government securities accounted for most of the total turnover exchange transactions in financial instruments with fixed income.

In the analysis of Rasdaq market development in Table 5 it is presented Rasdaq market trading activity during 2004-2009, which is quite low in terms of market capitalization and trading value:

Table 5

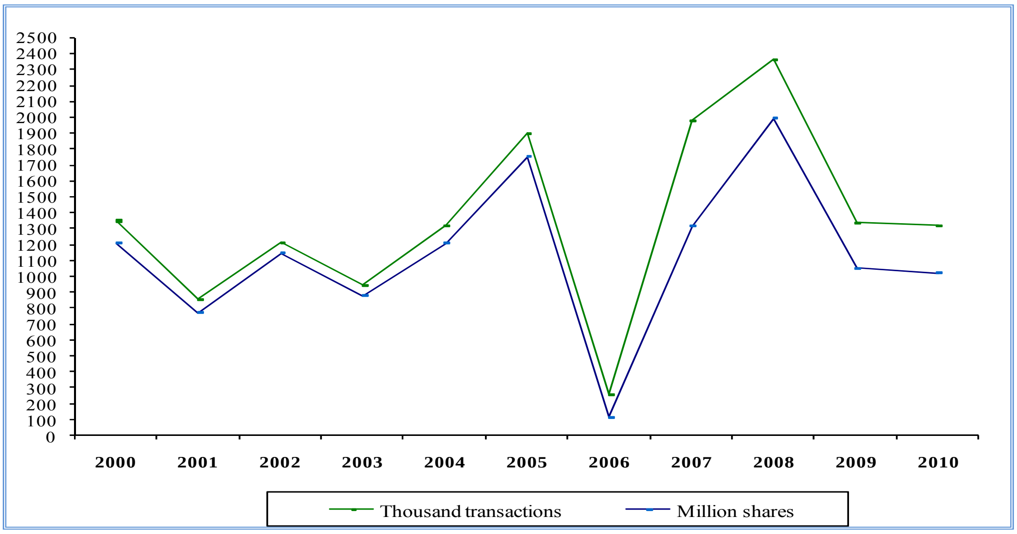
Rasdaq indicators in the period of time 2005-2010 (million euros)

Rasdaq market indicators	2005	2006	2007	2008	2009	2010
Total traded value	296.92	241.11	1,287.72	426.49	136.32	291.62
Number of listed companies	3,683	2,420	2,019	1,753	1,555	1,309
Market capitalization	2,241.33	3,126.44	6,985.67	3,079.08	2,937.41	2,526.44

Source: http://www.bvb.ro/info/SumareDeTranzactionare/BER/2010-12-31. Raport_Zilnic_Tranzactionare.html.

It is worth noticing the average value of the number of transactions made on Rasdaq market, 748 respectively, correlated with the daily value of the number of traded shares, respectively 6,203,310. These values are quite high in our opinion, a situation which can only be beneficial for both Rasdaq market dynamics and the market operator, that charges fees for each transaction made.

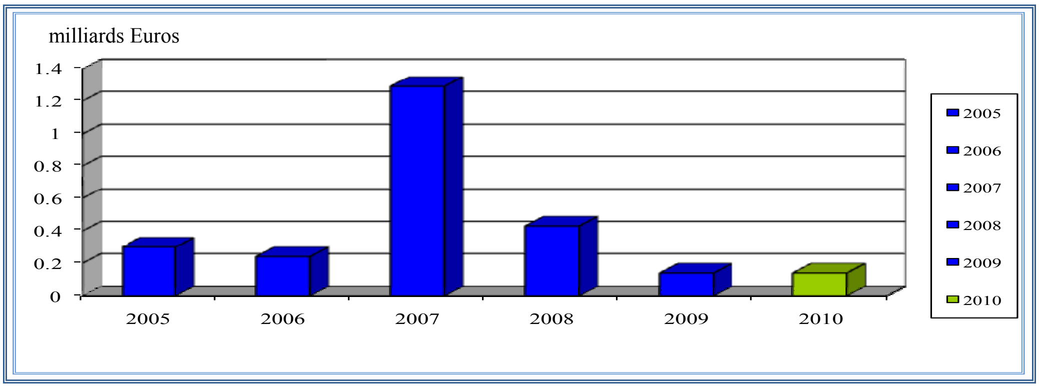
As expected, most transactions and traded shares were recorded during 2008, the year when the current global crisis emerged in Romania, its peak being accompanied by the spectacular fall of 2009, when the volume of transactions and the shares traded was reduced by several thousand and millions of shares, respectively, as shown in Figure 3. A notable point is the evolution of the number of transactions related to the number of traded shares, the maximum value being reached in 2008, yet, once the economic and financial crisis has increased in the Romanian capital market, both indicators have started to severly decrease.



Source: Annual Report of Bucharest Stock Exchange, 2010.

Figure 3. *The evolution of the number of transactions and of the number of shares traded during 2000-2010*

In 2010 it can be seen an attempt to redress the volume of shares traded on Rasdaq, as, after the peak in 2008, their number had began to alarmingly decrease. For operations in the market offers and special operations in 2009 the following values were recorded:



Source: Capital Market Development in 2010, SSIF Intercapital report, p. 15.

Figure 4. *Rasdaq market value transactions, the period 2005-2010*

Rasdaq market capitalization decreased by 12.2% in 2010 to 12.3 milliard in 2009 to 10,800,000,000 ron and accounted for 10.6% of the regulated market capitalization of BSE in 2010, compared to a rate of 15.1% because of the financial crises that is being persistent in the minds of the investors.

1.5. Brief analysis of the correlation among market capitalization, gross domestic product (GDP) and foreign direct investment (FDI) in Romania during 2005-2011

We wanted to study the capital market development in Romania in the period 2005-2011 in order to identify the links of influence, if any, between certain indices and macroeconomic factors with the purpose of determining the nature and substance of the crisis on the capital market in Romania. Consequently, we tried to establish the link between the development of the BSE market capitalization and the evolution of Romania's GDP, using the long "disputed" method of linear regression. The regression analysis focuses on the dependence of a resultative variable (y) upon one or more independent variables (x). The resultative characteristic is also called the dependent, endogenous characteristic or effect, and the independent characteristic can be labelled as factorial, exogenous characteristic or cause. Regression shows how one variable depends upon another variable (or on other variables).

Simple regression method involves the explaining of a resultative variable Y on the basis of a factorial variable, using a model called the regression function. Such a model uses the notion of causality, ie the changes in the independent variable cause changes in the dependent variable. The accurate relationship between socio-economic phenomena and processes cannot be described regardless of any number of factorial characteristics we may consider, due to the random phenomena which can not be modeled or explained. These unexplained variations in the model, due to such variables that are not included form the random (residual) error.

The study of economic dependence should also consider the fact that socio-economic phenomena are of a complex nature, under the influence of numerous factors, some being essential, others accidental, with different action and intensity and in a different direction.

The case study objectives are: to identify by the statistical method the connection between the two variables, its shape and intensity as well as to determine the model parameters.

Regression analysis of the BSE market capitalization in comparison to GDP during 2005-2011(2)

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0,377084765031786
R Square	0,142192920019077
Adjusted R Square	-0,029368495977107
Standard Error	19,6010085642703
Observations	7

Multiple R = 0.377 is the coefficient of multiple correlation, but in our case with one independent variable Multiple R is the Pearson correlation coefficient.

R Square = 0.48 is the coefficient of multiple determination; R^2 represents the proportion of variation market capitalization explained by the linear relationship with the evolution of GDP. In our case R^2=0,142 so only 14.5% of market capitalization evolution is explained by the evolution of GDP;

Standard error = 19.6% is the estimated standard error and it is interpreted as the average error in predicting the market capitalization according to GDP evolution with the regression equation.

Observation = 7 years is the total number of periods of time covered by the study.

Anova

The regression analysis also includes a test with null hypothesis: the slope is equal to 0 (ie no correlation between independent and dependent variable under study). If the slope is significantly different from 0 (this happens if the Signature F has a value $p < 0.05$), we may conclude that there is a linear relationship between the two variables. In our case there is no significant relationship between Romania's GDP evolution and the market capitalization development.

The regression analysis of the market capitalization of BSE and FDI in the period 2005-2011

SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0,644138293
R Square	0,414914141
Adjusted R Square	0,297896969
Standard Error	16,18800784
Observations	7

Multiple R = 0.644 is the coefficient of multiple correlation, but in our case with one independent variable Multiple R is the Pearson correlation coefficient.

R Square = 0.41 is the coefficient of multiple determination; R2 is the proportion of variation of market capitalization explained by the linear relationship with the evolution of FDI. In our case R^2= 0.41 so only 41% of market capitalization evolution is explained by the evolution of FDI;

Standard Error = 16.188% represents the estimated standard error and it is interpreted as the average error in predicting market capitalization based on the evolution of FDI and the regression equation.

Observation = 7 years is the total number of periods of time under study.

Anova

The regression analysis also includes a test with null hypothesis: the slope is equal to 0 (ie there is no correlation between the independent and the dependent variable under study). If the slope is significantly different from 0 (this happens if the Signature F has a value $p < 0.05$), we may conclude that there is a linear relationship between the two variables. In our case there is no significant relationship between FDI evolution and the development of market capitalization. This is another case where there is no significant correlation between the evolution of FDI and the development of market capitalization.

1.6. Conclusions

In the national and international context characterized by uncertainty, the main objectives of the Bucharest Stock Exchange for the next period of time call into question the increase of liquidity in the market by attracting new investors, local companies being thus encouraged by BSE to absorb stock or bond offerings. Achieving these goals is performed through close collaboration between capital market institutions in Romania, which is a desirable aim to be fulfilled in the near future. It is also obvious that the study of the link between BSE market capitalization and the two referential indices, GDP and FDI, surprisingly shows that they do not have a significant influence on the evolution of market capitalization. Nevertheless, the influence of FDI is more important, Romanian investors showing interest in foreign capital. Clearly, portfolio investments made by foreign investors have a much greater importance. But we could also notice that at the top of market capitalization for European countries Romania is on one of the last places. Capital market depth is low enough so that it does not encourage great investors, “the big fish”. Moreover, the impact of the crisis was felt due to the affected indices of 2006 – as a result of economic and political inability – in 2008 as a consequence of the contagion phenomenon on the European capital markets.

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Notes

(1) Out of the 34 European functionable stock exchanges, it was presented the situation of only 10 of them that more actively interact with Romania

(2) The data regarding 2011 are provided by BSE and World Bank prognosis.

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