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Dynamic development of municipal bonds on capital markets in Romania and contribution to regional development

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Dynamic Development of Municipal Bonds on Capital Markets in Romania and Contribution to Regional Development

Ciprian Antoniaide ALEXANDRU*

Abstract

Investment demand for regional economic development led to the use of increasingly diversified financial instruments. The local authorities in the capital market were achieved through municipal bonds, the most used financial vehicle in the category of fixed income instruments. In this paper is presented results of research on the use of municipal bonds to finance projects on local or regional level in Romania. Among the research results is included determining the degree of correlation between risk and return of financial instruments, but also a possible causal link between the amount of investments by region and degree of development of the region. In conclusion are shown several views on the use of municipal bond into investment portfolio management from investment funds from Romania.

Keywords: *municipal bond, regional development, fixed income securities, stock exchange indicators, index, trading volume, rate of liquidity*

JEL Classification: G01, G12, G14, O18

Introduction

In a global economy, based increasingly on consumer debt and spending of anticipated future expected revenues, the fixed income instruments has an important role, both for investors and for those who attract investment by such means. Among the fixed income instruments, the municipal bonds are critical for the local authorities and for their local budget.

Further evidence was provided by the financial crisis over the 2007-2009 that the problems on financial market caused an economic “blockade” and some behavioral changes of buyers of goods and services. In consequence, the incoming revenue to local municipality budget has decrease, sometimes dramatically.

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Bucharest Stock Exchange, in the 15 years since the reinstatement in Romania, with some very profitable bull periods have managed to reduce the negative impact of the corrections from time to time, but given that most investments were made in shares. Meanwhile, the existence of very few fixed-income instruments on the capital market has made that very few international investors to be present here.

Institutional investors such as pension funds and investment banks have need adequate liquidity for those investment instruments and any financial market can only succeed through strong fixed-income instruments.

First is presented an analysis of the dynamics of capital market during the representative, in terms of structure, liquidity and the main indexes. The paper continues with the development of fixed income securities market, municipal bond market and then is illustrated by some aspects of investment behavior in recent years.

1. Capital Markets Dynamics

In Romania, the dynamics of exchange transactions and investor confidence in capital markets are linked to a number of general factors or specific ones, such as the yield obtained by placing the amount of available money in the financial instruments, the state economy, local exchange rate, integration at the European Union and other financial information or less financial, national, regional or global.

After four years of appreciation in share prices between 2003 and 2007, the global recession of 2008 demonstrated again that emerging capital markets are more vulnerable to large capital inflows. At the same time, had proved that the foreign investments are often speculative and conjunctural, elements to produce a short-term impact of high volatility, which is not specific to long-term capital market.

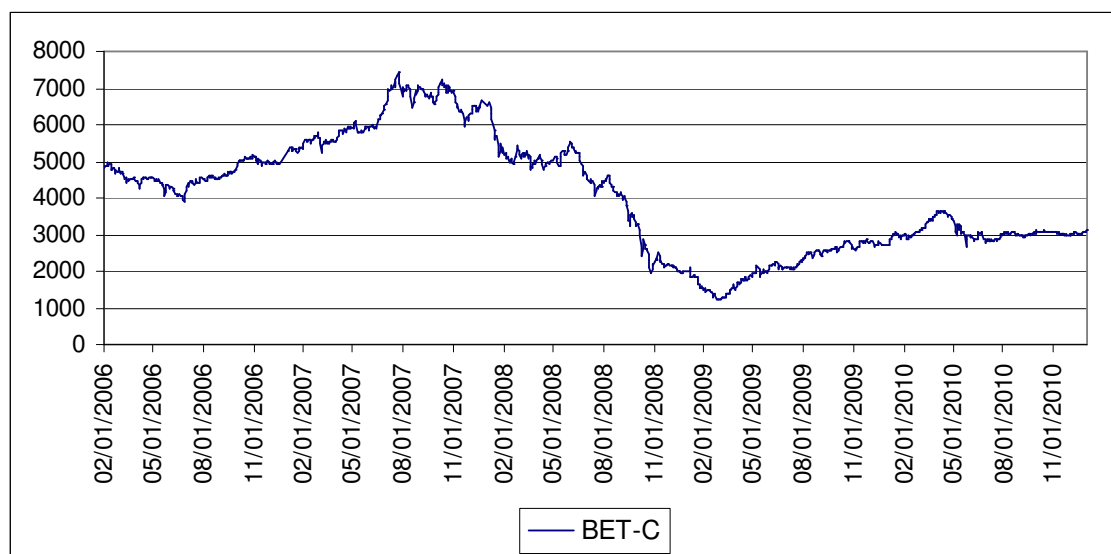
Because of possible distortions in the BET analysis, from Bucharest Stock Exchange, caused by changing composition of the index in terms of the 10 companies included in the index, we considered more relevant BET-C index, which covers all listed companies. Even in those circumstances there could be a problem given the extremely low liquidity of shares, but this is partially solved by free-float factor included in the formula for calculating the index.

BET-C had the highest value on July 24, 2007 to 7432.63 points. February 25, 2009 was 1231.05 points recorded minimum, representing a decrease of 83.44%. (Fig.1)

BET-C index value has made a comeback in 2009 and the last trading session of December there were 2714.77 points, with 120.5% more than the minimum in February of that year. But 2010 was a year of stagnation, the year that ended BET-C index was 3111.17

points, up only 14.6% over the previous year. Note there are two moments in 2010, the minimum registered on 25 May of 2658.23 points, after the peak of 3655.27 points recorded on April 4.

Fig.1 The composite index of the Bucharest Stock Exchange, BET-C, during Feb.2006- Dec.2010



Source: *Bucharest Stock Exchange (BSE)*, data series on the website: <http://www.bvb.ro/>

In this study I also calculate standard deviations on BET-C index in the period Feb.2006 to Feb.2010 on all period and also divided into periods of bull and bear characteristics.

Table.1 The number of companies listed on BSE quotation, in the period 1995-Feb.2010

No.	Start Date	End Date	Standard deviation	Explanations
1.	01.Feb.2006	26.Feb.2010	1.96%	All period
2.	01.Feb.2006	24.Jul.2007	1.20%	Bull market
3.	25.Jul.2007	25.Feb.2009	2.41%	Bear market
4.	26.Feb.2009	26.Feb.2010	1.95%	Bull market

Source: *BSE, annual reports, 2000-2010 and public information on www.bvb.ro*

As the figures from Table.1 show on all studied period the standard deviation is situated at 1.96% similar with the last period after the turning point from the end of February 2009. In the second period, when the boost of global capital market is reflecting in growing prices of majority of the shares, the standard deviation is at the lowest value.

On the other hand, starting with the financial crisis, the standard deviation is double than before, at 2.41% and also the average of expected return is below zero, at -0.43% value.

Between 2000 and 2007, Bucharest Stock Exchange showed good performance, with a significant increase in the amount of equity, from 15 billion Euro in 2005 to over 24 billion Euro in 2007 (Table 2). Basically, the most important years of stock exchange, from its foundation until now, have been 2004-2007. The financial crisis has brought the market capitalization value of the years 2004-2005, with a return in 2009 and strengthened in 2010.

Table.2 BSE capitalization in the period 2000-2010

	- million Euro -										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
BSE Capit.	450	1,361	2,646	2,991	8,819	15,311	21,415	24,601	11,630	19,053	23,892
Relative growth	-	202%	94%	13%	195%	74%	40%	15%	- 53%	64%	25%

Source: *BSE data after the last trading session in the respective years*

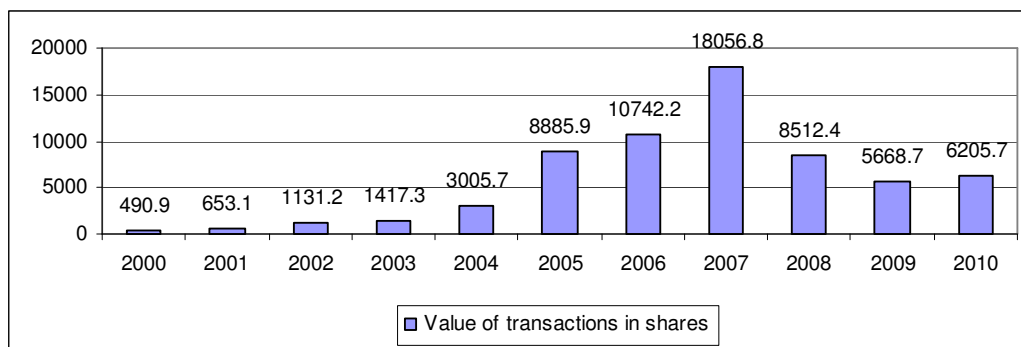
The BSE capitalization fell by 53% dec.2008 month, because in 2009 to recover 64% from year-end 2008.

Similar to the U.S. stock market, the depreciation recorded in October 2008 was approximately 40 percent, but some companies have registered over 90% discount to the values recorded in November 2007. Historical average decline on a global scale, the stock price is 55.9 percent, with a recession of about 3.4 years. (Reinhart, 2009: pp.226).

In absolute values, the value of transactions in shares of listed companies increased from U.S. \$ 8.89 billion in 2005 to 18.06 billion USD in 2007. A 68% increase in the volume of transactions was recorded in 2007 compared with 2006, due to both several initial public offerings, but also by price increases (Alexandru, 2008: pp.209-245).

In 2008, the global financial crisis, most notably the withdrawal of foreign investors on BSE was made a modest volume of transactions under the 2005 level of 36%.

Fig.2 Evolution of the value of transactions in shares on the BSE during 2000-2010



Source: *BSE data after the last trading session in the respective years, million RON*

Liquidity ratio, calculated as the ratio of annual turnover and market capitalization, declined from 16.4% at the end of 2007 to just 5.5% in 2010.

$$L = \frac{\text{Turnover value}}{\text{Market Capitalization}} (\%)$$

Table.3 Evolution of capitalization and turnover value in the period 2000-2009

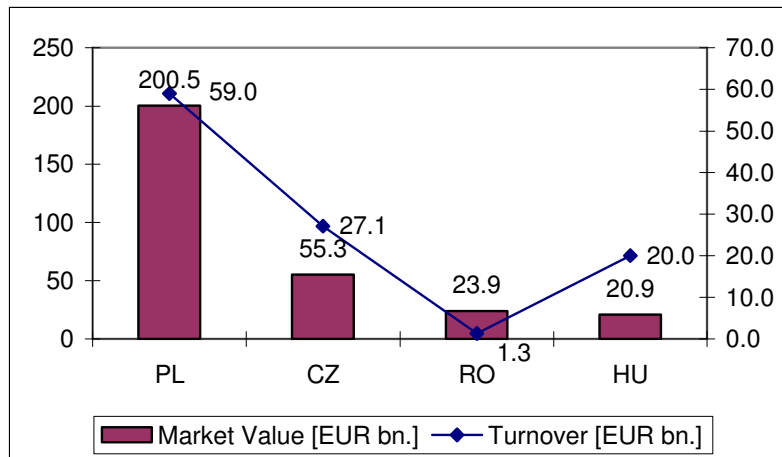
- million RON -

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Turnover value (TV)	491	653	1,131	1,417	3,006	8,886	10,742	18,057	8,512	5,669	6,206
Capitalization (CAP)	3,180	7,226	15,265	20,106	42,141	64,273	84,049	110,372	57,801	92,420	113,275
%TV/CAP	15.4%	9.0%	7.4%	7.0%	7.1%	13.8%	12.8%	16.4%	14.7%	6.1%	5.5%

Source: BSE+RASDAQ data series in the respective years

In the CEE region the Romanian capital market is situated near the Hungarian capital market in 2010 year, with a market value of 23.9 billion Euro and a very modest turnover by only 1.3 billion Euro.

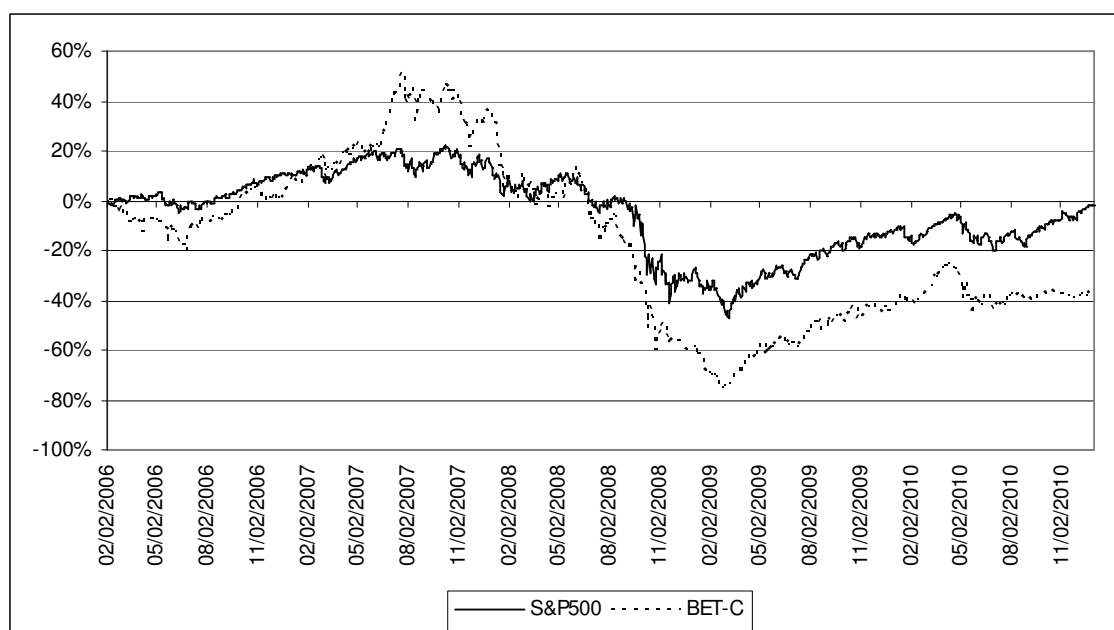
Fig.3 Market Capitalization and Trading Volumes, 2010



Source: BVB, PSE, GPW, BSE

Even if the amplitude of which varied with the BET-C was significantly higher than S&P500, however, values were correlated to August 2010. From this month there is a mismatch due to continued stagnation in the capital market in Romania, while the U.S. to continue its growth in 2010 (Fig.4).

Fig.4 Changes in BET-C index and S&P500 over the period 2006-2010



Source: BSE, NYSE, the daily data series at the end of trading session

In 2011 it is possible to register some higher assessments on BSE, and this could lead to a further recovery and correlation with the market in Romania in the U.S.. The assessments are possible in light of new and attractive listings from the state, particularly in energy, utilities and telecommunications.

Although the situation seems to be an optimistic one, the growth of capitalization resulted more from the appreciation of the share price of the already listed companies and less from the entry of new companies on the market (Table.4).

Table.4 Evolution of BSE capitalization in GDP in the period 2000-2009

- million RON -

	2001	2002	2003	2004	2005
Capit.BSE	3.857,3	9.158,0	12.186,6	34.147,4	56.065,6
GDP	116.769	151.475	197.565	246.372	288.955
%	3,30%	6,05%	6,17%	13,86%	19,40%
	2006	2007	2008	2009	2010
Capit.BSE	73.341,8	85.962,4	45.701,5	80.074,5	102.442,6
GDP	344.651	416.007	514.700	498.008	513.641
%	21,28%	20,66%	8,88%	16,08%	19,94%

Source: BNR, INS, BSE data after the last trading session in the respective years

However, compared with GDP, the capitalization has recovered quite quickly, as percentage, and because of declining GDP in 2009 year.

2. Fixed Income Securities Market¹

Until 2004, due to very low trading volume relative to the value of all capital markets in Romania, we can say that the bond market was insignificant. Under these conditions, no bonds were among the preferences of investors, while municipal bond yields have been consistently above the interest paid on bank deposits (Alexandru, 2011).

Because for fixed-income securities the number of transactions is not relevant as in market shares, we will use in this study the volume of transactions in these securities. From this point of view, the 2006 bond issue was important for the International Bank for Reconstruction and Development, worth RON 525 million. At the same time, it also marked the first issue of securities made by an international body on the Bucharest Stock Exchange.

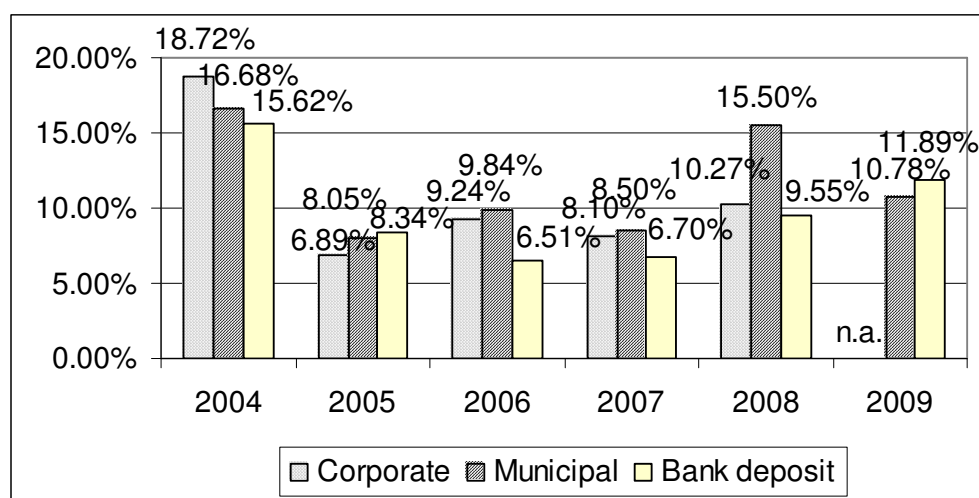
Year 2006 was a good year for corporate bond segment, and has contributed to these results definitely favor the International Bank for Reconstruction and Development. Launching a public issue of bonds, in September 2006, amounting to 525 million, doubled the value of fixed income securities markets at that time. The operation has a greater importance, since it is the first issue of international financial institutions through capital market in Romania and more, is the first on such a scale. Credibility assessment of the issuer and the AAA rate was the listing in October to be a success. Overwriting 21% of the issue, by a total of 635,948 bonds, compared to 525,000 allocated is still a positive factor in considering this issue as a success. Among domestic bond issues are made by the Romanian Commercial Bank, the important value of 200 million and approximately 21.5% by overwriting.

Volume and number of these issues in 2006 ranked first in the bond transactions, the creation of the stock exchange until 2008. Total value of transactions in bonds, of 281.67 million euros, close to the threshold of 10% of transactions in shares, but also far enough away from the practice of recognized exchanges encountered. At this time mention the existence of only two types of fixed-income instruments on the BSE, municipal and corporate bonds.

¹ This data are partially published by the author Alexandru, Ciprian. 2011. Fixed Income Instruments in the Capital Market in Romania, "Nicolae Titulescu" University: *Lex ET Scientia International Journal*, No.XVIII, vol.1/2011, and in this paper are reviewed.

To assess the efficiency of such investments is provided taking into account three key elements. First, the risk associated with these instruments, and discusses the risk of bonds is given by the indebtedness of the issuer. Secondly interest loan offered by the issuer of that bond, and thirdly return correlation with the risk associated with each fixed income instrument.

Fig.5 Average interest rates for the corporate bonds, municipal bonds and the bank deposit, from 2004 to 2009



Source: *www.intercapital.ro* (values for the month of December), not available interest rates for corporate bonds in 2009

The average interest rate corporate bonds in Lei, at the end of 2006 was 9.24%, up from 6.89% at the end of 2005. The average municipal bond interest was the end of 9.84%, up from 8.05% in 2005 (Fig.5). It may be noted an unusual situation with developed capital markets, higher interest granted by the municipal bonds from the corporate, but have a lower risk than the latter. One explanation is that sometimes the biggest bank in the country, as is the BCR, may have greater credibility than a municipality, which allocated funds and sometimes depends on the state budget.

The average interest rate for corporate bonds at the end of 2007 was 8.1%. The average interest rate for municipal bonds was 8.5% (compared with 9.8% in 2008 and 8.1% in 2005).

The relationship between specific data and household savings stock market is not very close, but can be a strong interest in reducing individuals to stocks in 2006, a period when household savings, volume compared to the population registered a slight increase, caused by investment in real estate.

In 2008, recorded the first issuance of state bonds, first due in 2007 and the existence of private pension funds, which are required by law in Romania to a prudent asset allocation,

most of the funds must be invested in securities issued by state. In 2010, as recorded on the stock market stagnation, there were no new issues of corporate bonds.

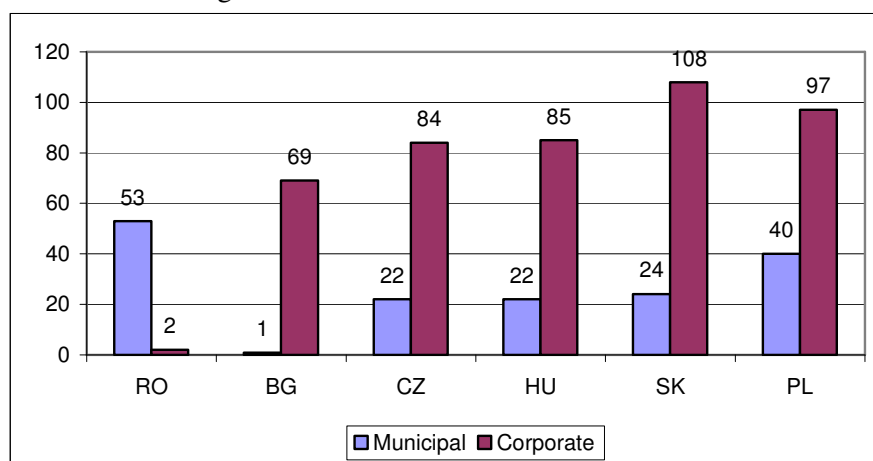
On the stock fund development stagnation in 2010, the total value of fixed income instruments registered a value of 620 million euros, an increase of 104% compared to 2009, when he recorded a value of 303 million euros. This historic high was supported by state securities representing an attractive low risk high in both, but especially by balancing the portfolios of private pension funds, which have an increasingly important presence in this market.

3. Municipal Bond Market

The first fixed-income securities traded on the Bucharest Stock Exchange were municipal bonds from 2001 with 96% share of municipal bonds in CEE.

Year 2010, For municipal bonds have been recorded four IPO, and traded a total of 35 bonds in 2010, compared with 31 in 2009, 20 in 2008, 16 in 2007 and 11 in 2006 (Fig.6).

Fig.6 Number of Traded Bonds EoY 2010



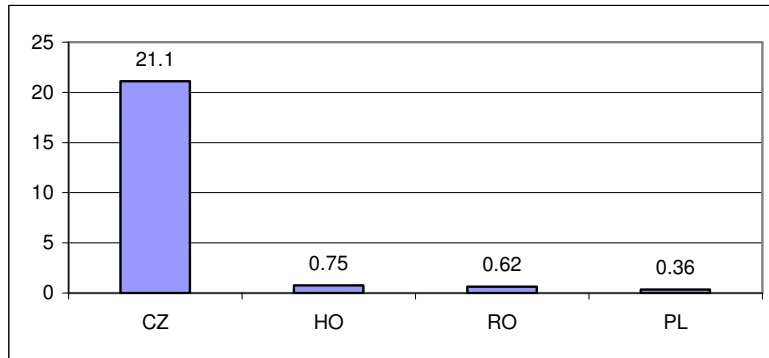
Source: FESE

The trading volumes of bond transactions doubled in 2010 from previous year, respectively 620 mil. Euro in 2010 and 303 mil. Euro in 2009, representing a highest level for Bucharest Stock Exchange bond market.

The average annual interest rate for municipal bonds has fallen from 10.78% at end 2009 to 7.43% at the end of 2010, virtually the values recorded before the financial crisis. At the end of 2008 the average annul interest rate have been 15%, in 2007 9.8% and in 2006 8.1%.

In CEE region, the bond trading volumes from Romanian market is double then Poland market and approximately the same level with Hungarian market (Fig.7).

Fig.7 Bond Trading Volumes 2010, in billion EUR

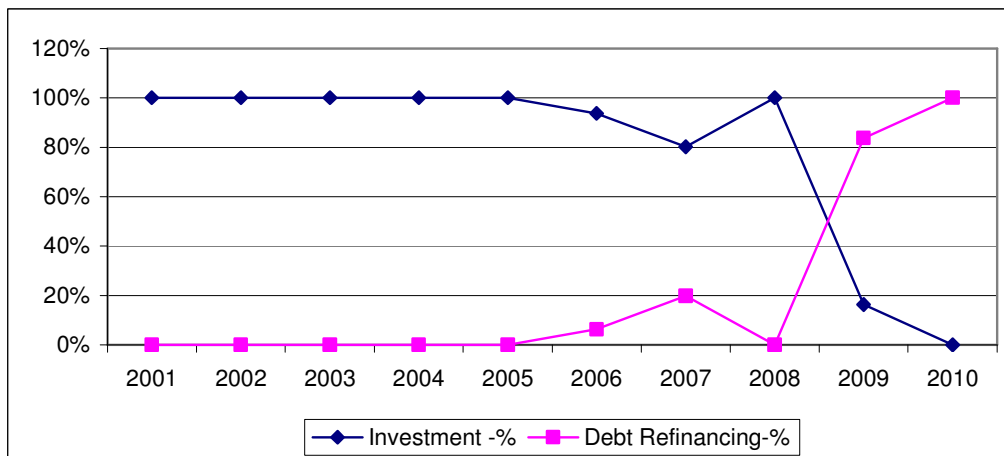


Source: BVB, PSE, GPW, BSE

A total of 23 intermediate bonds have brokered deals on BSE in 2010 compared to 30 in 2009, 24 in 2008 and 16 in 2007.

The destination of funds raised through the issuance of municipal bonds is correlated with economic recession and also with the problems of loan financing, already contracted by local authorities. Between 2001 and 2008 almost all municipal bond issues goes to investment, with only two exceptions, but from the second semester from 2008 the trend has completely reversed, respectively all the money goes to refinancing old debts (Fig.8).

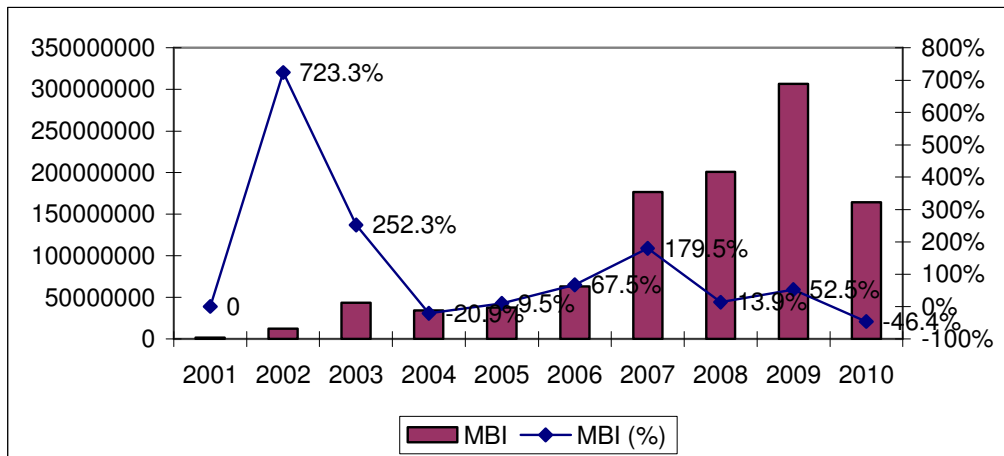
Fig.8 Fund Destination of Municipal Bond Issues, Investment vs. Debt Refinancing



Source: Bucharest Stock Exchange (BSE), data series on the website: <http://www.bvb.ro/>

The volume of bond issues varied greatly from year to year, in 2002 it registered a volume with 723% higher than in 2001. The upward trend was maintained in the coming years, varying between 9.5% and 252%, the only year of decline was 2010 when the volume of issuance fell 46.4% compared to 2009.

Fig.9 Municipal Bond Issues Volumes, between 2001 and 2010, in RON



Source: Bucharest Stock Exchange (BSE), data series on the website: <http://www.bvb.ro/>

An additional argument for the high potential that it has municipal bond market is the level of debt they have, on average, local authorities. Even if the local public debt ratio increased from 0.16% to 8.43% of GDP in 2008, is much lower than the share of central government debt amounted in 2010, to over 35% (Table 5).

Table.5 Direct public debt to GDP

- million RON -

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GDP	116769	151475	197600	246400	288955	344651	412762	514654	491274	460360
Dpd	22.7%	22.4%	20.8%	17.3%	14.9%	14.6%	16.3%	17.9%	25.8%	35.5%
Dlpd	0.16%	0.19%	0.48%	0.79%	5.36%	5.94%	7.65%	8.43%	7.34%	6.09%

Source: INS, Dpd = direct public debt, Dlpd = direct local public debt

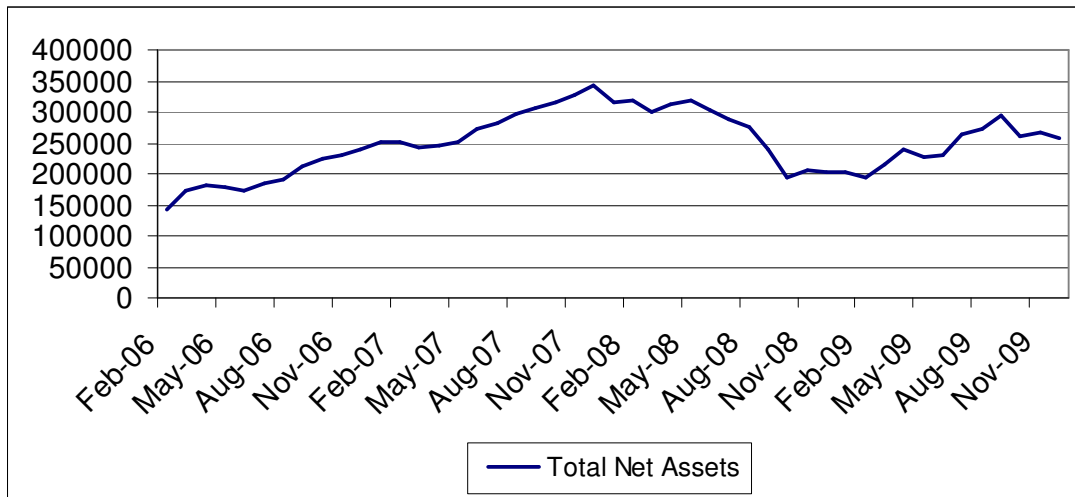
4. The Balanced Funds

If loss aversion can be explained by reducing the number of investors, it is not sufficient to determine the low participation (Barberis, Huang and Thaler (2006)).

Maximum total net assets of the diversified investment funds was reached in December 2007, RON 343.57 million, about 95.17 million euros, 40% more than in February 2006. During this period, total net assets trend was correlated with the number of investors and BET-C evolution and shows that loss aversion is important for investors on BSE.

During this period, total net assets trend was correlated with the number of investors and BET-C evolution and shows that loss aversion is important for investors on BSE (Fig. 10).

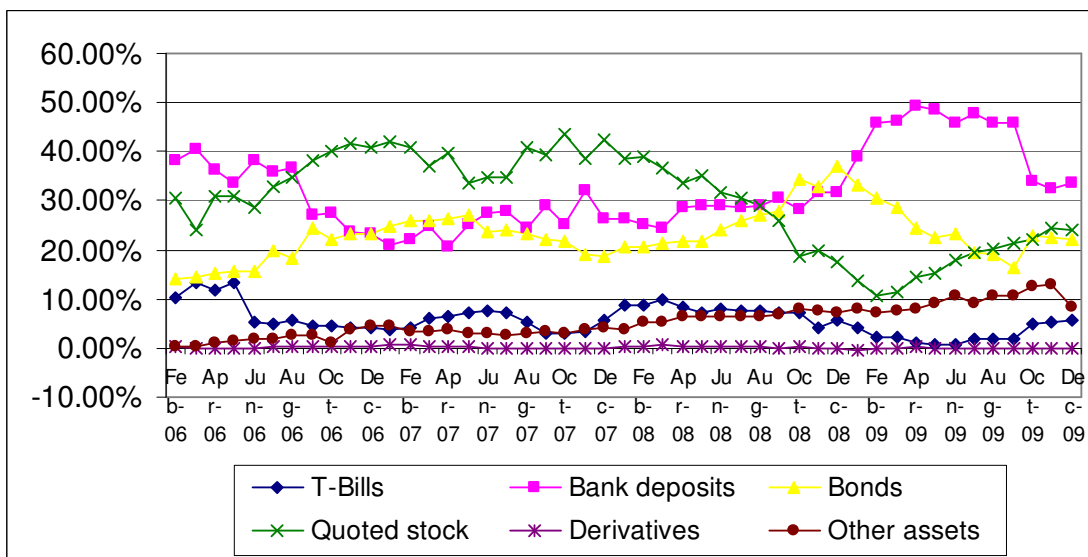
Fig.10 Total net assets from balanced funds (thousand RON), from Feb., 2006 to Dec., 2009



Source: Romanian Association of Asset Managers, series of data from web site:
http://www.aaf.ro/index.php?option=com_content&task=section&id=4&Itemid=35

Dynamic performance of shares is reflected in investor sentiment, as shown in Figure No. 11. With the reduction in average interest rate on bank deposits, bonds, interest rate stability and good results of stocks, investments are changing from August 2006 to bank deposits for stocks. A change of trend is observed in July 2008 when institutional investors have turned to bank deposits. Evolution and other assets for government securities was not significant.

Fig.11 Portfolio structure of balanced funds, from feb, 2006 to dec, 2009



Source: Romanian Association of Asset Managers, series of data from web site:
http://www.aaf.ro/index.php?option=com_content&task=section&id=4&Itemid=35

If institutional investors, like those analyzed in this study, loss aversion and "tools" to preserve much of the profit, other investors have no faith that the stock market can be an alternative for their investments.

Conclusions

Romanian stock exchange, after four years of strong appreciation of stocks, between 2003 and mid 2007, the global recession of the financial market, from July 2007 and March 2009, show that the emergent capital market is more vulnerable to a big capital flow.

On the Bucharest Stock Exchange, the liquidity rate is very low and oscillating, which increase aversion to this market, especially in the case of foreign investors and portfolio investments strategy. Romanian capital market does not fully fulfill its role in the efficient allocation of the available capital, and the dominant aspect is the speculative character of the stock exchange.

The municipal bond market as a component of fixed income instruments market has grown much less than that of the stocks and is represented by a small number of issuers. As a diversified bond market in Romania can be compared with the U.S. more than the '60s, because it consists solely of government bonds, municipal bonds and some corporate bonds. Moreover, these bonds are characterized by a fixed maturity, a principal and coupon interest rate fixed or anchored to the average interbank interest rate at three or six months. Another feature of this market is almost non-existent secondary market because most buyers keep the bonds until maturity, but also due to low offers, without big variations of interest.

The private pension funds will have larger amounts available to be placed on the capital market, municipal bonds are known as greater liquidity, but also possible that more issuers to use this form to attract sources of investment money.

The diversification of bond instruments is very important, in terms of different taxation of income from municipal bonds or even exempt from taxation. With the spot bond market development will be considered derivatives and structured to provide portfolio management capabilities found on all dedicated capital markets.

Not least of the market surveillance authorities must take an active role to prevent any slippage in this area, and the dynamics of the sector will require adaptation of specific tools to the requirements of investors and issuers.

Low national funding from the central budget will be compensated with aid indirectly through a state guarantee of loans made through municipal bonds. An additional argument is

also a decrease in revenue for local budgets caused by lower income population and a decrease in the volume of corporate taxes on modest profit, in recent years.

In conclusion, for regional developing the municipal bond market is the key factor which will increase the volumes of financing for local budget. With a strong municipal bond market the number of local investors and the IPOs could be considerably higher than the last years.

References

- Alexandru, Ciprian. 2008. *Capital market in Romania*. Libra Publisher, Bucharest, p.209-245.
- Alexandru, Ciprian. 2011. Fixed Income Instruments in the Capital Market in Romania, "Nicolae Titulescu" University: *Lex ET Scientia International Journal*, No.XVIII, vol.1/2011.
- Barberis, Nicholas, Ming Huang, and Richard H. Thaler. 2006. Individual, monetary gambles, and stock market participation: A case for narrow framing, *American Economic Review* 96, 1069–1090.
- Chandrasekaran, Pravin and Katayama, Roy. 2006. Municipal Bonds: Is India ready for more?, <http://mpira.ub.uni-muenchen.de/9807/>, Harvard University/Harvard Kennedy School.
- Downing, Chris and Zhang, Frank. 2004. Trading Activity and Price Volatility in the Municipal Bond Market, *Journal of Finance* 54(2) April, 899-931
- Kidwell, David and Trzcinka, Charles A.. 1982. Municipal Bond Pricing and the New York City Fiscal Crisis, *Journal of Finance* 37(5) December, 1239-1246.
- Massa, Massimo and Andrei Simonov. 2006. Hedging, Familiarity, and Portfolio Choice, *Review of Financial Studies* 19(2), 633-685.
- Odean, Terrance. 1999. Do Investors Trade Too Much? *American Economic Review*, December, 1279-1298
- Reinhart, Carmen, Rogoff, Kenneth, 2009, *This Time is Different*, Princeton University Press, Princeton.
- * * *, 2000-2008, Romanian Statistical Yearbook, Bucharest
- * * *, 2001-2010, BNR annual reports, Bucharest, www.bnr.ro
- * * *, Bucharest Stock Exchange, www.bvb.ro
- * * *, World Bank Group, *World Development Indicators database*, 2007