MUNICIPAL AND TREASURY BOND MARKET SEGMENTS DEVELOPMENT AT BUCHAREST STOCK EXCHANGE

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Abstract

The current paper reviews the developments that took place, starting with November 2001, inside the Romanian Municipal and Treasury bond market segments at the Bucharest Stock Exchange. The development of a debt market has as a main objective to encourage the central, regional and local governments to consider bond finance as an important way for regional and local project investments; it could enhance the quality and the efficiency of financed projects and encourage long term financial planning. The relatively modest profile of the Romanian public bond sector at Bucharest Stock Exchange can be explained by the late introduction of the T-bonds (7 years after the bond sector was launched). Lacking the benchmark the T-bonds could offer, it was only natural for investors to avoid the (Municipal) bond sector. The development of the domestic public bond sector is expected to continue in the years to come, mainly if through bond financing the central/regional and local authorities will support investment projects that will trigger and/or generate economic development.

Keywords: bond, Treasury, Municipal, listed, exchange, Romania.

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1. Introduction and literature review

The European debt market is dominated by euro-area issuers (De Haan *et al.*, 2009, pp. 77-78), but the diversity increased starting with 2004 and continued during 2007, and was due to the total of 12 new member states that joined the European Union (EU). The new member states debt markets are not all comparable in size and issuance volume with the developed EU countries; however analyses of the respective domestic debt markets provide a complex image of the enlarged European debt market. The development of the debt market in Central and Eastern European Union countries has as a main objective to encourage their respective central, regional and local governments to consider bond finance as an important way for regional and local project investments. Also, a closer relationship between the local/regional/central authorities and the capital markets could enhance the quality and the efficiency of financed projects and encourage long term financial planning.

During 2001 and 2002 the academic literature was preoccupied by the impact of euro on Europe's financial markets, including debt markets (Claes *et al.*, 2002; Santillán *et al.*, 2000; Galati and Tsatsaronis, 2001; Pagano and Von Thadden, 2008, Abad *et al.*, 2010). The trend changed by the middle of the 2000s toward integrated volumes publishing studies researching various aspects of European fixed income market like the one edited by Batten *et al.* (2004) completed with complex studies made by Dunne *et al.* (2006a) on European Government Bond Markets: transparency, liquidity, efficiency.

Starting with 2002 more focused studies emerged regarding European debt markets: on transparency (Paesani and Piga, 2007), price discovery (Dunne *et al.*, 2006b; Nowak *et al.*, 2011), bond spreads (Sy, 2002; Ebner, 2009) and trading platforms (Dunne *et al.*, 2008), and the best moment to develop a country bond market and the influencing factors (Hale and Spiegel, 2008; Bunda *et al.*, 2009). Another group of studies focused on a particular debt market of a particular country (Sándor, 2002) or debt markets from a region (Roldos, 2004; Abad *et al.*, 2010).

The literature regarding the Romanian bond market, in general, is relatively scarce and appeared only starting with 2004. One of the first studies presenting the details of Romanian Municipal bond market was that of Pop and Dumbravă (2004). The study of Skully and Brown (2006) had a special section dedicated to the Romanian bond market and a subsection for the Municipal bonds. Corduneanu and Milos (2009), Grecu (2008), Moşteanu and Lăcătuş (2008), Matei *et al.* (2009) are Romanian academic studies dealing with some aspects of the Romanian bond market. Only one study (Bunescu, 2010) deals with a specific bond issue in its trial for a detailed analysis. An in-depth analysis of the Romanian Municipal bond market was made by Pop and Georgescu (2011). No academic papers dedicated to the Romanian T-bond market could be found up to June 2011.

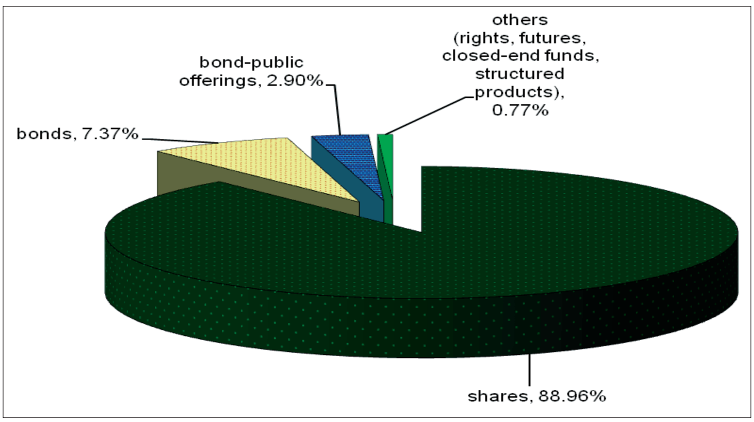
2. Bond market segment at Bucharest Stock Exchange

The secondary market for Romanian bonds was launched at Bucharest Stock Exchange (BVB)[1] at the end of November 2001 with only two bond issues of the small municipalities of Predeal and Mangalia[2].

The bond market segment at BVB diversifies as follow:

- in May 2003 domestic corporate bonds start trading;
- in September 2006 international (corporate) bonds were introduced; and
- in August 2008 Romanian central government bonds (Treasury or T-bonds) start trading.

Despite the diversity in products and growth registered by the bond market segment, its position within BVB total turnover remained relatively modest compared with the importance of equity trading, as Figure 1 shows. For the entire period between November 2001 and December 2010, the total bond turnover represented less than 8% and the value of bond public offerings represented less that 3% of BVB total turnover.



Note: The graph does not include the turnover generated by the shares traded on the 'unlisted' market segment at BVB.

Figure 1: The turnover structure by main trading instruments at BVB (cumulated data for the period November 2001 – December 2010)

Source: Authors' calculations using BVB data, [Online] available at www.bvb.ro

As it can be seen from Table 1 below, the bond market grew through abrupt changes: 2003 turnover increased with 42% compared to 2002; at the end of 2004 it reached almost 37 times the level of 2003 mainly due to the introduction of corporate bonds; it continued to grow almost doubling its value in 2005 and 2006 and reached a first

1 For the present paper the abbreviation BVB (from Romanian name Bursa de Valori Bucureşti) was chosen in order to avoid any confusion with the possible abbreviation for Budapest Stock Exchange, Bulgarian Stock Exchange and Bratislava Stock Exchange.

2 Both municipalities are popular tourist destinations, one in the mountain region of Prahova Valley (Predeal), respectively a resort at the Black Seaside (Mangalia).

pick in 2007, which up until July was one of the best years for BVB. The year 2008 low turnover shows the influence of the financial crisis climax. The increase in trading value that can be observed for 2009 and 2010 was due mainly to the Romanian T-bond transactions. As Figure 2 plots, in 2009, 2010 and up until June 2011, the Romanian bond market at BVB was completely dominated by the trading in Romanian T-bonds.

Table 1: BVB bond market information (public offerings excluded)

Year	Number of trades	Volume	Value (EUR)*	Number of listed issues (end of the year/period)	New entries
2001	5	45	185.13	2	2
2002	10	59,050	250,295.75	4	2
2003	37	29,870	355,584.29	10	9
2004	274	118,136	13,148,120.07	25	17
2005	334	197,107	29,666,788.77	19	6
2006	319	603,208	53,877,527.98	18	5
2007	233	3,652,467	147,985,261.23	22	11
2008	547	862,927	53,465,296.51	50	34
2009	958	1,822,908	277,746,575.81	60	16
2010	540	591,511	552,865,212.24	55	7
2011 (June 30th)	102	34,041	29,325,401.23	59	5

* The exchange rates used to express the value in EUR are those available in EUROSTAT statistics [Online] available at http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=tec00033&plugin=1 for Romania (1 EUR = x RON), as follow: for 2001 = 2.6004; 2002= 3.1270; 2003= 3.7551; 2004= 4.0510; 2005= 3.6209; 2006= 3.5258; 2007= 3.3353; 2008= 3.6826; 2009= 4.2399; 2010=4.2122; 2011 = 4.1790 (average for January to June based on daily data from www.bnro.ro).

Source: Authors' calculations based on BVB daily reports

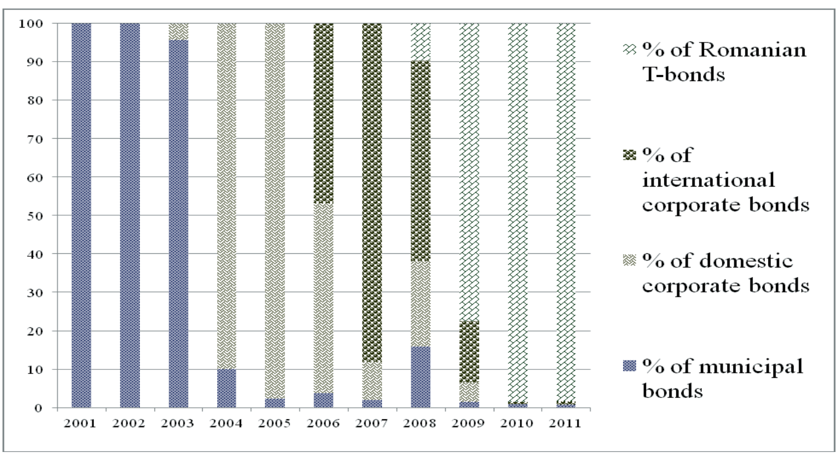


Figure 2: The importance of each bond market sub-segment in total turnover (total value)

Source: Authors' calculations based on BVB daily reports

Table 2 presents the domestic and international bond public offerings that were launched trough BVB trading platform. As it can be seen, these public offerings were modest both from volume and initial outstanding value points of view. All these offerings were subscribed at bond's nominal/ face value. Figure 3 shows the structure of bond offerings by market segments and the dominance of Municipal bond public offerings is clear. However, in spite of this situation, the Municipal bond sub-segment became almost negligible since 2004 concerning turnover (see Figure 2 above).

Table 2: BVB bond public offerings

Year	Number of trades	Volume	Value (EUR)*	Number of offered issues
2001	0	0	0.00	0
2002	0	0	0.00	0
2003	2	158,000	4,207,610.98	2
2004	705	371,000	48,259,688.97	3
2005	61	200,000	5,523,488.64	1
2006	252	3,321,264	228,657,893.24	3
2007	34	3,000,000	90,171,798.64	1
2008	0	0	0.00	0
2009	4	1,070,000	25,236,444.26	3
2010	3	2,422,864	57,520,155.74	3
2011 (June 30th)	3	1,000,000	23,929,169.66	1

* See footnote 3.

Source: Authors' calculations based on BVB daily reports

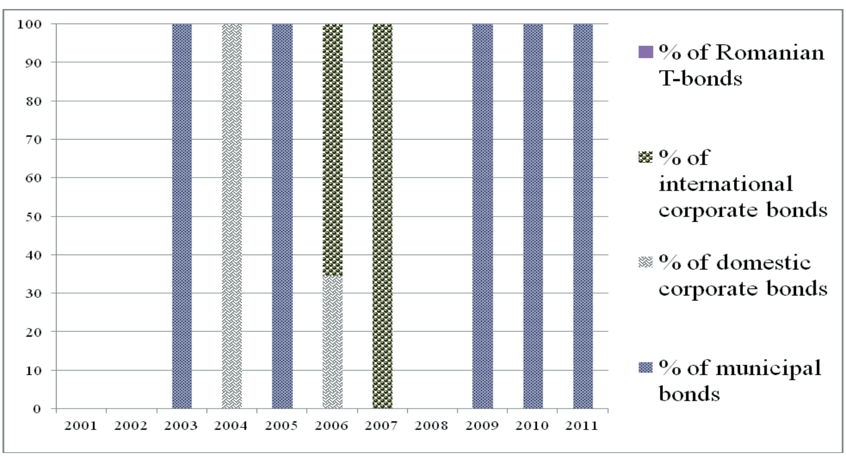


Figure 3: Bond public offerings by market segments (% of total value)

Source: Authors' calculations based on BVB daily reports

Table 3 below shows the evolution of the listed issues in the Municipal and T-bond categories.

Table 3: BVB bond issues available for trading

Year	Number of outstanding bond issues (end of the year/period)		
	Municipal	T-bonds	Total
2001	2	-	2
2002	4	-	4
2003	9	-	10
2004	19	-	25
2005	13	-	19
2006	11	-	18
2007	16	-	22
2008	20	24	50
2009	31	26	60
2010	35	18	55
2011 (June 30th)	36	21	59

Source: Authors' calculations based on BVB daily reports

The following several causes have been identified in order to explain the modest profile bond market segment managed to reach within BVB total turnover after 9 years since it was launched:

- the low volume per offer; the highest number of offered bonds did not overpass 3,000,000 bonds (the case of bond offering launched by European Investment Bank in 2007 for the Romanian market);
- the relatively high nominal value/face value of the traded T-bonds: this is of 10,000 RON (or about 2,470 EUR[3]);
- the small number of investors subscribing the bond offerings; this cause is connected with the two previous causes mentioned:
    - the small individual investors scarcely have the possibility to invest in the T-bonds, a very limited number of Romanian individuals can afford to invest over 2,000 EUR in just one security; at this value, even the access of small Romanian mutual funds (with limited resources) is difficult, they only have the possibility to acquire small blocs of T-bonds;
    - due to the low volume per offer (combined with the fact that bonds represent an alternative investment with a high demand level for portfolio diversification on Romanian market) every bond offering launched on the market is subscribed in a very short period of time, mainly by domestic institutional investors; the dominance of institutional investors in subscribing bonds and the high speed with which they are subscribing Municipal bond offerings were highlighted by Sain (2004, 2005, 2006), and Ciobanu (2007a, 2008b);

3 Using an average exchange rate of 4.05 RON/ 1 EUR – the average of 2008, 2009, and 2010, as presented in footnote 3.

– the tendency of the bond subscribers to keep the bonds in their portfolio for long periods of time or up to their maturity as highlighted by Ungureanu (2006), Ciobanu (2007b, 2008a, 2010);
– the relative lack of popularity of bonds among the individual investors due to several technicalities (like the fact that the price is expressed as percentage of the bond's nominal/face value, the cash flow structure generated by the (Municipal) bond which includes the coupon and a percentage of principal reimbursed at the same date, and the necessity to use discounting methods to calculate the fair price of the respective bond; not all the information needed to make a decision is easily and readily available on one webpage dedicated to every bond listed at BVB);
– the absence of a yield curve announced and periodically published by the Romanian Ministry of Finance for the period 2001-2006, and the relative difficulty in accessing the present information regarding the yield curve published starting with the second half of 2007; the current information regarding the yield curve is relatively hidden due to its inclusion in pages of the complicated website of the Romanian Ministry of Public Finance;
– the absence of rating for Romanian listed bonds; this cause is not uncommon in the Central and East European countries due to the absence of a culture oriented toward using ratings, as highlighted by Szilagy *et al.* (2004); in the case of Romanian municipalities, the need for a rating is not felt since the demand remains unsatisfied by the offer; however for some Romanian (mainly institutional) investors the absence of rating became increasingly disturbing in the past 3-4 years, as stressed by Ciobanu (2009); for the T-bonds, the sovereign rating provided by the international agencies is used.

It must be mentioned that since the beginning of 2010, no corporate bond is currently listed at BVB and the international bond trading is negligible.

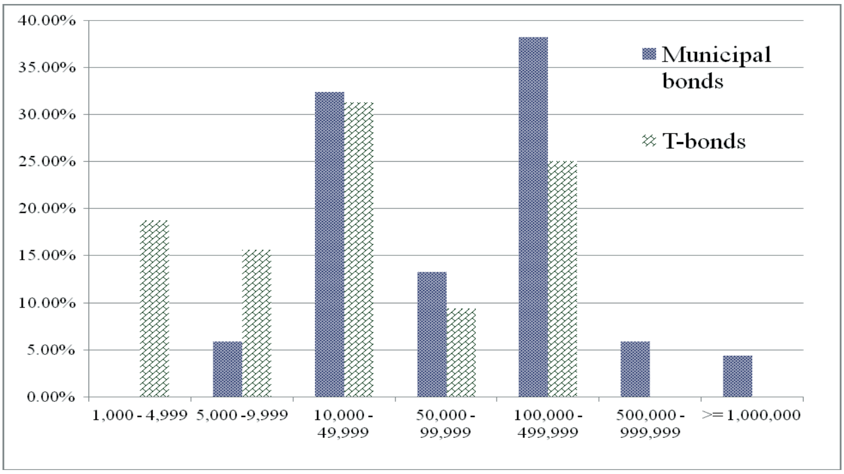
Further, the causes mentioned above will be supported by the information available for Municipal bonds and T-bonds.

Figure 4 indicates that, in the case of Municipal bond listed issues, about 32% of these had a volume between 10,000 and 49,999 securities, and about 38% of these had a volume between 100,000 and 499,999 securities. Only 3 Municipal bond listed issues are of 1,000,000 securities (the maximum registered for Municipal bond issues until now). The smallest Municipal bond issue was of 5,000 securities, launched by the town of Aiud, Alba County, in 2003 and matured in 2005.

In the case of the T-bonds, it can be seen that the listed issues do not pass over 499,999 securities (the largest listed issue up until now is of 447,437 bonds; launched in March 2009, will mature in October 2012). Of the total of listed T-bond issues at BVB about 31% are between 10,000 and 49,999 securities; only 25% of the issues have between 100,000 and 499,999 securities, which is not encouraging for the T-bond market liquidity.

The smallest T-bond issue was of 1,829 securities, launched in June 2005; it will mature in June 2012.

Figure 4: Municipal bonds and T-bonds listed at BVB structure by volume of the issue



Source: Authors' calculations based on BVB daily reports

Table 4 below shows, however, a gradual improvement of the size of the Municipal bond issues, showing that the municipalities, assisted by specialized intermediaries, understood the need for an increased volume of securities in order to enhance the attractiveness of their offers. Unfortunately, the situation is not so good in the case of T-bonds issues, which registered during 2010 and the first half of 2011 a decrease in volume. The small volume/issue is likely to encourage the buy and hold behavior (over long periods of time) of potential and current investors and traders.

Table 4: The average volume for the Municipal bond and T-bond issues listed at BVB

The year when the issue was launched	Municipal bond issues average volume	T-bond issues average volume
2001	75,000	-
2002	62,643	-
2003	47,504	-
2004	47,277	-
2005	64,000	8,028
2006	90,214	No issue was launched
2007	220,625	167,445
2008	337,143	274,869
2009	301,667	423,342
2010	821,500	113,381
2011 (June 30th)	889,932	42,971

Note: In August 2008, the T-bonds listed at BVB were issued during 2005, 2007 and 2008.

Source: Authors' calculations based on BVB data [Online] available www.bvb.ro

The low frequency of Municipal and T-bonds trading at BVB is presented in Table 5 and confirms the problems related to the volume of securities/issues and the small number of investors which manifest an interest toward BVB listed bonds issued by the central government and municipalities. As it can be seen, the situation is grim for the Municipal bonds which register a low trading frequency, being traded in about 15% of the days in which BVB is open for trading. The situation was better in the case of T-bonds during 2010 and 2009, because they represented an investment alternative, when the equity market was considered too uncertain by investors.

Table 5: Trading frequency for listed Municipal bonds and T-bonds

Year	Number of days when trading occurred (public offerings excluded)		Number of trading days at BVB
	Municipal	T-bonds	
2001	4	-	17
2002	6	-	247
2003	11	-	241
2004	36	-	253
2005	40	-	247
2006	21	-	248
2007	25	-	250
2008	57	11	250
2009	67	137	250
2010	40	134	255
2011 (June 30th)	12	41	127

Source: Authors' calculations based on BVB daily reports

Another fact that supports the causes identified above is that of a total of 68 Municipal bond issues, listed at BVB between November 2001 and June 2011, about 30% never registered any trading and about the same percentage registered less than 10 trades during their listing period.

In the case of T-bonds, of the total of 32 issues listed at BVB between August 2008 and June 2011, about 47% were never traded, usually those with a small volume/issue.

3. Details regarding Municipal bonds listed at BVB

The first Municipal bond offerings were based on Law no. 189/1998 of local public finance which allowed local authorities, for the first time after 1990, to use bonds as an alternative to borrow money through the capital market. This law was modified by Government Ordinance no. 45/2003. Both regulations stated clearly that the debt ratio (including: principal amount, interest rates and other debt related costs) should not pass over 20% of the current incomes of the respective local budget, generated by local taxes and various other fees to which a portion allocated by the central government from the income taxes collected at national level is added[4].

4 The collateral for the borrowed amount was represented by the total current incomes which the local administration has the capacity to collect. In such a case, the default risk was considered to be relatively low for Romanian Municipal bonds issued on the market, as stressed by Pop and Dumbravă (2004).

Law no. 273/2006 of local public finance replaced the previous regulations and it increased the debt ratio to 30% of the same current incomes. Government Ordinance no. 63/2010 which modified the law from 2006, maintained the debt ratio at 30%, but changed the debt ratio calculation base by taking into consideration the arithmetic average of current incomes from the past three years previous to the launch of bond offering, and further the respective incomes are diminished with the amounts resulting from selling various types of goods owned by the respective local administration (considered to be exceptional incomes)[5].

Under the current regulation of 2010 it can be considered that the default risk for the Romanian Municipal bonds remains relatively low. However, the respective default risk must be assessed by subscribers in every case due to the fact that the dimension and the economic environment for every city, town or commune varies widely, generating different capacities of collecting local taxes, fees and other incomes.

As of June 2011, a number of 68 subscribed Municipal bond issues were listed at BVB.

As Figure 2 above highlights, the Municipal bond segment has a relatively low profile within BVB bond market, cumulating for the period under scrutiny (November 2001 to June 2011) only around 30.29% of the total bond market turnover. This situation is in contradiction with the fact that the Municipal bond segment was always the one with the highest number of outstanding issues, as Table 3 shows. However, the situation is consistent with the lowest frequency in trading – Municipal bonds being traded between 30 and 60 days on an average of 250 trading days/year, as presented in Table 5, compared with the other bond market sub-segments which registered a higher number of trading days.

Table 6 and Annex 1 present details regarding the Municipal bond market sub-segment at BVB. As it can be seen, the Municipal bonds had a relatively constant increase in trades and volume, while the turnover had a sinuous evolution. The highest turnover for Municipal bonds was reached during 2008 and might be due to the sharp decline on BVB equity market, while investors were looking for alternative investments. For 2010, the volume and turnover of this sub-segment slightly overpass the level of 2009, while turnover is around 65% of the 2008 level.

From the point of view of public offerings (for details see Annex 1), Municipal bond issuing through BVB trading platform registered both low volume and values. Between 2006 and 2008 no Municipal public offerings were made. This situation might be explained by the fact that during the respective period Romanian banks become more flexible in their lending policies and a number of municipalities chose to finance

5 A procedure of registering in electronic format the collateral agreement (continuing to be represented by the total current incomes collected by the local authority) for the bond subscriber was also put in place, giving the respective Municipal bond subscribers priority claims to recuperate the invested amount (at nominal value) if any default might occur.

their investment projects through bank loans instead of facing the discipline and the increased level of transparency demanded by bond public offerings.

Table 6: BVB Municipal bond market data (public offerings excluded)

Year	Number of trades	Volume	Value (EUR)*
2001	5	45	185.13
2002	10	59,050	250,295.75
2003	12	29,310	340,150.99
2004	85	51,945	1,317,015.33
2005	60	25,632	705,841.35
2006	60	80,658	2,043,114.05
2007	58	119,695	2,964,905.95
2008	175	323,793	8,510,317.46
2009	154	221,349	4,565,880.02
2010	88	254,207	5,456,669.42
2011 (June 30th)	28	11,965	243,080.27

*See footnote 3.

Source: Authors' calculations based on BVB daily reports

Of the 68 listed issues, 32 reached their maturity; the remaining 36 are available for trading on BVB platform, as of June 30th 2011.

The structure of the Municipal bond issuers was the following:

- 4 county councils (the local authorities responsible for the county administration);
- 29 city or town councils (of which 13 are county capitals – the main cities in their home counties, concentrating also the administrative structure at county level[6]);
- 1 commune council (ANI20).

One county council, and 16 cities and towns launched between 2 and 7 bond offerings between November 2001 and June 2011.

Concerning the destination of the borrowed money (through Municipal bond offerings), the situation is the following:

- For the bond offerings launched during 2001 to 2004 and partly during 2005, the destination of the borrowed money was clearly expressed – usually involving various infrastructure improvements and developments.
- Starting with 2005 until present, the 'multiple destinations' became the trend, the issuer announcing a mix of various infrastructure improvements, modernizations or new constructions (streets, sewerage, water distribution systems, natural gas distribution systems, various building rehabilitation, land investments for new constructions etc.).

6 The county capitals are: Arad, Bacău, Bistriţa, Cluj-Napoca, Deva, Focşani, Giurgiu, Iaşi, Oradea, Slobozia, Timişoara, Târgu Mureş and Zalău.

– About 15 Municipal bond offerings were launched on the market in order to refinance bank loans considered to be bridge loans given for the various main purposes. This secondary trend in motivating municipal bond offerings started during 2006 and was highlighted by Matei *et al.* (2009).

Through this alternative, local authorities tried to reduce the costs incurred by the respective bank loan (as it can be seen in Table 7 and Table 8 below).

The way the maturities increased for Municipal bonds is interesting to be mentioned. The years 2001, 2002 and 2003 were dominated by medium term maturities (between 1 and 3 years) with one exception of a maturity approaching 5 years for the bonds offered by the city of Deva. This situation can be explained by at least two causes:

– uncertainty regarding the evolution of the economic situation in Romania;
– the novelty that Municipal bonds represented for Romanian investors and the uncertainty regarding their interest toward this investment alternative.

During 2004 the confidence increased and the maturity for offered bonds ranged between 2.5 and 6 years. In 2005 an important step forward was made, the first bond offering with a maturity close to 20 years was launched on the market, encouraged by the improved economic conditions and the demand for Municipal bonds manifested by Romanian domestic investors. The years that follow (2006 to June 2011) were dominated by bond offerings with maturities ranging between 8 and 20 years, despite the effects of the financial crisis on the investors' pessimistic attitude toward BVB investments as a whole.

Almost all Municipal bonds offered on the Romanian market are (depending on their maturity) floating rate notes or floating rate bonds. There were only two exceptions:

– the bond issue of the city of Arad from 2003, which announced a fixed coupon of 14%;
– one of the bond issues made by the city of Timişoara in 2005, which announced a fixed coupon of 8.25%.

The interest rate is calculated using as reference Romanian Interbank Rates (ROBID-ROBOR)[7] to which a margin is added. Of the 66 bond issues that use this way of calculating their coupon, 61 use for reference the average for ROBID-ROBOR at 3 months (3M) or 6 months (6M), usually correlated with the coupon frequency payment, while 7 use for reference only ROBOR at 3 or 6 months; these 7 issues were launched in 2008, 2009, 2010 and 2011.

The coupon payment frequency split the 68 listed issues as follow: 48 paid or pay the coupon quarterly, while the remaining 20 paid or pay it semiannually.

Starting with 2007, in 11 cases it was observed that the coupon is paid quarterly, while the interest rate used for reference is either the average between ROBID and ROBOR at 6 months, or ROBOR at 6 months. Through such a combination, the bond

7 Formerly known as BUBID-BUBOR. Data regarding ROBID-ROBOR are offered by the National Bank of Romania on its website (http://www.bnro.ro/Info-financiar-5371.aspx).

issuer might try to compensate the low margin with a slightly higher reference interest rate. No official explanation was made public.

The debt risk premium evolved as presented in Table 7 for the bonds offered every year during the period under survey.

Table 7: Debt risk premium for the municipal bond offerings in the respective year and the average maturity announced for the respective offerings

Year	Average maturity	Average margin (%)	Minimum (%)	Maximum (%)
2001	21 months (1.75 years)	2.50	2.00	3.00
2002	27 months (2.25 years)	2.00	2.00	2.00
2003	29 months (2.42 years)	1.73	0.98	2.00
2004	45 months (3.75 years)	1.83	1.00	2.00
2005	81 months (6.75 years)	1.90	1.50	2.00
2006	185 months (15.42 years)	1.23	0.10	1.65
2007	225 months (18.75 years)	0.96	0.10	1.50
2008	213 months (17.75 years)	0.71	0.10	1.30
2009	220 months (18.33 years)	0.92	0.55	1.50
2010	232 months (19.33 years)	0.55	0.45	0.65
2011 (June 30th)	336 months (28.00 years)	0.39	0.39	0.39

Note: For 2003 and 2005, the issues with fix interest rate were excluded.

Source: Authors' calculation based on the information offered by BVB on Municipal bonds

Table 8: Municipal bonds interest rates compared with reference Romanian Interbank Interest Rates and bank loans interest rates (annual averages, %)

Year	ROBOR 3M	ROBOR 6M	(ROBID3M+ ROBOR3M)/ 2	(ROBID6M+ ROBOR6M)/ 2	Bank loan interest rates	Municipal bond interest rates
2001	38.06	44.57	40.88	41.32	45.10	43.38
2002	29.17	29.35	27.37	27.54	36.65	32.90
2003	19.87	19.25	17.72	16.88	26.19	19.54
2004	20.74	19.91	19.13	18.14	29.15	19.75
2005	9.81	9.86	8.34	8.30	21.04	13.85
2006	8.77	8.72	8.10	7.99	14.83	8.46
2007	7.79	7.81	7.23	7.22	13.32	8.78
2008	13.04	13.12	12.28	12.26	15.07	10.77
2009	11.72	11.79	11.32	11.29	17.30	13.46
2010	6.75	7.22	6.50	6.85	14.11	8.61
2011 (June 30th)	5.65	6.48	5.40	6.10	12.37	7.22

Source: Authors' calculations based on NBR data and BVB data

4. Details regarding T-bonds listed at BVB

The Romanian government security issuance can be traced back to March 1994; for the present paper only the Romanian government securities denominated in the national currency were taken into consideration. Between March 1994 and December 1999, only T-bills and Treasury certificates (this type of credit title issuance was discontinued in 2001) were issued. Starting with 1999 fixed interest rates T-bonds were issued; for a brief period (between 2003 and 2005) indexed interest rate T-bonds were also issued.

Further, the situation will be presented only for the period under scrutiny for BVB: namely between 2001 and June 2011. As it can be seen from Table 9, the preference for T-bills offerings is obvious, with the only exception of 2005 when medium and long term T-bonds overpassed the short-term government securities.

Table 9: The new and renewed T-bonds issues between 2001 and June 2011 (m EUR)[8]

Year	T-bills	T-certificates	T-bonds (fixed interest rate)	T-bonds (indexed interest rate)
2001	2,847.29	1.46	28.26	-
2002	1,729.71	-	175.57	-
2003	1,081.97	-	257.57	13.82
2004	1,315.48	-	84.03	18.37
2005	41.62	-	774.61	2.76
2006	-	-	-	-
2007	1,557.28	-	1,296.26	-
2008	2,408.16	-	975.56	-
2009	13,268.99	-	1,996.93	-
2010	7,968.69	-	1,784.01	-
2011 (June 30th)	5,484.97	-	1,699.35	-

Source: Based on the information provided by the National Bank of Romania through monthly bulletins

The National Bank of Romania (NBR), acting as the State agent, organized the primary and an inter-bank secondary market for T-bonds starting with 1997. The data regarding trading on the secondary market for T-bonds under the National Bank of Romania administration are available only since 2000. For the present paper only the period starting with 2001 was taken into consideration, as mentioned above.

Table 10: Trading data for the secondary market for T-bonds under NBR administration

Year	Volume	Value (m EUR)[4]
2001	27,849	16,621.14
2002	32,362	15,175.57
2003	23,443	8,752.52
2004	25,692	11,950.48
2005	10,564	5,834.10
2006	3,115	2,283.20
2007	3,371	10,930.50
2008	5,836	9,231.28
2009	7,215	108,919.10
2010	8,875	46,961.21
2011 (June 30th)	6,995	34,515.08

Note: In 2006 no T-bond issues were launched by the Romanian Government.

Source: Based on the information provided by the National Bank of Romania [Online] available at http://www.bnro.ro

8 See footnote 3.

On the secondary market under NBR administration for government securities, all the titles are traded: short-term T-bills, and medium and long-term T-bonds; as it can be seen from Table 10 and Table 11, the situation at BVB (where only medium and long-term T-bonds are traded) can barely be compared in terms of turnover with the secondary market under NBR administration. One main reason for this discrepancy might be the 11 years seniority of the first secondary market over BVB; another reason might be that the face value of the listed T-bonds, amounting at 10,000 RON or about 2,470 EUR, is not easily accessed by BVB's small investors, while the institutional ones may use the interbank secondary market for government securities due to its higher liquidity.

Table 11: BVB Treasury bond market data
(no public offerings were made through BVB system)

Year	Number of trades	Volume	Value (EUR)	Value (m EUR)
2008	17	2,069	5,182,444.41	5.18
2009	346	85,689	214,978,790.75	214.98
2010	435	203,724	544,126,776.96	544.13
2011 (June 30th)	68	11,656	28,825,253.55	28.83

Source: Authors' calculations based on BVB daily reports

Several of the BVB listed T-bonds characteristics are presented in Table 12, below. It must be mentioned that during 2008, the listed T-bonds were of two types: common and benchmark. The new listings from 2009 to 2011 were only benchmarks (which are also the most traded T-bonds at BVB). The coupon rate is a fixed one for the entire T-bond life and it is paid annually.

Table 12: Average maturity and interest rates for BVB listed T-bonds by year of issuance

Year	Average maturity	Average interest rate (%)	Minimum (%)	Maximum (%)
2005	93.6 months (7.80 years)	7.33	6.47	8.00
2006	-	-	-	-
2007	74.7 months (6.22 years)	6.42	6.00	6.75
2008	52.0 months (4.36 years)	8.13	8.00	8.25
2009	52.5 months (4.38 years)	11.13	11.00	11.25
2010	51.0 months (4.25 years)	6.13	6.00	6.25
2011 (June 30th)	74.0 months (6.17 years)	6.07	5.95	6.25

Note: In 2006 no T-bond issues were launched by the Romanian Government.

Source: Authors' calculation based on the information offered by BVB for T-bonds

Table 13 shows an interesting situation: while T-bonds, in general, respected the idea that they pay the lowest interest rates (with the exception of 2001), it is, however, clear that there is almost no premium for longer maturities. This situation might be considered a positive one since it indicates that the economic situation might improve sometime in the future, but it represents no incentive for investors. This might be another reason why BVB listed T-bonds fail to attract important trading volume and turnover.

Table 13: T-bonds and listed T-bonds coupons compared with reference Romanian Interbank Interest Rates, municipal bonds interest rates, and bank loans interest rates (annual averages, %)

Year	ROBOR 3M	ROBOR 6M	Bank loan interest rates	Municipal bond interest rates	T-bills	T-bonds	Listed T-bonds
2001	38.06	44.57	45.10	43.38	42.20	42.00	-
2002	29.17	29.35	36.65	32.90	27.20	22.30	-
2003	19.87	19.25	26.19	19.54	16.20	14.20	-
2004	20.74	19.91	29.15	19.75	17.90	12.80	-
2005	9.81	9.86	21.04	13.85	6.40	7.50	7.33
2006	8.77	8.72	14.83	8.46	-	-	-
2007	7.79	7.81	13.32	8.78	6.90	7.00	6.42
2008	13.04	13.12	15.07	10.77	11.30	10.50	8.13
2009	11.72	11.79	17.30	13.46	10.90	10.90	11.13
2010	6.75	7.22	14.11	8.61	7.00	7.20	6.13
2011 (June 30th)	5.65	6.48	12.37	7.22	6.70	7.20	6.07

Source: Authors' calculations based on NBR data and BVB data

The yield curve was impossible to be traced until July 2007, when the Romanian Ministry of Finance finally increased the transparency in reporting the public debt, T-bonds issuance calendar, and information on the interest rates paid by maturities. The yield curve, based on annual average interest rates reported, is presented in Figure 5. It confirms the idea that on the long run (over 15 years horizon) the economic situation is expected to improve. It also shows the fact that during 2008 and 2009 the cost of borrowing increased for the Romanian government, as expected under the influence of the financial crisis.

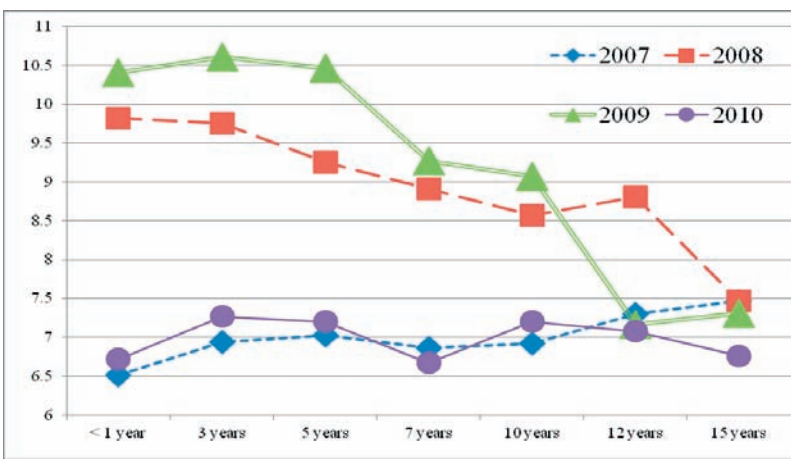


Figure 5: Romanian yield curve

Source: Authors' calculations based on the data provided by the Ministry of Finance

5. Conclusions

As Table 14 shows, the investment in Municipal and T-bonds proved to be relatively interesting. While the T-bonds managed during several years to offer coupon returns over the inflation rate (however lower than the bank deposits), Municipal bonds offered better coupon returns compared with bank deposits. However, until 2007, these two investment alternatives could not be compared with the high equity market performances; this is a normal situation, due to the higher risk incurred by any investment in shares. The financial crisis of 2007-2009 put its mark on the equity market and the Municipal and T-bonds proved to be a good investment alternative. Due to the effects of the crisis over sovereign bonds (T-bonds) in Europe and USA, the results for the first half of 2011 proved to be modest, none passing over the inflation rate.

Table 14: Municipal bonds interest rates compared with inflation rate, bank deposit interest rates and BVB share segment returns through BET-C and BET-Fi indices

Year	Inflation rate (annual average, %)	Bank deposit interest rates (annual average, %)	BET-C annual return (%)	BET-Fi annual return (%)	Municipal bond interest rates (annual average, %)	Listed T-bonds (annual average, %)
2001	34.50	26.40	-6.47	109.92	43.38	-
2002	22.50	18.39	124.02	113.14	32.90	-
2003	15.30	10.78	22.62	24.72	19.54	-
2004	11.90	15.65	97.88	106.94	19.75	-
2005	9.00	8.34	31.63	151.32	13.85	7.33
2006	6.56	6.51	25.07	24.66	8.46	-
2007	4.84	6.70	26.27	14.95	8.78	6.42
2008	7.85	9.55	*-69.68*	*-83.62*	10.77	8.13
2009	5.59	11.89	34.62	83.33	13.46	11.13
2010	6.09	7.29	10.89	*-10.09*	8.61	6.13
2011 (June 30th)	7.87	6.54	5.22	0.84	7.22	6.07

Note: From the 6 indices reported for BVB ([Online] available at http://www.bvb.ro/IndicesAndIndicators/indices.aspx) only BET-C and BET-Fi were chosen due to the length of data series that allowed calculating the returns from 2001 to the present moment.

Source: Authors' calculations based on NBR data and BVB data

As Annex 2 shows, when the domestic public bond sector at BVB is compared with the similar sectors developed within the stock exchanges in the neighboring countries, it can be seen that BVB has an important gap in what the trading volume is concerned and it is well behind the turnover registered by stock exchanges like Bratislava and Prague.

The relative modest profile of the domestic public bond sector at BVB can be explained by the late introduction of the T-bonds (7 years after the bond sector was launched). Lacking the benchmark the T-bonds could offer it was only natural for investors to avoid the (Municipal) bond sector.

Concerning the T-bonds, it is necessary at least to increase the volume/issue by lowering the nominal/face value. Thus, new issues of T-bonds might be scarce in the future due to the increased severity of the sovereign debt crisis in Europe and USA. It was suggested by the main Romanian institutional investors that at least some of the T-bonds offerings should be made at a flexible interest rate, following the inflation. Until now, the Romanian Ministry of Finance did not answer to this suggestion. Increased transparency is also desired, with more detailed information regarding all the outstanding T-bonds characteristics and a more detailed yield curve for under 1 year (short term) period. All these might increase the investor's interest in trading T-bonds and trigger new trading in the Municipal bond sector.

For now, the development of a debt market in Romania had an impact only on local authorities to consider bond finance as a way for regional and local project investments, however with limited success. There is also a long way to go in order to build a closer relationship between the local/regional/central authorities and the capital markets in order to enhance the quality and the efficiency of financed projects and encourage long term financial planning.

The problems that arose during July and the first week of August 2011 will have an impact over the listed bonds at BVB and the effects are expected to be negative. However, Municipal and T-bonds still represent good and relatively safe investments and are necessary to any portfolio, either under professional or private management.

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Annex 1: Municipal bond public offerings at BVB

Year	Number of trade	Volume	Value (EUR)	Number of offered issues	Details regarding the offered issues
2001	0	0	0.00	0	
2002	0	0	0.00	0	
2003	2	158,000	4,207,610.98	2	TIM05 – issued by the city of Timişoara; maturity in 2005; number of outstanding bonds: 100,000; nominal value 100 RON (26.63 EUR); DEV08 – issued by the city of Deva; maturity in 2008; number of outstanding bonds 58,000; nominal value 100 RON (26.63 EUR);
2004	0	0	0.00	0	
2005	61	200,000	5,523,488.64	1	TIM11 – issued by the city of Timişoara; maturity in 2011; number of outstanding bonds 200,000; nominal value 100 RON (27.61 EUR);
2006	0	0	0.00	0	
2007	0	0	0.00	0	
2008	0	0	0.00	0	
2009	4	1,070,000	25,236,444.26	3	BAC26B – issued by the city of Bacău; maturity in 2026; number of outstanding bonds 400,000; nominal value 100 RON (23.59 EUR); BIS29 – issued by the city of Bistrița; maturity in 2029; number of outstanding bonds 350,000; nominal value 100 RON (23.59 EUR); ALB27 – issued by the city of Alba-Iulia; maturity in 2027; number of outstanding bonds 320,000; nominal value 100 RON (23.59 EUR);
2010	3	2,422,864	57,520,155.74	3	IAS28A – issued by the city of Iaşi; maturity in 2028; number of outstanding bonds 1,000,000; nominal value 100 RON (23.32 EUR); ZAL30 – issued by the city of Zalău; maturity in 2030; number of outstanding bonds 643,000; nominal value 100 RON (23.32 EUR); BIH17 – issued by the Bihor county; maturity in 2017; number of outstanding bonds 779,864; nominal value 100 RON (23.32 EUR);
2011	3	1,000,000	23,929,169.66	1	TIM28 – issued by the city of Timişoara; maturity in 2028; number of outstanding bonds 1,000,000; nominal value nominal value 100 RON (23.93 EUR);

Source: Authors' calculations based on BVB daily reports [Online] available at http://www.bvb.ro/TradingAndStatistics/DailyMarketReport.aspx

Annex 2: Comparison with the neighboring countries stock exchanges of the domestic public bond sector

	Listings (number of listed domestic public bonds)					Trades				
	2006	2007	2008	2009	2010	2006	2007	2008	2009	2010
Bratislava Stock Exchange	25	23	21	22	24	2,145	1,560	2,035	1,479	1,106
Bucharest Stock Exchange	11	14	44	57	53	61	58	193	500	523
Budapest Stock Exchange	22	23	22	25	22	391	233	1,106	920	924
Bulgarian Stock Exchange	6	4	3	2	1	26	7	20	13	2
Ljubljana Stock Exchange	29	27	25	28	25	11,606	7,329	5,090	5,145	3,169
Prague Stock Exchange	17	19	19	20	22	7,716	5,984	7,802	5,494	5,882
Warsaw Stock Exchange	58	51	47	41	40	40,239	28,710	29,290	23,564	17,920
Total	168	161	181	195	187	60,184	43,881	45,536	37,115	29,526
Total % of total EU27	5.37	4.99	5.18	5.21	6.69	1.87	1.33	1.34	1.03	4.36

	Turnover (m EUR)				
	2006	2007	2008	2009	2010
Bratislava Stock Exchange	26,629.2	10,235.1	24,193.5	11,365.3	6,021.3
Bucharest Stock Exchange	2.1	2.9	13.7	219.1	559.8
Budapest Stock Exchange	485.5	222.9	1,335.5	968.2	789.3
Bulgarian Stock Exchange	1.8	0.2	0.4	0.0	0.0
Ljubljana Stock Exchange	1,156.7	373.7	210.4	114.3	58.0
Prague Stock Exchange	19,057.4	15,622.3	24,230.6	20,881.2	20,215.9
Warsaw Stock Exchange	709.9	457.7	690.4	319.2	281.4
Total	48,042.6	26,914.8	50,674.5	33,867.3	27,925.7
Total % of total EU27	0.65	0.37	0.64	0.40	0.49

Note 1: Budapest Stock Exchange, Ljubljana Stock Exchange and Prague Stock Exchange are part of CEESEG (Central and Eastern European Stock Exchange Group) which includes also Vienna Stock Exchange.
Note 2: EU27 does not include Stuttgart Stock Exchange which became FESE member only since 2009.
Note 3: For 2010, from the EU27 data, information regarding London Group (London Stock Exchange and Italian Stock Exchange) is missing; data for London Group was not available.

Source: Author's calculations based on data available in FESE reports and statistics