

# **SOME MACROECONOMIC DETERMINANTS OF INVESTORS BEHAVIOR CASE STUDY: TREASURY SECURITIES MARKET IN ALBANIA**

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## **Abstract**

This article investigates the macroeconomic determinants of the treasury securities investors using time series data. The paper examines which are the key factors influencing the investors behavior of treasury instruments by using annual data for Albania market. This study aims to analyses the relationship between the participation of the investors and some macroeconomic variables: cover ratio, debt holders ratio, core interest rate and treasury securities interest rates, weighted average maturity, general debt strategy ect. Results show that not only the financial investors but also the individual investors are very sensitive to this macroeconomic indicators. Catering to the needs of retail investors is often an essential part of the overall strategy to develop a more diversified investor base for government securities (Khan, 2013). Thus, the findings of this study can help managers and academics to build wealthy strategy to ensure a diversify investor base, one of the main objectives of the public debt management.

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**Keywords:** Macroeconomic indicators, investors, treasury securities, Albania

## **Introduction**

The paper examines which are the key factors influencing the investors behavior of treasury securities. In this article, the author elaborates the annual data from various financial institutions in Albania. This methodology used for extracting useful data from patterns from the various institutional database is able to extract certain unidentified trends in customer behavior when assessed across several parameters. This methodology proposes to use the methodology based on the data processing in order to understand the investors behavior.

This study aims to analyses the relationship between the

participation of the investors and some macroeconomic indicators relying in statistical data from various sources for Albania. After analyzing, the author will give answers to questions about whether such factors as: cover ratio, debt holders ratio, core interest rate and treasury securities interest rates, weighted average maturity, general debt strategy ect have an impact on treasury securities consumers behavior for Albania.

To ensure a strong and stable demand for government securities, it is important to diversify the investors base. The role of government institutions, the presence or not of banks, preferences portfolios of the insurance companies, the level of household savings influence market operation. The composition of investors is closely related with the development of the financial system of the country and vice versa. Therefore the policymakers have shown particular attention in this field. The way they percept information on financial results is very important to examine the determinants of investor behavior. The development of domestic markets for emission of government financial instruments is a new step in developing the financing methods, followed by the use of syndicated loans during the 1980s and international bonds in the 1990s. This shows that these countries are looking for alternatives to finance the public debt.

Investors trust could be weakened by the economic instability, fiscal deficits, unexpected increase of the money supply etc. Developing a government securities market is one of the biggest challenges facing this sector. That depends on financial and market factors, involving even more engagement, when it comes to base investors. Governments have different approach in terms of participants in securities auctions. Some governments rely on a few domestic banks for funding, which makes low competition and high transaction costs. In addition, the liberalization of government entities issuing securities can fragment national government securities markets (Arnone and Ugolini, 2004, p.13). This is why some countries need to take some specific actions to develop the government securities infrastructure market.

There are two main advantages for investors in government securities in Albania. The first is that they are risk free in domestic market context. Though this assertion is being widely debated in wake of the events in the Eurozone sovereign debt crisis, the fact remains that government securities in Albania context are risk free. The second advantage is related to the fact that government securities help to diversify portfolio and consequently reduce risk for retail investors.

This study will try to answer some of the questions concerning policymakers and managers: Only the financial investors, or even the individual investors are very sensitive to this macroeconomic indicator in treasury securities market in Albania? Which of these indicators are the most

important? What about the evolution of the composition of debt holders in Albania?

### Domestic debt holders

A government should have its own plan for the issuance of government securities, to provide a medium-term strategy for its buyers in the securities market. It is important that policymakers create a set of different types of instruments, considering different maturities and investor types. This would help investors to diversify and to manage the risk and profit of their portfolios. It is also related to fundamental fiscal issues, implications than widening the investor base. The composition of debt holders affects the potential demand for each investor groups. So, to be prepared, the government managers arrange meetings with banks to assess their potential investing capacity. Some countries use the primary dealer system while some others do not count in a restricted participation. In this context for fragile small countries, there may not be enough participation in government auctions to justify a primary dealer system. This is the case of Albania, that use a kind of primary dealers system only in bond issuance. It is obvious that the small number of banks in the country do not construct a suitable environment to implement a primary dealer system, because it becomes a reason for abusement.

The investors of government securities in Albania have a dynamic composition that has changed from year to year. However there have been difficulties in re-composition of the debt portfolio and achieving the objectives for the investors structure. The internal liquidity, consistent maturities of dominant Bank of Albania and one of the commercial banks (as one of the main sources of financing government debt) and the impact of the sovereign debt crisis in Europe, especially the critical situations in neighboring countries like Greece and Italy, find reflection in the strategy of each of the consumers (financial investors and individual investors) of government instruments.

Table 1: Domestic debt holders

	BOA		Raiffeisen Bank		Other Banks		Non-Banks		Individuals	
	TB	Bonds	TB	Bonds	TB	Bonds	TB	Bonds	TB	Bonds
<b>2008</b>	30.14%	0.00%	23.42%	58.75%	28.93%	41.22%	4.00%	0.02%	13.52%	0.01%
<b>2009</b>	29.06%	0.00%	16.61%	63.83%	32.25%	36.14%	4.40%	0.01%	17.68%	0.02%
<b>2010</b>	26.75%	0.00%	15.66%	61.05%	31.07%	38.91%	5.58%	0.00%	20.95%	0.04%
<b>2011</b>	25.47%	0.00%	14.23%	59.77%	30.73%	40.13%	6.63%	0.00%	22.94%	0.09%
<b>2012</b>	22.66%	0.00%	9.15%	54.28%	33.01%	42.90%	9.18%	2.46%	26.00%	0.36%
<b>2013</b>	25.01%	0.00%	7.71%	36.85%	31.34%	48.36%	11.41%	13.87%	24.52%	0.92%
<b>Q3 2014</b>	24.04%	0.00%	8.79%	28.50%	30.99%	53.51%	14.14%	15.70%	22.04%	2.29%

Source: Ministry of Finance. The data with the purchase price.

There is an increasing trend of the government securities participants in the primary market during the period 2008 - September 2013. Specifically, the portfolio of Bank of Albania and Raiffeisen Bank is decreased, generating opportunity for other market actors. Through the portion of its portfolio in the government securities, Raiffeisen Bank continues to be a dominant participant, although with a declining trend during this period. The Bank of Albania has been the first participant in raising funds to finance the financial gaps of the government. This has been a necessity referring to our undeveloped financial system. Economic growth required the development of banking sector, which led to the participation of commercial banks and other financial institutions in these auctions. This is the reason of a significant increasing of the participation of other banks, non-bank institutions and individuals in the composition of the stock of domestic debt, even though with the fluctuating trend. For individual investors is interesting the trend of continuous increase in the stock of long-term instruments indicating them as a dynamic group. The low level of domestic savings, the high participation of institutional investors and the lack of interest from international investors can result in small, highly homogeneous composition of actors for an efficient market.

Khan explains that promoting retail and mid-segment participation in government securities market is beneficial to both the issuer and the investor. From the issuer's perspective, a diversified investor base for government bonds is important for ensuring stable demand in the market. A heterogeneous investor base with different time horizons, risk preferences, and trading motives ensures active trading, creating liquidity and allows borrowings at reasonable cost. From the investors' perspective, there is a need for investment options that provide decent returns and protect the capital (Kahn, 2013).

### **Participation in government auctions**

Continues international financial crises have stressed the need to reduce dependence on foreign financing in international capital markets. The development of sovereign debt markets is becoming a priority for many emerging countries as indicated by the rapid growth of these markets. Some of the factors that help improving the debt management and diversify investor base are: improved financial practices, structural reforms, debt management framework and investor approach. The development of primary markets has proved more challenging, despite the considerable progress in many emerging and developing countries.

Domestic debt of Albania government consists of long-term securities (including 2, 3, 5, 7 and 10 year fix interest rates treasury bonds

and 5, 7, 10 year variable interest rates treasury bonds) as well as short-term instruments (that are 3, 6, 9 and 12 months treasury bills).

Participation in auctions has been fluctuating during 2008 - September 2014 but not at significant levels. This period is noted for a consistence participation of government security investors especially in the purchase of treasury bills. The cover ratio indicator is above 1, thus meeting the needs of the government for treasury bills and bonds. However there have been some difficult auctions during this period.

Comparing with previous years, the progress of the required amount/offered amount ratio has been less satisfactory for the first nine months of 2014. The bond auctions held during this period has been difficult. It was noted very low participation in the auctions of 3 year bond in January (0.31), 3 and 10-year bonds in April (respectively 0.52 and 0.53), 5 year bonds in May (0.50) and 2 and 3 year bonds in July (0.41 and 0.61), indicating a low demand for long-term government instruments. Meanwhile the cover ratio for the first 9 months of 2014 is improved for short-term instruments. This could be explained by the effect that causes the decrease of the yield rates due to the decrease of the money demand. Therefore, there is an attention to short-term government instruments. Furthermore, the impact of risk and uncertainty of investors in this period indicates a request to participate in the auction by purchasing government securities with short-term maturities (up to one year). There is a low participation in April 2014, for long term instruments except 10 years treasury bonds. Except 2014, the situation appears normal for other years, no significant shortage in funding.

Table 2. Cover ratio by instruments maturity

	2010		2011		2012		2013		Sep-14	
	TB	Bonds	TB	Bonds	TB	Bonds	TB	Bonds	TB	Bonds
Jan-14	1.08	1.11	1.05	1.47	1.00	0.71	1.07	1.67	1.17	0.85
Feb-14	1.32	1.36	1.11	1.09	1.00	1.09	1.19	2.05	1.40	0.99
Mar-14	1.40	1.15	1.11	0.85	1.03	1.28	1.30	1.52	1.31	1.08
Apr-14	1.34	1.79	1.11	0.95	0.99	1.10	1.14	1.25	1.23	0.65
May-14	1.41	1.26	1.26	1.14	1.14	1.04	1.48	1.49	1.31	0.66
Jun-14	1.20	1.15	1.06	1.12	0.94	1.43	1.32	1.25	1.14	0.83
Jul-14	1.08	1.03	1.05	0.96	1.10	1.64	1.22	1.62	1.05	0.80
Aug-14	1.18	1.65	1.23	1.04	1.41	1.28	1.54	2.43	1.07	1.29
Sep-14	1.10	1.31	1.12	0.82	1.40	1.37	1.74	2.60	0.95	0.96
Oct-14	1.25	1.66	1.41	2.06	1.45	1.03	1.40	1.14	N/A	N/A
Nov-14	1.44	2.43	1.29	1.17	1.46	1.75	1.24	1.14	N/A	N/A
Dec-14	1.39	1.58	1.33	0.73	1.11	1.37	0.99	0.70	N/A	N/A

Source: Ministry of Finance.

The lack of a diversified investor base contributes significantly to insufficient liquidity in government securities markets. Commercial banks

have been the largest source of government financing in many countries. Because of these requirements, banks tend to hold the securities instead of trading them in the secondary market. Participation in contractual saving institutions, is much lower in developing and emerging countries than it is in developed countries. Other reasons for a lack of domestic individual investors include a history of predominance of the banking sector, regulatory framework and lack of stimulating measures (Arvai and Heenan, 2008). Banks and institutional investors may find it difficult to attract funds from individuals and firms if the government is offering retail government securities.

Regarding the participation in auctions of government, there is a profiling of banks in the type of instrument in which they invest, based on their investment policies. As a consequence of the financial crisis, banks are more cautious and conservative regarding risk policies and for this reason they prefer more short-term securities with a lower risk versus long-term securities. Most of participants in the market invest their funds in bonds. Even those banks that invest most of their portfolio in bonds, the share of funds invested by them is too small to have an impact on long-term securities portfolio.

The reasons for low interest in government securities is related with low awareness and understanding regarding the market; availability of competing financial instruments of broadly similar characteristics; high transactions costs for intermediaries and lack of convenient access to the market. It is mandatory to develop efficient mechanism for delivering understandable products to individual investors. New technology to access a broader set of potential investors could also have implications for the design and functioning of the market and could change investor profiles. It is also essential to promote financial literacy and investor education.

### **Interest rates**

There have shown some fluctuations for the interest rates of government securities during the period 2002 - September 2014. The lower interest rate (2.79%) for this period was recorded for 3 month treasury bills in the first nine months of 2014. While the highest rate of interest during this period is recorded for the issuance of 2 years treasury bonds in 2002.

In the initial period, there has been an uncertain situation with the issuance of long term instruments. This circumstance reflects the higher long-term interest rates even for each of the short-term financial instruments. Hereinafter there is a decreasing trend for interest rates reflecting economic changes and the stability of financial environment.

Table 3: Weighted Average Yield by Instruments

	<b>3M Bills</b>	<b>6M Bills</b>	<b>9M Bills</b>	<b>12M Bills</b>	<b>2Y Bonds</b>	<b>3Y Bonds</b>	<b>5Y Bonds</b>	<b>7Y Bonds</b>	<b>10Y Bonds</b>
<b>2002</b>	9.97	11.01		11.61	14.20				
<b>2003</b>	9.05	10.28		10.82	11.46				
<b>2004</b>	6.79	8.00		8.88	9.92				
<b>2005</b>	5.52	7.02		7.46	8.22	8.71			
<b>2006</b>	5.49	6.12		6.51	7.31	7.98	9.68		
<b>2007</b>	5.96	7.16		7.87	8.25	8.61	9.82	11.00	
<b>2008</b>	6.25	7.40		8.15	8.44	8.98	9.46	10.71	
<b>2009</b>	6.28	7.61		9.17	9.42	9.74	10.85		
<b>2010</b>	5.81	7.13		8.03	8.59	9.49	9.56		
<b>2011</b>	5.47	6.6		7.36	8.25	9.04	8.84		
<b>2012</b>	5.17	6.16		7.03	8.40	8.96	9.25	10.61	
<b>2013</b>	4.25	5.19	6.36	5.35	6.22	7.59	7.48	8.18	8.65
<b>Q3 2014</b>	2.79	3.36	3.79	3.49	4.87	5.76	6.27	7.36	8.88

Source: Bank of Albania. The data until 30.09.2014

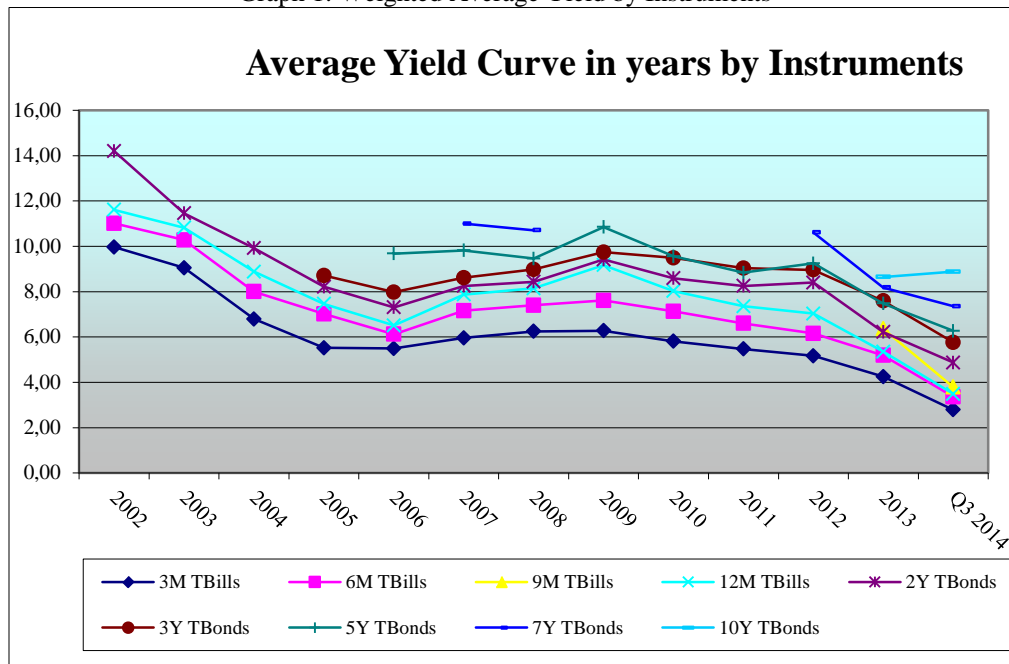
Issuance of short-term financial instruments has been held almost periodically as determined in the issuance calendar except the 9-month treasury bills. Initially, they have been issued in 2006 (issued in Euros) and continued in 2010 and then denominated in euro and local currency. The yield is one of a determinant macroeconomic factor influencing the investor participations in government securities auctions. In the below table, we can evaluate the progress of the weighted average yield by instruments from 2002 until September 2014.

Due to the impact of the international crisis on the Albanian economy, we can notice a growing trend of interest rates during the period 2006 to 2009. After the 2009 there is a decrease tendency for the interest rates. The first quarter of 2014 signals for very low interest rates for the 3 months treasury bills from 9.97% in 2002 to 2.79% in September 2014. This immense difference is explained by economic changes during this period, the investors trust in government securities, by reducing the demand for government funding and finding ways to finance through other international financial organizations. Graph 1 shows this trend clearly.

Until 2006, there is a constantly descending trend for the interest rate on treasury bills and 2 years treasury bonds. There is no emission for the other long term instruments until 2005 (at which point begin the 3 years bond issuance). The issuance of the 7 years bonds is not continuously. The first emission occurred in December 2007 with a relatively satisfied

participation (cover ratio 1.19). The auction for these instruments was reopened in June next year and with an even higher demand (cover ratio 1.36). Subsequently, the next years were very difficult to include this instrument in the calendar. As a necessity for improving the government debt indicators, 7 year bond issuance restarted in June 2012, and continues consistently.

Graph 1: Weighted Average Yield by Instruments



Source: Bank of Albania. The data until 30.09.2014

10 year bond issuance begins for the first time in October 2013 and progress almost periodically every three months. The first auction was pleasingly accomplished with a cover ratio 1.26, persisting even in the next auction.

In this period, the interest rates recognize important changing. Thus, the interest rate for the 3-month Treasury bills was 7.18%, 7.65% for 6 months TB and for 12 months TB is 8.12%. Significant changes can be noticed for 2 years bonds, whose interest rate is decreased by 933 basis points. There are few changes of interest rates for the 3, 5 and 7 years bonds respectively 2.95%, 3.64% and 3.41%. This is also because they are emitted later in time.

Core interest rate is one of the most important indicators and achieved at 2.50% basis point (historic level). One of the most important effects is to facilitate the turnover of cash, increasing the availability of credit and lowering interest rates for crediting the economy and indirectly to reduce interest rates for government borrowing.



Table 4. Evolution of core interest rate in Albania

Period	Core Interest Rate	Trend
28-Jan-09	6.25%	≈
29-Jan-09	5.75%	↓
28-Oct-09	5.25%	↓
29-Jul-10	5.00%	↓
24-Feb-11	5.25%	↑
30-Sep-11	5.00%	↓
1-Dec-11	4.75%	↓
26-Jan-12	4.50%	↓
29-Mar-12	4.25%	↓
25-Jul-12	4.00%	↓
31-Jan-13	3.75%	↓
2-Dec-13	3.50%	↓
16-Dec-13	3.25%	↓
27-Feb-14	3.00%	↓
2-Jun-14	2.75%	↓

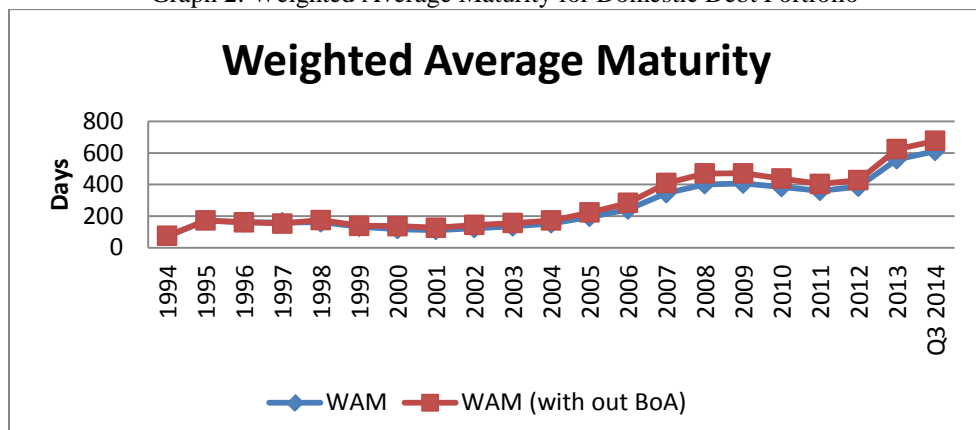
Source: Bank of Albania

Core interest rate has been decreased during January 2009 - September 2013, with an overpassing in February 2011, which reflects the interest rates of short and long-term instruments. In fact, in the government securities market it is noticed that the lowering of the core interest rate has its effect in the decrease of the interest rates for government instruments.

### Weighted Average Maturity

Weighted Average Maturity (average life expectancy of domestic debt portfolio) have had a marked improvement during these two decades.

Graph 2: Weighted Average Maturity for Domestic Debt Portfolio



Source: Ministry of Finance.

So from 1994 that this indicator was 74 days, it is increased nine times during this period and has reached 612 days in the first nine months of 2014.

The indicator of weighted average maturity results in the highest level for the third quarter of 2014, the maximum level by comparing with historic data for all the previous years. This increase comes mainly from the issuance of long-term instruments consistently (5 and 7 years bond issuance) and the beginning of 10 years bonds issuance. This indicator support also the behavior of the investors..

## **Conclusion**

The study examines that many key macroeconomics factors have a significant influence on the investor behavior. The lack of a diversified investor base are usual characteristics of government securities markets in emerging and developing countries. In order to increase further the basis of consumers, it is recommended to undertake more actions in this direction as follows.

To recapitulate, the government instruments market in Albania during this last decade has been very dynamic and changing. Securities customers have become more heterogeneous with the introduction of other actors into the market. Creating a diversified investor base is a long process with many ambitious objectives. Generating significant changes in the composition of the investor base will depend on overall economic indicators. Author recommends that the Albanian government should offer retail securities to individual investors in order to promote savings behavior.

Results show that not only the financial investors but also the individual investors are very sensitive to this macroeconomic variables. This study conclude that the relationship between the participation of the investors and some macroeconomic variable: cover ratio, debt holders ratio, core interest rate and treasury securities interest rates, weighted average maturity, general debt strategy ect. That is the reason why this conclusions can help managers and academics to build wealthy strategy to ensure a diversify investor base, one of the main objectives of the public debt management.

## **References:**

- Arnove, M., Ugolini, P., (2004). Primary Dealers in Government Securities. International Monetary Fund (2004).
- Arvai, Z., Heenan, G. (2008). A framework for developing secondary markets for government securities. International Monetary Fund (2008).
- Bank of Albania (2014), <http://www.bankofalbania.org>.
- Barber, B.M. and T. Odean (2011), "The Behavior of Individual Investors," Available at SSRN: <http://ssrn.com/abstract=1872211>.

Filip A. and Anghel L.D. (2009) “Customer Loyalty and its Determinants in a Banking Services Environment” *Amfiteatru Economic*, vol XI, nr. 26:288-297.

International Monetary Fund (2001). *Developing Government Bond Markets: A Handbook*. IMF (2001).

Korniotis, G.M. and A. Kumar (2009a), "Do Older Investors Make Better Investment Decisions?" *Review of Economics and Statistics* 93:244-265.

Law no. 9665, dated 18.12.2006 "On state borrowing, debt and state guarantees in the Republic of Albania".

Macroeconomic and Fiscal Framework for the period 2012-2014. Ministry of Finance (2014), <http://www.financa.gov.al>.

Regulation no. 1, date 28.01.2010 "On allowed assets, restrictions and maximum limits of pension fund investments", amended by the decision of the Board no. 109, dated 18.10.2010, amended by the decision of the Board no. 32, dated 21.03.2012.

Regulation no. 4, date 08.02.2007 "On the Insurance Companies Capital Investment Limits".

Vasile, D., Radu, T. and Ciprian, T., (2010). Behavioral biases in Trading Securities, *International Conference European Integration – New Challenges -6<sup>th</sup> Edition*.