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SCIENTIFIC REVIEW ARTICLE
Received: September 23, 2014
Accepted: October 27, 2014

THE DYNAMICS OF THE VOLUME AND STRUCTURE OF INTEREST ON THE PUBLIC DEBT OF THE REPUBLIC OF SERBIA

Abstract

This paper analyses the fluctuation of interest on the public debt, as one of the oldest kinds of transfers which is closely related to the indebtedness of the state. The analysis of the expenditure dynamics for interest on public debt covers the period between 2003 and 2013. The goal of this research is to point out the efficiency of the activity of the economic policy within the analyzed period based on the relative changes in the transfer volume and the structure of the interest repayment, as well as to make certain projections for the future. Based on the analysis conducted, it was concluded that the fall of economic activity in 2009 had a significant effect on debt, which caused a drastic increase of the interest repayment transfers in the following years.

Keywords: public debt interest, indices, growth rates

JEL Classification: E630

ДИНАМИКА ОБИМА И СТРУКТУРЕ КАМАТА НА ЈАВНИ ДУГ РЕПУБЛИКЕ СРБИЈЕ

Апстракт

У овом раду се анализира кретање камата на јавни дуг, као једне од најстаријих врста трансфера која је уско повезана са задуживањем државе. Анализа динамике расхода за камате на јавни дуг покрива период од 2003. године до 2013. године. Циљ истраживања у овом раду јесте да се на основу релативних промена, како у обиму трансфера на име отплате камата, тако и у њиховој структури, али и пројекција за будући период, укаже на ефикасност активности економске политике у анализираном периоду. На основу спроведених анализа закључено је да је пад економске активности у 2009. години имао значајног ефекта на задуживање, што је условило драстично повећање трансфера на име отплате камата у годинама које следе.

Кључне речи: камате на јавни дуг, индекси, стопе раста.

Introduction

The modern conditions characterized by the increase in public debt led to the public debt policy being an important instrument influencing the economic policy. While the fiscal and monetary policies influence the policy of income and expenditure, i.e. the

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changes in the level of money circulation, the technique of the public debt policy consists of the changes in the public debt structure in terms of its maturity and ownership. The public debt has a long-term influence on the accumulation and expenditure of future generations, because the burden of financing the debt reduces the expenditure possibilities of the population. The internal public debt requires paying interest to the owners of bonds, which leads to imposing taxes that reduce the propensity for investment.

The public debt interest is one of the oldest kinds of transfers and is connected to government borrowing. The reasons for government borrowing are numerous; however, the effects of such government activities are much more important. Namely, this leads to an outflow of capital accumulation from the indebted country into the creditor country, which additionally implies negative effects on the present and future state of the public finances and the economy as a whole. Apart from that, due to increased government borrowing in the domestic market, the tax burden of the taxpayers will also increase in order for the state to collect as much public income possible, so as to finance its obligations.

Furthermore, the negative effect of additional borrowing can affect the interest rate fluctuation on the money market. By selling securities, the state mobilizes financial resources from the money market, therefore disturbing the previous balance. That in turn leads to a decrease in the money supply, which causes an increase in the interest rates, i.e. the increase in the price of this production factor. This discourages business entities to invest and leads to the effect of „crowding out investments“. These phenomena suggest that the state needs to find a balance both in the income and the expenditure aspect of its interventions in order to maintain the stability of the market. As far as public finance transfers are concerned, one needs to consider both the positive and the negative effects of active state interventions in order to conceive an action policy.

Another similar scenario which includes the influence of increased government borrowing on the cost of capital can occur when the government directly borrows funds from the central bank. This causes the primary issuing of money, which, as opposed to the previously discussed situation, increases the money supply. However, this leads to inflationary fluctuations, since there was an increase in monetary aggregates without the simultaneous increase in the real sector. In other words, the newly created money supply has no in-kind coverage. The result of that is an overall price increase, including the price of production, which in turn causes an additional decrease in private investment, which is another aspect of the negative effect of excessive government borrowing.

A significant portion of the public debt goes to state guarantees issued for public enterprises. If enterprises are able to meet their obligations, these guarantees increase the level of public debt, but require no additional funding. If enterprises are not able to finance their obligations, these guarantees are activated and additional funds are necessary to pay for the principal and the interest.

1. The analysis of the transfers for the interest on the public debt of the Republic of Serbia

The analysis of the public debt interest is able to provide a conclusion whether the observed country was able to devise a funding method that does not lead to additional debt. Apart from the level and the structure of public debt, the expenditure on interest is influenced by factors such as the exchange rate and the interest rate in the international market.

The analysis of the fluctuations in the interest transfer volume in the Republic of Serbia refers to the 2003-2013 period. The analysis of the structure of these transfers primarily considers:

- Interest payments for domestic loans;
- Interest payments for foreign loans;
- Interest payments for activated guarantees; and
- Associated costs of borrowing

The fluctuation of expenditures for interest payment is conditioned by the repayment plan for the principle and the interest on the debt. The volume of these transfers and their share in overall public expenditure and the GDP from 2003 to 2013 are shown in Table 1.

Table 1. The volume of transfers for interest payment from 2003 to 2013

Year	Interest payments (interest amount in millions of dinars)	Share in overall transfers	Share in total expenditure	Share in GDP
2003	10,977.9	3.94%	3.44%	0.98%
2004	13,403.7	4.05%	3.56%	0.97%
2005	17,150.5	4.23%	3.69%	1.02%
2006	19,274.9	4.04%	3.39%	0.98%
2007	14,806.5	2.75%	2.27%	0.65%
2008	13,880.4	2.20%	1.87%	0.52%
2009	20,016.4	2.86%	2.25%	0.74%
2010	30,132.5	3.99%	2.85%	1.05%
2011	40,337.3	4.89%	3.45%	1.26%
2012	63,145.8	6.78%	4.90%	1.89%
2013	89,262.5	9.37%	6.39%	2.47%

Source: “*Bilten Javnih finansija br. 119*” (*Bulletin of Public Finances No. 119*), (July 2014), Ministry of Finance of the Republic of Serbia.

Expenditure for interest payments shows significant growth every year due to the rapid public debt growth and the need to finance infrastructure projects with loans from international financial institutions. The largest portion of the public debt of the Republic of Serbia (71.7%) has a fixed interest rate, while a variable interest rate is associated with 28.3% of the overall public debt. Overall transfers regarding interests in 2013 are 8 times larger as compared to 2003. The average annual expenditure growth rate regarding interest in this period is 23.31%. Taking the analyzed period into consideration, 2007 and 2008 were the only years when a decrease in budget expenditure in this respect was recorded.

By analyzing the share of interest payment transfers in the GDP, it can be concluded that they have increased by 152% in the observed period, i.e. in 2013 as compared to 2003. The issue of the sustainability of public debt servicing is a complex one and demands an elaborate analytical approach. The current relation between the debt and the GDP is an important indicator which points to the necessity to find a solution for the issue of sustainability, but it's not crucial for the solution itself. The solution depends on the influence of a series of factors in the current economic and development policy.²

The fluctuations of certain expenditure components for the interest payments in the analyzed period are shown in Table 2.

² Marčetić M., Đurić O., 2012, Analiza duga Republike Srbije i njegove metodološke odrednice (The Analysis of the Debt of the Republic of Serbia and Its Methodological Guidelines), *Economy and Market Communication Review*, edition 2, page 275.

Table 2. Fluctuation of interest payment transfers in the Republic of Serbia from 2003 to 2013 in millions of dinars

Year	Interest payment	The amount of interest on domestic loans	The amount of interest on foreign loans	Interest payments for activated guarantees	Associated borrowing costs
2003	10,977.9	2,378.1	8,506.0	0.0	93.8
2004	13,403.7	2,122.6	11,751.0	-0.0	-469.9
2005	17,150.5	2,427.4	14,466.8	0.0	256.3
2006	19,274.9	2,316.0	16,386.6	207.5	364.8
2007	14,806.5	2,312.5	11,917.9	468.2	107.8
2008	13,880.4	948.2	11,118.8	1,793.3	20.1
2009	20,016.4	5,178.7	12,076.4	2,346.9	414.4
2010	30,132.5	11,031.3	16,472.8	2,291.3	337.1
2011	40,337.3	18,707.2	18,757.5	2,582.6	289.9
2012	63,145.8	32,009.1	26,665.3	3,828.4	643.1
2013	89,262.5	46,039.1	35,987.6	6,431.1	804.6

Source: "Bilten Javnih finansija br. 119" (Bulletin of Public Finances No. 119), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade

After the analysis of the structure of the overall transfers, the conclusion can be drawn that funds for wages and pensions are the only items whose amounts are individually larger than that for interests. Through this policy, our country has reached a situation where it has to introduce general austerity measures and raise taxes in order to finance the interests, while simultaneously making a growing deficit, which in turn requires additional borrowing, again raising the interest costs.³

A piece of information which also gives no cause for optimism is the structure of expenditure regarding interest, whose fluctuations is shown in Table 3.

Table 3. The structure of expenditure regarding interest from 2003 to 2013

Year	Interest payments for domestic loans	Interest payments for foreign loans	Interest payments for activated guarantees	Associated borrowing costs
2003	21.66%	77.48%	0.00%	0.85%
2004	15.84%	87.67%	0.00%	-3.51%
2005	14.15%	84.35%	0.00%	1.49%
2006	12.02%	85.02%	1.08%	1.89%
2007	15.62%	80.49%	3.16%	0.73%
2008	6.83%	80.10%	12.92%	0.14%
2009	25.87%	60.33%	11.72%	2.07%
2010	36.61%	54.67%	7.60%	1.12%
2011	46.38%	46.50%	6.40%	0.72%

³ <http://www.balkanmagazin.net/finansije/cid135-82249/kamate-potapaju-budzet>

2012	50.69%	42.23%	6.06%	1.02%
2013	51.58%	40.32%	7.20%	0.90%

Source: “*Bilten Javnih finansija br. 119*” (*Bulletin of Public Finances No. 119*), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade

As can be seen from Table 3, from 2003 to 2010 the largest share of the transfers regarding public debt interest were the transfers regarding foreign loan interest payments, which is a consequence of loans with international financial institutions for the funding of infrastructure projects. Their share was dominant in 2006, when it was as high as 85.02%. 2011 witnessed a balance between the shares of interest on foreign and domestic loans, while interest payments for domestic payments became dominant in the following years.

Upon observing the growth of certain categories in the public debt interest structure, the following conclusions can be made:

- Interest on domestic loans in the observed period has been on its lowest level in 2008 (948.2 million dinars), while it reached its maximum in 2013 (46.039 billion dinars). The average annual growth rate of interest on domestic debt in the analyzed period is 34.49%.
- The amount of transfers for interest on foreign loans has risen from 8.506 million dinars in 2003 to 35,987.6 million dinars in 2013 with the average annual growth rate of 15.52%. At the same time, it should be emphasized that the share of this category in the structure of the total amount of interests has been reduced.
- Interest payments for activated guarantees are considered a relatively new category in the structure of interest on the public debt of the Republic of Serbia, and it was monitored since 2006. This transfer category has, starting from 207.5 million dinars in 2006, reached its maximum in 2013 with 6,431 million dinars. The average annual increase of these expenditures is 63.32%, while their share in the general interest expenditure structure fluctuates between 1.08% in 2006 to 12.92% in 2008.
- The associated borrowing costs have a nearly negligible share in the interest payment structure.

Dynamic analysis, as one of the most frequently used methods in time series analysis, enables the monitoring of relative changes in the levels of the observed categories in two consecutive time periods. In this case, the best parameters are the chain indices which are shown in Table 4.

Table 4. Chain indices from 2003 to 2013

Year	Interest payment	Interest payments for domestic loans	Interest payments for foreign loans	Interest payments for activated guarantees	Associated borrowing costs
2003	-	-	-	-	-
2004	122.10	89.26	138.15	0	-500.96
2005	127.95	114.36	123.11	0	-54.54
2006	112.39	95.41	113.27	0	142.33
2007	76.82	99.85	72.73	225.64	29.55
2008	93.75	41.00	93.29	383.02	18.65
2009	144.21	546.16	108.61	130.87	2061.69
2010	150.54	213.01	136.40	97.63	81.35
2011	133.87	169.58	113.87	112.71	86.00
2012	156.54	171.11	142.16	148.24	221.84
2013	141.36	143.83	134.96	167.98	125.11

Source: “*Bilten Javnih finansija br. 119*” (*Bulletin of Public Finances No. 119*), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade calculations performed by author

Based on the chain index values presented in the table above, there is a noticeable increase of all kinds of interest transfers starting from 2009. During this year, interest transfers recorded an increase of 44.21% as compared to the previous year and this tendency of interest growth continued in the following years. The largest percentage of increase was noted in 2012, a result of a large increase in transfers for foreign loan interest payments (+42.16%). Transfers intended for domestic loan interest payments increased drastically in 2009, when they were 446.16% larger than those in the previous year. These transfers exhibit a constant increase in the years following the aforementioned two years. During the observed period, interest payments for activated guarantees exhibited a constant increase, apart from 2010, when they decreased 2.37%. Even though their percentage in the transfer structure of interest payments is smaller, associated borrowing costs exhibited large oscillations in their fluctuation. Their drastic increase was noted in 2009, when these expenditures increased 19 times in comparison with the previous year. These oscillations in the fluctuation of certain transfer categories influenced changes in the structure of the overall interest on the public debt of the Republic of Serbia (Table 5).

Table 5. Chain indices of the share of certain kinds of transfers in the interest structure from 2003 to 2013

Year	Interest payments for domestic loans	Interest payments for foreign loans	Interest payments for activated guarantees	Associated borrowing costs
2003	-	-	-	-
2004	73.10	113.15	0.00	-410.30
2005	89.38	96.22	0.00	-42.63
2006	84.89	100.79	0.00	126.65
2007	129.98	94.68	293.73	38.47

2008	43.74	99.52	408.58	19.89
2009	378.74	75.32	90.75	1429.68
2010	141.50	90.61	64.85	54.04
2011	126.68	85.06	84.20	64.24
2012	109.30	90.81	94.69	141.71
2013	101.75	95.47	118.83	88.51

Source: “Bilten Javnih finansija br. 119” (Bulletin of Public Finances No. 119), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade calculations performed by author

According to the value of chain indices shown in Table 4, the share of domestic loan interest payments in the structure of transfers has suddenly increased in 2009 (+278.74%) and has constantly been growing ever since. The share of foreign loan interest had its greatest relative increase in 2004, when it increased from 77.48% to 87.67%, i.e. it exhibited an increase of 13.15%. Since then (excluding 2006) the share of these interests has a negative tendency. The greatest decrease in the share of foreign loan interest was recorded in 2009. In 2008, the share of interest payments for activated guarantees in the structure of interest transfers exhibited an increase of 308.58% as compared to 2007. Since then, it had constantly decreased until 2013, when this kind of transfer starts increasing again, by 18.83%. The associated borrowing costs, as was previously emphasized, have a very small percentage in the structure of interest transfers, but it has to be emphasized that this category recorded very drastic oscillations in its fluctuation.

Upon analyzing the dynamics of interest payments of the Republic of Serbia, it was noted that 2009 was a key point in the fluctuation of these kinds of transfers. This is why the following analysis defines this year as a base for determining the dynamics of all kinds of interest payment transfers.

Table 6. Base indices of interest payment transfers

Year	Interest payment	Interest payments for domestic loans	Interest payments for foreign loans	Interest payments for activated guarantees	Associated borrowing costs
2003	54.84	45.92	70.43	0.00	22.64
2004	66.96	40.99	97.31	0.00	-113.39
2005	85.68	46.87	119.79	0.00	61.85
2006	96.30	44.72	135.69	8.84	88.03
2007	73.97	44.65	98.69	19.95	26.01
2008	69.35	18.31	92.07	76.41	4.85
2009	100.00	100.00	100.00	100.00	100.00
2010	150.54	213.01	136.40	97.63	81.35
2011	201.52	361.23	155.32	110.04	69.96
2012	315.47	618.09	220.81	163.13	155.19
2013	445.95	889.01	298.00	274.03	194.16

Source: “Bilten Javnih finansija br. 119” (Bulletin of Public Finances No. 119), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade calculations performed by author

Values of the base indices presented in Table 6 show the previously noticed fact about the character of 2009, which was at the same time the year when the consequences of the global economic and financial crisis started to be felt. The overall transfers for interest payments after 2009 recorded an obviously positive tendency, so they were even 345% larger in 2013 as compared to 2009. As far as the expenditures for interest on domestic loans are concerned, the situation is even more unfavorable. These expenditures have grown by 789% in 2013 as compared to 2009. The average annual growth rate of these expenditures from 2009 to 2013 is 72.67%, which is twice the average growth rate of these expenditures in the entire analyzed period (2003-2013), while from 2003 to 2008 these expenditures recorded a negative growth rate, i.e. an average annual decrease of 16.2%. The expenditures for interest on foreign loans were 29.57% lower in 2003 as compared to 2009, with an average annual growth rate of 5%. These expenditures recorded an increase of 198% in 2003 as compared to 2003, with an average yearly growth rate of 31.38%. This average annual increase is also twice as large as the one in the entire 2003-2013 period.

According to the Fiscal Strategy of the Ministry of Finance⁴, the interest debt will only increase until 2016, and especially in 2017, when many loans and eurobonds are due for payment. According to the data of the Ministry of Finance, in 2017 the interest rates will reach 140 billion dinars, which would be 2.9 percent of the GDP, according to the Ministry's projection. With the maturity of the principal, Serbia will spend 6.4 billion euros for debt payment in 2017. (Table 7)

Table 7. The projections of interest payments and their share in the GDP in 2016

	2014	2015	2016
GDP (billions of dinars)	4,007.8	4,292.1	4,583.7
Expenditure on interest (billions of dinars)	112.4	106.5	127.1
GDP %	2.8%	2.5%	2.8%

Source: "Fiscal strategy for 2014 with projections for 2015 and 2016", The Government of the Republic of Serbia, page 86

The goal of the fiscal policy for the following long-term period is for financing to be performed through the issuing of mostly dinar securities on the domestic market. However, the current situation implies that a greater portion of finances will have to be procured in the foreign financial market in the following period.

The fiscal challenges that the Republic of Serbia faces in the following period are quite comparable to the challenges of neighboring countries. It should be noted that many of them started fiscal consolidation with a public debt level of around 15% of the GDP, while the general government debt in Serbia has already reached 70% of the GDP.⁵ This makes it additionally difficult to reverse the growth tendency of public debt, and makes Serbia extremely vulnerable to potential shocks from the external surrounding.

⁴ <http://www.mfin.gov.rs/UserFiles/File/dokumenti/2013/Fiskalna%20strategija%202014.pdf>

⁵ http://fiskalniasvet.rs/images/izvestaji/pregled_uspesnih_fiskalnih_konsolidacija_u_evropi.pdf

Conclusion

The fluctuations in expenditure from 2003 to 2013, and especially from 2009 to 2013, significantly reduce the effects of savings achieved in other positions, and, since they are the most unproductive expenditure form, their reduction is a priority. Because of these tendencies in the structure of transfers for the public debt interest payment, it is necessary to focus the government activities towards covering the budget deficit. If the state gathers funds by issuing bonds to cover the budget deficit, it withdraws funds from the market. That would have anti-inflation effects, because there would be a tesaurization of savings. However, that reduces the money supply, which, even with unchanged demand, causes an imbalance in the financial market. The consequence of these activities is the increase in the interest rate and the cost of capital in the financial market, which also increases the cost of financing the operations of business enterprises.

Having in mind all of the above, the activities in the monetary policy of the Republic of Serbia should be focused on the efficient use of transfers with an economic purpose, in order to strengthen the economy, which would supply the potential budget income. This would alleviate the state of the budget deficit and avoid new loans, which would only additionally aggravate the economic conditions by increasing the cost of business enterprise operations or would lead to the „crowding out“ of new potential investments.

References

- “*Bilten Javnih finansija br. 119*” (*Bulletin of Public Finances No. 119*), (July 2014), Ministry of Finance of the Republic of Serbia, Belgrade.
- Đurović-Todorović J., Đorđević M. (2010) “*Javne finansije*”(Public Finances), Faculty of Economics, Niš.
- Đurović-Todorović J., Jovanović M., Krstić B. (2006)“*Monetarni i fiskalni menadžment*” (*Monetary and Fiscal Management*), Faculty of Economics, Niš.
- “Fiscal strategy for 2014 with projections for 2015 and 2016”, The Government of the Republic of Serbia. Available at <http://www.javnidug.gov.rs/upload/Strategija/Strategy/Fiscal%20Strategy%202014.pdf> [30.09.2014.]
- Kolačević S., Hreljac B., (2011) Javni dug kao ključna varijabla ostvarenja ciljeva ekonomske politike (Public Debt as the Key Variable in the Accomplishment of the Economic Policy Goals), *Economic Review*, 62 (3-4): 208-229.
- “*Konsolidovani bilans države u periodu 2005-2014. godine*” (*Consolidated Balance of the State from 2005 to 2014*), Macroeconomic and fiscal data, Ministry of Finance of the Republic of Serbia. Available at: <http://www.mfin.gov.rs/pages/article.php?id=7161> [28.09.2014.]
- Luković V. (2008) “*Ekonomija javnog sektora-javne finansije*”, Higher Education Institution for Applied Studies for Entrepreneurship, Belgrade.
- Marčetić M., Đurić O.(2012) Analiza duga Republike Srbije i njegove metodološke odrednice (The Analysis of the Debt of the Republic of Serbia and Its Methodological Guidelines), *Economy and Market Communication Review*, 2 (2): 274-291.
- “*Public Debt Management Strategy 2014 - 2016*”, Ministry of Finance – Public Debt Administration, Republic of Serbia.

http://fiskalnisavet.rs/images/izvestaji/pregled_uspesnih_fiskalnih_konsolidacija_u_evropi.pdf

<http://www.balkanmagazin.net/finansije/cid135-82249/kamate-potapaju-budzet>

Stiglitz J. (2000), *“Economics of the public sector”*, 3rd ed., W.W. Norton & Company, New York.

Samuelson P., Nordhaus W. (18th edition) *“Economics”*, Massachusetts Institute of Technology faculty, US.

The Bureau of Economic Analysis (2007-2013), *“Government Current Receipts and Expenditures”*, Survey of current business, U.S. Census Bureau Washington.