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Municipal Bonds in Developing Countries. Case Study: Municipality of Stip, Republic of Macedonia

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Abstract. *The developing countries, especially in the Balkans, barely use the municipal bonds as an alternative way of financing their activities. This paper is part of the project "The municipal bonds as an alternative source of financing municipals activities and the effective management of funds, with a special emphasis to the Municipality of Stip, R. Macedonia". The paper has an important impact, according to both academic and practical perspective. It combines the experts' academic analysis with the municipals potential in order to facilitate a successful municipal bond emission that would support the local economic growth. The purpose of this paper is to investigate the ability and willingness of the Municipality of Stip to issue municipal bonds. The main hypothesis states that the Municipality of Stip is able to issue a municipal bond as an alternative way of financing its investment activities. The research includes the classical SWOT analysis regarding the Municipality of Stip and continues with a statistical analysis based on correlation and regression relationships within the accounts of the Municipality's annual reports. The methodological framework is based on quantitative research methods (correlations and regression methods) which result in acceptance of the main hypothesis in the paper - the*

municipal bonds as an alternative source for funding municipal's activities are justified, especially if the funds are associated with a specific revenue-generating project. The findings would serve as a basis for the municipal bonds prospect, which would be the ultimate goal of combining the academic knowledge with the practical potential of the Municipality of Stip. The conclusions reveal that this would be the first municipal bond emission in the Republic of Macedonia. However, this fact can serve as an advantage in the market in terms of introducing financial instrument innovation. This paper suggests that the usage of municipal bonds is far away from a risky activity, especially if the funds are invested in revenue-generating projects. Municipal bonds can be a less expensive source of funds for the municipal's projects, rather than different forms of domestic or foreign borrowings. In this way, municipalities can use this financial instrument to initiate and support local economic growth.

***Keywords**: municipal bonds, an alternative way of funding, Municipality of Stip, developing countries*

Introduction

Issuing municipal bonds represents the easiest way to tap a pool of investors outside of the banking sector. In general, municipal bonds should be the most transparent, but also the most efficient way of local government borrowing. By issuing bonds, local government units get immediate access to the private capital market. Nevertheless, the use of this mechanism of borrowing makes it harder for the central government to monitor and control loan supply for local government units (Petersen & Crihfield, 2000). Besides that, local government debt becomes more available to interested parties, because by purchasing only a part of the debt, potential investors can meet their constraints in terms of total permitted exposure to certain investments (especially, commercial banks). A need for publicly available information on local government units' operations, as well as their participation in capital markets, would definitely contribute importantly to the ability of municipalities to issue municipal bonds. Increased activity in terms of the issue of municipal bonds would shed more light on local government units' credit rating, which would help identify failures connected to local government operations. Once identified, factors negatively influencing a local government unit's credit rating could be eliminated or approached with additional care. The most important diagnostic indicators that influence the choice of financing sources of socially significant projects are the market interest rates, the maturity of the debt instrument and the degree of development of the local financial infrastructure (Petrov, 2015).

There are two basic types of public debt securities issued by municipalities: general obligation and revenue bonds. These two types differ in the source of future debt repayment and the use of funding. General obligation debt instruments commit the full faith and credit of the issuing city (or state) government to repay debt obligations from any available revenue stream. In other words, for general obligation bonds, general tax revenues can (or must) be used to pay the bonds. Revenue-backed debt, on the other hand, is supported by dedicated project fees or other explicitly allocated sources of revenue. Debt from revenue bonds is thus guaranteed to be repaid only through the net operating revenues (operating and maintenance costs subtracted from annual completed project revenues) of the public enterprise. Given these differences in how funds can be used and how debt must be serviced, the two debt instruments impose different constraints on public officials. Debt through general obligation bonds gives cities flexibility in how municipal funds are used to fund government projects and how debt is later repaid. Revenue bonds, on the other hand, constrain public officials' use of project funds and revenues.

In principle, the nature of the project to be financed should determine the type of debt to be utilized. Revenue bonds are typically used in public enterprises that later generate revenue through service charges or user fees. By contrast, general obligation bonds were initially used for projects that generate less revenue, such as roads and government office buildings. In practice, however, general obligation debt can be, and often is, used for revenue-generating projects because of its cost advantages (i.e., lower transaction costs) over revenue bonds (Vogt, 2004). Revenue bonds often require additional components not found in general obligation debt instruments, such as conducting a feasibility study, as well as covenants and indentures to protect investors (Howell-Moroney & Hall, 2011). Revenue-backed debt often requires rigorous revenue forecasts, project sensitivity tests, and various forms of risk analysis to be successful. These elements add significant costs to municipalities that are often resource constrained. The choice between general obligation bonds and revenue bonds can also be thought to follow the rationale developed for corporate versus project financing (Yescombe, 2013). In sum, revenue bonds impose rigidities on public officials in how they use public funds and service public debt relative to general obligation debt. There are also additional transaction costs associated with issuing revenue-backed debt. Thus, we propose that revenue bonds can be conceptualized as a rigid debt contract.

The experience shows that in some former Yugoslav countries, such as the Republic of Macedonia, the municipal bonds are a taboo. An emission of municipal bonds in Macedonia during this period is not recorded. The

furthest a municipality has come while trying to achieve a municipal bond emission are the examples of the Municipality of Aerodrom in Skopje and the Municipality of Strumica. Yet, these attempts have not been successful. Representatives and experts from few municipalities have registered, attended training, seminars and studied practices that would rush the professional development and complete the process of a successful municipal bond emission. Within the central government, the emission of government bonds in the Republic of Macedonia is a common practice since 2005. But to date, there is a small interest among municipalities for municipal bonds emission, even more, there is a level of uncertainty connected to this financial instrument as a source of borrowing. This fear can be taken as justified if we take into account that the payment burden will naturally fall to the municipality, which increases the riskiness of the instrument, having in mind the limited municipal inflows and if liquidity problems appear, then the burden of potential payment difficulties will fall to the person(s) responsible for the municipal bond implementation (according to the mentality prism of the former Yugoslavia). Therefore, the process of municipal bonds emission in Macedonia should be thoroughly studied, analyzed and linked to revenue-generating projects. The municipal bond should serve as an alternative, cheaper way of financing municipalities' activities.

To avoid the municipal bonds' credit risk, funds need to be managed and used efficiently and effectively. This process can significantly contribute to the development of the municipality, especially if realized with lower financial leverage. The analysis of the current situation with the economic development in the Republic of Macedonia suggests that a decentralized revival is inevitable and necessary. Aspirations for such revival are being observed by the central government. But it should not be left solely to central level, especially if the steady industrial development of this country is taken into account. The dispersion of activities which stimulate the economic growth outside Skopje, the capital city, is more than welcome.

Looking for a benchmark – the US and Croatian municipal bonds review

The example of the US municipal bond market (the tradition that lasts for over two hundred years) suggests that this type of borrowing enables local governments to fund their growing needs especially in the countries in transition. On the other note, the creation of an active municipal bond market in the transitional economies is largely dependent on the capital

markets development. The development of capital market institutions such as investment and pension funds has to come first, as well as of life insurance institutions since these investors are interested in this kind of long-term investment in the first place. Municipal bonds should primarily be used by the local governments at the capital market for financing capital projects. In that way, a local self-government obtains a cost-effective source of funding in comparison with a bank loan, and on the other hand, the investors get a more conservative i.e. less risky investment. This is confirmed by the fact that municipal bonds are among the most secure investments from an investor's (bond buyer's) point of view – nowadays a 50% of the newly issued municipal bonds at the US market are additionally secured from insurance companies and usually have an AAA credit rating given by reputable rating agencies. The intended usage of municipal bonds may be very wide and the collected money is mainly used for the construction of local infrastructure such as roads, schools, hospitals, utilities It is also used to fund environmental and renewable resource projects, and alike.

Alongside banks, investment and pension funds, and insurance companies, the practice has shown that citizens are most numerous among investors in municipal bonds. Individual investors like these securities because that brings them income in the form of interest, which is generally higher than the yield on term deposits from banks, and it is also tax-free. The fact that this way their invested funds would be used to encourage the development and resolution of local problems of which they themselves will benefit is highly motivating.

Overview of the municipal bonds in Croatia

Municipal bonds have been hardly noticeable in Croatia until 2004. Due to the improved overall economic situation and fiscal decentralization, several cities with sufficient financial strength decided to finance their communal projects with municipal bonds. Municipal bonds have been issued so far by 8 local units in Croatia, namely by 1 county and 7 cities (Stojanović & Penava, 2008). Issues by Istarska County and City of Opatija had been fully redeemed, while others have been regularly serviced. Municipal bonds are listed on the Zagreb Stock Exchange and can be freely traded on the secondary market. Most of the trading takes place in the over-the-counter market between institutional investors. All bond issues have been sold according to negotiated model in which terms of the sale are negotiated between issuer and underwriter who is purchasing the debt with certain discount and only after sells the bonds further to other investors or holds

them in his possession (Feldstein & Fabozzi, 2008). It is noticeable that the lowest interest rates were in 2006, just before the outbreak of the global financial crisis. Financial funds have been used for purposes of financing local infrastructure projects. All issues have been of general obligation bond type. At present, all outstanding municipal bonds have maturities between 7 and 10 years. Bonds are denominated either in euros or kunas with a principal amount in the range between KN 25 million and KN 180 million. Interest is payable semi-annually and the principal is amortized over duration period according to different models, payable along with the interest. The only City of Zadar issued bonds with principal payable at the maturity date. The situation with respect to basic characteristics of bond issues has improved significantly in the period after 2004.

Although municipal bonds could be more often used, there are some constraints that prevent their stronger development. Primarily, the low fiscal capacity, which makes bonds repayment out of budgetary revenues almost impossible. Also, some legal and budgetary limitations prevent local units to acquire additional funds for capital investments through municipal bonds. Institutional demand exists due to investors' legal obligation to invest part of his portfolio in the bonds. Additionally, professional and skilled agents and underwriters, mostly big banks, needed for issuing process are existent. Other factors such as regulated bond market, macroeconomic stability, additional legal regulations on some aspects of the financial market and certain types of securities etc. require some fine-tuning, but they could not be seen as an obstacle in the process. The present economic situation in Croatia maybe doesn't seem favorable for bond issuing by local units. Nevertheless, some shifts can be expected in near future that would lead to the stronger development of municipal bonds, especially if announced administrative and territorial reform of local and regional self-government results in local units with higher fiscal capacity.

Current status of municipal bonds emission in the Republic of Macedonia

When using an array of management tools, it is possible to visualize whether and why the emission of municipal bonds in the Republic of Macedonia is justified. In order to prove this hypothesis, we use the SWOT analysis, shown in Figure 1. The purpose of the analysis is to demonstrate the justification of municipal bonds emission in the Republic of Macedonia.

Currently, the municipal bond as an instrument would quote well on the financial market because of the level of interest rates. The municipalities interest to issue such an instrument should be positive because this is a process which the municipality can orchestrate appropriate to its needs. Despite the loans which are constituted by the banks, the emission of municipal bonds can be assembled according to the needs of the municipality (deadlines, interest, etc.). The financial markets in transition countries lack a wide range of financial instruments, opposite of the case in developed countries. Thus, the financial market would welcome the development of municipal bonds as an interesting novelty, which could be set competitively in order to achieve a good market position. However, due to the development of the municipalities and the current conditions in the transition countries, we ought to have in mind the fact that these instruments should be associated with a specific revenue-generating project. This connection will provide certainty with the payments, and thus, gain the trust of the investment community and its investment interest. As with all instruments, the existence of certain risks connected with the municipal bonds must be noted. The credit, interest and maturity risks are aspects which follow all securities. This is the main precondition that should be taken into account during the emission of municipal bonds, these kinds of risks should not prevail above the interest yield.

The previous discussions are associated with the analysis of the internal factors of the instrument and are directly connected with the emission of municipal bonds. As it is summarized in Figure 1, the characteristics of this type of security are one of the main strengths which supports the emission (Gogova Samonikov, Fotov, Gruevski & Veselinova, 2015): the bond has a reliable issuer; 10 years maturity period which is considered to be favorable; attractive interest rates, two times higher from the quoted interest rate of the bonds for denationalization; and the bond would be traded at the secondary financial market. Additionally, the principal and interest payments could be adjusted according to the Municipality's needs (semiannually, annually, or principal payment at the maturity date) and would not burden the municipal budget. Even more, the lack of such financial instrument on the market allows the municipal bond to be treated as a financial innovation supported by a large number of financial institutions in the country. On the other hand, we should also consider the potential weaknesses of this instrument. The main pitfall could be the type of the municipal bond. If the bond is not connected with a specific revenue-generating project than potential investors would consider it riskier according to the overall performance of the bond (including higher credit risk, longer maturity period, etc.). However, this potential disadvantages could be eliminated if the bond (at least the first emissions) is directly

utilized to support a revenue-generating project which will facilitate the interest and principal payments.

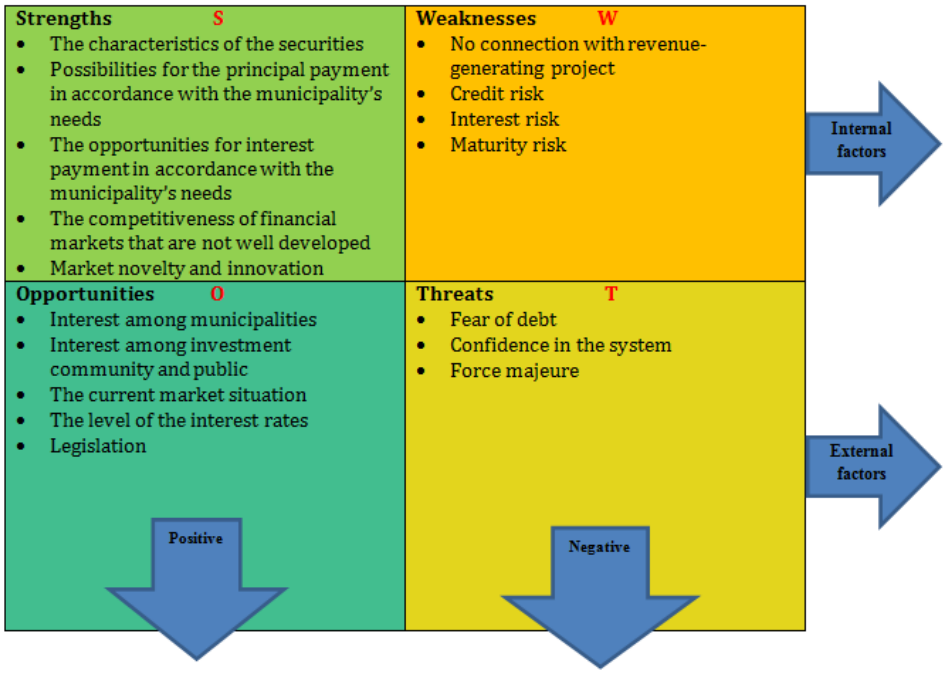


Figure 1. SWOT analysis for the municipal bonds emission in the R. Macedonia

Parallel with the internal factors, there are external factors that can make an impact on the municipal bonds emission performance (Gogova Samonikov et al., 2015). The interest among municipalities, as well as the interest among the investment community and the public, can be considered as an opportunity that would be in favor of the bond emission. The current market situation and the municipalities' capabilities can be promoted to the public as an advantage which supports the allocation of funds in this type of securities. Furthermore, the legislation allows implementation of such securities. However, the distrust in the municipalities and their solvency, the underdevelopment of financial markets, and the distrust in the system as a whole sets a higher barrier to the receptiveness of such emissions. To sum up, the overall SWOT analysis reveals the SO strategy alternative as the most suitable for the municipal bond emission.

The Municipality of Stip (2017), as stated in the municipality official data, "is in the centralized catchment area of Bregalnica River, in the center of

East Macedonia. Along the both banks of the dry ravine Otinja, extends the city that is the center of Eastern Macedonia and one of the oldest cities in Macedonia". The Republic of Macedonia is a developing country that wants to follow the trends, but, still, it is characterized by a poorly developed financial market. The financial market operates with conventional financial instruments. The leading institutions in this market are the commercial banks. The state implemented a strategy of targeting the exchange rate and the national currency, denar, is binded to the euro.

Stip is the center of the East - planning region and is bordered by seven municipalities.

Basic information:
Area: 893 km2
City area: 13.5 km2
Settlements: 34
Number of inhabitants in the municipality: 47.798
Number of residents in the city: 42.625
Primary schools: 4
District schools: 2
High schools: 5
University: 1
Radio Stations: 5
TV stations: 2
Clinical Center: 1
Industrial Area: 1
Airport: 1

According to municipality official data, Stip has a road network in the total length of 377.4 km, of which 47.0 km (12.45%) are roads, 22.4 kilometers (5.94%) are regional roads and the remaining 308, 0 km (81,61%) are local roads. A road network of 230.4 km is formed by a street network in urban settlements.

Stip is accessible from the main road M-5 (Stip - Kocani - Delcevo) in connection with the E-75 highway (Skopje - Gevgelija) thanks to the road Stip - Veles. There are regional roads R - 601 (Stip - Mountain Plachkovitsa) and R-526 passing through the city which is connected with the highway M-5. A new highway (Stip - Miladinovci) is being built, which will shorten the distance to the capital city, Skopje.

Stip is known as an industrial region with developed industries. The principal industrial sector in the economy in Stip is the textile industry

which successfully operates for more than half a century. Compared to other European cities, Stip is one of the leaders when analyzing the number of employees in the textile industry. This means that the private companies cluster absorbs the employment of citizens of Stip. The establishment of business relations with foreign partners is also important.

The industrial development is realized through the free industrial zone, and as an incentive is the construction of a cargo airport, according to the project of the Government of the Republic of Macedonia, which is planned to grow into a major airport in the country.

The total agricultural area in Stip is 31.757 ha, of which 9.906 ha is arable land. An additional advantage of the agriculture in Stip is the Ovcepolie water leak HS Bregalnica which covers a greater part of the agricultural land with an irrigation system.

In terms of financial results, the Municipality's financial performance, shown in Figure 2, confirm that the Municipality has a continuous positive balance which has a growing trend.

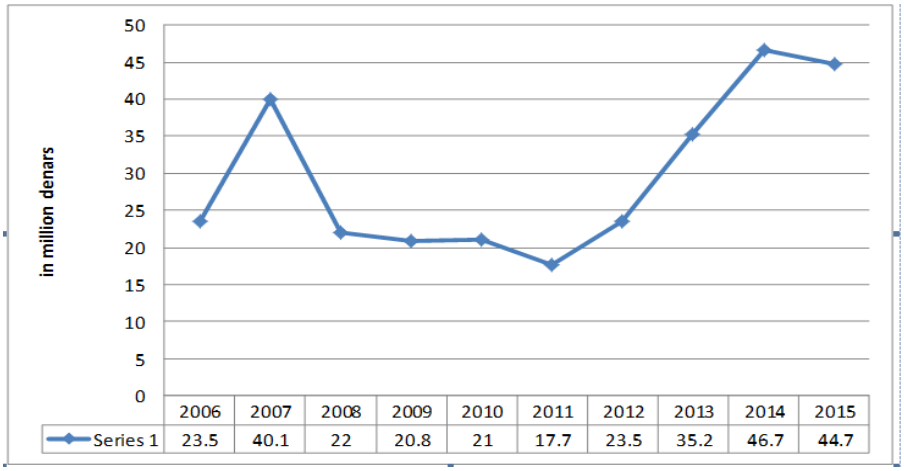


Figure 2. The trend of the accounts of Municipality of Stip in the period 2006-2015

With the analysis of the above data, it can be concluded that the Municipality of Stip has the infrastructure, business, cultural, agricultural and other facilities. Either of these facilities can be supported with additional funding through alternative instruments, such as the municipal bonds. On the other hand, Stip it is not a municipality with exceeding

revenues and, therefore, municipal bonds should be considered as a serious solution for certain municipal purposes.

Methodological framework and research

The main purpose of this paper is to investigate the ability and willingness of the Municipality of Stip to issue municipal bonds. Therefore, we set the following hypotheses:

Main hypothesis: H0: The Municipality of Stip is able to issue a municipal bond as an alternative way of financing its investment activities.

Auxiliary hypothesis: H1: The municipal bonds as an alternative source for funding municipal's activities are justified if the funds are associated with a specific revenue-generating project.

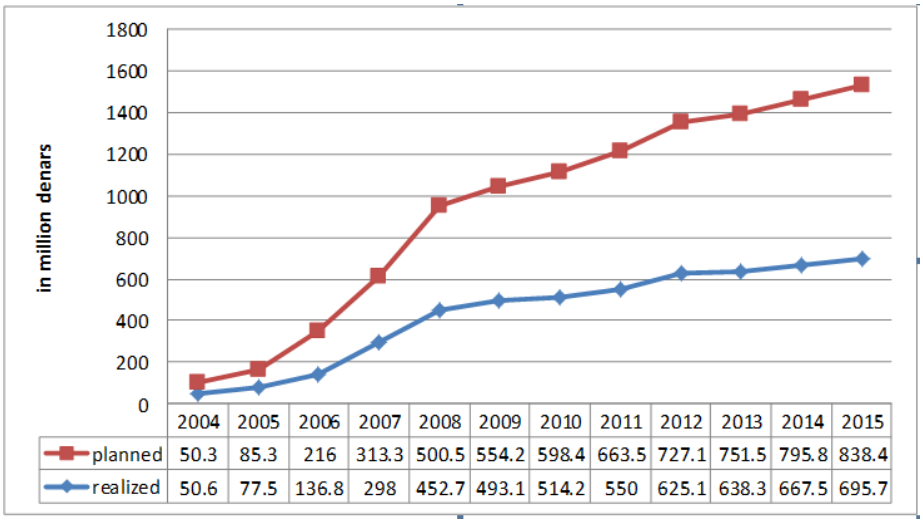
In order to test the accuracy of the H0 and H1, we perform a statistical analysis based on correlation and regression relationships within the accounts of the Municipality's annual reports. The methodological framework is based on quantitative research methods (correlations and regression methods). By calculating the level of correlation between the domestic borrowing and expenditure of the Municipality of Stip, as well as the correlation between the levels of interest payments to domestic creditors and the revenues of the Municipality of Stip we can reveal the municipality's potential for additional borrowing and the financial burden, i.e. the relative future liabilities of the municipal budget due to increased interest payables. Additionally, a multiple linear regression and correlation between the income, domestic borrowings, and deposits of the Municipality of Stip are performed in order to prove the significance of H0. The correlation between the levels of interest payments to domestic creditors and the revenues of the Municipality of Stip also verifies the accuracy of H1.

However, in order to perform the previously stated correlation and regression analyses, a data set regarding the municipal revenues and expenditures, as well as the level of domestic borrowings and interest payments to domestic creditors need to be prepared in a time series framework. Thus, the research includes the analysis of the annual budget accounts of the Municipality of Stip in the period 2004-2015. This data would serve as an input to calculate the specific correlation and regression factors.

Analysis of budget accounts of the Municipality of Stip in the period 2004-2015

Municipal revenues

The Municipality of Stip revenues in the period 2004-2015 were moving upwards as a result of the country's economy. The average amount of planned revenues totals 507.86 million denars, and the average amount of realized income was 433.3 million denars. According to this data, we can conclude that there is a difference between the realized and planned activities of the Municipality. These deviations partly confine the Municipality growth potential, because the revenue realization throughout the analyzed period is weaker than the planned. The average realization of revenues is 85.5% from planned.



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
planned	50.3	85.3	216	313.3	500.5	554.2	598.4	663.5	727.1	751.5	795.8	838.4
realized	50.6	77.5	136.8	298	452.7	493.1	514.2	550	625.1	638.3	667.5	695.7

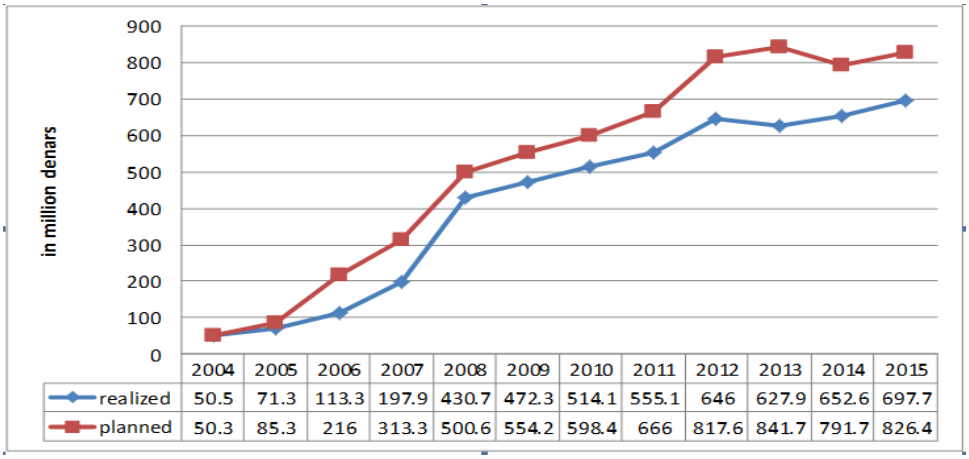
Figure 3. Implemented and planned revenues of Municipality of Stip in the period 2004-2015

Municipal expenditures

The Municipality's expenditures in the period 2004-2015 are moving upwards as a result of the country's economy, i.e. this is a response to the increase in revenues (shown in Figure 3). The average amount of planned expenditure was 521.7 million denars and the average amount of realized expenditure was 419.1 million denars. According to this data, we can conclude that there are deviations between the realized and projected

expenditures of the municipality. These deviations occur because during this period the realized expenditures are much lower than the planned. The average realization is 81.7% from planned expenditures.

At first glance, the positive management of the expenditure is correct, but it does not always mean a success. Depending on the economic situation, the municipalities' activities sometimes require additional subventions in order to achieve the long-term positive effect. The long term positive effect can be reflected in future increased levels of expenditures or realization of positive balance.



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
realized	50.5	71.3	113.3	197.9	430.7	472.3	514.1	555.1	646	627.9	652.6	697.7
planned	50.3	85.3	216	313.3	500.6	554.2	598.4	666	817.6	841.7	791.7	826.4

Figure 4. Implemented and planned expenditures of Municipality of Stip in the period 2004-2015

Domestic borrowings of Municipality of Stip

Domestic borrowings which appear in the Municipality's annual account No.75 do not occur in the annual accounts of the budget of the Municipality in the period 2004-2010. They first appear in 2011 and they are linked to capital investment in the city realized in order to achieve more parking space.

Figure 5 indicates a sharp decline in the curve depicting the level of domestic debt. This happened during the period when a change in mayoral positions was made and the decision of the current mayor was to prevent such loans because they were perceived as spending for unprofitable projects. This was the main reason to stop the domestic borrowings. The average amount of planned domestic borrowing is 61.7 million denars, and the average realized domestic borrowing is 11.2 million denars. It can be

concluded that there are deviations between the realized and planned domestic borrowings of the Municipality. The average realization is 18.15% from planned.

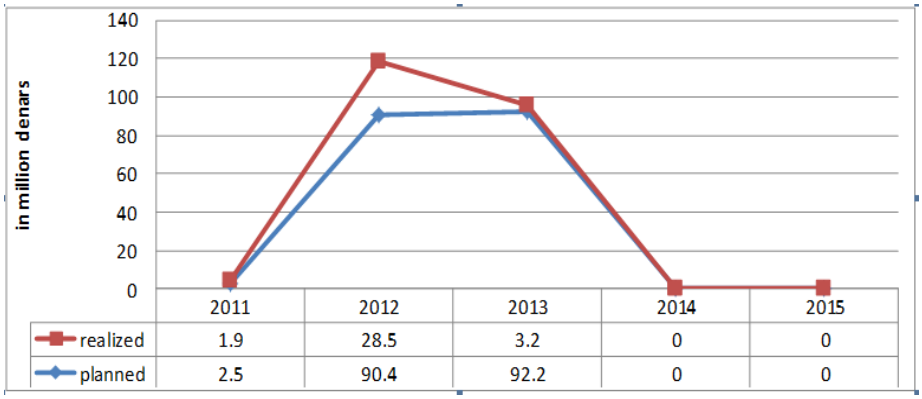
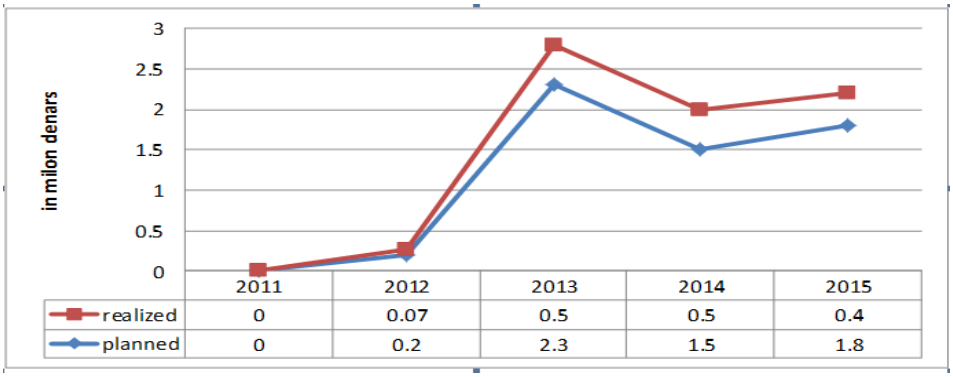


Figure 5. Implemented and planned domestic borrowing of Municipality of Stip in the period 2011-2015

Interest payments to domestic creditors which appear in the Municipality's annual account No.76 do not occur in the annual accounts of the budget of the Municipality in the period 2004-2011. They first appear in 2012. This is a logical sequence due to the fact that domestic borrowing is first recorded in 2011. Figure 6 indicates the existence of an upward trend curve for interest payments to domestic creditors. This can be taken as a positive signal that the Municipality is corresponding well to its liabilities. The average planned sum of interest planned payments to domestic creditors amounts to 1.45 million denars and the average amount of realized interest-payment of domestic lenders is 0.36 million denars. According to this data, we can conclude that deviations between realized and projected interest payments to domestic creditors of the municipality occur. The average realization is 24.8% from planned.



	2011	2012	2013	2014	2015
realized	0	0.07	0.5	0.5	0.4
planned	0	0.2	2.3	1.5	1.8

Figure 6. Implemented and planned interest payments to domestic creditors of Municipality of Stip in the period 2011-2015

Deposits of Municipality of Stip

The average amount of deposits is 3.12 million denars with a significant peak in the trend in 2014 and 2015.

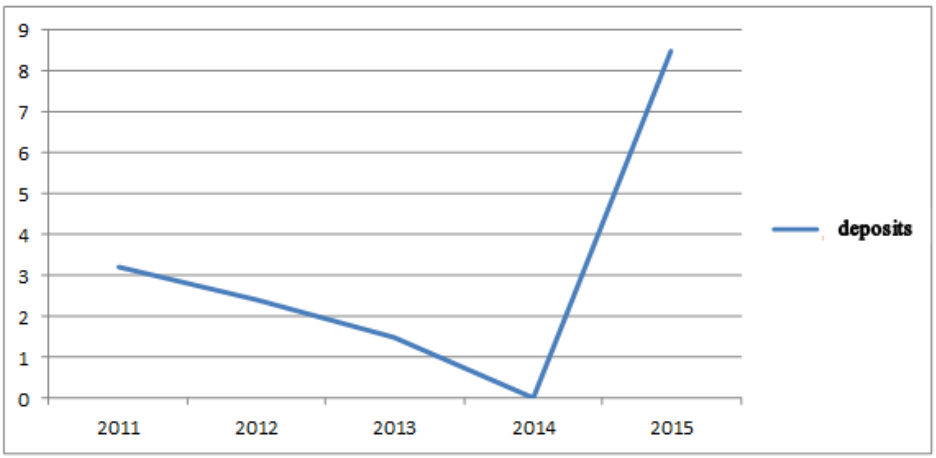


Figure 7. Realized deposits of Municipality of Stip in the period 2011-2015

The previous authors calculations based on the Municipality of Stip annual accounts regarding the municipal revenues and expenditures, as well as the level of domestic borrowings and interest payments to domestic creditors were used as a data set in order to calculate the level of correlation between the domestic borrowing and expenditure of the Municipality of Stip; the correlation between the levels of interest payments to domestic creditors and the revenues of the Municipality of Stip. Later, a multiple linear regression and correlation between the income, domestic borrowings, and

deposits of the Municipality of Stip are performed. The main goal of this statistical survey is to confirm the relevance of the main hypothesis in this paper which states that the municipal bonds as an alternative source for funding municipal's activities are justified, especially if the funds are associated with a specific revenue-generating project.

Correlation relationship between domestic borrowings and expenditures of the Municipality of Stip

The data from Figure 4 and Figure 5 provides inputs for calculating the correlation relationship between domestic borrowings and expenditures of the Municipality of Stip. Correlation relationship between domestic borrowing costs and expenditures is calculated on the basis of a series of three fits including 2011, 2012 and 2013. The reason for this brief analysis, as mentioned above, is that the municipality before and after this period had no borrowings in the domestic sector.

By calculating the simple linear correlation, when the municipal debt is variable x, and the expenditures are variable y, the result is a coefficient of determination of 0.82. This indicates a direct and positive correlation.

The fact that a simple linear correlation is performed is supported by the purpose of this test - to show whether within the variation between the observed phenomena a quantitatively match exists and if it does, than how intensive it is. Both observed phenomena are treated as random variables, and this does not indicate whether one phenomenon is a function of the other. What is important is to perceive that between the domestic borrowings and the municipal expenditures there is a linear relationship.

This is a logical result if we look at the time series for these variables. The positive correlation suggests that an increase in the domestic borrowing will lead to increased expenditures of the Municipality of Stip.

Correlation relationship between interest payments to domestic creditors and revenues in the Municipality of Stip

The data presented in Figure 3 and Figure 6 provides inputs for calculating the correlation relationship between the interest payments to domestic creditors and revenues in the Municipality of Stip. It is calculated on the basis of a series of four fits including 2012, 2013, 2014 and 2015. The

reason for this focused analysis, as mentioned above, is that the municipality before and after this period had no interest payments on the basis of domestic borrowing.

By calculating the simple linear correlation, when interest payments to domestic creditors are variable x, and the income is variable y, the result is a coefficient of determination of 0.85. This indicates a direct and positive correlation.

The fact that simple linear correlation is performed is due to the purpose of this test which is to show whether within the variation between the observed phenomena a quantitative match exists and if it does, then how intensive it is. Both observed phenomena are treated as random variables, and this does not indicate whether one phenomenon is a function of the other. What is important is to perceive that there is an intense linear relationship between the interest payments to domestic creditors and the revenues of the Municipality of Stip.

This is a logical result if we look at the time series for these variables. Their positive correlation suggests that an increase in the municipal income will lead to an increase in payments to domestic creditors.

Multiple linear regression and correlation between income, domestic borrowings, and deposits of the Municipality of Stip

According to the data from the authors calculation and the figures in the Municipality's annual accounts, a few results are summed up and presented in Table 1. The average municipal revenue in the given period from 2011 to 2015 amounts to 635.32 million denars. The average value of domestic borrowing in this period is 6.72 million denars. The average value of the deposits in this period is 3.12 million denars.

Table 1. Dataset for the calculation of multiple regression and correlation between income, domestic borrowings, and deposits of the Municipality of Stip

Year	Income (y) in million denars	Domestic borrowings (x_1) in million denars	Deposits (x_2) in million denars
2011	550	1.9	3.2
2012	625.1	28.5	2.4
2013	638.3	3.2	1.5
2014	667.5	0	0
2015	695.7	0	8.5

By applying a statistical research using the data provided in the table above, the calculation obtained the following results: b_1 is 0.06687, b_2 is -10.34. The standard error of regression is 61.9; Sb_1 is 2.64, and Sb_2 is 10. The multiple determination factor is 0.365 or 36.5%. The multiple factors of linear correlation are 0.6.

The simple linear correlation factor: rx_1y is -0,16; rx_1x_2 is -0,16.
The partial correlation factor: $ryx_1.x_2$ is -0,11; $ryx_2.x_1$ is 0.277.
This indicates the non-existence of a statistical activity and weak correlative links. The determination is around 30%. This is a logical result, having in mind the time series for these variables.

With a coefficient of determination of 0.82 between the municipal debt and the expenditures, we can claim the direct positive correlation. Having in mind that the actual municipal debt is on a relatively low level (Figure 5), the Municipality of Stip can bear an additional domestic borrowing in the form of a municipal bond with annual interest and principal payment. Additionally, there is a significant positive correlation between the interest payments to domestic creditors and the income which resulted is a coefficient of determination of 0.85. The first result leads towards the acceptance of the main hypothesis H0, and the second supports the acceptance of the H1 hypothesis. The results from the multiple regression and correlation between the income, domestic borrowings, and deposits of the Municipality of Stip indicate the non-existence of a statistical activity and weak correlative links. According to the latest, we can conclude that the additional domestic borrowing would not affect negatively the Municipality's income and deposits, and thus the Municipality of Stip is able to issue a municipal bond as an alternative way of financing its investment activities.

Conclusions and recommendations

According to the analysis of data from the annual accounts of the Municipality of Stip, it can be concluded that the Municipality can meet the challenge to publish municipal bonds. The Municipality pays its liabilities on time. In order to increase the attractiveness and minimize the riskiness of the municipal bond, a connection of the bond with a specific revenue generating project should be considered. This would undoubtedly show the purpose of the collected funds which could be used to finance major capital investments. The new project should earn a net income to cover the additional costs for the issue, the interest and so on.

Municipal bonds can serve as an alternative way to fund municipalities. The correct funds management could contribute to the realization of public capital investment and to improve not only the welfare of investors who invested in this kind of securities but also to others who will enjoy the benefits from the positive projects outcome.

The primary aim of the paper, as part of the project "The municipal bonds as an alternative source of financing municipals activities and the effective management of funds, with a special emphasis to the Municipality of Stip, R. Macedonia" was to prove the municipality's ability to issue such an instrument. This finding would be used as a base for the municipal bond prospect preparation which would include solid academic background, experts' knowledge and would serve as a guideline for similar municipal activities in the county, as well as in the region. The prospect preparation would be benchmarked with the municipal bonds in Croatia. The potential bond issues would be sold according to the negotiated model with an attractive interest rate (Gruevski et al, 2016). Financial funds would be used for financing revenue generating projects. The potential municipal bonds would have maturities between 7 and 10 years.

Further conclusions and recommendations arousing from this research can be summarized as follows.

Municipal bonds are an alternative way of financing the municipalities' activities but they are not commonly practiced in transition economies. The purpose of the emissions of municipal bonds is usually populistic, which is not justified at all. The main goal of such financial instruments has to be economic and environmental welfare and growth. The municipal bond emission in developing countries should be based on previous market research. Municipal bonds with current interest rates in the Republic of Macedonia may experience a good realization. There are few externalities that affect the rejection of this instrument, but those same factors are not irreparable.

There is still no municipality in the Republic of Macedonia that succeeded to fully realize a municipal bond emission. This can serve as an advantage in the market in terms of introducing financial product innovation which could be supported by the Macedonian Stock Exchange. The Municipality of Stip, as well as other municipalities in developing countries, has the infrastructure, commercial, cultural, agricultural and other potential facilities that have yet to be developed. Binding the emission of municipal bonds with the revenue-generating project is not a risky activity. This way, the municipal bonds might be a less expensive source of funds for various

public projects. The Municipality of Stip makes efforts in a positive direction and the conditions for issuing this instrument can be fulfilled. The public and investors trust in such instruments and in the municipality overall could have a critical impact. Despite the deviations in the projected and planned revenues and expenditures of the Municipality of Stip, still, it can be concluded that this Municipality has a good percentage (85%) of realization of its plans and can foster future growth and development with the support of municipal bonds.

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