



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*

## HOW TO ENCOURAGE THE FINANCING OF INFRASTRUCTURE BUILDING IN BOSNIA AND HERZEGOVINA?

ZELJKO MARIC, PH.D.

Faculty of Economics  
University of Mostar, Bosnia and Herzegovina

**JEL Classifications:** E22

**Key words:** Power-supply infrastructure, traffic infrastructure, the infrastructure projects, project finance, public-private partnership, Bosnia and Herzegovina.

**Abstract:** Within the context of WEF competitiveness measurement for 2009/10, Bosnia and Herzegovina was the worst evaluated country in the region of Southeast Europe. The infrastructure quality, as one of the basic requirements, has had the lowest rank<sup>1</sup> and it is one of the main reasons for very low competitiveness in Bosnia and Herzegovina<sup>2</sup>. It means that the one of the main ways for competitiveness increment is investing into infrastructure building. This paper analyses which financing way for infrastructure building is optimal in the conditions of political and economic situation in Bosnia and Herzegovina.

ISSN: 1804-0527 (online) 1804-0519 (print)

PP. 57-60

### Introduction

B&H economy<sup>2</sup> is good example of absurdities between real and nominal economic convergence. The situation of deep recession is confirmed by all real economic indicators (unemployment rate, GNI per capita, labour productivity, real economic growth rate, huge foreign trade deficit in goods, etc.). But, from the other side, the B&H economy has had very stable nominal economic indicators (inflation rate, exchange rate, budget deficit, public debt, etc.), and it is direct consequence of currency board system and balanced budget policy implementation. In 2009, B&H has had negative real economic growth rate (-3.5%), significant foreign trade decrement (import has reduced 26% and export has reduced 22%), more than 35 000 people lost a job, and the transfers from abroad has reduced 20% in relation to the previous year.<sup>3</sup>

Bosnia and Herzegovina is a country with a very complex political structure of the state, and burdened with many other non-economic problems (corruption for example)<sup>4</sup>, so that's why Bosnia and Herzegovina is compelled on currency board system (as the strictest type of exchange rate system) and balanced state budget policy implementation. Such so strict macroeconomic policy

enables monetary stability but doesn't have development function. B&H government is not in position to conduct its own macroeconomic Keynesian policy (combination of three policies - budget deficit, moderate inflation and exchange rate depreciation) which is appropriate in the situation of B&H economy. Besides that, the B&H economy is very import dependent economy, where the most important B&H foreign trade partners have also experienced recession. All these determinants that B&H has to initiate and develop export oriented production which is based on domestic resources.

### The meaning, characteristics and consequences from the infrastructure building

The infrastructure represents the base for economic development in each country. It concerns mainly the economic infrastructure, which is the construction objects and equipment that are connected directly with all another production activities such as: traffic, the energetic, the telecommunications, etc.<sup>5</sup>. The infrastructure has the key role in the total social-economic development of the country. It is the consequence of its direct effects (unemployment decrement, transportation costs decrement, national income increment, long-term price stability<sup>6</sup> ...) and indirect effects that will set in all another economic and non-economic activities which are connected on infrastructure.

The infrastructure investments are the huge capital-intensive investments, which are usually couldn't be organised through market system, but the state regulation role is essential here.

The main characteristics of infrastructure building are:

<sup>1</sup> The Global Competitiveness Report 2009-2010 included 133 countries and it contains a detailed profile for each of the Economies. According to quality of overall infrastructure measurement (roads, railroad infrastructure, port infrastructure, air transport infrastructure, quality of electricity supply, etc.), Bosnia and Herzegovina was placed on the very end (132nd place); Source: The Global Competitiveness Report 2009-2010, World Economic Forum, p. 93.

<sup>2</sup> In The Global Competitiveness Report 2009-2010, Bosnia and Herzegovina was placed on 109th place among a total of 133 economies which were included into competitiveness measurement report. Source: The Global Competitiveness Report 2009-2010, World Economic Forum, p. 93.

<sup>3</sup> Source: Central Bank of B&H.

<sup>4</sup> According to the Corruption Perceptions Index (CPI) 2009, Transparency International ranked Bosnia and Herzegovina on 99th place, and it is after all other Southeast European countries. The CPI score indicates the perceived level of public-sector corruption in a country. So, B&H is the most corrupted country in the region. Source: Amnesty International Report 2009. - The State of the World's Human Rights, Amnesty International Publications 2009, United Kingdom

<sup>5</sup> In the wider sense, the infrastructure concerns on not only economic infrastructure (the traffic infrastructure, telecommunications, energetic ...) which is directly connected on national production, but also non-economic infrastructure (health system, education system, the science, welfare and social security system and public administrations) which is not directly connected with national production but it is necessary for society existing.

<sup>6</sup> The best way for long-term price stability is investing into infrastructure building which will ensure the long-term and stable economic growth and development.

- Long-term duration of infrastructure building (usually a few years) and high investing amounts, which have the negative effect on the economy;
- Economies of scale, it means that if we increase all factors used in production by a given proportion, the output increases by a greater proportion, giving increases returns to scale or decreasing average costs. It results because of division of labour and high specialization in production;
- Long-term of infrastructure usage (much longer than infrastructure building duration) that should bring the profitability of investing amounts;
- High sensitivity degree on scientific-technological progress effects. It requires the continuity of investing into new infrastructure project buildings and the modernization of existing infrastructure capacities (for example the reconstructions and modernization of traffic roads, railways, electro-energetic plants, etc.);
- High level of the compatibility with all another economic areas, that results in creation of many economies of scale.

The advantages of infrastructure building are various and they can be divided on two groups: direct, that can be measured, and indirect, that couldn't be measured.

#### **The different ways of infrastructure projects financing**

Which type or model of infrastructure building financing is optimal is dependent of many factors. There are three main theoretical models of Financing Investment, which could bring the financial assets for infrastructure building, maintaining and usage:

- State or public financing
- Private financing and
- Combination between public and private financing, i.e. Public-private partnership.

However, the Public-private partnership is the most common type of infrastructure building financing in modern market economies. Besides that, the Project finance is the most common technique for infrastructure building within a context of public-private partnership.

The project finance is an investment type where project (infrastructure) building is financed through loans and its repayment is based on revenues which that project will bring in the future. So, the project value could be used as the mortgage for repayment of used loans. Project financing is a very suitable financing technique for infrastructure building, i.e. huge capital intensive projects, because the investors usually don't have enough money, or they are not able to collect enough amounts of financial assets through traditional resources (i.e. banking credits) because of their bad credit worthiness. Investors could easier collect essential financial capital through project finance, and also they could avoid some high risks which they are not ready to accept.

#### **The financing of infrastructure building in Bosnia and Herzegovina**

The key item in Bosnia and Herzegovina economic development program, or the way for economic recession

overcoming is investing into basic infrastructure projects and actuating domestic unemployment resources. There are two main sectors for investing in Bosnia and Herzegovina: power-supply infrastructure<sup>1</sup> and traffic infrastructure<sup>2</sup>. These are two complementary areas which represent bases for all other economic activities and economy as a whole.

But, according to existing political and economic situation in B&H, the financing possibilities for infrastructure building are very restricted. The first mentioned financing way, the state or public financing is practically disabled. The reason for that, before all, is currency board system implementation which with its strict rules forbids any type of deficit financing by central bank.<sup>3</sup> The state doesn't have to take the credits from central bank, because it will directly imperil the credibility of currency board system and national currency convertibility as the only and the most important element of macroeconomic stability in Bosnia and Herzegovina.

So, the second way of financing the infrastructure building through tax rate enlarging is not real solution. The public sector expenditure is very high. The public expenditure share in GDP has achieved 50%, and it is the percentage which couldn't be acceptable even in the most developed countries<sup>4</sup>. It means that financing of public investments (i.e. infrastructure building) through tax rate increment is not real to expect. In such conditions, the tax rates increment will have significant negative effects on private business sector. In economic theory it is explained by so called Laffer curve, which shows the relationship between marginal tax rate and total tax revenue. Namely, it is much different situation when we enlarge tax rate if the tax revenue share in income is 30% or when it is 50%.<sup>5</sup> Clearly, as the tax revenues share into national income is higher, then the each next tax revenues increment is more expensive for the economy. The firms and consumers couldn't tolerate very high tax rates, so the total production

<sup>1</sup> Significant and diverse indigenous natural energy resources in B&H are still untapped or only partly exploited, such as:

- Considerable reserves of brown coal and lignite of 10 billion tons are exploited in amount of only 8 million ton/year

- Only about 35% of huge hydro potential of over 6000 MW is in use

- Significant wind energy potentials, which are identified and proved as commercially profitable at over 10 particularly suitable regions in B & H are only in preparation phases for exploitation

- In this moment, geo-thermal and solar, as well as bio-mass energy are only symbolically in use, etc.; <http://www.fipa.gov.ba>

<sup>2</sup> Corridor Vc, as a part of Pan-European Corridor, was recognized as main regional project, going from Budapest (Hungary), via Osijek (Croatia), Sarajevo (Bosnia and Herzegovina) to the Port Ploče (Croatia).

<sup>3</sup> Deficit financing begins in the case when the public expenditures overcome the amount of collected public revenues. New Deal, as a group of economic politics, practical measures and political principles, which has enabled the overcoming of the Great Depression (1929-33) and creation of so called „welfare state“ in USA, was based directly on deficit financing and Keynesian macroeconomic theory.

<sup>4</sup> The amount of public expenditures (as a percentage of GDP) was: 38.8% (2004), 39.6% (2005), 42.0% (2006), 43.9% (2007), 46.1% (2008). Source: Central Bank of B&H.

<sup>5</sup> According to Laffer curve, there is the optimum tax rate that maximizes total revenues. Each tax rate above the optimum tax rate is bad solution because tax revenues decrease as the tax rate increases.

and consumption will be smaller, i.e. the basis of assessment will reduce and all these will have recession effects. Besides that, in the conditions of currency board implementation, the state budget deficit will cause the interest rate increment because of transaction demand for money increment. It is real to predict because the currency board system disables the autonomous conducting of expansive monetary policy as the additional to the fiscal policy. Then, the interest rates increment will reduce investments in private sector, as it is described in economic literature as „crowding-out effect“.

Neither the public debt policy, i.e. government bonds issues as a way of state budget deficit financing is not real solution. The reason for that is high state indebtedness: internal (state obligations according to restitutions, foreign exchange savings redemption, etc.)<sup>1</sup> and external (liabilities towards IMF and WB).<sup>2</sup>

The total B&H public debt has been significantly increasing by taking the stand-by credit from the IMF, that bring B&H public debt closer to the limit of 60 % of GDP defined by Maastricht Threat.<sup>3</sup> But, the main reason for unacceptability of government bonds issues as a way of state budget deficit financing is low confidence of investors (or citizens) in state institutions.<sup>4</sup> The best confirmation for that is Amnesty International evaluation for Bosnia and Herzegovina as the most corrupted country in the region of Southeast Europe in 2009 year.

So, which is the acceptable way of infrastructure building financing in Bosnia and Herzegovina?

The two real options for financing the infrastructure building in Bosnia and Herzegovina are: The foreign concessionary international financial institutions (for example the development banks such as European Investment Bank, European Bank for Reconstruction and Development, World Bank, etc.)<sup>5</sup> and Foreign and domestic private investors.

There are two the most important investment areas in B&H: the energetic infrastructures (the hydroelectric power stations, the thermo-electric power plants, etc.) and the traffic infrastructures (the highway Vc/5c, the railway, etc). Bosnia and Herzegovina has the relatively high investment opportunities in these two areas for improving its competitiveness level. The construction of these infrastructure projects should be installed on the principles of project financing and public-private partnership. The infrastructure building is the typical activity for project financing.

The project financing is so suitable technique because the infrastructure building is financed through loans and the loans redemption is mostly based on revenues which will be realized through the created infrastructure implementation. Besides that, the value of created infrastructure could be used as insurance for loans redemption. According to the public-private partnership model, it is usually in the world that the construction of such infrastructure projects is financed by 20-30% share through state budget and the rest of 70-80% share is collected from other investors. The smaller number of these other investors could be, as it is earlier mentioned, the international financial institutions (such as World Bank, EBRD, EIB ...)<sup>6</sup>. But, the majority of financial assets should be collected from domestic and foreign individual investors through bonds issuing.

There is the significant level of household's deposits in the banks which has been having a growing trend from year to year. It has had growing trend even during the world financial crisis. It is the direct consequence of high level of citizen's confidence in B&H banking sector and currency board system. At the end of 2009, the amount of household's deposits has achieved almost BAM 5.5 billions. Mainly, it is the only type of financial investments for citizens, because of undeveloped capital market and because the B&H economy is in the situation of deep recession.

But, it is fact that Bosnia and Herzegovina has relatively large comparative advantages in energetic sector. That is why, the bonds issued from the firms in power-supply sector (that are the public firms where the state has the majority of ownership)<sup>7</sup> could be very good way of mobilizing the available household's savings for the purpose of building the new capacities in power-supply sector (the hydroelectric power stations and the thermoelectric power plants before all, but also another which have not used yet, for example the windmills) and traffic infrastructure.

The bonds of the firms in power-supply sector could be more attractive instrument for investing than the savings in the bank because of few reasons. First, the investing into bonds is more profitable because it brings higher level of bond revenues than the interest on savings in the banks. Second, the investing in the bonds of the firms in power-supply sector could be safer than the saving in the banks. The firms in power-supply sector is more stable and couldn't experience the „collapse“ such as it case in banks, for example in the period of financial crisis. But, it is more important, that the electric power is a product which has high demand level, so the selling projection is very optimistic on domestic and especially on foreign market.

<sup>1</sup> At the end of 2009, the B&H internal or domestic debt has reached BAM 2.55 billion. Source: Bosnia and Herzegovina Ministry of Finance and Treasury.

<sup>2</sup> At the end of 2009, the B&H foreign debt has reached BAM 4.5 billion. Source: Bosnia and Herzegovina Ministry of Finance and Treasury.

<sup>3</sup> IMF has approved the third stand-by credit to the Bosnia and Herzegovina on July 8, 2009 for an amount of € 1.2 billion. Source: Central Bank of B&H.

<sup>4</sup> Besides the infrastructure quality, the institutions as one of the basic requirements is the lowest ranked pillar for Bosnia and Herzegovina in the context of WEF competitiveness measurement report. Source: The Global Competitiveness Report 2009-2010, World Economic Forum, p. 93.

<sup>5</sup> It is mentioned the foreign investors because the domestic development banks have very limited capital and they are not able to do this job.

<sup>6</sup> On Monday, 26 May 2008, Bosnia and Herzegovina and World Bank have signed an agreement about financing projects in traffic infrastructure building in the amount of \$ 25 million. This credit approved under the IDA favourable terms: repayments period 20 years, grace period 10 years and service charge for credit 0.75%. This credit approved by World Bank is only the part within the wider program for traffic building and reconstruction in Bosnia and Herzegovina. The other investors are: B&H Government, European Investment Bank and European Bank for Reconstruction and Development. Source: <http://www.dep.gov.ba>

<sup>7</sup> Currently in B&H power sector, there are three public owned utilities, which are major producers and distributors of electricity, including: Elektroprivreda BH (EP BH), Elektroprivreda Hrvatske Zajednice Herceg-Bosne (EP HZHB) and Elektroprivreda Republika Srpska (EP RS).

Besides that, the buyers of these bonds will be able to sell very easily their bonds, because of its high marketability. It is very important for the owners of bonds, because in some

possible financial problems, they will be able to converse their bonds into cash money.

TABLE 1. STRUCTURE OF DEPOSITS BY SECTORS IN COMMERCIAL BANKS B&H (IN MILLIONS OF BAM)

Year:	Deposits of BH Institutions	Deposits of Entity Government	Deposits of Cantonal Government	Deposits of Municipal Government	Deposits of Social Security Funds	Deposits of Nonbank Financial Institutions	Deposits of Nonfinancial Enterprises	Deposits of Nonfinancial Private Enterprises and Cooperatives	Deposits of nonprofits organisations	Deposits of households	Other Deposits	Total Deposits
2004	36.4	383.0	230.2	119.0	107.2	212.5	842.8	992.9	146.7	2,489.1	18.7	5,578.4
2005	44.8	488.6	289.9	137.5	101.9	303.3	897.1	1,260.5	149.6	3,187.3	15.8	6,876.3
2006	58.8	696.2	357.1	197.4	156.3	324.0	1,116.1	1,578.1	191.5	4,101.1	21.8	8,798.5
2007	57.5	2,029.1	437.3	289.8	256.1	403.4	1,278.0	1,914.8	237.2	5,166.0	31.7	12,100.8
2008	68.2	1,478.5	291.1	255.8	225.8	513.4	1,542.4	2,063.4	260.2	5,207.2	32.3	11,938.3
2009	56.3	1,127.4	293.2	251.4	212.0	668.6	1,562.9	1,910.9	268.5	5,465.8	45.5	11,862.6

Source: Central Bank of B&H.

Furthermore, the bonds issued from the firms in power-supply sector will enable not only the infrastructure building which will consequently activate all other economic activities and overcoming the recession in B&H economy, but it will enable the solving one of the biggest problems in B&H economy. It is the problem of functioning and long-term viability of the existing pension system in Bosnia and Herzegovina. The ratio between employees and pensioners is approximately 1:1, and it is evident that this pension system that is based on a principle of "generation solidarity" couldn't exist for a long time.<sup>1</sup> It is necessarily to realize the pension system reform as soon as it possible in Bosnia and Herzegovina. Many citizens could help themselves in solving the problems of their pensions in the future by purchasing the long-term bonds issued from the firms in power-supply sector.

### Conclusion

The world's demand for the electric power has had the permanent growing trend, but the production possibilities are very limited. B&H power-supply sector is an area with a relatively big opportunities for development as a consequence of insufficient utilization level of its potential natural resources and because of the relatively high level of market demands (domestic and foreign) for the electric power. Because of these reasons, the bonds issue from the firms in power-supply sector could be very effective way of collecting money for financing the infrastructure building as a huge capital intensive project.

The purchasing of bonds issued of the firms in power supply sector could be very attractive investment not only for citizens (domestic and foreign) but also for many other institutional investors (banks, insurance companies, investment companies, firms, etc.) which will be able in that way to invest their money surplus and earn additional revenues.

It seems that Bosnia and Herzegovina has all preconditions for power supply sector development that could be actuator for B&H economy development as a whole. The only one think which remains is that B&H government enables the essential legal frame for guiding of this process.

### References

- Buckley, A., 2000. Multinational finance, Financial Times Prentice Hall, London.
- Knežiček, T., 2008. Public-private partnership, Ars grafika, Tuzla.
- WEF, 2009. The Global Competitiveness Report 2009-2010, World Economic Forum, Geneva, Switzerland.
- FIPA, 2009. Investment opportunities in Bosnia and Herzegovina, Sixth Edition, Foreign Investment Promotion Agency of Bosnia and Herzegovina, February.
- Amnesty International, 2009. Amnesty International Report 2009: The State of the World's Human Rights, Amnesty International Publications, United Kingdom.

<sup>1</sup> The ratio between employees and pensioners in developed countries is approximately 3:1 or 4:1. In Bosnia and Herzegovina, that ratio is 1.2:1 and it means that the number of employees is higher than the number of pensioners only for 20%. Source: Agency for Statistics of B&H