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DETERMINANTS OF THE CURRENT ACCOUNT IN THE EU AND PIIGS

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Abstract

This paper investigates the relationship between current account balance and national savings, investment, budget deficit, and real exchange rate. These determinants of the current account are studied empirically by applying the Generalized Method of Moments for a sample of 24 European countries. The sample data are divided into three different groups, PIIGS, EU-PIIGS, and EU in order to study the group-specific estimations. The main result of the paper is that the determinants of our model are capable of accurately explaining past movements in current accounts for all selected groups. Additionally, current account determinants in the economically weak members, PIIGS, behave slightly differently from the rest of the EU.

JEL: F32; F41

Key Words: Current Account; European Union; Generalized Method of Moments

1. Introduction

A current account balance is one of the important measures of a country's foreign trade as it indicates the difference between the increase in residents' claims of foreign incomes or outputs and the increase in claims of foreigners on domestic income or output. A great deal of attention has been given to the disequilibrium

that exists in a nation's current account balances and to the policies that are responsible for adjustment mechanisms. On the one hand, current account balance is determined as the net export balance of a country where relative international prices are considered as major determinants of the current account balance (Campa and Gavilan, 2006; Bauakez and Kano 2008; Uz and Ketenci, 2013). On the other hand, the current account balance is determined as the difference between national savings and investments, where macroeconomic factors are considered to be the key determinants of current account balances (Chinn and Prasad, 2003; Bussiere et al., 2004; Brissimis et al., 2010).

Findings of Bussiere et al. (2004) indicate that countries with higher investment ratios tend to have higher current account deficits, while fiscal balance is related positively to current account balance. It was found that actual current account balances are close to their structural current account positions, which perfectly explains the deficits of the European Union countries. Belke and Dreger (2011) found that competitiveness channels are significant in determining current account balance, where real appreciation leads to an increase in external deficits.

The member States of the European Union (EU) have experienced great fluctuations in the current account balance for the last decade (Figure 1). During this period, the financial and economic crisis of 2008 had a significant negative impact on the current account of the EU-27. Since the third quarter of 2002, surplus in the current account of the EU-27 has been recorded only in the fourth quarter of 2011. The recovery was due mainly to the improvement in imports and exports of goods and services, while financial flows continued to deteriorate or grew very slowly. Annual data illustrate the fluctuations in current account deficit in the EU-27 countries (Figure 1b); however, if countries are considered in a separate group from countries that experience relatively high current account deficit (PIIGS) (Figure 1d), the recovery of current account balance after 2009 in these countries is more evident. Furthermore, the latest economic developments illustrate that the current account imbalances of European Union countries have highly negative impacts not only on member countries, but on outside partner countries as well. Hence, it indicates the great importance of empirical studies for the current account balance of the European Union's countries.

This study investigates the major determinants of the current account in the selected EU members. To this end, it studies whether there is a cointegration relationship between the current account and major variables such as the real exchange rate (RER), interest rate and the fiscal balance in new EU members. This also allows considering the effects of the government spending shock on the external sector. Understanding the factors behind the current account fluctuations could have important policy implications yet the recent episodes of macroeconomic turbulence in many emerging markets in the EU approves the increasing concerns and deserved attention on this topic.

The purpose of this paper is to determine the behaviour of the current account and the evolution of current account and its determinants. The paper employs the Generalized Method of Moments (GMM) to estimate the dynamic panel data model of the current account. The contribution of this paper is to study the determinants of current account for separate groups of 24 countries of the European Union, some of which experienced long-term current account deficit and some of which did not. The paper is structured as follows. Section 2 explains theory and model. Section 3 explains methodology and section 4 gives estimation results. Finally, section 5 gives summary and conclusion.

2. Theory and Model

The framework of the national accounts defines a clear relationship between external and internal balances within an economy.

$$Y_t = C_t + I_t + G_t + (X_t - M_t) + NFIA \quad (1)$$

By rearranging the variables,

$$(X_t - M_t) + NFIA = Y_t - C_t - G_t - I_t = S_t - I_t \quad (2)$$

where $C_t - G_t - I_t$ is equal to the sum of private and public consumption. This means that the external account has to equal the difference of national savings and investment. This relation implies that current account is directly related to saving and investment in the economy. Therefore, the policies supporting investment have a negative impact on the current account, while policy measures reducing private or public consumption have a positive impact on the current account, because they increase national saving.

Further insights to policy implications are given by dividing the national saving into public and private saving.

$$(X_t - M_t) + NFIA = (Y_t - T_t - C_t) + (T_t - G_t) - I_t = S_t^p + S_t^g - I_t \quad (3)$$

After inducing the real variables to the model, it becomes as follows:

$$\frac{CA_t}{P_t} = (Y_t - \frac{NT_t}{P_t} - \frac{P_{Ct}}{P_t} C_t) + (\frac{NT_t}{P_t} - G_t) - \frac{P_{It}}{P_t} I_t \quad (4)$$

where is CA_t the current account balance, P_t is the GDP deflator, NT_t is the taxes net of transfers, P_{Ct} is the price of final consumption goods that are purchased and P_{It} is the price of final investment goods. So, the real current account balance is the sum of real private and public saving minus real investment. Therefore, the policies supporting investment have a negative impact on the current account, while policy measures reducing private or public consumption have a positive impact on the current account because they increase national saving. If the private savings are roughly equal to investment then the external account and public budget are directly interrelated, or twinned. According to the Mundell-Flemming approach, the external account and fiscal balance have to move in the same direction. In other words, increase in budget deficit causes an increase in interest rates that causes an increase in capital inflows and appreciation of the domestic currency thereby causing a current account deficit. Fiscal deficit is causing current account deficit, so-called the twin deficits.

Finally, this paper employs the real effective exchange rate in the estimations. An increase in the REER can decrease an economy's overall saving ratio because it increases the purchasing power of the domestic currency on foreign tradable and non-tradable goods, thereby encouraging domestic residents to purchase more imported goods. This will cause an increase in the real consumption relative to the output, thus lowering the saving ratio and the current account balance. On another hand, a rise in the real exchange rate increases the consumption-based real interest rate causing a reduction in the consumption of tradable goods and therefore a reduction in the total current consumption and improvement in the current account, or vice versa.

Based on the above discussion, the general function for the current account tested in this paper will take the following reduced form:

$$CA_{t,i} = \alpha + \beta_1 BB_{t,i} + \beta_2 INV_{t,i} + \beta_3 SAV_{t,i} + \beta_4 XR_{t,i} + \epsilon_{t,i} \quad (5)$$

where $CA_{t,i}$ denotes the current account at time t , for country i , BB is budget balance as a share of GDP, INV is gross capital formation as share of GDP, SAV is net savings values as a share of GDP, and XR is the real effective exchange rate.

3. Methodology

3.1 Unit root test

This paper used four different tests for determining the nonstationarity of the selected variables. These are the Levin, Lin, and Chu (LLC) test (Levin et al., 2002); the Breitung (Breitung, 2000) test; the Im, Pesaran, and Shin (IPS) test (Im et al., 2003); the Fisher-type tests using the ADF and PP tests (Maddala and Wu,

1999); the Choi (2001) test; and the Hadri (Hadri, 2000) test. The first one was the Levin, Lin, and Chu (LLC) test (Levin et al., 2002), which is based on orthogonalized residuals and the correction by the ratio of the long-run to the short-run variance of each variable. Although the LLC test has become a widely accepted panel unit root test, it has homogeneity restriction, allowing for heterogeneity only in the constant term of the ADF regression. Due to this homogeneity restriction, the LLC test is likely to reject the panel unit root (Fidrmuc, 2009). The second applied test was the Im, Pesaran, and Shin (IPS) test, which is a heterogeneous panel unit root test based on individual ADF tests. It was proposed by Im et al. (2003) as a solution to the homogeneity issue. This test allows for heterogeneity in both the constant and slope terms of the ADF regression. As in the LLC test, the null hypothesis of the IPS test is that each series has a unit root for all cross-section units and the alternative hypothesis inserts that at least one unit of the panel is stationary rather than the more restrictive alternative hypothesis of the LLC test. Finally Maddala and Wu (1999) and Choi (2001) proposed an alternative approach by using the Fisher test, which is based on combining the P-values from the individual unit root, test statistics such as ADF and PP. One of the advantages of the Fisher test is that it does not require a balanced panel.

3.2 Generalized Method of Moments

There are mainly three common problems in the econometric analyses. These are endogeneity (the simultaneous determination of response variable and regressor), omitted-variable bias, and finally, errors in variables (measurement error in the regressor). Even though they may be caused by different factors, it is the same econometric tool that is used to solve these problems, the instrument variables (IV) estimator. Baum (2006) explains the use of IV estimators and the summary is given as follows. A variable is endogenous if it is correlated with the disturbance. In the model:

$$y = \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + u$$

x_j is endogenous if $\text{Cov}[x_j, u] \neq 0$. x_j is exogenous if $\text{Cov}[x_j, u] = 0$. The "Generalized Method of Moments" (GMM), first introduced by Hansen (1982), is an econometric framework that allows estimating the parameters of models that deal with endogenous variables. Economists often model endogenous variables that are determined by each other and some additional exogenous variables. In this model we specify and instrument for x_j that is uncorrelated with u but highly correlated with x_j . In an economic model, this is termed the identification problem, what will allow us to identify or trace out y . So we are looking for two properties: instrument z must be uncorrelated with u , $\text{Cov}[x_j, u] = 0$, but highly correlated with x_j , $\text{Cov}[x_j, z] \neq 0$. We cannot test the first property because it involves a correlation between the IV and unobserved error. However, we can test the second property as follows:

$$x_j = \pi_1 + \pi_2 z_j + \zeta$$

if we fail to reject the null hypothesis $H_0: \pi_2 = 0$, we conclude that z is not a valid instrument. So, the use of valid instruments in the model takes the matrix form as follows:

$$y = X\beta + u$$

where β is the vector coefficients $(\beta_1, \beta_2, \beta_3)'$ and X is $N \times k$. Define a matrix of the same dimension as X in which the exogenous regressor is replaced by z . Then it takes the following form:

$$Z'y = Z'X\beta + Z'u$$

The assumption that Z is unrelated to u is shown as $1/N(Z'u)$ and it goes to zero in probability as N becomes large and the estimator $\hat{\beta}$ takes the following form:

$$Z'y = Z'X\hat{\beta}$$

$$\hat{\beta} = (Z'X)^{-1} Z'y$$

The assumption that the instruments z are exogenous can be expressed as a set of moment conditions $E[zu]=0$. The l instruments give us a set of l moments:

$$g_i(\beta) = Z_i' u_i = Z_i'(y_i - x_i \beta)$$

where g_i is 1×1 orthogonality conditions. To drive the GMM estimator, replace the above equation by its empirical counterpart. Then the equation becomes as follows:

$$\bar{g}(\beta) = \frac{1}{N} \sum_{i=1}^N g_i(\beta) = 0$$

The above equation shows we have 1 sample of condition. If the equation is exactly identified then $l = k$, where we can solve the 1 moment conditions for the k coefficients in $\hat{\beta}_{GMM}$ that solves $\bar{g}(\hat{\beta}_{GMM}) = 0$.

If $l > k$, then we have moment condition and so the parameters to estimate. The GMM estimator chooses the $\hat{\beta}_{GMM}$ that minimizes in the following equation.

$$J(\hat{\beta}_{GMM}) = N \bar{g}(\hat{\beta}_{GMM})' W \bar{g}(\hat{\beta}_{GMM})$$

where W is an $l \times l$ weighting matrix that accounts for the correlations among the $\bar{g}(\hat{\beta}_{GMM})$ when the errors are not i.i.d. The GMM estimator is defined as the following:

$$\hat{\beta}_{GMM} = (X' Z W Z' X)^{-1} X' Z W Z' y$$

The results of the minimisation will be identical which will be identical for all W matrices which differ by a factor of proportionality. The optimal weighting matrix, as shown by Hansen (1982), chooses $W = S^{-1}$, where S is the covariance matrix of the moment conditions to produce the most efficient estimator:

$$S = E[Z' u u' Z] = E[Z' \Omega Z]$$

With a consistent estimator of S derived from 2SLS residuals, we define the feasible IV-GMM¹ estimator as the following:

$$\hat{\beta}_{FEGMM} = (X' Z \hat{S}^{-1} Z' X)^{-1} X' Z \hat{S}^{-1} Z' y$$

where F Moment condition is equal to the identification of restrictions, which is also equal to instruments. The validity of the instruments can be assessed by using J-test by Hansen (1982). It is used to test for overidentification, in other words, it explains whether the orthogonality conditions are right. J-value is the minimised value of the objective function and it is calculated as:

$$\frac{1}{T} u' Z (s^2 Z' Z / T)^{-1} Z' u$$

where Z is the matrix of instruments, u is error term and s^2 is the estimated residual variance (square of the standard error of regression). J-value (J_T) is a weighted sum of squared deviations of the sample moments from 0. J-value multiplied by the number of observation is equal to χ^2 with degrees of freedom, where H_0 : overidentifying restrictions are satisfied. If we reject H_0 , it could be for one or more of a number of reasons. For example, there may be model misspecification or use of invalid instruments, or the model may be correct but the finite sample distribution of J_T is substantially different from the asymptotic distribution. The Sargan test (Sargan, 1958) is a version of the J-test and it examines the correlation between the residuals from the instrumental variables estimation and the instruments. The Sargan test (Sargan, 1958) is a version of the J-test and it examines the correlation between the residuals from the instrumental variables estimation and the instruments.

The major focus of the analysis starts with the distinction of within-country and cross-country effects. The within-country effects model includes country-specific factors. The regression equation becomes as follows:

$$CA_{i,t} = c + \beta X_{i,t} + \eta_i + u_{i,t} \quad (6)$$

1) FEGMM refers to the feasible efficient GMM estimator.

where X is a set of economic determinants of current account; η_i represents country-specific factors. In the cross-country effects country-specific factors are not controlled.

$$CA_{t,i} = c + \beta X_{i,t} + \mu_{i,t} \quad (7)$$

One of the possible reasons for choosing a panel analysis is to be able to control for individual heterogeneity. We test the model for current account and it is modeled as a function of budget balance, investment, savings, and real effective exchange rates. These variables vary with country and time. We also consider the past values of explanatory variables as instruments in the resulting estimates. Additionally, the fixed effects model was used for the GMM because the countries studied in this paper are not selected randomly. They are EU member countries, but the study includes three different panels. The first group selects all EU members (except Luxembourg, Hungary, and Malta due to the non-availability of data). The second group selects the five economically weaker eurozone members, Portugal, Italy, Ireland, Greece, and Spain, known by the acronym PIIGS. The last group includes EU members without the PIIGS. The aim of this study is to test the behaviour of current account determinants for different groups of countries, including country-specific effects in our analysis.

4. Empirical Results

GMM estimations require stationary data, therefore the empirical results will first report the panel unit root tests. Table 1 shows the results of the unit root tests employed in the study. In the unit root tests, the appropriate lag lengths are determined with the automatic selection of the Akaike Information Criteria (AIC). CA, BB, INV, SAV, and XR represent variables such as current account, budget balance, investment saving, and exchange rate, respectively.

Table 1. Panel unit root tests

		LLC	IPS	PP	Fisher
EU	CA	-1.324	-2.630*	324.168*	83.529*
	BB	1.095	-4.107*	474.899*	84.502*
	INV	1.401	-2.582*	281.139*	71.191*
	SAV	3.434	-0.330	355.602*	60.684
	XR	-2.948*	-1.394	53.037	64.795
EU-PIIGS	CA	-2.300*	-3.019*	268.157*	75.199*
	BB	0.771	-3.661*	386.695*	65.809*
	INV	-0.597	-3.651*	241.559*	68.353*
	SAV	0.927	-2.579*	318.277*	59.385*
	XR	-1.534	-1.032	36.111	49.693
PIIGS	CA	1.575	0.058	56.011*	8.331
	BB	0.363	-1.862*	88.204*	18.693*
	INV	2.783	1.362	39.580*	2.839
	SAV	3.955	4.340	37.325*	1.298
	XR	-3.302*	-1.031	16.927	15.102

*-denotes absence of the unit root

For the group of EU member counties, all of the variables were found to be stationary, at the 5 per cent critical level, except for the SAV and XR variables. Only one out of four tests rejected the hypothesis of non-stationarity for these variables. In the group of EU members that excludes PIIGS countries, enough evidence was found to conclude that all variables except XR do not have unit root, while unit root process was found by all tests only in the XR variable. On the other hand, estimating panel of PIIGS countries all variables except BB were found to be non-stationary, whereas BB variable was found to be stationary, where 3 out of 4 tests rejected the hypothesis of the unit root process. In further estimations first differences were used for non stationary variables.

Table 2. GMM Estimations

	GMM			FEGMM		
	EU	EU-PIIGS	PIIGS	EU	EU-PIIGS	PIIGS
C	0.194*** (0.0213) (0.0069)	0.129***	-0.004** (0.0073) (0.0018)	0.108***	0.133*** (0.0018)	-0.003 * (0.0121)
BB	0.008*** (0.0010) (0.0003)	0.001**	0.000 (0.0004) (0.0003)	0.002***	0.000 (0.0002)	0.000 (0.0005)
INV	-0.009*** (0.0009) (0.0004)	-0.008***	-0.011*** (0.0003) (0.0006)	-0.006***	-0.008*** (0.0005)	-0.010 *** (0.0005)
SAV	-0.022*** (0.0005) (0.0023)	-0.007***	0.006** (0.0026) (0.0023)	-0.022***	-0.011*** (0.0024)	0.005 ** (0.0042)
XR	-0.004*** (0.0012) (0.0008)	0.006***	0.006*** (0.0005) (0.0003)	0.000	0.006*** (0.0003)	0.006 *** (0.0006)
No of Inst.	9	11	9	35	29	15
Sargan	0.27	0.34	0.58	0.46	0.57	0.58

*, **, *** indicate significance at 10%, 5% and 1% levels, respectively.

Standard errors for the coefficient estimates are given in parenthesis.

Sargan p values are reported.

Both EU estimations and EU excluding PIIGS estimations with GMM show that all of the variables used are statistically significant. There is a positive relationship between current account and budget balance that favours the existence of the twin deficit phenomenon where budget deficit causes current account deficit. The results show a negative relationship between current account and exchange rate. In other words, the appreciation of the domestic currency causes current account deficit. This is also consistent with the literature and related theories. Furthermore, there is a negative relationship between current account and investment. This is also consistent with the literature. Finally, our results found a negative relationship between current account and ss. Theories expect a positive relationship between current account and savings, assuming investment is constant. However, when the country has large budget deficit, this reduces national savings and sometimes the reduction in savings reduces investment to such a degree that it causes current account improvement. If this reduction in national savings is not offset by a decrease in investment, then it would cause a reduction in exports, leading to deterioration in current account.

For the GMM estimations as PIIGS are excluded we found that reduction in savings causes further reduction in investment which increases current account balance. So, in other words, investment is more important than the national savings in determining the current account. For the PIIGS, however, changes in sav-

ings are associated with changes in current account. We found similar results for the relationship between current account and variables such as investment and savings in the GMM, including the cross-section fixed effect. Budget balance is not statistically significant for PIIGS and EU, excluding PIIGS. Finally, the relationship between current account and exchange rate is negative in EU with GMM and positive in the rest of the estimations. It is common in the literature to have mixed relations between current account and exchange rate. The positive relationship, in other words, the appreciation of domestic currency causing improvement in current account, can be explained by the short and medium term of the J-curve.

5. Summary and Conclusion

This paper examined the behaviour and determinants of the current account for a sample of 24 European countries. Estimations were made for three different groups of European countries, PIIGS, EU and EU without PIIGS countries. A Generalized Method of Moments was applied to test the model of current account as a function of budget balance, investment, savings, and real effective exchange rates. The analysis included estimations with and without country specific effects. The results of estimations indicated that coefficients are statistically significant and values of coefficients are similar in both models. Inclusion of country-specific effects did not improve the model.

The results of estimations provide enough evidence to conclude that the budget balance, national savings, investments, and real exchange rate determine the current account in the medium term. Our results show the existence of the twin deficit phenomenon for the EU countries. Our results support a negative relationship between investment and current account for the selected groups. Analysis of the behaviour of PIIGS and the rest of the EU provide enough evidence to conclude that behaviour of the CA determinants are different for these two regions. Increases in national savings cause improvements in PIIGS, but deterioration in the rest of the EU. Current account for the EU members excluding PIIGS is highly determined by the investment decisions rather than national savings.

Appendices

Appendix 1. Data

This study covers quarterly data for the period 2000Q1-2011Q4 for 24 EU members, Austria, Belgium, Bulgaria, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom. Selected member countries are studied in three different panels. In the first panel, all of the countries are included, in the second panel the so-called PIIGS, namely Portugal, Ireland, Italy, Greece and Spain, are excluded from the whole sample, and in the final panel, only the PIIGS are included.

CA Current account balance (as a % of GDP)

BB Budget balance (as a % of GDP)

SAV Net Savings (as a % of GDP)

INV Gross capital formation (as a % of GDP)

XR Real Effective Exchange Rates (deflator: consumer price indices, including 27 trading partners, index as 1999=100) (increases denotes real appreciation of domestic currency)

All data are obtained from the official site of the EU, the Eurostat.

Appendix 2. Figures

Figure 1.a

Current account balance of EU-27
(in million Euro)

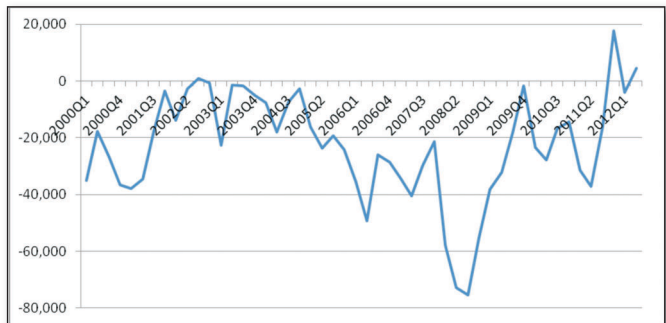


Figure 1.b

Current account balance of EU-27
(as the share of GDP)

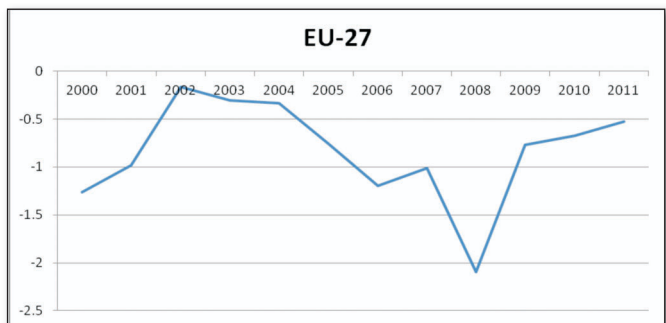


Figure 1.c

Current account balance in PIIGS
(as the share of GDP)

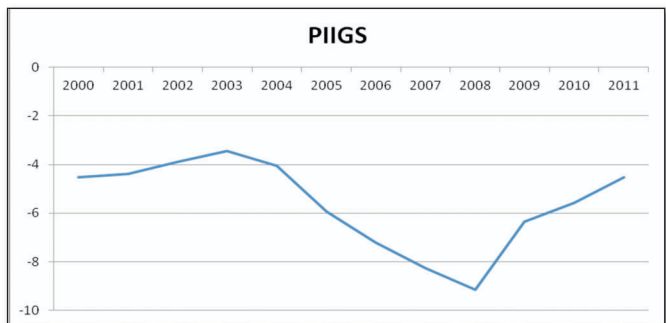
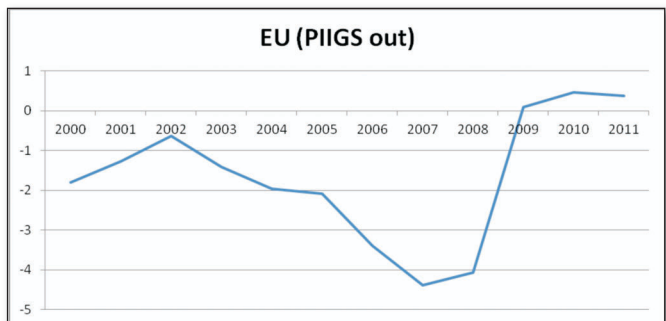


Figure 1.d

Current account balance in the EU
except PIIGS
(as the share of GDP)



References

- Baum, C.F., 2006. An Introduction to Modern Econometrics using Stata. Stata Press books, StataCorp LP, number imeus, July.
- Belke, A. and C. Dreger. Current account imbalances in the euro area: Catching up or competitiveness? DIW, Discussion Papers 1106, Berlin.
- Brissimis, S.N., Hondroyannis, G., Papazoglou, C., Tsaveas, N.T. and M.A. Vasardani. 2010. Current account determinants and external sustainability in periods of structural change. European Central Bank. *Working Paper Series*, 1243, September.
- Bussiere, M., Fratzscher, M. and G.J. Muller. "Current account dynamics in OECD and EU acceding countries – an intertemporal approach". European Central Bank. Working Paper Series, 311, February 2004.
- Campa, Jose M. and Angel Gavilan, 2006. Current accounts in the euro area: An intertemporal approach. *IESE Research Papers D/651*
- Chinn, M.D. and E.S. Prasad. (2003). Medium-term determinants of current accounts in industrial and developing countries: an empirical exploration. *Journal of International Economics*, 59 (1), 47-76.
- Fidrmuc, J. (2009). Gravity models in integrated panels. *Empirical Economics* 37, 435-446.
- Hadri, K. (2000). Testing for stationarity in heterogenous panel data. *Econometrics Journal* 3(2), 148-161.
- Hansen, L.P. (1982). Large sample properties of generalised method of moments estimators. *Econometrica* 50, 1029-1054.
- Im, K.S., M.H. Pesaran and Y. Shin. (2003). Testing for unit root in heterogenous panels. *Journal of Econometrics* 115 (1), 53-74.
- Kwiatkowski D., P. Phillips, P. Schmidt and Y. Shin (1992). Testing the null hypothesis of stationary against the alternative of a unit root: how sure are we that economic time series have a unit root? *Journal of Econometrics* 54, 159-178.
- Levin, Andrew, C. Lin and C.J. Chu (2002). Unit root tests in panel data: Asymptotic and finite-sample properties. *Journal of Econometrics* 108(1), 1-24.
- Sargan, J.D. (1958). The estimation of economic relationships using instrumental variables. *Econometrica* 26, 393-415.
- Uz, I. and N. Ketenci. (2011). Current account and relative prices: Are there any cointegration relationships in the presence of structural breaks in emerging economies? *The Journal of International Trade & Economic Development: An International and Comparative Review*. Forthcoming.

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EMPIRICAL EVIDENCE OF SUCCESS FACTORS FOR MOBILE COMMERCE ADOPTION IN THE REPUBLIC OF MACEDONIA USING TAM-MODEL

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Abstract

Abstract - Mobile commerce (MC) is a relatively new service for Macedonian consumers and is about to be more broadly introduced on the Macedonian market. This paper aims to clarify the concept and the key factors that affect successful adoption of mobile commerce in the Republic of Macedonia. This is done through research on the acceptance of MC and its actual use. Based on previous surveys and theories, the Technology Acceptance Model (TAM) is used alongside other factors in order to determine the adoption of mobile commerce.

From the research of different theories, a conceptual model was developed based on the TAM-model. In terms of the research results it can be concluded that usefulness, ease of use and risk have direct influence on the attitude toward use, and also that these factors influence the actual use of the technology. In other words, it was proven that six out of seven factors are relevant for a successful adoption of mobile commerce in the Republic of Macedonia

Keywords: mobile commerce, mobile payments, TAM, key success factors, business models.

1. Introduction

Literature on critical success factors of mobile commerce covers many aspects, including technology, business, and social factors. The success factors for a new service, such as mobile commerce, are related to the nature of the service characteristics of the market, the synergy of the project development process and the culture of innovation. There is still no sufficient insight into the critical issue in the design and success factors. This is due to the diverse nature of mobile services, the lack of related methodologies and substantive research that leads and evaluates the innovation, the methods and the tools in this field (Bouwman, Vos, & Haaker, 2008).

Because the wireless protocol is quite a popular technical standard to enable mobile commerce by looking at the key factors for accepting WAP, the critical success factors of mobile commerce can be determined (Xu & Gutiérrez, 2006). In 2003 a model based on the Theory of Planned Behavior (TPB) and Innovation Diffusion Theory (IDT) was built in order to understand the behavior in accepting WAP (Hung, Ku, & Chang, 2002). According to their research, the most important factors are connection speed, cost of service, customer satisfaction, personal innovativeness, ease of use, the impact of other users.

According to Odegard, the critical success factors for adoption of mobile commerce are as follows (Odegard, 2001):

- CIS-effect: keep it simple;
- Kip effect: keep it personal;
- Flexible Finance;
- Partnership for profit;
- Integration for accumulation

Buellingen and Woerter (2004) highlight four critical success factors for mobile commerce acceptance (Buellingen and Woerter, 2004, pp. 1406–1408):

- transmission speed - the speed of data transfer has always been a key factor for users, especially with the increase in their number. It is crucial for mobile communication and should be available at least as a premium service (with a charge). As long broadband through fixed lines is faster and cheaper, the use of the mobile internet will be the exception and will be restricted to professional use. This means that there will be a specialized use of networks to some extent: for example, video games are accessed through fixed networks, while data for travel or news are browsing through mobile networks.
- personalization - the ability to personalize the mobile communication services is one of the main attractions of using mobile networks because it contributes to independence from the location, flexibility, convenience, saving time, timeliness of information and reduced costs of search.
- data security - awareness of data protection has clearly increased in recent years, with the increased use of the Internet for transactions. EU Treaties with the United States for introducing the so-called principle „safe harbor” clarify that the protection of data and the creation of trust is considered a major requirement for the development of electronic business processes. The requirements for data protection are increasingly necessary for the development of mobile commerce.
- pleasant to use - direct and easy access to communication and information services are an important criteria for the spread of the service. It is expected that technical progress at the level of hardware and software will provide mobile users with small mobile devices with touchscreen or voice control, sufficient supply of energy for longer period and an additional interface (eg. infrared, blue-tooth) for communication with other static and mobile terminals. Interactive services will create especially high demands on the design of man-engine interface.

According to Charles (2000), there are six critical success factors for successful acceptance of mobile commerce: the integrity of the WAP interface, availability of technology, availability of WAP-infrastructure, interoperability, security, and speed and efficiency. Out of these six factors, the most important one is the security (Charles, Monodee, & Nurek, 2000). Siau and Shen point out that the user's trust is crucial to the growth and success of mobile commerce. They suggest that the conversion of initial trust in continuous trust can maintain the user's trust in mobile commerce and that confidence in the technology and the manufacturer are equally important for maintaining that trust in mobile commerce (Siau and Shen, 2003).

Based on the online survey, there is a compiled list of critical success factors to accelerate the progress of mobile commerce in Europe (Vrechopoulos, 2002, p. 478): improved mobile device interfaces that are pleasant for users, effective applications and services, reduced prices, secure transactions, and high bandwidth network coverage. In a study by Arthur D. Little, several value propositions complement the key factors of the mobile commerce, which offers the advantage of availability anywhere, anytime (Little, 2004):

- Convenience. Powerful and small mobile terminals offer to the users the ability to use services anywhere and anytime. Compared to electronic commerce, mobile commerce is really suitable.
- Localization. Identifying the user with a mobile device adds significant value to mobile commerce before conventional e-commerce through customer satisfaction.
- Personalization. The mobile device will not become a common tool with multiple users and should have a unique identity of its users. Creation of customer services for the end user is essential for optimizing the interaction paths of suppliers (providers) and clients.
- Ubiquity and timeliness. Mobile devices offer access to information in real time from any location through technology that is always enabled.
- Client property. Mobile devices are tailored for person-to-person marketing strategies (P2P), derived from a comprehensive customer base.
- Price. The price structure must be easy to understand.
- Simplicity. Because of the limited screen space on mobile devices, content must be clear and simple. The effort of learning user must be minimal.

Other researchers include success factors of typical services of mobile commerce. For example, Antovski and Gusev (2003) summarize the critical success factors of mobile payments in several groups: ease of use, security, comprehensiveness, expenses and technical acceptability.

II Framework for identification of success factors of mobile commerce

Hilbert classifies the critical success factors into three groups (Hilbert, 2005):

- endogenous factors: internal factors that can be controlled by the business;
- exogenous factors: external factors caused by external causes and cannot be directly controlled;
- moderator factors: have the task to mediate between the "real" success factors and values for success.

In 2006 Feng et al described ten critical success factors for mobile commerce (Feng, Hoegler, & Stucky, 2006). By stating the factors with the letter "F", they propose the following framework for identifying critical success factors of mobile commerce:

Aspects of Value Creation: mobile commerce must add value for users so that they have a sense that what they receive is worthy. This is achieved by:

- **F1: Business Model.** Appropriate and sustainable business model.
- **F2: Content innovation.** Implementation of differentiated services for mobile commerce requires a new way of thinking about content that already exists on websites, but it has to be used in an innovative and customized way for mobile devices.

Aspects of perceived usefulness: Perceived ease of use is the degree to which a person believes that using a system will be effortless (Venkatesh et al., 2003) and used as an aspect in the technology acceptance model (TAM). This paper later on will use this to determine the acceptance of mobile commerce. Much of the research on the acceptance focuses on improving the effectiveness and efficiency of task related businesses. A small number of studies focusing on the use of mobile services in the leisure and everyday use (Palen, Salzman, & Youngs, 2001) or on the unclear borders for the application of such services in work and leisure. According to these studies, the reasons for the application of mobile services are work-related and leisure.

- **F3: Business-support.** Improving business performance, effectiveness and efficiency.
- **F4: Supporting leisure time.** Ubiquitous use for entertainment, emergency and special purpose, as well as location-based services.

Aspect of perceived usability. According to Boston Consulting Group, one-third of mobile users have left the trade only after several attempts because there is a big difference in terms of what the technology can do, and what the user expects (Boston Consulting Group, 2000).

- **F5: System and Content Quality.** The quality system includes measures like 24-hour availability, online response time, speed of loading, visual appearance, etc. Quality includes updating content, clarity, timeliness, accuracy, etc.
- **F6: Trust.** Trust includes security and privacy.
- **F7: Support.** Monitoring the status, maintenance of accounts, payment alternatives, individual preferences and FAQ-support.

Aspects of perceived ease of use: Mobile devices have capabilities that can be used anywhere and any-time, but have limitations, such as small screens, limited input capabilities and interaction, low speed data transmission, etc., all of which affect the adoption of mobile commerce. The use is facilitated with better organization of content, good design and presentation.

- **F8: User interface design.** The innovative design will facilitate the acceptance of mobile commerce.
- **F9: Initial and operating costs.** They should be in appropriate relation with the value that the customer receives from the mobile application.

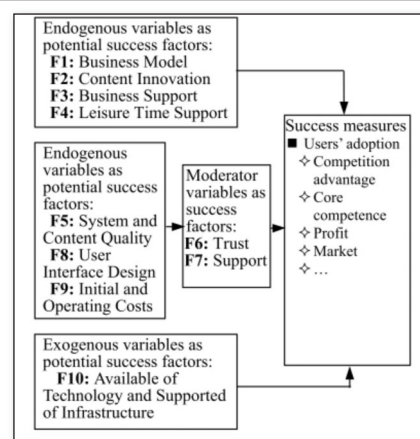
Exogenous (external) factors:

- **F10: Availability of technology and support infrastructure.** The limitation in technology and infrastructure of mobile communications can not be controlled by the company, the service provider and operator.

The principal factors that potentially have positive impact of mobile commerce are illustrated in Figure 1.

Figure 1.

Framework for identification of success factors of mobile commerce

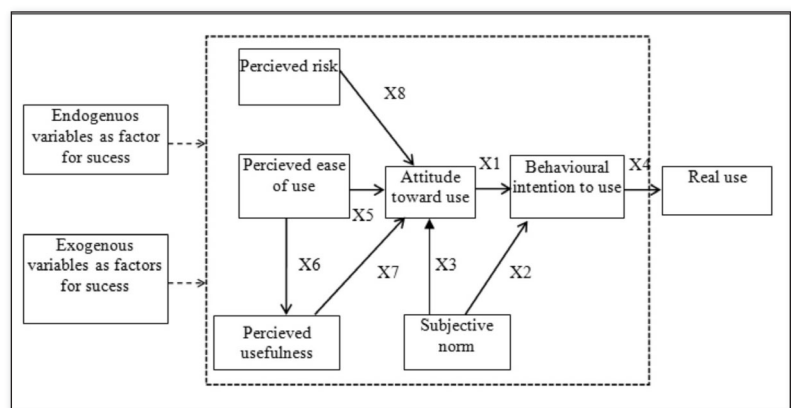


Many of the researches for the acceptance of new technologies are more dedicated to e-commerce and less to mobile commerce. The reason for this is because mobile commerce is at an early stage, and many people have not had the opportunity to use and accept it as part of their everyday life. Studies for acceptance of electronic commerce serve as a basis for the research of acceptance of mobile commerce because it can be treated as acceptance of new technology (Pedersen, Methlie, & Thorbjørnsen, 2002). There are different theories for the use of mobile commerce which use different terminology, but it is about the same concepts. In order to create a better research in this paper, different theories will be combined in one model. Among these theories, the most important and influential theories are: theory of reasoned action (Fishbein and Ajzen, 1975), the model for acceptance of technology, an expanded model for acceptance of technology (Venkatesh and Davis, 2000), the theory of planned behaviour (Ajzen, 1991) and, more recently, a unified theory of acceptance and use of technology (Venkatesh et al., 2003). For the purpose of this research, we shall use the extended technology acceptance model - TAM. This model integrates multiple factors to determine the acceptance of mobile commerce. The proposed model is empirically tested using data collected from a survey on mobile commerce.

TAM has been extended, and originally consisted of perceived ease of use, perceived usefulness, attitude towards usage, behavioral intention to use and the actual use of the system. Perceived usefulness and perceived ease of use are the most important determinants of system use, and attitude toward using (feelings of advantage or disadvantage of the system) directly predicts behavioral intention to use (due to the position and usefulness), which determines the actual use of the system. In 2000, Venkatesh and Davis added the social factors (subjective norm, voluntariness, and image) and organizational factors (quality of output, job significance, relevant result) to the TAM (Venkatesh and Davis, 2000). These factors define expanded TAM-model, i.e. TAM2 (Venkatesh and Davis, 2000). According to them, social and cognitive instrumental processes significantly affect the acceptance, perceived usefulness and perceived ease of use, which directly influence actual use of the system. TAM3 includes factors from TAM2 and perceived risk (financial, psychological, social, and other risks in online transactions) (Venkatesh and Bala, 2008, p. 278).

Based on the research of different theories and models, eight hypotheses were developed. Three of those hypotheses have been derived from the theory of reasons action (Fishbien and Ajzen, 1975) and four from the TAM-model. The last hypothesis was developed as a result of a new factor (perceived risk of use), which was added in the TAM-model. This factor was developed base on the interviews with users in Macedonia who already have used mobile commerce. From the analysis of the different theories a conceptual model for successful acceptance of mobile commerce with seven factors was developed.

Figure 2.
Conceptual model of
factors for successful
adoption of
mobile commerce



III Empirical research

Research

For the purpose of this study, a survey has been used. The sample for testing consisted of 106 active Macedonian users of mobile communications. The descriptive statistics show that 56% of the users were from Skopje 8% from Strumica, 7% from Prilep. Regarding the age, 68% were at age 25-34; 19% were at age 18-24. From the analyzed users, 90% were aware that they can use their phone for mobile transactions. Out of all the analyzed users 39% had already made some payment with their phone (parking ticket), while 22% had made payments in some store for shopping goods.

Later, the collected data was analyzed using the Structural Equation Modeling (SEM) technique to validate, evaluate, and analyze the relationships between the endogenous and exogenous factors in the conceptual model. Variables that are not showing any impact of other factors are independent or exogenous factors. Those are: usefulness, ease of use, risk and norm. The variables that affect other variables are dependent or endogenous variables, which are attitudes and intentions of use.

To test the reliability, an internal consistency of this model was analyzed and reviewed using Cronbach's alpha. Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct. (Bagozzi and Yi, 2012; Hair et al., 2009).

Cronbach's alphas assessing the internal consistency of the study's measures are in range from 0.851 to 0.875 for all individual factors. They were above the acceptable threshold of 0.70, suggesting adequate reliability (Bagozzi and Yi, 2012). Also Cronbach's alpha was assessed for the endogenous and exogenous factors in general. All measures are in the range from 0.719 to 0.906.

Reliability test

Factors	Latent variables	Cronbach's alpha
Easy of use	4	0.797
Usefulness	4	0.906
Norm	2	0.827
Intention of use	2	0.719

The fit of the measurement model was assessed using the following statistics and indices: Chi-square, the ratio of the Chi-square to the degrees of freedom (df), Normative Fit Index (NFI), and Root Mean Squared Error (RMSEA). Chi-square/df values less than 3 indicate a good model fit and between 2.0 and 5.0 is acceptable level (Groenland and Stalpers, 2012). CFI values in range of 0.80 to 0.90 indicate a confidence level (Schreiber et al., 2006). RMSEA values less than 0.90 indicate good fit (Fornell and Larker, 1981).

The factor loadings, composite reliabilities, and average variance extracted for the model constructs are shown in Table I. From the table it can be concluded that χ^2 and the level of freedom is at acceptable level. NFI index is between 0.80 and 0.90, which is a good fit. RMSEA has a value of 0.095 which is showing confident level of fit of the model (Bagozzi and Yi, 2012). According to Hair (2010), low level of RMSA index in SEM is a result of several factors. One of the reasons is the small size of the sample, which is the case in this research.

SEM testing with 7 constructs

χ^2	1913.429
Level of freedom	520
Level of probability	0.000
GFI	0.854
AGFI	0.764
RMSEA	0.095
NFI	0.891

To evaluate the fit of the proposed model, the fit of the whole model was tested and assessed. The magnitude (i.e., statistical significance) and direction (i.e., positive or negative) of the individual parameters (i.e., the path coefficients) were assessed. Overall, the goodness-of-fit indices show that the proposed model has a good degree of fit with the data; the ratio of the Chi-square to the degrees of freedom was 1.91, a number smaller than 4.0 is considered very good (Hair et al., 2009), the NFI 0.891 was within 0.8 to 0.9 confidence level (Bagozzi and Yi, 2012) and the RMSEA 0.095, less than 0.1, which is considered a good fit (Schreiber et al., 2006).

The path coefficients and corresponding standard errors and t-values are presented in Table III.

Standardized regression coefficients of SEM

Path coefficients			t-value	p-value
Usefulness	←	Easy of use	.981	***
Attitude toward use	←	Usefulness	.367	***
Attitude toward use	←	Easy of use	.454	.018*
Attitude toward use	←	Norm	.022	.735
Attitude toward use	←	Risk	1.123	.007**
Intention of use	←	Attitude toward use	.902	***
Intention of use	←	Norm	-.032	.721
Actual use	←	Intention of use	1.355	***

Note:*** p-value <0.01; ** p-value <0.05; * p-value <0.10

From these values, it can be concluded that 6 out of 8 regression coefficients are statistically significant. Statistical significance is expected to be in the range of p-value <0.10 because of the size of the sample (Hair et al., 2009). All regressive coefficients are positive except the one (Norm-Intention of use), but there is no statistical significance.

Statistical significance can be found between the next regressive coefficients: Easy of use-Usefulness; Usefulness-Attitude toward use; Easy of use-Attitude toward use; Risk-Attitude toward use; Attitude toward use-intention of use; Intention of use-Actual use. Out of all relations, the strongest one is the Intention of use-Actual use (t-value 1.355) and the Risk-Attitude toward use (t-value 1.123) and the weakest is the Usefulness -Attitude toward use (t-value 0.367). Based on the statistical significance of the regressive coefficients it can be concluded that 6 of 8 initial hypotheses were confirmed.

Conclusion

The research subject in this paper was the analysis of group of success factors for mobile commerce adoption in the Republic of Macedonia. These success factors were analyzed by using the TAM-model. The list of success factors was divided in two groups: endogenous and exogenous.

The results of the conducted SEM research confirm six of the eight proposed hypotheses. SEM research shows that statistical significance exists between Easy of use-Usefulness; Usefulness-Attitude toward use; Easy of use-Attitude toward use; Risk-Attitude toward use; Attitude toward use-intention of use; Intention of use-Actual use. SEM shows that Usefulness, Easy of use and Risk have significant impact on Attitude toward use of one technology. Further Attitude toward use of one technology have impact on Intention of use of a technology and this critical factor has significant impact on Actual use of one technology.

From the result of the six analyzed successful factors, which are part of the TAM-model, extended with one success factor (risk) it was proven that the most important factors for adoption of mobile commerce in the Republic of Macedonia are: Easy of use; Usefulness and Risk. These factors are responsible for the Intention of use and Actual use of the mobile commerce.

In terms of companies in the Republic of Macedonia these mean that successful adoption of mobile commerce is directly depended form the innovative design of the service, appropriate relation with the value, and perceived improvement of business performance.

From the customer point of view successful adoption of mobile commerce is directly depended form the accepted level of risk, state of the art design, user experience, and efficient use of application. If these factors are fulfill from bought sides will lead to Intention of use, and Intention of use will result with actual use of mobile commerce.

Having in mind all mentioned above it is important for future development and successful adaption of mobile commerce in Republic of Macedonia to focus on appropriate value of the services for the customer, low level of perceived risk from the customer point of view, innovative design and unique user experience during the use and deployment of mobile commerce.

References

- Ajzen, I., (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50, pp.179–211.
- Antovski, L. and Gusev, M., (2003). M-payments. In 25th Int. Conf. Information Technology Interfaces /ITI 2003. pp. 95–100.
- Bagozzi, R.P., Yi, Y., 2012. Specification, evaluation, and interpretation of structural equation models. *J. Acad. Mark. Sci.* 40, 8–34.
- Bouwman, H. et al., (2008). Mobile service innovation and business models H. Bouwman, H. De Vos, & T. Haaker, eds., Berlin Heidelberg: Springer-Verlag.
- Buellingen, F. and Woerter, M., (2004). Development perspectives, firm strategies and applications in mobile commerce. *Journal of Business Research*, 57(12), pp.1402–1408.
- Charles, L. et al., (2000). The critical success factors for mobile commerce. Rondebosch: University of Cape Town.
- Feng, H. et al., (2006). "Exploring the critical success factors for mobile commerce, *Proceedings from the 2006 International Conference on Mobile Business IEEE*.
- Fishbein, M. and Ajzen, I., (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*, Addison-Wesley Pub. Co.
- Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E., 2009. *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Hilbert, A., (2005). *Critical Success Factors for Data Mining Projects. Data Analysis and Decision Support*, pp.232–240.
- Hung, S. et al., (2002). Critical Factors of WAP services Adoption: An Empirical Study.
- Little, A.D., (2004). Global M-payments Report 2004 - Making M-Payments a Reality, July 2004.
- Odegaard, P., (2001). Solving the m-maze. Global Telecoms Business. Available at :<http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Solving+the+m+maze#0> [Accessed May 11, 2014].
- Palen, L. et al., (2001). Discovery and Integration of Mobile Communications in Everyday Life, *Personal and Ubiquitous Computing Journal*, Volume 5: pp. 109-122
- Pedersen, P.E. et al., (2002). Understanding mobile commerce end-user adoption: a triangulation perspective and suggestions for an exploratory service evaluation framework. In *System Proceedings of the 35th Hawaii International Conference on System Sciences. IEEE*, pp. 1–8.
- Schreiber, J.B., Stege, F.K., King, J., Amaury, N., Barlow, E.A., 2006. Reporting Structural Equation Modeling and Confirmatory Factor Analysis Results: A Review. *J. Educ. Res.* 99, 323–338.
- Siau, K. and Shen, Z., (2003). Mobile communications and mobile services. *International Journal of Mobile Communications*, 1(Nos. 1/2), pp.3–14.
- Smith, B., (2002). Under the radar. *Wireless Week*, pp.38–39.
- Venkatesh, V. and Bala, H., (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision sciences*, 39(2), pp.273–315.
- Venkatesh, V. and Davis, F.D., (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 46(2), pp.186–204.
- Venkatesh, V., Morris, M., et al., (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 27(3), pp.425–478.
- Vrechopoulos, A., (2002). Critical success factors for accelerating mobile commerce diffusion in Europe. In 15th Bled Electronic Commerce Conference eReality: Constructing the eEconomy Bled, Slovenia, June 17 - 19, 2002. pp. 477–492.
- Xu, G. and Gutiérrez, J., (2006). An exploratory study of killer applications and critical success factors in m-commerce. *Journal of Electronic Commerce in Organizations*, 4(3), pp.63–79.

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IMPACT OF FISCAL DECENTRALIZATION ON PRICE STABILITY IN THE EUROPEAN COUNTRIES

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Abstract

In this paper we examine the current state of knowledge in fiscal federalism literature on the relationship between fiscal decentralization and inflation and we conduct empirical research of the impact on decentralization on inflation rate in European countries. We estimate linear equation model using a panel data-set of 28 European countries over the period of 1972-2013. We also divide the whole sample in two subsamples: (1) Eurozone members until 2008: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Portugal, Netherland, over the period 1979-2013; and (2) SEE countries non-euro zone members: Bulgaria, Czech Republic, Croatia, Hungary, Lithuania, Poland, Romania, over the period of 1996-2012. Additionally we have examined the influence of government revenues, budget deficits, economic development and openness of the country on price stability. In this paper, we find evidence that the fiscal decentralization has significant negative impact on inflation rate in European countries. For SEE countries we show that when decentralization is increasing from relatively low to medium level, it has positive impact on price stability, but after reaching the certain „optimal“ degree of fiscal decentralization, further increasing of decentralization starts to have negative impact on price stability.

Keywords: optimal degree of fiscal decentralization, inflation, panel data, euro and non-euro zone countries.

1. Introduction

In recent fiscal federalism theory, more attention is paid to the advantages and benefits of fiscal decentralization, than to its economic and political costs. The relationship between fiscal decentralization and price stability is relatively new issue of research in empirical studies in the last two decades. Most economists and scientists agree that inflation is a monetary phenomenon, caused by excessive money supply. High inflation

policy is politically unpopular and causes high economic costs for countries. The policy makers should be aware of the relationship of fiscal decentralization on inflation and overall macroeconomic stability of the countries, when implementing fiscal decentralization policy. Is high inflation one of the economic costs of fiscal decentralization process or does decentralization contribute to sustain greater price stability in the European countries?

This paper is organized as follows: first, we address to different theoretical concepts of expected influence of fiscal decentralization on price stability; second, we briefly review the previous empirical studies on relationship between decentralization and inflation; and third, using the international panel data set, we estimate the impact of decentralization on price stability in the European countries.

Decentralization and price stability: Commitment, collective action and continuity

There are three different theory approaches, relating expected influence of decentralization on price stability: the commitment theory; theory of collective action and theory of continuity (Treisman, 2000). According to the theory of commitment, inflation is primarily a consequence of the lack of commitment of political parties to fulfill promises of maintaining macroeconomic stability and low inflation. If markets expect low inflation rate, then increased monetary supply will have a greater positive effect, and if the markets have high expectations for inflation, it is easier and less expensive in the short term to make the adjustment of high inflation than to turn the trend in the opposite direction. According to the theory of commitment, governments often prefer higher public expenditure and higher inflation, regardless of the costs, for the sole reason that high inflation policies are their „dominant” strategy (Barro and Gordon, 1983a). Decentralization through the proliferation of political parties, which decide on public spending at many levels of government, actually violates the “comfortable” position of the central government to engage in excessive public spending and to deviate from the given promises of maintaining price stability (Qian and Roland, 1998).

Another channel through which decentralization is expected to adversely affect inflation is through the degree of independence of central banks. In decentralized political systems, there is stricter regulation and clear rules of relations between fiscal authorities and the central bank, increasing its independence and contributing to greater price stability (Shah, 2005). According to Lohman (1998), decentralization is one of the factors which contributed to the maintenance of low inflation in Germany after the Second World War. German Bundesbank retained the high degree of independence, because of its role in the federal structure of the country. The majority of the Bundesbank’s council members were appointed by the Land governments. In addition, political parties dominating the local and state governments, often differ. The state government has representatives in Parliament (Bundesrat), who can also veto the decisions of the central bank legislation. It creates difficulties for the central government to interfere with the central bank’s independence or to inflate the economy in order to gain popularity before the next election.

In collective action concept, inflation is treated as a problem that rises from the joint action of several subjects. According to this concept, stable price level is a public good, which is characterized by non-excludability and non-competition. If the number of actors who must agree to participate in price stability is larger, than stable price level as public good, will tend to be underprovided. In addition, larger the number of decision-makers for fiscal or monetary policy, lower their incentives to maintain price stability and therefore the higher level of inflation will be expected. Namely, local authorities compared with the central government, have less interest to maintain price stability. Due to the limited jurisdiction of the local authorities, the costs of inflation may be transferred outside of their borders and distributed in all regions, while the benefits of their excessive public spending is limited to their territory. Thus, decentralization process by giving more importance to local authorities, that have more inflation preferences than central governments, can lead to increased levels of inflation. The two concepts differ in terms of the actors who cause the inflation. According to the theory of commitment, the central government is more responsible for inflation. Central governments tend to inflate the economy, by excessive public spending and pressure on the central bank to monetize public deficits. On the other hand, according to the theory of collective action, the local authorities have more ben-

efits from inflationary public policy than the central government, because the costs of their excessive spending are distributed throughout the country. Thus decentralization actually has different effects on inflation, depending on which of the two assumptions are valid.

The theory of continuity states that decentralization does not cause any direct increase or decrease in inflation, but rather “locks” the inflation rates for a longer period at a steady level, whether the level is high or low. In decentralized systems, the number of entities, which are responsible for fiscal and monetary policy is larger than in more centralized systems. It makes the existing policy in decentralized countries, no matter whether it is inflationary or deflationary, more resistant to changes. According to Treisman (2000), unitary states often change the policies dramatically, ranging from extremely high levels of inflation to extremely low levels, and vice versa, while in federal countries, changes in macroeconomic policy, harder occur in any direction.

The three different theoretical concepts regarding the impact of decentralization on macroeconomic stability are quite logical, although resulting in conflicting conclusions. When political power is distributed to multiple levels of government, the central government, on one hand, will be less able to deviate from the promises of maintaining price stability (commitment theory) and more resistant to monetary and fiscal policy changes (theory of continuity), but on the other hand, local authorities will be able to exert more inflationary pressure on the economy through excessive local spending (theory of collective action). There is no doubt, that decentralization may influence macroeconomic stability of the countries in different ways. Whether decentralization will lead to an increase or decrease in inflation rates will probably depend on other factors that also influence the level of macroeconomic stability. Such factors include: the level of economic development, the openness, the monetary and exchange rates regimes, the political factors, etc.

Brief review of the empirical literature on fiscal decentralization and price stability

There are relatively few empirical studies that provide different conclusions about the potential impact of fiscal decentralization on inflation rate and overall macroeconomic stability in developed and developing countries.

Treisman (2000) analyzes the impact of decentralization on the inflation rate in a panel data set of developed and developing countries in the 1970s and 1980s. He found that there is a significant difference in how decentralization affects inflation in the two groups of countries. In developed OECD countries, decentralization contributes to greater central bank independence and therefore leads to lower levels of inflation, while in less developed countries higher decentralization is correlated with higher levels of inflation. The reason is that, decentralization in less developed countries makes governments prone to excessive public spending and putting pressure on central banks to monetize deficits.

King and Ma (2001) in cross section study found that more centralized countries have higher inflation. They replicate the research of Campillo and Miron (1997) on the impact of central bank independence on inflation in 42 countries over 1972 - 1994, but additionally take into account the degree of decentralization of the country. According to them, the independence of the central bank has a stronger impact on price stability in countries with a higher degree of decentralization of public revenues. Namely, if the countries with very high inflation rate (higher than 20%) are excluded from the whole sample, the degree of tax centralization has a statistically significant positive impact on inflation rate.

Feltenstein and Iwata (2002), investigate the impact of fiscal decentralization on inflation and economic growth in the case of China, over 1952 - 1996 and conclude that decentralization has a positive impact on economic growth and negative impact on the inflation rate, especially in the mid - 70 ies of the last century.

Neyapti (2004) examines the relationship between the degree of revenues decentralization and the inflation rate, in panel study of 42 countries and conclude that, given the level of independence of central banks and autonomy of local authorities, decentralization has a statistically significant negative impact on the inflation. In low inflation countries, decentralization has negative impact on inflation even without additional factors (CBI index and local accountability).

According to Martinez-Vazquez and McNab (2006), decentralization has different effects on macroeconomic stability in developed and developing countries. They explore the impact of decentralization on macroeconomic stability in relatively large sample of 66 countries over the period 1972 – 2003. They state that, in developed countries, revenue decentralization contributes to greater price stability, while in developing countries this effect is not so obvious and clear. Namely, in developing countries, more likely, decentralization can lead to macroeconomic destabilization because local authorities tend to borrow over their fiscal capacity, and therefore increase the pressure on the central government's budgets and inflation rate.

Thornton (2007) examines the relationship between decentralization and inflation in OECD countries over the period 1980 –2000. In this paper the focus is on the degree of tax autonomy of local governments, and unlike the previous studies, here it is included the local tax revenues over which local governments have autonomy over tax rate or tax base, instead of total local tax revenues as measure of the decentralization. In addition, since the data on the tax autonomy of local authorities based on Stegarescu (2005) is available only for one year (1995), Thornton creates time series data for local tax revenues, assuming that the level of tax autonomy of local governments does not change over time. According to Thornton (2007), there is no statistically significant relationship between decentralization and inflation.

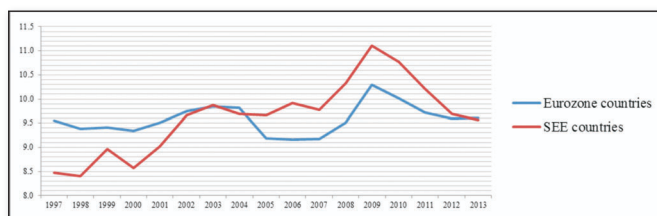
Baskaran (2011) investigates the impact of revenue decentralization on the inflation rate, in 23 OECD countries over the period 1980 - 2000. Here, like Thornton (2007), the decentralization rate is measured as a size of local tax revenues to total tax revenues. The difference can be seen through the level of tax autonomy of local authorities over time. According to Baskaran (2011), revenue decentralization has a statistically significant negative impact on the inflation rate.

Recent trends in fiscal decentralization and inflation in European countries

The level of decentralization, measured as percentage of local government expenditures of GDP, increased on average, from 8.5% in 1997 to 9.5% in 2013 for Southeast European countries, while the decentralization level of euro-zone countries remains relatively stable over the last two decades. The reason behind this is that Southeast European countries are post-communist countries that were engaged in dynamic process of decentralization of the public sector, as a part of their overall democratic and economic reform process in the last two decades. On the other hand, the Euro zone countries had already achieved higher average level of fiscal decentralization that remains relatively stable over time. As we can see from the figure 1, the decentralization process was interrupt by the financial crisis in 2008, when local government expenditures started to decline as percentage of GDP in both group of countries.

Figure 1:

Local government expenditures,
% of GDP

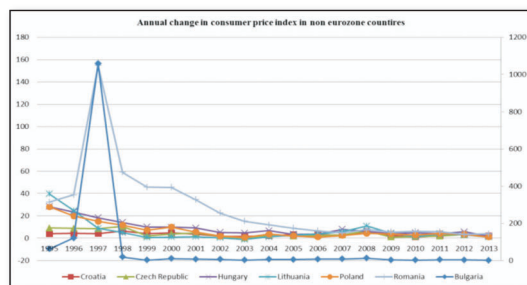


Source: Authors calculation based on EUROSTAT Database

The next figure shows the inflation rate movements in selected European countries. The left figure shows the annual change in consumer price index in selected Southeast European countries that are non-Eurozone members, while the right figure shows the same variable trend in selected Euro zone countries. Here in, until 2001 the non-Eurozone countries had three times the average inflation of Eurozone countries. Additionally, over the period 2002-2008, the inflation rate in Southeast European countries although stable, it's been higher than inflation rate in Euro zone countries.

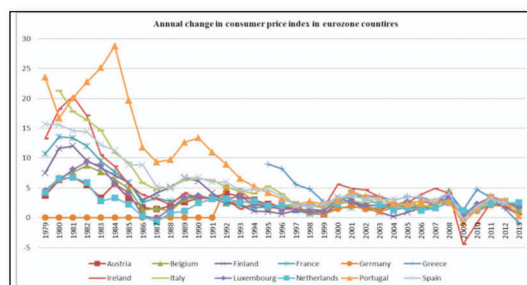
Figure 2:

Inflation, consumer price index,
annual change



Source:

Authors calculation based on EUROSTAT Database

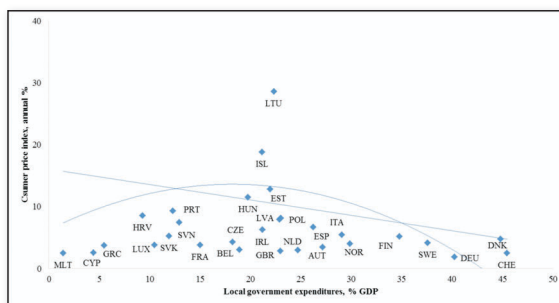


The next figure represents the correlation between fiscal decentralization and inflation rate in European countries. The figure shows that the polynomial trend may fit better the decentralization and inflation data, than the linear trend, meaning that countries with a medium average degree of fiscal decentralization had relatively higher average inflation rate than others.² The polynomial relationship was also tested in the regression model and the results are given in the last section of the paper.

Figure 3:

Correlation between decentralization
and inflation in European countries

Source: Authors calculation based on IMF World
Economic Outlook Database



Empirical analysis: data, model and methodology

In our empirical analysis of the relationship between fiscal decentralization and inflation, first we estimate linear equation model using a panel data-set consisting of 28 European countries and then we also divide the whole sample in two subsamples: (1) Eurozone members until 2008: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Portugal and Netherland, over the period 1979-2013; and (2) SEE countries (non-euro zone members): Bulgaria, Czech Republic, Croatia, Hungary, Lithuania, Poland and Romania, over the period 1996 - 2012. The time series differ upon the availability of the data for different countries on all the variables included in the model, and therefore, we divided the whole sample in

2) The data are calculated as average local government expenditures as % of GDP and average consumer price index annual change over the period 1979-2013, except for the SEE countries with shorter time series data: Bulgaria, Romania (1990-2013), Estonia, Lithuania (1991-2013), Slovenia (1992-2013), Czech Republic (1993-2013), Croatia, Latvia, Poland, (1994- 2013), Slovak Republic (1996-2013).

two subsamples, in order to gain more reliable results for the two different groups of countries. We have tested 7 regression models in total.

The dependent variable or inflation rate is defined as consumer prices index, measured as an annual percentage change. Furthermore, the annual change in consumer prices index determines the data set for all regressors. The level of fiscal decentralization is measured as percentage of total local government expenditures in general government expenditures. We use this measure of decentralization, upon the unavailability of data for better decentralization measures, such as: „own“ local government revenues, or local government expenditures over which local governments have full discretionary, etc. The data for inflation is taken by IMF World Economic Outlook Database, while the data for fiscal decentralization of countries are taken from OECD Fiscal Decentralization Database. We expect fiscal decentralization to have negative effect on inflation rate. Namely, higher fiscal decentralization of expenditures should be related to more effective usage of government revenues and lower inflation pressure on the price level.

In the specification of our regression model, we follow Martinez-Vasquez and McNab (2006) that inflation is determined, among other things, by the size of government revenues and the government balance, the level of economic development and the openness of the country. We expect that larger government deficit spending will increase inflation rate. In fact, there are numerous examples of excessive budget expenditures that can result in higher inflation in the end. Data for government revenues as percentage of GDP and government balance as percentage of GDP are taken from IMF World Economic Outlook Database.

We use log GDP per capita in constant prices (1990) as proxy for the level of economic development of the country. The data are extracted from World Bank Indicators Database. We expect the level of development to have positive impact on price stability, due to higher institutional capacity, government quality and overall political stability of the country, etc. We also introduce the openness of the country, measured as the sum of exports and imports to GDP (authors own calculation based on data from World Bank Indicators Database). There are two different views on the relationship between the inflation and the openness of the country. One argues that the more open the economy, the larger the weight of foreign goods in the CPI, and therefore larger the impact of the monetary expansion on both CPI inflation and domestic price inflation. Others show that the average inflation rate is lower in more open economies due to the inconsistency of optimal monetary policy (Barro and Gordon, 1983b; Romer, 1999; etc.).

Finally, following King and Ma (2000) and Neyapti (2006) we also introduce the CBI index or central bank independence in regression model of non-euro zone member's countries. We expect the countries with higher level of independence of central bank to have lower inflation rates.

Therefore, our estimated model has the following form:

$$\begin{aligned} inflation_{i,t} = & \alpha_i + \beta_1 decentralization_{i,t} + \beta_2 GG\ revenues_{i,t} + \beta_3 GG\ balance_{i,t} \\ & + \beta_4 openness_{i,t} + \beta_5 economic\ development_{i,t} \\ & + \beta_6 central\ bank\ independance_{i,t} + u_{i,t} \end{aligned}$$

The estimation technique is unbalanced panel with country fixed effects. The choice of the fixed effect model was based on Hausman specification test, which consistently favored fixed over random effects model for each regression equation. To correct for heteroskedasticity and serial correlation, we employed White cross section weights and first order autoregressive standard errors.

Regression results

Table 1 summarizes the results of the effect of fiscal decentralization on inflation. The results show that decentralization of government expenditures has statistical significant negative impact on inflation in 5 out of 7 regression models. However, the coefficients of decentralization are larger in subsample of Southeast European countries, meaning that in these countries, other thing being equal, fiscal decentralization has greater impact on reducing the inflation level than in Euro-zone member countries.

For SEE countries, polynomial relationship between decentralization and inflation also turned out to be statistical significant, which means that for SEE countries, unlike other European countries, decentralization may have different effect on inflation according to the actual degree of decentralization that the country has already achieved. The positive sign of the coefficient of quadratic term of decentralization in models (6) and (7) indicates that the functional form is convex (curve opens up) meaning that, when decentralization is increasing from relatively low to medium level, it has positive impact on price stability of the country, but after reaching a certain „optimal“ degree of decentralization, further increasing of decentralization starts to have negative impact on price stability.

The size of public sector measured as general government revenues as percentage of GDP, has significant negative impact on inflation only in the whole sample of all EU countries, but not in the two subsamples, probably because of the bigger number of observations in the whole sample. This means that, European countries with larger public sector, other things being equal, have lower inflation rates, although the coefficient is not very high (-0.17).

In SEE countries, in 2 out of 3 regression models, government deficits have significant positive effect on inflation, which is not the case in Euro zone countries. In other words, our results suggest that in SEE countries, the central banks are probably more exposed to government pressure to inflate economy by monetizing the government deficits. This finding is also related with the lower degree of central bank independence in these countries.

Openness of the country, measured as sum of exports and imports to GDP, turned out to be significant in 4 out of 7 regression models. Namely, the openness has significant positive effect on inflation in the whole sample of EU countries in Euro zone countries. This can be explained by the effects that the developments on the international markets influence the inflation in the countries. In fact, as the globalization takes its range, the countries that participate in the world trade are easily influenced by the price movements on those markets. In this framework, the more open is an economy, the larger portion of the international inflation costs can be passed to the domestic level of prices. Thus openness can be inflationary.

In the whole sample of 28 EU countries, we find also significant negative relationship between the levels of economic development and inflation. This finding is in line with literature. In fact, it should be expected that less developed countries have greater inflation volatility. This can be explained with lower institutional capacity, level of resource dependence, inherent instability, etc.

Along with the previous variables, in the regression model (7), we introduced the CBI index in order to test the relationship between the inflation and central bank independence. Although the theory suggests that lower independence of central banks leads to higher inflation rates, we interpret the results of the regression (7) with caution. In fact, although the negative sign of the coefficient is in line with our expectation and can be accepted, we must underline that, due to discontinuity of our time series for CBI index, we take the coefficient with reserve.

Table 1: Estimation results

Dependant variable: Inflation, consumer price index annual %							
Explanatory variables	Whole sample: EU members		Subsample 1: Eurozone members		Subsample 2: SEE countries		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Expenditures							
Decentralization	-0.005 ** 0.003	-0.024 0.048	-0.005 *** 0.001	0.001 0.030	-1.441 ** 0.614	-9.722 ** 3.984	-8.414 * 5.040
Expenditures							
Decentralization^2		0.000 0.000		0.000 0.000		0.206 ** 0.085	0.188 * 0.108
GG revenues % of GDP	-0.171 ** 0.071	-0.172 ** 0.069	0.029 0.049	0.030 0.049	-1.388 1.180	-0.743 0.828	-1.119 1.011
GG balance % of GDP	0.117 * 0.070	0.127 * 0.076	0.044 0.043	0.043 0.044	0.706 ** 0.348	0.800 ** 0.371	0.567 0.394
Openness to international trade	0.060 *** 0.017	0.056 *** 0.017	0.069 *** 0.015	0.069 *** 0.015	0.005 0.100	-0.092 0.068	-0.069 0.081
Log GDP p.c.	-10.493 *** 3.904	-10.130 *** 3.797	8.495 6.044	8.478 6.088	-25.989 ** 10.044	-10.421 7.911	-1.520 9.598
CBI index							-36.448 *** 7.688
Constant	112.033 *** 39.883	109.259 *** 38.790	-96.696 65.501	-96.666 65.783	332.451 *** 125.518	257.833 *** 97.417	202.454 138.146
AR(1)	0.603 *** 0.086	0.599 *** 0.087	0.916 *** 0.038	0.916 *** 0.038			
Effects Specification							
Cross-section fixed (dummi variables)							
R-squared	0.70	0.69	0.84	0.84	0.32	0.35	0.39
R-squared ?adjusted	0.68	0.67	0.83	0.83	0.25	0.27	0.31
F-statistic	40.64 ***	38.05 ***	96.51 ***	85.62 ***	4.30 ***	4.41 ***	4.85 ***
Durbin-Watson statistics	2.19	2.18	1.93	1.99	1.81	1.89	2.03
Inverted AR Roots	0.60	0.60	0.92	0.91	0.06		
Cross - section	28	28	12	12	7	7	7
Sample	1979-2013	1979-2013	1979-2012	1979-2012	1996-2012	1996-2012	1996-2012
Observations	614	614	331	315	112	112	104
Note: The White heteroskedasticity consistent standard errors are given below coefficients.							
* 10% level significance, ** 5% level significance, *** 1% level significance.							

Conclusion

There are several ways that fiscal decentralization may influence price stability in theory. On one hand, if central governments tend to inflate the economy, by excessive public spending and pressure on the central bank to monetize government deficits, decentralization will lead to macroeconomic stability and lower inflation (commitment theory). On the other hand, if the local authorities have more benefits from inflationary fiscal policies than the central government, then decentralization will lead to higher inflation and macroeconomic instability (theory of collective action). Thus decentralization actually may have different effects on inflation, depending on which of the two assumptions are valid.

In our paper we found evidence that commitment theory has stronger validation in European countries. The empirical results presented above, suggest that expenditure decentralization has significant negative impact on inflation rate, meaning that countries that have shifted a larger share of government expenditures from central to local government level, are probably able to pursue more discipline fiscal policies and retain higher macroeconomic stability.

In case of Southeast European countries, we also find evidence that the relationship between decentralization and inflation is not linear, but rather polynomial, meaning that when decentralization is increasing from relatively low to medium level, it has positive impact on price stability, but after reaching the certain „optimal“ degree of fiscal decentralization, further increasing of decentralization starts to have negative impact on price stability. We find this conclusion logical, regarding the fact that when the decentralization is very high, local governments have larger share in total government expenditures comparing to central government and therefore, they may undertake the role of the central government in promoting higher inflation by excessive public spending policy. This means that, in terms of macroeconomic stability the best policy is to avoid too low or to high decentralized government, but rather to set optimal „balanced“ government between central and local levels.

References:

- Barro J. R. and Gordon B. D. (1983a), „Rules, discretion and reputation in a model of monetary policy“, *Journal of Monetary Economics*, Vol. 12.
- Barro, R. J., and D. B. Gordon, (1983b), „A Positive Theory of Monetary Policy in a Natural Rate Model“, *Journal of Political Economy*, 91(4), 589–610.
- Baskaran, T., (2012), „Revenue decentralization and inflation: A re-evaluation“, *Economics Letters*, Elsevier, Vol. 116, No.3, pp. 298-300.
- Campillo, M. and Miron, J.A. (1997), „Why Does Inflation Differ across Countries?“, in Romer, C. D. and Romer D. H. (Eds.), *Reducing Inflation: Motivation and Strategy*, University of Chicago Press, pp. 335–362.
- Crowe, C. and Meade, E. E., (2008), „Central bank independence and transparency: Evolution and effectiveness“, *European Journal of Political Economy*, Vol. 24 No. 4, pp. 763-777.
- Cukierman, A. Webb, S. and Neyapti, B. (1992), „Measuring the independence of central banks and its effect on policy outcomes“, *World Bank Economic Review*, No. 6, pp. 353-398.
- Evans, R. W., (2012), „Is openness inflationary? Policy commitment and imperfect competition“, *Journal of Macroeconomics*, 34(4), 1095-1110.
- Feltenstein, A. and Iwata, S. (2005), „Decentralization and macroeconomic performance in China: regional autonomy has its costs“, *Journal of Development Economics*, Vol. 76 No.2, pp. 481-501.
- J. M. Vazquez and R. M. McNab, 2006, *Fiscal decentralization, macrostability and growth*, Hacienda Publica Espanola, Instituto de Estudios Fiscales, Vol. 179 (4).
- King, D. and Ma, Y. (2001), „Fiscal decentralization, central bank independence and inflation“, *Economics Letters*, Vol. 72, pp. 95-98.
- Kydland, Fin E., and Prescott, Edward C. 197. “Rules Rather than Discretion: The Inconsistency of Optimal Plans.” *Journal of Political Economy* 85 (June): 473-492.
- Lohmann, S., (1998), „Federalism and central bank independence: The politics of German monetary politics“, *World Politics*, Vol. 50 No. 4
- Neyapti, B. (2004), „Fiscal decentralization, central bank independence and inflation: a panel investigation“, *Economics Letters*, Vol. 82, pp. 227-230.
- Romer, D., (1991), „Openness and inflation: theory and evidence“, *National Bureau of Economic Research*, No. 3936.
- Shah, A., (2005), „A framework for evaluating alternate institutional arrangements for fiscal equalization transfers“, *World Bank Policy Research Working Paper*, No. 3785.
- Stegarescu, D. (2005), „Public sector decentralization: measurement concepts and recent international trends“, *Fiscal Studies*, Vol. 26 No. 3, pp. 301-333.
- Thornton, J. (2007), „Further evidence on revenue decentralization and inflation“, *Economics Letters*, Elsevier, Vol. 95, pp. 140-145.
- Treisman, D. (2000), „Decentralization and inflation: Commitment, collective action, or continuity“, *American Political Science Review*, Vol. 94, No.4, pp. 837-857.
- Qian Y. and Roland G., (1998), „Federalism and the Soft Budget Constraint“, *The American Economic Review*, Vol. 88 No. 5

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FLOW OF FUNDS ACCOUNT IN THE MACEDONIAN ECONOMY – METHODOLOGY, TRENDS AND EFFECTS OF THE CRISIS

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Abstract

The analyses of the macroeconomic developments mainly are based on the data from the basic macroeconomic accounts – national accounts, balance of payments, monetary survey, government statistics. Based upon theoretical grounds and international methodological principles and standards, an effort has been made for establishing and developing a consistent framework for analyzing flow of funds in the Republic of Macedonia. The matrices has been constructed and a quantitative analysis has been conveyed on the flows of financial funds amongst the sectors in the Macedonian economy for the period 2004-2013. Based on the constructed matrices, (1) the position of the each sector as a net debtor/creditor is assessed, (2) the sources for financing/investing of that position are analyzed, and (3) the flows of funds among the sectors are assessed. Special attention is given to the effects of the crisis, therefore two sub-period are distinguished and separately analyzed: 2004-2008 as a pre-crisis period and 2009-2013 as a post-crisis period. In these two sub-period the changes in the behavior of the main sectors of the Macedonian economy are analyzed in terms of their net lending/borrowing position and the sources of funding that position.

Keywords: national accounts, monetary survey, budget account, balance of payments, saving-investment gap, flow of funds account, crisis.

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I. METHODOLOGICAL NOTES

1. *Basic flow of funds account*

A basic flow of funds account is a modified form of the flow of funds matrix that employs a reduced number of sector and financial asset categories. The sectors chosen are those most important for financial analysis and for which data are available-remaining sectors are placed in a residual category. Basic flow of funds accounts are useful in macroeconomic modeling and provide a framework for financial programming. These accounts demonstrate a number of sectoral relationships (including consistency of flows between sectors with macroeconomic objectives such as a sustainable balance of payments position, adequacy of credit from depository corporations to specified sectors, financing of the central government deficit, etc.) that can be tested for consistency within a flow of funds framework.⁵

In the basic flow of funds account of cash flows, the economy is divided into two general sectors: domestic and rest of the world. Within the domestic sector, three main sub-sectors are further distinguished: central government, private sector and the depository corporations sector (banking sector). At this level the private sector is a residual sector and incorporates: households, non-profit institutions serving households (NPISH), other financial corporations and local government.

The basic flow of funds account links the non-economic activities (current and capital account in the System of national account - SNA) - marked as components "above the line" with the financial activities - marked as components "below the line". The components "above the line" include flows such as: disposable income, final consumption, net capital investment, export and import of goods and services. These categories are used to assess the position of each sector as a net creditor or a net debtor. The components "below the line" show the financing / investing in the net borrowing / lending position of the sectors. If the position of a particular sector is net creditor (positive sign), that means the sector increased the resources from the production process. Consequently a positive sign in the financing part of the account (domestic and external) means that the sector has decreased its financial assets or increased its financial obligations. On the other hand, a negative sign indicates that the sector is a net debtor i.e its spending exceeds its income derived from production

Consequently a negative sign in the financing part of the account indicates that the sector has increased its financial assets or decreased its financial obligations.

1.1. *Structure and elements of the flow of funds account*

Flow of funds account consists of three parts:

- I.* Net lending/borrowing, indicating the non-financing (real) transaction of the separate sectors;
- II.* Financing, consisting two standard subcategories: (1) External (foreign) financing, including foreign direct investment, foreign borrowing (loans, credits, deposits and other types of borrowing) and net foreign assets, and (2) Domestic financing, including the change in domestic credits, change in broad money and other domestic financing (operations realized through the other non-banking financial institution); and
- III.* Other items, net, that represent corrective items for equalization of the difference between net lending/borrowing and financing of the separate sectors.

Net lending/borrowing of the national economy represents difference between net saving and net investment of the overall economy. This is the main item of the flow of fund matrix showing the amount of funds available for lending in case where the saving exceeds the investment or the amount of funds needed to borrow in case where the saving is lower than investment.

5) Monetary and Financial Statistics Manual, IMF, 2001.

Net lending/borrowing = Saving - Investment

Saving = Gross National Disposable Income - Consumption

Gross National Disposable Income = Consumption + Investment + Export - Import + Income from abroad (net) + Current transfers from abroad (net)

The net lending/borrowing position of the „central government (c.g)” is calculated on the basis of the government finance statistics. The net lending/borrowing position of the central government is equal to the budget surplus / deficit realized in that period. The separate categories are calculated as follows:

Gross National Disposable Income c.g. = Total revenues and grants c.g. – Capital transfers from abroad c.g. – Interest payments c.g. – Transfers c.g.

Consumption c.g. = Current expenditures c.g. - Interest payments c.g. - Transfers c.g.

The net lending/borrowing position of the sector „rest of the world – abroad (s)” is calculated on the basis of the data from the balance of payments statistics government. This item is equal to the balance of payment current account:

Net lending/borrowing s. = Export - Import + Income from abroad (net) + Current transfers from abroad (net)

The net lending/borrowing position of the „private sector” is calculated as a residual (difference between net lending/borrowing of the overall economy and net lending/borrowing of the central government sector). Commonplace practice when preparing the net lending/borrowing position of the depository corporations sector is to assume that it is equal to zero, given the redistributive function of this sector.

2. Two important linkages between the national accounts and balance of payments

There are two important linkages between the set of data from the national accounts and data from the balance of payments⁶, that are necessary for the preparation of the current and capital account i.e the components „above the line” in the matrix. The first macroeconomic relationship refers to the link between aggregate income and demand and the balance of payments current account. According to this macroeconomic relationship, balance of payments current account (CAB) “ex post” is equal to the difference (gap) between gross national disposable income (GNDI) and absorption (A) i.e $GNDI - A = CAB$. The interpretation of this relationship is that the current account deficit occurs when the economy absorbs more than it produces i.e the current account deficit reflects the excess of absorption over the income.

The second macroeconomic relationship refers to the link between aggregate savings and investment and the balance of payments current account. According to this macroeconomic relationship, balance of payments current account (CAB) “ex post” is equal to the difference between the savings (S) and investment (I) in the national economy i.e $S - I = CAB$. The interpretation of this relationship is that the current account deficit occurs when investment exceeds domestic saving, wherein this difference must be covered using a foreign (imported) savings.

6) Richard Barth, William Hemphill, IMF Institute (2000), "Financial Programming and Policy".

II. FLOW OF FUNDS ACCOUNT FOR THE MACEDONIAN ECONOMY

Data sources

National accounts – trends and effects of the crisis

The System of national accounts (SNA) represents a useful statistical framework for macroeconomic analysis because it is flexible enough to adapt to different economic theories and models and to meet the demands of countries with different levels of development. National accounts in Macedonia are mostly prepared and presented in accordance with the internationally standards and definitions given in the SNA 2008.⁷

Table 1. National accounts in the R.Macedonia (2004-2013)

	(inmill. Denars)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Final consumption	267382	282322	308328	342361	405487	392912	407052	429450	427573	447578
2	Gross Investments	59802	62913	68809	89927	110405	107800	108218	120548	134962	115886
3	Absorption (1+2)	327284	345235	377137	432288	515892	500512	515270	549998	562535	563464
4	Exports of goods and services	108815	130220	149219	191111	209557	160933	202166	252229	245866	254906
5	Imports of goods and services	-163637	-180403	-206296	-258410	-313721	-250710	-283324	-342438	-349781	-344174
6	Income net	-1962	-5573	-1614	-17049	-5703	-2988	-5879	-7533	-9086	-11210
7	Transfers from abroad, net	38554	52232	60081	61941	60270	68876	84173	91068	100446	94966
8	Gross Domestic Product (GDP) (1+2+4+5)	272462	295062	320060	364989	411728	410735	434112	459789	458620	474196
9	Gross National Product (GNI) (8+6)	270500	289379	318446	347940	408025	407767	428233	452256	449534	462986
10	Gross National Disposable Income (GNDI) (9+7)	309054	341611	378527	409881	466295	477143	512406	543324	549981	557952
11	Gross National Savings (10-1)	41672	59289	70199	67520	60808	84231	105354	113674	122408	110374

Source: State statistical office of the R.Macedonia and own calculation

According to available data and calculation, GNDI of the R.Macedonia in the period 2005-2013 registered a continuous increase with an average annual growth rate of about 7%. Within the gross national disposable income, final consumption, gross investment and net transfers from abroad increase the GNDI while net imports of goods and services and net income from abroad act in a opposite direction. The crisis caused a slowdown in the growth rate of the GNDI – the average GNDI growth rate in the pre-crisis period (2005-2008) was about 11%, while after the crisis (2009-2013) it was around 4%. This is due to the significantly reduced absorption in the period after the crisis (reduced by 10 percentage points on average), with simultaneously reduced final consumption and investment.

The two macroeconomic categories that are important in terms of compiling flow of funds matrices in the economy, investment and savings, for the period 2005-2013 registered an average annual growth rate of about 8% and 13% respectively. The crisis caused a significant reduction in the annual growth rate of investment (17% in the period before the crisis to 1% after the crisis). On the other hand, the savings growth rate recorded a moderate increase (from 12% on average before the crisis to 14% after the crisis).

Balance of payments - trends and effects of the crisis

The balance of payments is a statistical statement that systematically summarizes, for a specific time period, the economic transactions of an economy with the rest of the world. Transactions, for the most part between residents and nonresidents, consist of those involving goods, services, and income; those involving financial claims on, and liabilities to, the rest of the world; and those (such as gifts) classified as transfers, which involve offsetting entries to balance—in an accounting sense—one-sided transactions.⁸

7) United Nations, "System of National Accounts 2008".

8) "Balance of Payment Manual", IMF, 6th edition, 2009.

Table 2. Balance of payments of the R.Macedonia (2004-2013)

(in mill. EUR)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1 Current account (2+3+4+5)	-362	-122	-23	-421	-862	-457	-144	-189	-226	-147
2 Goods, net	-914	-858	-1001	-1181	-1763	-1560	-1448	-1648	-1757	-1584
Exports	1345	1643	1914	2472	2693	1933	2530	3211	3107	3206
Imports	-2259	-2501	-2915	-3653	-4455	-3492	-3978	-4859	-4863	-4791
3 Services, net	-46	-29	17	28	9	16	37	97	46	78
Credit	364	417	479	597	692	618	681	797	819	874
Debit	-410	-446	-462	-569	-683	-601	-645	-700	-773	-796
4 Income, net	-30	-88	-21	-281	-94	-47	-100	-131	-148	-182
Credit	68	79	107	155	185	128	147	161	163	151
Debit	-98	-167	-128	-436	-280	-175	-247	-293	-310	-333
5 Current transfers, net	628	853	982	1012	985	1133	1367	1494	1632	1542
Credit	664	887	1015	1081	1033	1181	1414	1542	1688	1616
Debit	-36	-34	-33	-69	-48	-48	-47	-49	-55	-74
6 Capital account, net	-4	-2	-1	4	-12	20	12	9	20	18
7 Financial account (without financing) (8+9+10)	373	473	324	594	823	487	191	502	330	57
8 Direct investment, net	260	75	345	507	409	137	159	337	78	253
9 Portfolio investment, net	9	201	73	114	-51	104	-57	-76	77	-159
10 Other investment, net	105	198	-93	-27	464	246	90	241	175	-36
11 Errors and omissions	15	-5	4	-40	-24	27	1	9	18	28
12 Overall balance (1+6+7+11)	23	344	304	136	-75	77	62	331	142	-44
13 Financing (14+15)	-23	-344	-304	-136	75	-77	-62	-331	-142	44
14 Use of IMF credits and loans, net	-7	4	-8	-42	0	0	0	0	0	0
15 Reserve assets	-16	-348	-296	-95	75	-77	-62	-331	-142	44

Source: National bank of the R.Macedonia and own calculation

Republic of Macedonia in the period 2004-2013 realized continuous balance of payments current account deficit, in an amount of about 295 million EUR on average. Expressed as a percentage of GDP, the average current account deficit in the analyzed period was 4.8% of GDP - in the pre-crisis period average deficit was almost twice higher compared to the period after the crisis (6% of the GDP versus 3% of GDP). In conditions of increased trade deficit, declining current account deficit was due to the significantly higher inflow of transfers from abroad.

The main determinant of the balance of payments current account deficit is trade deficit (on average 1.4 billion EUR per year), partially offset by relatively high inflows of current transfers (on average around 1.2 billion EUR per year). In the financial account, the largest inflow was generated from direct investment (on average 256 million EUR). With the outbreak of the global economic crisis the direct investment inflows declined. The balance of payments overall balance in the period 2004-2013 is positive (with the exception of 2008 and 2013 godina) with amount of about 130 million EUR (about 2% of GDP) - approximately the same increase is registered in the foreign reserves. This means that in biggest part of the analyzed period inflows in the financial account are higher than the current account deficit, resulting in foreign reserves increase.

Monetary survey - trends and effects of the crisis

Monetary survey are consolidated balance sheets of depository corporations sector (monetary authority and depository institutions). This means that monetary survey consolidates data from individual balance sheets of monetary authorities and deposit money banks in a survey, thus providing a statistical assessment of various definitions of money and credit.

Table 3. Monetary survey of the R.Macedonia (2004-2013)

	(in mill. EUR)	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Foreign assets net	1057	1105	1454	1758	1782	1481	1549	1624	2027	2350	1866
2	Domestic assets net (3+4, (-5-1))	238	438	323	484	1090	1702	1839	2168	2119	2280	2892
3	Domestic credits	707	901	986	1192	1990	2764	2923	3349	3414	3657	4038
	Central government net	-72	-67	-250	-348	-146	-90	-39	187	8	68	210
	Public financial corporations	8	11	8	6	5	2	7	7	5	6	8
	Private sector	770	956	1176	1533	2130	2846	2946	3144	3355	3581	3784
	Other financial corporations	1	0	0	0	1	6	10	11	12	15	16
	Local government	0	0	0	0	0	0	0	0	4	7	10
4	Other items net	-449	-463	-612	-728	-900	-1052	-1084	-1192	-1255	-1377	-1336
5	Broad money - M4 (6+7+8+9)	1324	1542	1777	2222	2872	3184	3388	3781	4147	4330	4588
6	Currency in circulation	231	231	235	255	288	287	266	276	314	327	337
7	Demand deposits (non-government sector)	230	240	266	336	460	555	588	657	683	745	801
8	Short-term deposits (non-government sector)	799	1005	1206	1540	1956	2032	2187	2345	2527	2468	2407
9	Long-term deposits (non-government sector)	64	67	69	91	144	271	348	504	623	790	1013

Source: National bank of the R.Macedonia

Net foreign assets of the banking sector in R.Macedonia in the period 2004-2013 registered a continuous increase (with the exception of 2008 and 2013), with cumulative growth of around 800 million EUR. The increase is due to significant increase of net foreign assets of NBRM (approximately by 1.2 billion EUR), while net foreign assets of the deposit money banks declined (by about 430 million EUR because of increased foreign liabilities). At the same time, net domestic assets of the depository institutions recorded a cumulative increase of about 2.4 billion EUR, almost entirely determined by the growth of domestic credit to the private sector (by about 3 billion EUR). Regarding the money supply (deposits of the non-government sector) in the period 2004-2013 a cumulative increase of about 3.2 billion EUR was registered, mainly due to the increase of short-term deposits of the non-government sector (by 1.6 billion EUR). The crisis caused: (1) a significant reduction in the growth rate of loans to the private sector, and (2) preference for long-term savings, which was not the case before the crisis.

Central government budget - trends and effects of the crisis

Government financial statistics records and presents transactions between government sector and other sectors in the economy (including rest of the world sector). This statistic is prepared in accordance with the recommendations and standards contained in the IMF GFS Manual.⁹

Table 4. Central government budget of the R.Macedonia (2004-2013)

	(in mill. EUR)	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
1	Total revenues (2+3+4+5+6)	1455	1646	1700	1955	2227	2097	2148	2229	2245	2278
2	Taxes and contributions	1325	1380	1480	1687	1879	1793	1828	1929	1908	1965
3	Non-tax revenues	103	226	175	227	300	268	229	209	205	193
4	Grants	17	24	23	15	22	14	24	18	49	56
5	Capital revenues	10	15	15	23	23	19	59	62	72	55
6	Other revenues	0	0	7	3	3	4	9	13	10	9
7	Total expenditures (8+13)	1437	1635	1728	1920	2289	2275	2320	2416	2533	2590
8	Current expenditures (9+10+11+12)	1339	1469	1577	1695	1961	2056	2070	2128	2228	2321
9	Wages and allowances	350	373	383	386	340	370	368	376	369	367
10	Goods and services	135	212	218	242	306	265	239	227	238	242
11	Interest	38	43	51	48	43	40	52	56	69	75
12	Transfers	817	842	925	1020	1272	1381	1412	1469	1552	1637
13	Capital expenditures	98	166	151	225	327	219	249	288	305	270
14	Budget balance (1-7)	17	11	-28	35	-62	-178	-171	-187	-288	-313
15	Financing	-17	-11	28	-35	62	178	171	187	288	313
16	Foreign borrowing net	4	173	-200	-172	13	174	85	335	70	91
17	Domestic borrowing net	-22	-184	227	137	49	3	87	-148	218	221
Memorandum items											
18	Gross disposable income (1-11-12)	600	761	724	888	911	677	685	704	624	565
19	Consumption (8-11-12)	484	584	600	628	646	635	607	603	607	608
20	Saving (18-19)	115	177	124	260	265	41	78	101	17	-43

Source: Ministry of finance and own calculations

⁹ In R. Macedonia the Government finance statistic is prepared according to the IMF GFS Manual 1986, meaning that the data in the Macedonian budget are presented on cash basis, not on accrual basis (IMF GFS Manual 2001).

After a realization of relatively balanced budgets in the period 2004-2008, in the period 2009-2013 higher budget deficits were achieved (for a cumulative amount of 1.1 billion EUR), which corresponds with the more expansive fiscal policy guided in the period after the crisis. Gross disposable income of the central government in the period 2004-2013 amounted about 715 million EUR on average, with an average amount of consumption of 600 million EUR, savings of 115 million EUR and the state's investment of 230 million EUR. The crisis caused a decline of GNDI of the central government, as a result of reduced savings (while government consumption remained almost unchanged). As a consequence of these trends in 2013 government consumption exceeded its GNDI, thus resulting in a negative value of central government saving. Expressed as % of GDP, government saving is around 2% of GDP on average, with relatively small share of investment of about 3.5%.

2. Construction and analysis of account of flows of funds among the sectors in the Macedonian economy

Based on the data from the underlying macroeconomic statistics and according to the methodology described above a matrix of cumulative financial flows among the main sectors of the Macedonian economy was constructed. The analysis of the matrix shows that in the period 2004-2013 the difference saving-investments in Macedonia is negative, i.e. investments are permanently higher than savings (cumulative by 2.9 billion EUR, or by 4.7% of GDP). Analyzed by periods, net borrowing position of the Macedonian economy after the crisis declined - from 1.8 billion EUR in the five years before the crisis to 1.1 billion EUR in the five years after the crisis.

Analysed by sectors in the analyzed period, both private sector and central government are net borrowers with higher amount of net borrowing in the private sector - 2.9% of GDP (private sector) vs 1.9% of GDP (central government). The overall investments of the private sector are around 22% of GDP, while saving is around 19% of GDP.

Table 5. Flow of funds account in the R.Macedonia (cumulative 2004-2013)

(in mill. EUR)	Private sector	Central government	Banks	Abroad
I. Net borrowing/lending (Saving - Investment gap)	-1785	-1166	0	2951
II. Foreign financing	3062	576	-720	-2918
Capital transfers	65	0	0	-65
Direct investment	2557	0	0	-2557
Net foreign borrowing	440	576	0	-1016
Change in net foreign assets	0	0	-720	720
of which: International reserves - central bank	0	0	-1247	0
III. Domestic financing	-504	589	-85	0
Change in domestic credits	2886	445	-3331	0
Change in broad money	-3246	0	3246	0
Other domestic financing	-145	145	0	0
IV. Other items, net	-772	0	805	-33
Vertical check	0	0	0	0

Source: State statistical office, Ministry of finance, NBRM and own calculations

Chart 1.

Saving – investment gap: private vs government sector
(effects of crisis)

(mill. EUR)

Source: State statistical office, Ministry of finance, NBRM
and own calculations

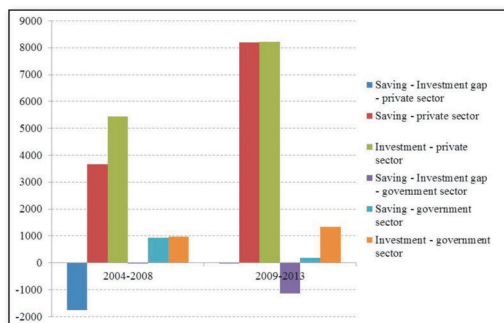
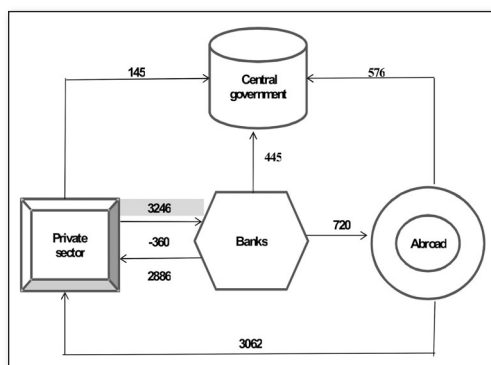


Chart 2.

Flow of funds among the sectors in the
Macedonian economy

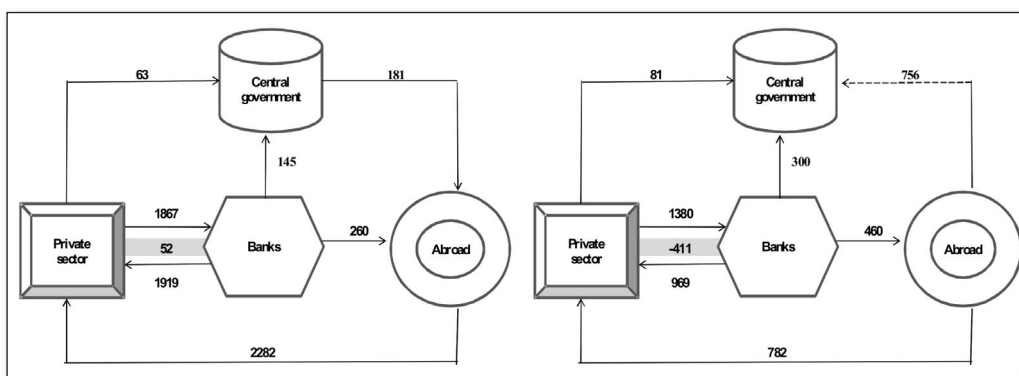
(in mill. EUR)

(cumulative, 2004-2013)



(cumulative, 2004-2008 before the crises)

(cumulative, 2009-2013 after the crises)



Source: own calculations

The crisis caused a significant reduction in the net debt position of the private sector of 1.8 billion EUR (in the period 2004-2008) to only 24 million EUR in the period 2009-2013 (Chart 1). This decline is mainly due to the significant increase in the savings of the private sector - from 3.9 billion EUR in the pre-crisis period to 8.2 billion EUR in the post-crisis period. At the same time an opposite movement was registered in the central government - significantly increase of its net borrowing position (from 27 million EUR in the pre-crisis period to 1.1 billion EUR in the post-crisis period). This shift is due to the significant reduction in central government saving (from 940 million EUR to 200 million EUR), with a simultaneous increase in investment (by about 360 million EUR) as a result of fiscal authorities response to the global economic crisis.

Analysing the financing part of the matrix, in the period 2004-2013 the net borrowing position of the private sector is almost entirely financed from abroad (a cumulative amount of about 3.1 billion EUR - mostly in the form of foreign direct investment). In the domestic financing a negative amount was registered, which means that the private sector in Macedonia "gives" more than it uses funds from the other sectors of the economy. In the transactions with the banking sector, the private sector appears as a net creditor in an amount of 360 million EUR. The banking sector appears as a net lender to both the external sector and central government. Simultaneously the government sector uses almost identical amounts from domestic and foreign sources in order to finance its net borrowing position.

Dynamic analysis of the sources of funding points to a significant displacement mainly as a result of the global economic crisis. This shift in the sources of financing corresponds to the significant changes in the positions of the private sector and the central government that were explained above. The banking sector from net creditor to the private sector in the period 2004-2008 becomes a net debtor to the private sector in the period 2009-2013 – the banking sector receives more funds in the form of deposits than it gives to in a form of loans, thus reflecting a growing caution of banks in times of crisis and increased risks. At the same time, the banks raise funds kept in foreign banks and increase the amount of funds transferred to the central government - mainly through the increased purchase of government securities. Also the inflow from abroad to the private sector is significantly reduced. Significantly increased net borrowing position of the central government in the last five years besides the banks mostly is financed from abroad - Eurobond issuance and use of foreign credits. This represents a change in direction in the relationship between the government sector and abroad.

Concluding remarks

Based upon theoretical grounds and international methodological principles and standards, an effort has been made for establishing and developing a consistent framework for analyzing flow of funds in the Republic of Macedonia. The matrices has been constructed and a quantitative analysis has been conveyed on the flows of financial funds amongst the sectors in the Macedonian economy for the period 2004-2013. The data from major macroeconomic accounts - national accounts, budget, monetary statistics and balance of payments - were used for preparation of the matrices for the Macedonian economy. The main findings of the analysis of flows of funds account in Macedonia are the following:

- In the period 2004-2013 saving-investment gap for the Macedonian economy is negative (investments are permanently higher than savings on average about 5% of GDP), as a result of the net borrowing position of the private sector (saving-investment gap of about 3% of GDP) and of the government sector (about 2% of GDP);
- The crisis caused a significant reduction in the net borrowing position of the private sector mainly as a result of the significant increase in the savings of the private sector. At the same time an opposite movement was registered in the central government - significantly increase of its net borrowing position as a result of fiscal authorities response to the global economic crisis;
- The net borrowing position of the private sector is almost entirely financed from abroad, while government sector uses almost identical amounts from domestic and foreign sources in order to finance its net borrowing position in the period 2004-2013;
- The global economic crisis caused significant displacement of the sources of funding mainly as a result of the global economic crisis. The banking sector changed its net creditor position to net debtor position to the private sector raising funds kept in foreign banks and increases the purchases of government securities. Also the inflow from abroad to the private sector was significantly reduced, while government increased use of funds from abroad.

References:

- International Monetary Fund (2001), "Monetary and Financial Statistics Manual";
- International Monetary Fund (2009), "Balance of Payments Manual";
- EUROSTAT, European Commision (1995), "European System of Accounts";
- United Nations, "System of National Accounts 2008";
- International Monetary Fund (1986), "A Manual on Government Finance Statistics";
- International Monetary Fund (2001), "A Manual on Government Finance Statistics";
- International Monetary Fund (2004), "Republic of Macedonia: Report on the Observance of Standards and Codes—Data Module, Response by the Authorities, and Detailed Assessments Using Data Quality Assessment Framework";
- European Central Bank (2008), "The Monetary Presentation of the Euro Area Balance of Payments", Occasional Paper No 96;
- Michael Burda and Charles Wyplosz (2009), "Macroeconomics: A European Text", fifth edition;
- Andrew B. Abel, Ben S. Bernanke, Dean Croushore (2008), "Macroeconomics";
- Jellema, S. Keuning, P. McAdam and R. Mink (2004), "Developing a Euro Area Matrix: Issues and Applications", ECB Working Paper No 356;
- Bank of Slovenia (2006), "Financial Accounts Methodology and the Compilation Process";
- Pedro Abad, "Compiling the flow of funds of the Spanish economy", IFC Bulletin, No.21, 2005;
- Publication and internet sites of National bank of R.Macedonia, State statistical office and Ministry of finance.

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MEASURING SEASONAL CONCENTRATION OF TOURISM DEMAND: COMPARATIVE STUDY OF SEE COUNTRIES

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Abstract

The paper aims to measure seasonality patterns of tourism demand with a particular emphasis on selected countries from South East Europe. The intention is to test the flow distribution in a particular time-segment. This is done by calculating several standard indicators for quantifying inequality of tourism demand in the line of assessing dispersion and concentration in tourism. The outcome is computed annual single measure of the seasonality's extend for each selected country (Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia). The calculations are based upon monthly series of total number of tourists for the period 2007-2013. The comparative analysis points to interesting research results in terms of different levels of seasonality effects, from low seasonality and no substantial meaning for tourism development (Bosnia and Herzegovina, Macedonia, Serbia and Slovenia), to high seasonality and considerable concentration of tourism demand (Croatia and Montenegro). Furthermore, the study strongly alarms all tourism key players to focus the attention on policies and strategies in the line of modifying tourism seasonality patterns. Finally, the additional contribution of the paper lies in the fact that represents a kind of a pioneer research that empirically investigates tourism seasonality in the region and offers a comparative analysis, thus enriching the poorly developed academic work in this field in Macedonia.

Keywords: Seasonality; Tourism; Development; South East Europe.

JEL Classification: L83; R1; O47.

Introduction

Seasonality, or the fluctuation determined by the season, is one of the distinguished characteristics inherent in tourism. It is often detected as one of its most undesired companions due to profound negative effects and major concerns to tourism managers and policy makers. Being identified as a tendency that is related to concentration of tourism flows in a particular time-segment, seasonality is closely related to tourism develop-

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ment. Such concentration in short periods of the year results in many restrictions in the line of social and physical environment and inefficiency (Getz & Nilsson, 2004; Mitchell & Murphy, 1991). On the other side, tourism can promote and cause long-term economic growth, known as tourism-led growth hypothesis (Brida et al, 2010). Furthermore, it urges the planning decisions in tourism as an issue of great challenge for each national government (Brida et al., 2011) since they view tourism as a catalyst for economic growth, meaning active participation in tourism industry (Cheang, 2009). Due to fact that tourism is generated by demand, the possibility arises that tourism demand may assist in providing in-depth analysis about tourist flows. This is of great assistance in decision-making process and drawing up tourism policies (Claveria & Datzira, 2009). Therefore, it is widely recognized the need of investigating and clarifying the nature of seasonality in the line of identifying appropriate tourism policy and strategy.

The research attempts to make an in-depth comparative analysis in the line of gaining knowledge for the (un)presence of seasonal patterns of tourism in the region. Moreover, the intention is to empirically test and analyze the strengths and dynamics of tourism seasonality of several selected countries from the South East Europe (SEE). The main idea is to conclude whether Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia have similarities in tourism flow distribution and concentration, or there is a justification to develop diversified tourism product by implementing different tourism strategies. Consequently, the research clarifies which countries in the region have low and insignificant tourism distribution with just a high tourism season, and which countries have strong, powerful and constant seasonal tourism concentration.

In order to meet the research issues, the paper is structured in several parts. After the introductory part, Section 2 gives a brief overview on the literature addressing the seasonality issue. Section 3 presents some stylized facts on tourism flows in the selected countries. The research design encompassing the methodology and research frame is posed in Section 4. Section 5 presents the main research findings and discussion on the computed data. The conclusion remarks are noted in last part, by alarming the tourism key players to focus the attention on policies and strategies in the line of modifying tourism seasonality patterns.

Literature review

There is a large body of literature elaborating that seasonality in tourism must be addressed in an in-depth-manner in order to be understand and quantified. Generally, seasonality is defined as systematic, although not necessarily regular, intra-year movement in economic time series which are often caused by non-economic phenomena, such as climatic changes and regular timing of religious festivals (Thomas & Wallis, 1971). The subject of seasonality in tourism is highly explored by elaborating its negative and positive effects. Generally, the academia agree that seasonality occurs due to temporary imbalance in tourism flows caused by different determinants (BarOn, 1993 and 1999; Baum, 1999; Baum & Lundtorp, 2001; Butler, 1994; Chung, 2009; Higham & Hinch, 2002; Jang, 2004; Koenig & Bischoff, 2004; Lundtorp, 2001; Rodrigues & Gouveia, 2004; Yacoumis, 1980). Generally, the seasonality is provoked by three types of factors: (i) Natural causes (sunny days, snow falls, insolation, climate, geographic location etc.; (ii) Institutional/Cultural causes (religious and pilgrimage travel, availability of leisure time, workers' holidays, students' ferries, festival events etc.; and (iii) Other factors (social pressure, personal preferences, inertness etc.).

Furthermore, it is noted that seasonality as systematic variations may be present not only during the year or a semester, but also in the frames of a month or a week, even in a single day (Holloway, 1994; Lundberg et al, 1995). In this line, it is generally recognized that seasonality tends to have much more negative effects on tourism development, which often cannot be controlled (Allcock, 1989; Edgell, 1990; Laws, 1991; Snepenger et al, 1990; Szivas et al, 2003). In this respect, the negative impacts are addressing: Employment (part-time employment, social instability and insecurity etc.); Investments (high risks over law occupancy rate); and Environment (pollution, overcrowding, xenophobia, criminal activity etc.). Yet, they may be treated with an extension of the season by introducing new tourist products immune to seasonality; application of positive pricing policy; developing business tourism, etc. (Nadal et al, 2004; Sutcliffe & Sinclair, 1980; Witt et al, 1991).

Besides the long list of negative impacts of seasonal patterns on tourism development, there is a literature that supports the approach that seasonality provokes positive effects as well. This is particularly in terms of sociology and ecology. Namely, after devastating high season, long and quiet period is more than welcomed especially for recovering the sources, and the local population as well (Butler, 1994; Drakatos, 1987; Grant et al, 1997; Hartmann, 1986).

Tourism flows in South East Europe

This section presents some stylized facts on tourism flows in the sampled countries: Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia and Slovenia. The main idea is to compare general data referring tourism demand in order to identify similarities in the trends.

Table 1.

Average participation of Q3 in SEE countries, 2007-2013 (%)

Bosnia and Herzegovina	29.9
Croatia	61.9
Macedonia	44.6
Montenegro	72.0
Serbia	30.0
Slovenia	38.8

Table 2.

Average participation of a dominant month in SEE countries, 2007-2013

Country	Month	%
Bosnia and Herzegovina	May	11.1
Croatia	August	26.4
Macedonia	August	18.4
Montenegro	August	32.8
Serbia	August	10.7
Slovenia	August	15.7

Table 1 presents the average participation of Quarter 3 of each SEE country during 2007-2013. Although generally Q3 represents the highest peak-point i.e. the high season, its participation differs in quite manner. It is obvious that Croatia and Montenegro have by far the largest dominance of the Quarter 3 in the region, with 61.9% and 72% respectively. Other countries have moderate performance in this quarter ranging from 29.9% to 44.6% as a share of total tourist arrivals during the year.

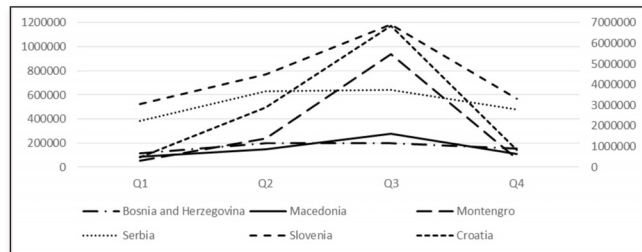
Table 2 poses data on the average participation of a month with a dominant share within the year in terms of tourism demand. In Bosnia and Herzegovina, May is the dominant month with 11.1% of total tourist arrivals, slightly larger than August with 9.8%. In all other evaluated SEE countries, August is the month that encompasses the largest quantum of tourist arrivals, starting with the lowest share of only 10.7% (Serbia) to the highest share of 32.8% (Montenegro).

Figure 1 presents the average total number of tourists by quarters for the period 2007-2013 in the selected SEE countries. Based on Figure 1 one may conclude interesting facts on tourism demand in the sampled countries. It is visible that tourism demand in all quarters: Q1 (January, February and March), Q2 (April, May

and June), Q3 (July, August and September) and Q4 (October, November and December), quite differs. Generally, the Quarter 3 encompasses by far the largest quantum of tourists and travelers except in Bosnia and Herzegovina and Serbia (where Q3 encompasses almost identical quantum as Q2 i.e. 29.9% vs. 29.8%, and 30.0% vs. 29.4% respectfully). The general conclusion is that the third quarter performs the highest results when referring tourist arrivals. The absolute dominance of the summer months may be explained with presence of multiple factors. Namely, in these months, the usage of holidays and ferries is the highest (institutional factor), there is hot and sunny weather suitable for sea and lake tourism (natural factor) and there is a manifestation of personal preferences and attitudes of tourists and travelers (other factors). Yet, exclusion from the forth-mentioned general conclusion must be made when addressing the cases of Bosnia and Herzegovina and Serbia based upon data earlier discussed.

Figure 1.

Average tourism demand by quarters in SEE countries, 2007-2013



Based only on general data of tourism flows in the SEE countries, the first visual conclusion is that only two of the sampled countries (Croatia and Montenegro) may have significant seasonality, while in the case of other SEE countries there is just a high tourism demand with no significant seasonal patterns. Yet, this visual presumption is additionally empirically tested. So, the investigation continues with further in-depth analysis by calculating standard measures for the presence of seasonality patterns.

Methodology

Several statistical measures of dispersion are computed as an annual single measure of the seasonality's extend. The intention is to investigate the presence of seasonality in tourism demand in the region. Moreover, the purpose is to provide information about whether counter-seasonal policies need to be introduced at regional level, by addressing selected SEE countries. In this line, the research makes a comparative analysis and tests the seasonal concentration of tourism demand upon standard equations for calculating Gini coefficient, Seasonality Indicator and Coefficient of Variation. The main variable is the total number of tourists on monthly basis during the period 2007-2013.

The Gini coefficient (G) is one of the most commonly used coefficients for measuring inequality of revenues caused by temporary disorders. It is widely applied for measuring dispersion and concentration in tourism (Arnold, 2008; Bigovic, 2012; Black, 2002; Fernández-Moralez, 2003; Fernández-Moralez & Mayorga-Toledano, 2008; Grabler, 1997; Lee, 1996; Lee & Kang, 1998; Lim & McAleer, 2008; Nadal et al, 2004; Sutcliffe & Sinclair, 1980; Wöber, 1997; Yacoumis, 1980). In this line, different approaches are noted for calculating the Gini index (Xu, 2003). In a monthly series, the Gini index of an annual set of observations ranges from 0 (perfect equality between months) to 1 (perfect inequality between months). The G may be 0 only in the case when all 12 data are the same, pointing to egalitarian distribution over the whole year. To the opposite, the maximum value of G to be 1 may be reached only in a case when 11 data are 0 and only one data (month) has a nonu-null value. Consequently, the higher G represents greater inequality i.e. degree of seasonal concentration in tourism, and vice versa.

The Seasonal Indicator (SI) is commonly used measure for quantifying empirically observed seasonality patterns in tourism. It can be calculated as an inverse value of the seasonality ratio (Wanhill, 1980; Yacoumis,

1980). The value ranges from $1/12$ up to 1. In case of having higher values, it means that there is an absence of fluctuation during the year, i.e. seasonality in tourism, and opposite.

The Coefficient of Variation (CV) describes the fluctuation of tourists during the year. Moreover, it measures the spread of each series around its annual mean as a percentage of that mean. This indicator is particularly useful for comparing dispersion in data sets having different standard deviations and different means. It can take values beginning with zero. If the value is small, then the distribution is much homogenous and the average is much representative. Yet, despite the simplification in calculating it, it may be difficult to interpret the results appropriately (Donatos & Zairis, 1991; Drakatos, 1987; Lundtorp, 2001; Yacoumis, 1980).

Results and Discussion

The indicators for measuring the seasonality effects are calculated for each sampled country on yearly basis and then the computed average values are discussed. Table 3 presents the summarized estimated statistics referring tourism seasonality in the region. It is interesting that conclusion completely differs when testing seasonality in different SEE country in the region.

Table 3. Indicators for measuring tourism seasonality in SEE countries, 2007-2013 (average values)

Country	G	SI	CV (%)
Bosnia and Herzegovina	0.1370	0.7420	25.33
Croatia	0.5287	0.3165	107.11
Macedonia	0.2820	0.4448	59.54
Montenegro	0.5911	0.2547	127.66
Serbia	0.1437	0.7128	26.61
Slovenia	0.2015	0.5325	40.00

The first calculated indicator for testing the presence of seasonality is the Gini coefficient. Based on Table 3, it may be seen that the average values of G spreads between the lowest 0.1370 (Bosnia and Herzegovina) and the highest 0.5911 (Montenegro). The calculated values of G for the SEE countries are quite different pointing to different strength and dynamic of tourism seasonality. In the cases of Bosnia and Herzegovina, Macedonia, Serbia and Slovenia, the research calculations referring G are far below the margin of 0.5 thus indicating a presence of very modest seasonality. Namely, the low value of G shows that current distribution of tourism demand for the sample period has no meaning for these SEE countries. Therefore, the concentration in terms of tourist arrivals points to relative balance and equality. Thus, high peaks in August (or May in the case of Bosnia and Herzegovina) have not sufficient capacity and strength for serious influence with an in-depth manner in these countries. The computed data show that seasonality in terms of intra-year monthly variations in tourist arrivals is constant during the sample period.

When elaborating the cases of Croatia and Montenegro, the calculated data for the G point to completely opposite conclusion compared to previously analyzed SEE countries. Namely, out of Table 3 it can be seen that the computed average values of Gini coefficient are above the margin of 0.5 (0.5287 for Croatia and 0.5911 for Montenegro). The high values of G show that current distribution of tourism demand has substantial meaning for Croatia and particularly for Montenegro indicating a presence of high seasonality. Hence, the concentration in terms of tourist arrivals in these two SEE countries points to significant unbalance and large inequality i.e. high tourism seasonality with significant characteristics.

Figure 2.

Average Lorenz curves of SEE countries, 2007-2013

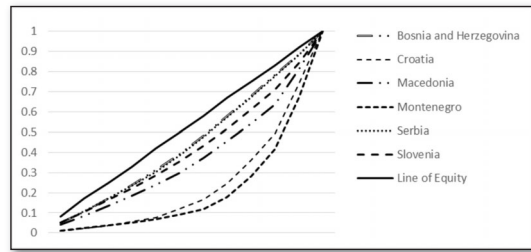


Figure 2 presents the graphical representation of the computed G values by presenting the average Lorenz curves of the SEE countries. The Lorenz curve assists in observing 'the cumulated frequencies in rank with the lowest frequency (winter month) to the left and the month with the highest number of tourists to the right' (Lundtorp, 2001: 30). It is noticeable that the area between the average Lorenz curves of Bosnia and Herzegovina and Serbia and the Line of equity is the smallest. In this line is the same conclusion, but for having relatively small area (yet larger compared to Bosnia and Herzegovina and Serbia) between the average Lorenz curves of Slovenia and Macedonia and the Line of equity. This points to relatively equal seasonal distribution of tourist arrivals and absence of seasonal concentration in these countries during the year. So additionally it is confirmed the forth mentioned and already discussed conclusion for constant, similar and extremely low values of G in the case of Bosnia and Herzegovina (0.1370) and Serbia (0.1437) and constant, similar but still low values of G when addressing Slovenia (0.2015) and Macedonia (0.2820). At the same time, the Figure 2 confirms the conclusion previously discussed for the cases of Croatia and Montenegro. Namely, one may note that the area between the average Lorenz curves of Croatia and Montenegro and the Line of equity is big (much bigger compared to other SEE countries). This points to unequal seasonal distribution of tourist arrivals and presence of seasonal concentration during the year, being supportive to the constant, similar and high values of the G index for Croatia (0.5287) and the highest in the region – Montenegro (0.5911).

The second calculated indicator for testing the presence of seasonality is the Seasonality Indicator. Table 3 presents the computed average values for SI ranging between 0.2547 (Montenegro) and 0.7420 (Montenegro). Higher values mean that there is an absence of fluctuation during the year i.e. no seasonality in tourism. Since the computed data for Bosnia and Herzegovina (0.7420) and Serbia (0.7128) are far above zero, it means extremely humble fluctuation within a year pointing to exceptionally fragile tourism concentration in these countries. Similar is the conclusion for Slovenia (0.5325) and Macedonia (0.4448) whose evaluated average data are also above the zero, pointing to insubstantial seasonal concentration of tourism demand i.e. no significant meaning of tourism flows. The calculated average data for Croatia (0.3165) and Montenegro (0.2547) are relatively close to zero, and by far lower compared to other SEE countries. This indicates strong fluctuation within a year and presence of high tourism seasonality in these two countries.

The final indicator in terms of measuring tourism seasonality is the Coefficient of Variation being used numerically to measure stability of tourism demand distribution in the sample period. Table 3 presents computed average data on CV for SEE countries spreading between the lowest 25.33% (Bosnia and Herzegovina) and the highest 127.66% (Montenegro). In the cases of Bosnia and Herzegovina (25.33%), Serbia (26.61%), Slovenia (40%) and Macedonia (59.54%) the values are within the limit of 55-60% pointing to homogeneous distribution and representative average. The opposite is the conclusion for Croatia (107.11%) and Montenegro (127.66%) whereas such high values (much higher than the limit and other evaluated SEE countries) implies that the distribution is not homogenous and that the average is not representative.

When summarizing the research findings referring tourism seasonality in the SEE countries, it is necessary to underline the opposite conclusions on the presence of seasonality effects. Namely, all outcomes for majority of the investigated SEE countries point to values for no significant seasonal impacts on tourism develop-

ment (this is the case for four out of six evaluating countries, which either do not have sea and/or develop other types of tourism). On the other side, the computed data for other two cases (countries that are dominantly developing sea-tourism) support the conclusion of having strong and high season during summer.

Conclusion

By using some of the most applied indicators (Gini coefficient, SI and CV), the research investigates the seasonal concentration of tourism demand in terms of total tourism arrivals in selected SEE countries between 2007 and 2013. In the same time, the paper underlined the importance of seasonality as one of the major and profound limits generally for utilisation of tourism infrastructure and effects on a region's economy and employment. Furthermore, the research detected two groups of countries with differences in tourism flow distribution and concentration. Moreover, the study found certain similarities in tourism flow distribution and concentration, and underlined a justification to develop diversified tourism product by implementing different tourism strategies.

In this line, Bosnia and Herzegovina, Macedonia, Serbia and Slovenia have no significant seasonal concentration in tourism demand, but rather presence of modest tourism development. On the other hand, Croatia and Montenegro are countries with strong and powerful seasonality in tourism flows. Simultaneously, the research posed that in the third quarter exist cumulative influence of all factors that provoke extended concentration and increased tourism demand for these two countries. Such situation includes acceptable and favourable weather conditions; extensive insolate days; usage of vacations and ferries; personal preferences for summer season etc. So, the researched revealed strong and robust seasonality patterns in tourism only in Croatia and Montenegro where the distribution i.e. concentration of tourism demand is substantial and has considerable meaning to further national and regional tourism development.

For the countries that have strong effects of seasonality, the paper suggests to apply some attempts to overcome the negative influences, like: lengthening the main season, establishing additional seasons, diversifying markets, using differential pricing and tax incentives on a temporal basis, encouraging the staggering of holidays, encouraging domestic tourism in off-seasons, and providing off-season attractions or events. In addition, special events such as festivals and conferences may help overcome the seasonal effects within tourism regions, if they take place in the shoulder or off-season. It could be pointed out, however, that tourists expect to have attractive programmes organized during the season.

Despite the fact that the research uses simple technique, still the findings can assist in increasing the knowledge for the (un)presence of seasonal patterns of tourism in the region. Furthermore, the paper contributes in understanding the phenomenon of seasonality in tourism demand and can further enhance the future work by employing advanced methods.

References

- Allcock, J. B. (1989). Seasonality. In: Witt, S. F. and Moutinho, L. (eds). *Tourism Marketing and Management Handbook*. London: Prentice Hall, pp. 387-392.
- Arnold, R. A. (2008). *Economics*. Cengage Learning, Mason.
- BarOn, R. R. V. (1993). Seasonality. In: Khan, M. A., Olsen M. D., and Var, T.(eds), *VNR's Encyclopedia of Hospitality and Tourism*. New York: Van Nostrand Reinhold.
- BarOn, R. R. V. (1999). The measurement of seasonality and its economic impacts. *Tourism Economics*, Vol. 5(4), pp. 437-458.
- Baum, T. (1999). Seasonality in tourism: understanding the challenges. *Tourism Economics*, Vol. 5(1), pp. 5-8.
- Baum, T. & Lundtorp, S. (2001). *Seasonality in Tourism*. Amsterdam.
- Bigovic, M. (2012). The strength and dynamics of the seasonal concentration in Montenegrin tourism. *Turizam*, Vol. 6(3), pp. 102-112.
- Black, J. (2002). *A dictionary of economics*. Oxford University Press, New York.
- Brida, G. H., Barquet, A. & Risso, A. W. (2010). Causality between economic growth and tourism expansion: empirical evidence from Trentino-Alto Adige. *Tourismos: An International Multidisciplinary Journal of Tourism*, Vol.5(2), pp. 87-98.
- Brida, G. H., Osti, L. & Santifaller, E. (2011). Second homes and the needs for policy planning. *Tourismos: An International Multidisciplinary Journal of Tourism*, Vol.6(1), pp. 141-163.
- Butler, R. (1994). Seasonality in tourism: issues and problems. In Seaton, A. V.(ed.), *Tourism: The state of the Art*. John Wiley & Sons Ltd, pp. 332-339.
- Claveria, O. & Datzira, J. (2009). Tourism demand in Catalonia: detecting external economic factors. *Tourismos: An International Multidisciplinary Journal of Tourism*, Vol.4(1), pp. 13-28.
- Cheang, V. (2009). State and tourism planning: a case study of Cambodia. *Tourismos: An International Multidisciplinary Journal of Tourism*, Vol.4(1), pp. 63-82.
- Chung, J. Y. (2009). Seasonality in tourism: a review. *e-Review of tourism research*, Vol. 7(5), pp. 82-96.
- Donatos, G & Zairis, P. (1991). Seasonality of foreign tourism in the Greek Island of Crete. *Annals of Tourism Research*, Vol. 18(3), pp. 515-519.
- Drakatos, G. C. (1987). Seasonal concentration of tourism in Greece. *Annals of Tourism Research*, Vol. 14, pp. 582-586.
- Edgell, D. L. (1990). *International tourism policy*. New York: Van Nostrand Reinhold.
- Fernández-Moralez, A. (2003). Decomposing seasonal concentration. *Annals of Tourism Research*, Vol. 30(4), pp. 942-956.
- Fernández-Moralez, A. & Mayorga-Toledano, M. C. (2008). Seasonal concentration of hotel demand in Costa del Sol: a decomposition by nationalities. *Tourism Management*, Vol. 29(5), pp. 940-949.
- Getz, D. & Nilsson, P. A. (2004). Responses to family businesses to extreme seasonality in demand: the case of Bornholm, Denmark. *Tourism Management*, Vol. 25, pp. 17-30.
- Grabler, K. (1997). Cities and the Destination Life Cycle. In International City Tourism, K. Grabler, G. Maier, J. Mazanec and K. Wöber (Eds), pp. 54-71. London: Pinter.
- Grant, M., Human, B. & LePelley, B. (1997). Seasonality. *Insights*, Vol. 9(1), pp. A5-A9.
- Hartmann, R. (1986). Tourism, seasonality and social change. *Leisure Studies*, Vol. 5(1), pp. 25-33.
- Higham, J. & Hinch, T. (2002). Tourism, sport and seasons: the challenges and potential of overcoming seasonality in the sport and tourism sectors. *Tourism Management*, Vol. 23, pp. 175-185.
- Holloway, C. J. (1994). *The hospitality sector: accommodation and catering services*. London: Pitman Publishing.
- Jang, S. (2004). Mitigating tourism seasonality: a quantitative approach. *Annals of Tourism Research*, Vol. 31(4), pp. 819-836.
- Koenig, N. & Bischoff, E. E. (2004). Analyzing seasonality in Welsh room occupancy data. *Annals of Tourism Research*, Vol. 31(2), pp. 374-392.
- Laws, E. (1991). *Tourism marketing: service and quality management perspectives*. Stanley Thornes Publishers.
- Lee, C. (1996). Input-output Analysis and Income Distribution Patterns in the Tourism Industry in South Korea. *Asia Pacific Journal of Tourism Research*, Vol. 1, pp. 35-49.
- Lee, C. & Kang, S. (1998). Measuring Earnings Inequality and Median Earnings in the Tourism Industry. *Tourism Management*, Vol. 19, pp. 341-348.
- Lim, C. & McAleer, M. (2008). Analysing seasonal changes in New Zealand's largest inbound market. *Tourism Recreation Research*, Vol. 33(1), 83-91.
- Lundberg, D. E., Krishamoorthy, M. & Stavenga, M. H. (1995). *Tourism economics*. John Wiley and Sons Inc.

- Lundtorp, S. (2001). Measuring Tourism Seasonality. In: Baum, T. and Lundtorp, S.(eds), *Seasonality in Tourism*. London; Amsterdam: Pergamon.
- Mitchell, L. S. & Murphy, P. (1991). Geography and tourism. *Annals of Tourism Research*, Vol. 18(1), pp. 57-60.
- Nadal, J. R., Font, A. R. & Rossello, A. S. (2004). The economic determinants of seasonal patterns. *Annals of Tourism Research*, Vol. 31(3), pp. 697-711.
- Rodrigues, P. M. M. & Gouveia, P. M. D. (2004). An application of PAR models for tourism forecasting. *Tourism Economics*, Vol. 10, pp. 281-303.
- Snepenger, D., Houser, B. & Snepenger, M. (1990). Seasonality of demand. *Annals of Tourism Research*, Vol. 17, pp. 628-630.
- Sutcliffe, C. M. S. & Sinclair, T. M. (1980). The measurement of seasonality within the tourist industry: an application of tourist arrivals in Spain. *Applied Economics*, Vol. 12(4), pp. 429-441.
- Szivas, E., Riley, M. & Airey, D. (2003). Labor mobility into tourism: attraction and satisfaction. *Annals of Tourism Research*, Vol. 30(1), pp. 64-76.
- Thomas, J. and Wallis, K. (1971). Seasonal Variation in Regression Analysis, *Journal of Royal Statistical Society*, A134(1), 57-72.
- Wanhill, S. R. C. (1980). Tackling seasonality: a technical note. *International Journal of Tourism Management*, Vol. 1(4), pp. 243-245.
- Witt, S., Brooke, M. Z. & Buckley, P. J. (1991). *The management of international tourism*. Unwin Hyman, London.
- Xu, K. (2003). *How has the Literature on Gini's Index Evolved in the Past 80 Years?*, Halifax: Dalhousie University.
- Wöber, K. (1997). International City Tourism Flows. In *International City Tourism*, K. Grabler, G. Maier, J. Mazanec and K. Wöber, (Eds.), pp. 39-53. London: Pinter.
- Yacoumis, J. (1980). Tackling seasonality: the case of Sri Lanka. *Tourism Management*, Vol. 1(2), pp. 84-98.

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THE TRANSMISSION MECHANISM AND CONSEQUENCES FROM THE GLOBAL ECONOMIC CRISIS FOR THE MACEDONIAN ECONOMY

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Abstract

The global economic crisis had a significant impact on many economies in the world, especially on the small and open economies where the transmission channels of the crisis had their own specifics. Therefore in this paper we try to analyze the transmission mechanism of the global crisis in a small and open economy - the Republic of Macedonia, which reveals some key points in which this group of countries is extremely vulnerable in terms of global distortions. The main transmission channels determined by the specific features of the Macedonian small and open economy are primarily the fall in global economic activity (especially the fall in the economic activity of our main trade partners); the disturbance in international capital markets, the loss of investors' confidence in markets and their risk aversion. The paper elaborates the main transmission channels, as well as their effects on almost every segment of the Macedonian economy: the real sector, financial sector, fiscal sector and the external sector.

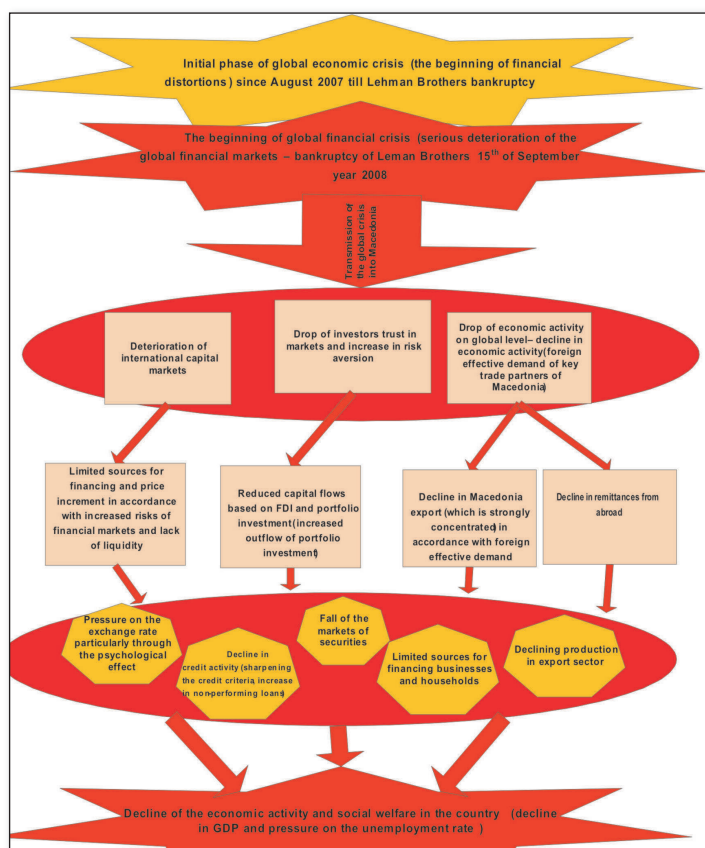
Introduction

The specific transmission channels of the Global economic crisis to the Macedonian economy are primarily determined by the characteristics and specifics of the Macedonian economy – the trade integration, financial integration and the influence of the global trends on expectations and confidence of economic subjects. Macedonia, as a small and open economy, can not achieve solid growth rates and function successfully isolated from its surrounding (trade partners, foreign investors, international capital markets etc.). The significantly large net foreign trade of about 115% of GDP, the high level of euroization (foreign exchange deposits are almost 45% of M4), the low predictability of the money demand and the strong import dependence of the Macedonian export sector are the main reasons for the strategy of de facto fixed exchange rate conducted by NBRM, which is another determinant of the transmission mechanism. Therefore, the current account deficit (significance of imports), FDI and portfolio investments, the access to international capital markets and the changes in world market prices are all significant factors which, with an existence of a de facto fixed exchange rate, determine the stability of the Macedonian economy and the reaction of monetary policy. We

shortly indicate the main transmission channels (transmission scheme) of the crisis, which is elaborated in more details further below (see figure no.1). The main transmission channels determined by the specific features of the Macedonian economy are primarily the fall in global economic activity (especially the fall in the economic activity of our main trade partners); the disturbance in international capital markets, the loss in investors' confidence in markets and their risk aversion. These key transmission channels in the period of the collapse of "Lehman Brothers" caused a fall in Macedonian exports related to the fall in foreign effective demand, limited financing sources and rising prices of finance, lower FDI, portfolio investments and private transfers (as a dominant source of financing the current account deficit). This further caused a fall in the production in the export sectors (the generators of GDP growth), a fall in credit activity and thus led to a restriction and higher prices of financing sources for households and businesses, a fall in the securities markets' activity, pressures on the exchange rate etc.

Figure no. 1

Transmission of the Global economic crisis to the Macedonian economy



Source: Authors

In the pre-crisis period, Macedonia had rising GDP growth rates, low inflation rates, maintained low budget deficits (even surpluses in some years), a declining trend of public debt, a mild recovery of the export sector and a modest decrease in unemployment rates (see table no. 1). The stance of the key macroeconomic indicators represent on one transmission channels of the global crisis to the Macedonian economy, and on the other hand, main determinants of the key macroeconomic policies undertaken in the period of high impact from the crisis and afterward.

Table no. 1 Key macroeconomic indicators for Macedonia

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
GDP (%) constant prices)	4,5	-4,5	0,9	2,8	4,6	4,4	5,0	6,2	5,0	-0,9	2,9	3,1	1,0
Inflation (end of period, %)	5,8	4,0	0,8	2,7	-2,2	1,6	3,1	6,7	4,1	-1,6	3,0	2,8	2,0
Export of goods and services (change in %)	20,4	-15,6	-5,1	-5,9	13,1	11,0	8,3	12,0	-7,0	-15,7	24,2	10,5	5,0
Unemployment (% of total)	31,7	30,5	31,9	36,7	37,2	37,3	36,0	34,9	33,8	32,2	32,1	31,4	31,9
Public expenditures (% of GDP)	33,7	40,3	40,5	37,4	35,2	34,0	32,5	31,6	33,4	33,2	32,0	31,2	31,3
Budget balance (% of GDP)	2,5	-6,3	-5,6	-0,1	0,4	0,2	-0,5	0,6	-0,9	-2,7	-2,4	-2,5	-2,5
Total public debt (% of GDP)	47,9	48,8	42,9	37,9	35,6	39,5	32,0	24,0	20,6	23,8	24,2	27,7	30,9
Current account balance (% of GDP)	-1,9	-7,2	-9,5	-4,0	-8,1	-2,5	-0,4	-7,1	-12,8	-6,8	-2,1	-2,7	-4,0

Note: Estimations start from 2011

Source: International Monetary Fund, World Economic Outlook Database, October 2012

The beginning of the global economic crisis (which first emerged as a financial crisis) in August 2007, with strong effects on a global level, did not have a pronounced impact on the Macedonian real or financial sector (I phase – until the bankruptcy of “Lehman Brothers”), having in mind the conservative banking sector model practiced before the crisis:¹⁰

No exposure to risk instruments, which would cause a chain reaction of the modest securities market in Macedonia.

A strong deposit base and a small financing dependence on non-residents (a credit-deposit ratio below 100%). Although the banking sector is in a dominant ownership of foreign financial institutions, the significantly low share of borrowing of Macedonian banks from the foreign parent banks protected the Macedonian financial sector against the first pressures for deleveraging in the financial sector on a global level.

A significantly high capitalization of the banking sector (see chart no. 1).

Adequate liquidity of the banking sector (see chart no. 2).

10) See more details on the financial system and its characteristics in the Report on financial stability in the Republic of Macedonia in 2011. Available from: http://nbrm.mk/WBStorage/Files/WebBuilder_Izvestajza_FSR2011.pdf

Chart no. 1

Source: NBRM

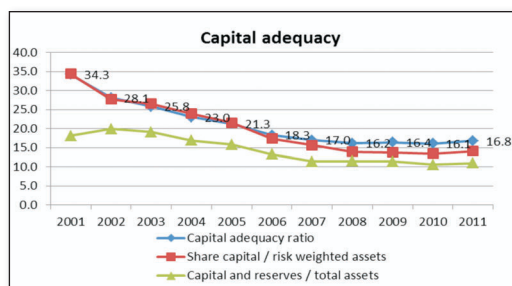
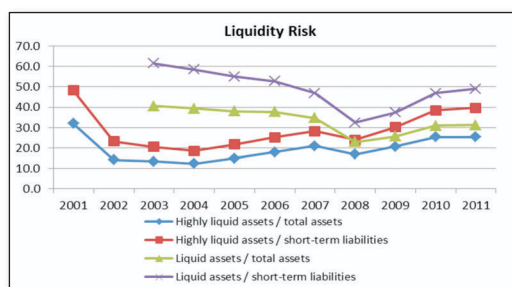


Chart no. 2

Source: NBRM



The collapse of "Lehman Brothers" on 15th September 2008 marked the second phase of the global crisis, in which the global markets deteriorated quickly, the liquidity risks started to threaten the solvency of financial institutions and through numerous channels the crisis spilled over from the financial to the real sector, slowing down the global economic activity and freezing the global financial flows. A small, open, import dependent economy like Macedonia could not remain immune to the second round of effects from the global crisis and they hit the economy strongly toward the end of 2008 and in 2009, when, after a longer period, the economic activity in the country fell by 0,9%.

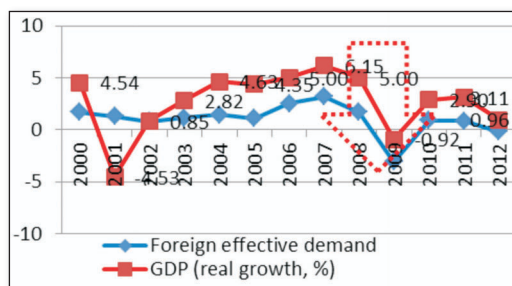
Trade integration

The trade integration (about 60% of the exports to EU) and openness contributed for the most significant and effective transmission mechanism of the global crisis to the Macedonian economy to be the fall in economic activity in our biggest trade partner countries, i.e. the foreign effective demand. In order to get a clearer picture of the importance of the foreign effective demand (export) for the Macedonian economy, chart no. 3 shows the movement of the real GDP in Macedonia and the foreign effective demand in the period form 2000 to 2012.

Chart no. 3

Foreign effective demand and GDP

Source: Authors' calculations, SSO, data on GDP by constant prices are taken from IMF - *World Economic Outlook Database* October 2012¹¹



11) The foreign effective demand is calculated as a sum of weighted indices of GDP of the most important trade partners of the Republic of Macedonia. The weights are based on the share of export to these countries in the total export. The countries included are: Germany, Greece, Italy, Netherlands, Belgium, Spain, Serbia, Croatia and Bulgaria.

Chart no. 4

Macedonian export to the biggest trade partners

Source: SSO of RM

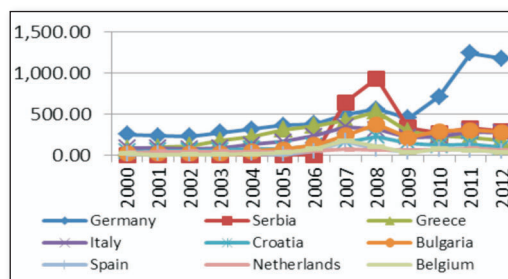
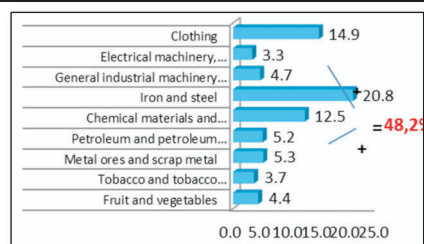


Chart no. 3 clearly shows the transmission channel, that is, the high dependence of the GDP movement and the foreign effective demand – the movement of economic activity of our biggest trade partners. Analyzed by countries, a largest contribution to the decrease in foreign effective demand in 2009, of 3,1%, was due to the fall in economic activity in Germany and Italy, followed by the contribution from the fall in Greece and Serbia. The recovery of the global economy, especially the moderate economic growth in the Eurozone and the South East European Countries, influenced also the intensity of recovery of the foreign effective demand for Macedonian products. After the deep fall in 2009, the foreign effective demand gradually improved during 2010, with an average growth of 0,8%. In 2011, the foreign effective demand maintained the level from 2010, while in 2012 new pressures arised for its reduction. In 2012, the biggest impact on the foreign effective demand came from the fall in economic activity in Greece (from 3,5% in 2010 to 6,9% in 2011 and further to 6% in 2012) and the continuing deterioration of the economic activity in Germany, Serbia, Italy, Spain (there was a decrease in economic activity in all the countries that consitute our foreign effective demand) (see chart no. 4). Another characteristic of the Macedonian export which increases its sensitivity to the global trends and confirms the importance of this transmission channel is its high level of concentration in ceratin industries (see chart no. 5). In 2012, almost half of the export was concentrated in three products (iron and steel, clothing, chemical materials and products), which had dramatic falls in prices during the crisis. The concentration of the export by countries (although after the crisis it is mildly more diversified) is another feature that additionally increases the vulnerability of the Macedonian export sector in times of global disturbances (in our case also a special sensitivity to regional disturbances). Namely, before the crisis (2006) as much as $\frac{3}{4}$ (74,7%) of the Macedonian export was allocated to six countries: Serbia, Germany, Greece, Italy, Bulgaria and Croatia (see chart no. 6).

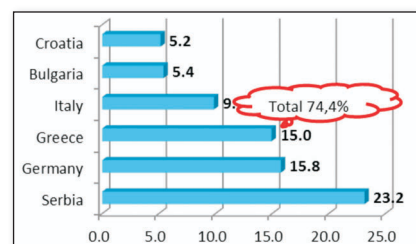
Chart no. 5

Most exported products from RM (2012)

**Chart no. 6**

Share in Macedonian exports – 2006 (%)

Source: SSO of RM



The significance of the global economic activity for the Macedonian export is confirmed in studies of the income elasticity of the Macedonian export to global activity. Thus, Kadijevka-Vojnovik and Uneska (2007) show that the income and price elasticity of the export are statistically significant and are 1,51 and -0,73, respectively. This means that in the long run, a growth of world income of 1%, would increase the demand for Macedonian exports by 1,51%, while a growth of 1% in relative prices would determine lower exports by 0,73% (higher domestic prices relative to foreign prices cause a fall in exports). This indicates that the Macedonian export is more sensitive to changes in the world income, than to changes in prices. This indicates that the price characteristics of the Macedonian export are not the key determinant of the foreign demand, which focuses more on the qualitative aspects of exports. Thus, if exporters wish to increase their sale on the world markets, it is necessary to increase the non-price aspects of the export (quality, distribution, marketing etc.) for which a sensitive international capital can be found. Considering the high level of concentration of the Macedonian export to only a few products, primarily for reproduction (iron and steel and their products, oil derivatives, clothing and textile based on non-production), it is obvious that it is necessary to invest in the qualitative aspects of products, in order to attract foreign consumers whose standard grows with the growth of the disposable income.

The reduced global activity and the effects on the Macedonian economy (through decreased market confidence, restricted access to financial sources, decreased export demand, a slow recovery of the domestic import demand) contributed to a fall in the foreign trade activity of Macedonia and a reduction of the current account deficit – after its peak of 12,8% of GDP in 2008, it gradually decreased to 6,8% of GDP in 2009, just to further contract to only 2,1% of GDP in 2010 and after that it remains on a lower level compared to the pre-crisis period from 2001 to 2008 (see chart no. 7). The countries from the region recorded a large increase in their current account deficits in the pre-crisis period, followed by their contraction – lowest levels of current account deficits in the post-crisis period 2009-2012 are recorded in Macedonia and Croatia (see chart no. 8). In terms of a decreased global activity, an important effect on the balance of payments came from private transfers, which are a dominant and stable source of financing for the current account deficit of the Macedonian economy. As a result of the global crisis, private transfers, after a rising trend in the pre-crisis period, recorded a stagnation at the beginning of the global crisis and a decrease in 2008 (delayed effect from the crisis) of 5,5% compared to the previous year, followed again by a rising trend in 2010 (see chart no. 9).

Chart no. 7

Sources: International Monetary Fund,
World Economic Outlook Database, October 2012

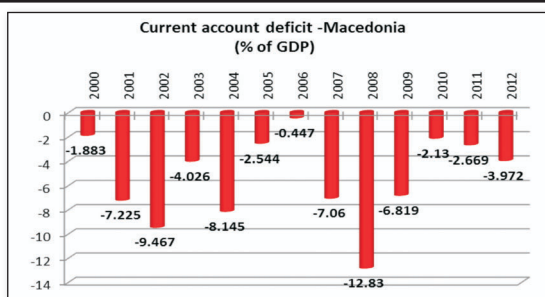


Chart no. 8

Sources: International Monetary Fund,
World Economic Outlook Database, October 2012

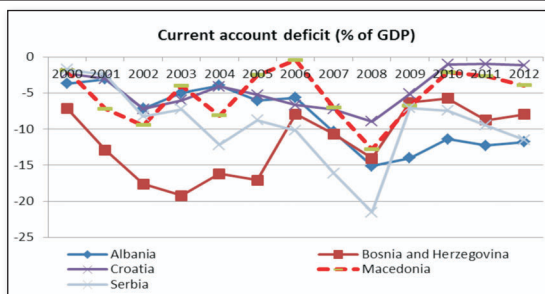
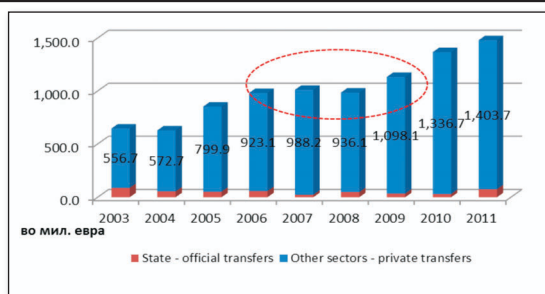


Chart no. 9

Sources: NBRM



The reduced global activity and the decreased export demand for Macedonian products (as well as the fall in the domestic demand) contributed significantly to a fall and change in the composition of the key determinants of GDP. The industrial production index recorded a historical drop of 8,7% in 2009 and 4,8% in 2010. A biggest fall was recorded in mining and quarrying and manufacturing, while the electricity and gas supply sector, due to its specifics, the monopolistic position, the fall in prices on the global markets, the decreased imports, in condition of an increased domestic production in the crisis period, recorded a significant increase.

The economic contraction in 2009 was mainly due to the significant fall in the sectors of mining and quarrying, manufacturing, electricity, gas and water supply, hotels and restaurants, transport and communication and other sectors, excluding the sectors of wholesale and retail trade and agriculture, hunting, forestry and fishing, which grew in that period. In the following year (2010), the construction sector (as a result of the government measures for exit from the crisis and the large number of undertaken capital investments¹²) took on a leading role with the highest growth rates, followed by modest growth rates in other sectors (agriculture, wholesale and retail trade, hotels and restaurants etc.) due to the modest recovery of global markets.

Considering GDP by expenditure approach, the growth of domestic demand and the increase in gross-investments had the largest contributions in the pre-crisis period and their deceleration in the crisis period is the main reason for the decline in economic activity. The government tries to compensate for the reduction of household consumption and investments in the crisis period by increasing public expenditures in order to stimulate the domestic economy and to prevent downward tendencies of economic activity (see charts no. 10 and 11).

Chart no. 10

Source: SSO

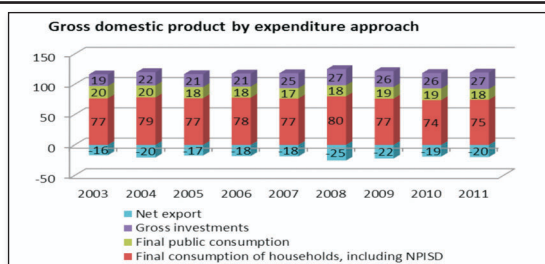
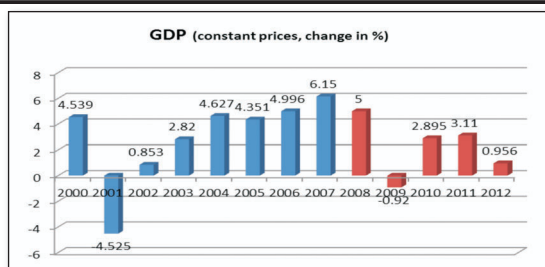


Chart no. 11

Source: International Monetary Fund, World Economic Outlook Database, October 2012



12) The construction sector continued to record high growth rates in the period 2011/2012 and to have a significant role in the recovery of the economic activity of the country.

The deceleration of economic activity on a global and domestic level, also slowed the decreasing trend of the unemployment rate in the country, which is still on a record high level of 30%, despite the numerous government measures for coping with the crisis and reducing the unemployment (see chart no. 12).

The disturbance of the international capital markets and the fall in investors' confidence

The disturbance of the international capital markets and the fall in investors' market confidence and their risk aversion is the second transmission channel through which the effects of the global crisis transmitted to financial markets, capital markets and reflected on the investment (real) sector of the country. This secondary wave of the global crisis affected the Macedonian economy by decreasing the FDI and portfolio investment inflows, limiting the financing sources and increasing their price on the credit markets, as well as by a mild decrease in private transfers (as a dominant item in financing the current account deficit).

Most often the expected scenarios during a global crisis on the capital markets and of investors' confidence related to FDI and portfolio investments are characterized by: an insignificant inflow of equity capital, having in mind that a large part of the investors face a lack of liquidity and risks surrounding investments; a reduction of reinvested profits and an increase in dividend payments, which go to foreign investors; complementing the need for additional financing with decreasing net-inflows based on within company borrowing as a result of higher payments for used loans from parent companies, a decrease or withdrawal of portfolio-investments which are especially sensitive to the movements on the global markets and a significant fall in the turnover and prices on the securities' markets. Most of the mentioned scenarios can be noticed by analyzing the dynamics of these variables for the Macedonian economy in terms of crisis. Chart no. 13 and chart no. 15, which show the net-movements of FDI and portfolio-investments (in mil. Euro), as well as chart no. 14, which presents their growth rates clearly show the upward trend of these variables (high growth rates) in the pre-crisis period and their downward trend after the crisis hit. It is especially interesting to point to the sensitivity of portfolio-investments. Their trend of growth began before the FDI and started to decline significantly with the first signals of the crisis on the global markets in 2008, when the FDI reached their peak in the country. It is normal, as mentioned, in terms of a crisis for foreign investors to reduce the share of reinvested profit and to withdraw larger amounts of capital and dividends. This is confirmed with the decline in reinvested profit in the country in the amount of 113,7 mil. Euros in the midst of the crisis.

Chart no. 12

Source: NBRM

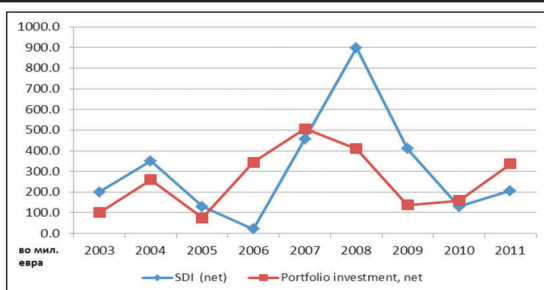


Chart no. 13

Source: NBRM

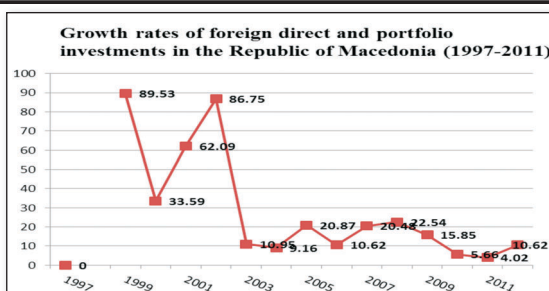
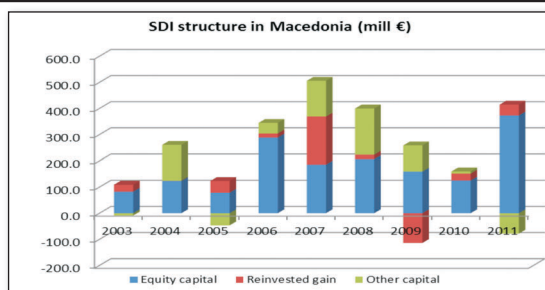


Chart no. 14

Source: NBRM

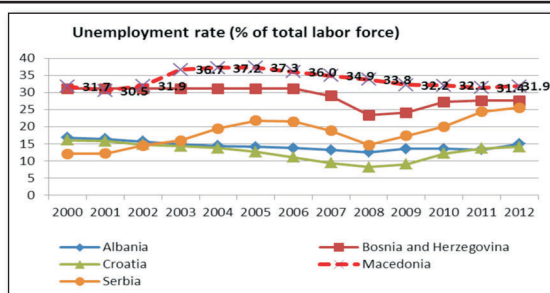


An overview of the markets of securities in Macedonia (the index of the 10 most traded securities in the country – MBI10) clearly shows the severity of the crisis and its consequences on this most sensitive market segment (see chart no. 18). The dynamics of MBI10 shows first the expansion (overheating) of the market for securities in the country and the beginning of the collapse of the Macedonian securities exchange (amounting to almost a five time decrease from 10.058 den. on 31.08.2007 to 1.598 den. on 10.03.2009), which corresponds to the global trends of fall in securities' prices and the signals from the capital markets.

Chart no.15

Source:

Macedonian stock exchange (daily data, in denars)



The Macedonian banking sector was not exposed to risk instruments, had a strong deposit base and a low dependence on financing by non-residents, very high ratio of capitalization of the banks and adequate liquidity, which all contributed to maintaining its stability in terms of a crisis on the global financial markets. However, the beginning of the crisis affected several segments of the banking sector – first the declining trend of the ratio of non-performing loans to gross-loans was disrupted. It increased from 6,5 in the last quarter of 2008 to 10,5 in the middle of 2010, followed by its stabilization (see chart no. 17). The profitability of the Macedonian banks, which significantly grew in the pre-crisis period, reached its peak in 2007 (ROAE = 15), when the global crisis started, followed by a dramatic fall and its return in 2011 to the pre-crisis level of 2004 (see chart no. 18).

Chart no. 16

Source: WEO October, 2012

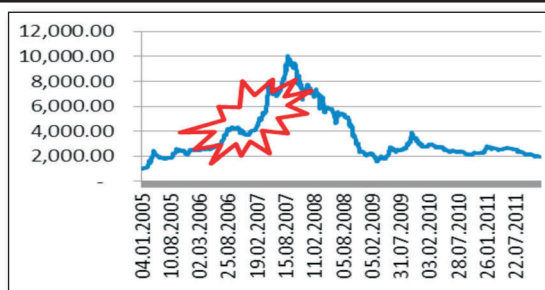


Chart no. 17

Source: NBRM

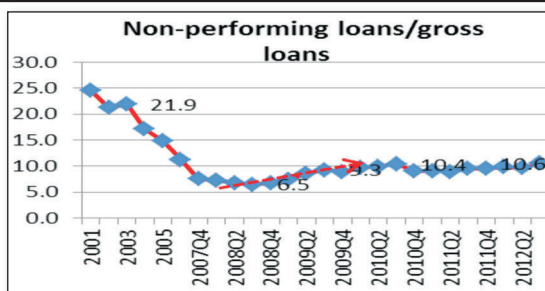
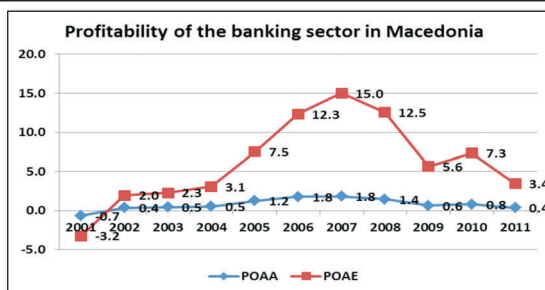


Chart no. 18

Source: NBRM

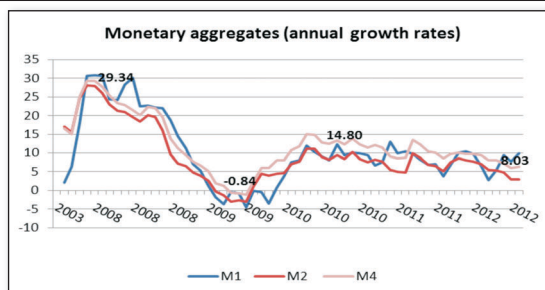


Although banks in Macedonia (which are predominantly in foreign ownership) were not directly hit by the processes for deleveraging of their foreign parent banks, indirectly, as a result from the more conservative corporate strategies of their parent companies, they experienced downward trends in crediting and negative effects on the credit channel which represents a bloodstream of the economic activity in a country (especially in countries with a shallow and undeveloped capital market). The declining trends in crediting were additionally determined by the decreased activity and increased risks in the real sector, lower creditworthiness of households/companies, which led to a decreased demand and access to loans, lower growth of the deposit base etc. In the pre-crisis period, the monetary aggregates (cash, deposit money, short term and long term deposits) had high growth rates (M2=17,07%, M3=16,51% in 2004), reaching a peak at the beginning of the crisis in 2007 with almost doubled growth rates (M2=28,09%, M3=29,34%) (see chart no. 19). The beginning of the crisis soon affected adversely this pre-crisis expansion of the deposit base.

After reaching a peak in 2007, the monetary aggregates substantially dropped, achieving the lowest growth rates in September 2009: M1= -4,53%; M2= -2,95%; M3= -1,9%, followed by a period of a mild rise and their stabilization on a level far below the pre-crisis level (see chart no. 20). The reduced deposit base, the conservative strategies of the Macedonian banks (strengthening the criteria for credit approval), the rise in prices on international capital markets, the larger risk aversion in the real sector, also contributed to a substantial fall in credit activity in the banking sector. This opened a new circle, which added to the effects from the global crisis – a fall in credit activity, limited access of businesses to financing during an increased need for finance, a decline in the growth potential and production of firms in terms of deteriorated financial flows in the country, a reduced economic activity, a lower export potential, pressures on unemployment, deteriorated business performances, etc. The growth rates of loans that banks approved to the nonfinancial sector resemble the trajectory evident for the monetary aggregates – a great expansion of total loans from 25% in 2004 to 44,08% in April 2008, followed by a strong deceleration of the growth of total loans which reached the bottom in February 2010, followed by a negligible recovery of the growth rates of denar loans and a more substantial increase in foreign exchange loans.

Chart no. 19

Source: NBRM



The risks on the global financial markets and their effects on the Macedonian banking sector, beside the volume of loans, also affected the growth of their interest rates, due to the increased risk in the economy and on financial markets. The interest rate on the interbanking market for denar overnight deposits – MKDONIA (Macedonian Denar Overnight Index Average)¹³ increased from 4,79% in October 2008 (when their calculation was initiated) to 6,54 in September 2009 (an increase of 1,75 p.p.), followed by its most significant decline due to the numerous measures of NBRM for monetary relaxation.

Chart no. 20

Source: NBRM

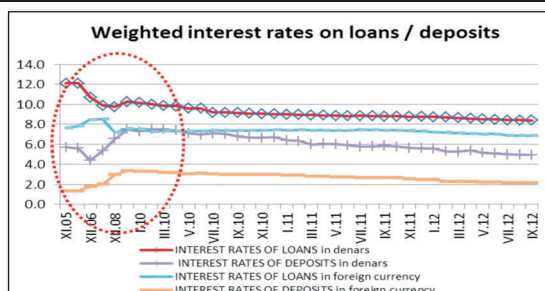
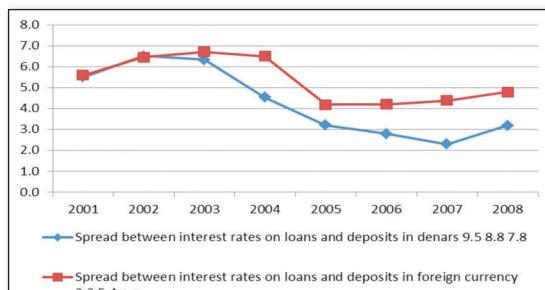


Chart no. 21



The weighted average interest rates on loans and deposits had a mild growth with the appearance of the first signals of the global crisis, larger for deposits than for credits. (see chart no. 20). The rising trend of risk in the Macedonian economy for the banking sector is confirmed by the disruption of the declining trend of interest rate spreads of denar/foreign exchange loans/deposits, which was substantial in the pre-crisis expansionary period and a mild increase in the interest rate spreads in the period 2008-2011 (see chart no. 21).

13) See more details on the calculation and historical data on MKDONIA on: <http://www.nbrm.mk/?pmenu=mkdonia>

Conclusion

Summarizing the key effects and the transmission mechanism of the recent global economic crisis provides an extremely important guide for the manner in which economic policies should be conducted in the future in order to prevent negative effects from global disturbances. The transmission mechanism reveals the “weak links” that enable a transfer of global disturbances. We are aware that the Macedonian economy is not isolated from the global events and that its complete isolation from the disturbances in the surrounding is not possible, but it is possible to detect the critical points and to adopt measures, acts and policies to alleviate those impacts in the future. The effects from the crisis for the Macedonian economy can be summarized as follows:

- Macedonia achieved a rising trend of GDP growth, low inflation rates, maintained low budget deficits, and a declining trend of public debt, a mild recovery of the export sector and a modest decrease of unemployment rates;
- Until the bankruptcy of “Lehman Brothers”, the global crisis had no noticeable effects on the Macedonian real and financial sector;
- The global crisis began to strongly affect the Macedonian economy near the end of 2008 and in 2009 when the economic activity in the country recorded a fall of 0,9% after a longer period;
- The trade integration and openness contributed for the most significant and effective channel of transmission of the global crisis to the Macedonian economy to be the fall in economic activity in the countries that are our biggest trade partners – the foreign effective demand;
- The high level of concentration of the Macedonian export by countries is yet another characteristic that additionally increases the vulnerability of the Macedonian export sector in terms of global disturbances;
- Results from studies of the income elasticity of the Macedonian export to the global activity show that in terms of world income growth of 1%, the demand for Macedonian products increases by 1,51%, while a growth in relative export prices of 1% causes a decline in exports of 0,73%;
- The current account deficit, after its historical high at 12,8% of GDP in 2008, gradually declined to 6,8% of GDP in 2009, only to further contract to a low 2,1% of GDP in 2010 and in the following period to be maintained on a lower level than the pre-crisis level from 2001-2008;
- Private transfers, after a period of continuous growth before the crisis, stagnated at the beginning of the crisis and then declined in 2008 (delayed impact from the crisis) by 5,5% compared to 2007, followed again by a rising trend in 2010;
- The industrial production index recorded a historical fall of 8,7% in 2009 and 4,8% in 2010. The economic contraction of 2009 was mainly due to the significant fall in almost all sectors except the sector of wholesale and retail trade and the sector of agriculture, hunting, forestry and fishing, which were still growing in that period. In 2010, the main role belonged to construction with highest growth rates, followed by modest growth rates of the other sectors (agriculture, wholesale and retail trade, hotels and restaurants etc.), as a result of the modest recovery of global markets;
- The largest contribution to the pre-crisis growth of GDP came from the growth of domestic demand and gross-investments, whose deceleration in the crisis period was the key reason for the fall in economic activity. The government puts efforts to substitute for their decline in the crisis period by increasing the public expenditures;
- Deceleration of the fall in the unemployment rate, which is still on a record level of around 30%, beside the many employed government measures for dealing with the crisis and decreasing the unemployment;

- The disturbance of international capital markets and the fall in investors' confidence and their risk aversion manifested by declining inflows of FDI, reinvested profit and portfolio investments, limited financing sources and rising prices in credit markets, as well as a mild decrease in private transfers;
- The movement of MBI10 shows the expansion (overheating) of the market for securities in the country in the pre-crisis period and the beginning of the collapse of the Macedonian stock exchange, which coincides with the global trends of fall in prices of securities and the signals coming from the capital markets;
- The trend of declining ratio of non-performing loans to gross loans was interrupted and increased from 6,5 in the last quarter of 2008 to 10,5 toward the middle of 2010, followed by its stabilization;
- The profitability of the Macedonian banks, which had a significant growth in the pre-crisis period, reached its peak in 2007 (ROAE=15) when the global crisis emerged and resulted in a dramatic drop and its return to the 2004 level in 2011;
- The banking sector, despite the effects from the crisis, remains with a high level of capitalization (almost double the required level by law – the value of the capital adequacy ratio was 16,2 in 2008 and 16,4 in 2009) and with adequate liquidity (after the mild fall in almost all liquidity indicators in 2008/2009);
- After the expansion of the deposit base before the crisis, the monetary aggregates significantly dropped, reaching the bottom in September 2009, when the growth rates were: M1= -4,53%; M2= -2,95%; M3= -1,9%, after which a period of mild growth followed and later they stabilized on a level far below the pre-crisis level;
- Bank loans to the nonfinancial sector, after a significant expansion of total loans from 25% in 2004 to 44,08% in April 2008, there was a period of a large reduction of the total credit growth, reaching the bottom in February 2010;
- The weighted average interest rates on loans and deposits recorded a mild growth with the first signals of the global crisis, while the declining trend of interest rate spreads of denar/foreign exchange loans/deposits was interrupted and turned into a mild increase due to the crisis in the period 2008-2011.

References

- Angelovska-Bezoska, A., Bogoev, J., Mitreska, A., and Kadievaska-Vojnovic, M. (2011), "Investigating the cyclical behavior of fiscal policy in the Republic of Macedonia during the period of transition", *Croatian Economic Survey*, 13(1), pp. 57-104.
- CEA, (2012) "Policy brief about the 2012 measures of the government of macedonia against the global crisis", Center for Economic Analyses, Skopje.
- CEA, (2009) *Review of the measures of the Macedonian government against the global economic crisis*, Center for Economic Analyses, Skopje. <http://www.imf.org/external/np/exr/facts/pll.htm>
- IMF Country Report No. 10/19, 2010: <http://www.imf.org/external/pubs/ft/scr/2010/cr1019.pdf>
- IMF Country Report No. 12/133, 2012: <http://www.imf.org/external/pubs/ft/scr/2012/cr12133.pdf>
- IMF, (2013), The IMF's Precautionary and Liquidity Line (PLL), available on:
- Kadievaska-Vojnovic and Uneska (2007) "Price and income elasticity of the exort and import in the Republic of Macedonia and economic growth", NBRM, available from: <http://nbrm.gov.mk/WBStorage/Files/Dohodna-i-cenovna-elastichnost-na-izvozot-i-uvozot.pdf>
- Trenovski. B (2013) *Optimal macroeconomic policy in Macedonia – in terms of the global economic crisis*, Center for Economic Analyses – CEA, Skopje, pp. 165.
- Government of the Republic of Macedonia (Arpil, 2009) "Third package of anti-crisis
- Government of the Republic of Macedonia, (archive) "Financial stability committee: There is no risk to the financial sector", *Press release*, available from: <http://arhiva.vlada.mk/?q=node/7044>, <http://vlada.mk/node/1139>
- Government of the Republic of Macedonia (2010) "Fourth package of anti-crisis measures of the Government of the Republic of Macedonia", March, available from: <http://arhiva.vlada.mk/?q=book/export/html/5118>.
- Government of the Republic of Macedonia, (2009) "The Government presents an Investment programme for realization of strategic infrastructure projects", March, available from: <http://arhiva.vlada.mk/?q=book/export/html/2414>
- Government of the Republic of Macedonia (2012) "The Government adopted a new package of economic and social measures", *Press release*, June.
- Law on Borrowing Precautionary Credit Line by the Republic of Macedonia from the International Monetary Fund, *Official gazette of the Republic of Macedonia* no. 17/2011
- Law on the National Bank of the Republic of Macedonia, *Official Gazzette of the Republic of Macedonia* no. 158/2010 and no.123/12. Available from: http://www.nbrm.mk/WBStorage/Files/WebBuilder Zakon_NBRM_SV158_10_SV123_12.pdf
- Ministry of Finance of the Republic of Macedonia, Quarterly Reports for 2012, available from: <http://finance.gov.mk/node/692>
- Ministry of Finance of the Republic of Macedonia, (2009) Prospectus for eurobonds, available from: <http://www.finance.gov.mk/files/u4/prospectus.pdf>
- NBRM, Yearly Report of NBRM, various years, available from:
- NBRM, *Annual Report of NBRM for 2005*, available from: <http://nbrm.mk/?ItemID=08F0F6C1E4502142ADF5036DE55E8E1F>
- NBRM, *Annual Report of NBRM for 2010*, available from: http://www.nbrm.mk/WBStorage/Files/WebBuilder_Godisen_izvestaj_2010.pdf
- NBRM, *Annual Report of NBRM for 2006*, available from: <http://nbrm.mk/WBStorage/Files/Godisen-izvestaj-20061.pdf>
- NBRM, *Annual Report of NBRM for 2007*, available from: <http://nbrm.mk/WBStorage/Files/web+-NBRM-Godisen-izvestaj-2007.pdf>
- NBRM, *Annual Report of NBRM for 2008*, available from: http://www.nbrm.mk/WBStorage/Files/Godisen_izvestaj_20085.pdf
- NBRM, *Annual Report of NBRM for 2009*, available from: http://nbrm.mk/WBStorage/Files/WebBuilder_Godisenizvestaj2009kon0.pdf
- NBRM, *Annual Report of NBRM for 2011*, available from: http://nbrm.mk/WBStorage/Files/WebBuilder_Godisen_izvestaj_2011.pdf
- NBRM, *Financial stability report of the Republic of Macedonia in 2011*, available from: http://nbrm.mk/WBStorage/Files/WebBuilder_Izvestajza_FSR2011.pdf
- NBRM, (2012) *Quarterly report of NBRM*, April, 2012, available from: http://nbrm.mk/WBStorage/Files/WebBuilder_Kvartalen_izvestaj_april_2012_SP_WEB.pdf
- NBRM, (2013) *Quarterly report of NBRM*, January 2013, available from: http://nbrm.mk/WBStorage/Files/Istrazuvanje_Kvartalen_izvestaj_Januari_2013.pdf
- Speech of the deputy Prime minister of the Republic of Macedonia, The fourth package of government anti-crisis meas-

ures has been promoted", available from: <http://www.finance.gov.mk/node/1435> and <http://www.vicepremier-ekonomija.gov.mk/?q=node/118>

Decision on reserve requirement, *Official Gazette of RM* no. 153/2012.

Decision on reserve requirement, *Official Gazette of RM* no. 126/2011.

Decision on запис of a six-month deposit with NBRM, *Official Gazette of RM* no. 14/11.

Decision on liquidity risk management of banks, *Official gazette of RM* no. 126/2011.

Design, implementation and instruments of the monetary policy of NBRM:

<http://www.nbrm.mk/default.asp?ItemID=500DCED149E8DB4EBD31E7F12F456FA5>

Calculation and historical data on MKDONIA: <http://www.nbrm.mk/?pmenu=mkdonia>



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