THE PUBLIC FINANCE SECTOR DEBT AND ECONOMIC GROWTH IN POLAND IN THE CONTEXT OF FINANCIAL CRISIS

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Abstract

The financial crisis started in 2008 has contributed to many changes in the conduct of monetary and fiscal policy in Poland and other EU countries. In many EU countries significant decline in economic growth and problems of public finance (debt growth countries) is noticeable as a result of the crisis. The aim of this article is to highlight the changes in public finances and economic growth in Poland, in the context of financial crisis. The article verifies the first hypothesis that monetary policy has impact on the fiscal policy and finally on economic growth in Poland; and the second hypothesis that during the financial crisis were noticed simultaneously worsening situation of public finances and economic growth.

Keywords: *public debt, budget deficit, fiscal policy, financial crisis*

1 INTRODUCTION

J. Attali points out that never before the public debt did not reach so large size, in real terms and as a proportion of GDP with which we meet after the crisis 2008 - 2009 (of course outside periods of war). J. Attali also believes that so far the public debt did not constitute a threat to the political system and did not threaten the living standards of citizens, and at the same time it should be noted that the debt can not grow without causing "terrible catastrophes".[1] Certainly the pursuit of a balanced budget requires a reference to the degree of use productive forces and to the level of GDP.[2]

The aim of this article is to highlight the changes in public finances and economic growth in Poland, in the context of financial crisis.The article verifies the first hypothesis that monetary policy has impact on the fiscal policy and finally on economic growth in Poland; and the second hypothesis that during the financial crisis were noticed simultaneously worsening situation of public finances and economic growth.To verify the hypothesis the following research methods were used: review of scientific literature, statistical research methods and graphic presentation of economic events.

1.1. REVIEW OF LITERATURE RELATED TO PUBLIC FINANCES AND ECONOMIC GROWTH

J. Polomka and M. Zalesko quote two approaches for the growing public debt. One of them is the liberal trend, which recognizes that the ever-increasing national debt is a derivative of inefficient functioning public finance system and has adverse effects on the overall economy (i.e. The orthodox theory of public debt). On the other hand, according to the interventionist trend, in order to stimulate economic growth, the state simply must get into debt and public debt is treated as a tool to interfere in the economy of the country (ie. the interventionist theory of public debt).[3] A. Saleh gives yet, the view of the Ricardian

[1] J. Attali, *The West and the tyranny of public debt*, Newsweek, Special Edition 2011.
[2] Z. Polański, B. Woźniak, *System finansowy w Polsce,* ed. B. Pietrzak, Warsaw 2003, p.711.
[3] J. Połomka, M. Zalesko, *Dług publiczny w Polsce - instytucjonalne możliwości jego redukcji,* „Optimum. Studia Ekonomiczne" nr 1 (73)/2015, p. 169.

equivalence proponents who believe that the budget deficit and public debt are neutral for GDP growth.[4]

The liberal mainstream has its supporters in the views of representatives of the school of neoliberal who recognize that the budget deficit and public debt have a detrimental impact on economic growth. According to the school of neo-liberal, countries showing the budget deficit, record an increase in current consumption, which at full employment means a decrease savings. Therefore, to maintain balance on the capital market interest rates must raise, which limit the size of private investments.[5] In contrast, interventionist trend finds its base in the work of Keynesians in which it is stated that the budget deficit and public debt have a positive impact on economic activity in the country, mainly through the multiplier effect of budget expenditures. Moreover, proponents of this view point to the existence of the effect of supplementing of private expenditure by government spending as a result of deficit and public debt caused by the expansionary fiscal policy. They point out that deficit and public debt lead to an increase in domestic output, which encourages private investors to invest.[6]

It is yet to present a contemporary view of J. Tobin, who as the representative of mainstream Neo-Keynesian economics, shows that the deficit and public debt act pro-inflationary and therefore pose a threat to the pace of economic development.[7] On the other hand S. Owsiak lists some relevant elements characterizing different approach to the budget deficit, namely: the elimination of the imperative of a balanced budget, approved deficit at a safe level, paying particular attention to the sources of deficit financing, not financed deficit by the central bank and the application of European standards in counting deficit.[8] A. Moździerz summarizes the deliberations on public finance imbalance by saying that "history has repeatedly alluded to the principle of a balanced budget, hence considered to be the most stable rule of public finances".[9]

C. Adam and D. Bevan reported that sustained in the long term the budget deficit contributes to a slowdown in economic growth.[10] C. Reinhart and K. Rogoff give significant results of analyzes covering the 44 economically developed countries and developing countries. According to them, a high level of public debt in relation to GDP (over 90%) is associated with lower levels of GDP growth.[11] P. Misztal conducted a study of cause-and-effect relationship between the average level of public debt and GDP in the EU in 2000 - 2010. The conducted his analysis shows that one of the variables that most significantly determined the rate of GDP growth in the EU during the period were the changes in debt public. Misztal stated that the increase of the government debt by 1% led to a decline in economic growth rate by an average of 0.3%. In turn, change the size of public debt in the EU in the years 2000 - 2010 to the greatest extent were determined by changing the size of GDP. GDP growth of 1% contributed to the increase in public debt by an average of 0.4%. Thus, the

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[4] A.S. Saleh, *The budget deficit and economic performance: a survey,* "University of Wollongong, Faculty of Commerce Economics Working Papers", no. 78/2003.

[5] Y. Keho, *Budget deficits and economic growth: causality evidence and policy implications for WAEMU countries,* "European Journal of Econmics, Finance and Administrative Sciences" Issue 18/2010; P. Misztal, *Dług publiczny i wzrost gospodarczy w krajach członkowskich Unii Europejskiej*, „Polityki Europejskie, Finanse i Marketing", vol. 5(54)/2011, pp. 101 – 102.

[6] Ibidem, pp. 101 – 102.

[7] K. Piotrowska- Marczak, *Konsekwencje ograniczania deficytu budżetowego i długu publicznego* [in:] *Ekonomiczne i prawne uwarunkowania i bariery redukcji deficytu i długu publicznego*, ed. J. Szołno-Kogus, A. Pomorska, LEX a Wolter Kluwer business, Warsaw 2011, p. 61.

[8] S. Owsiak, *Finanse publiczne. Teoria i praktyka,* Warsaw 1999, pp. 476 – 477.

[9] A. Moździerz, *Nierównowaga finansów publicznych,* Warsaw 2009, p.23.

[10] C. Adam, D. Bevan, *Fiscal deficits and growth in developing countries*, "Journal of Public Economics" no. 89/2005, pp.571-597.

[11] C. M. Reinhart, K.S. Rogoff, *Growth in a time of debt*, "NBER Working Paper", no 15639/2010.

change in GDP to a greater extent influenced the changes in the size of public debt than change the size of public debt to GDP growth in the EU.[12]

Alesina and Ardagna present important lessons from examining more than 100 cases of deficit reduction in OECD countries during the period 1970-2007, where in more than 25 cases, there were so-called non-Keynesian effects, i.e. an economic boom.[13]

In the literature most often they occur views that the impact of the fiscal imbalance on long-term GDP growth is considered to be an ambiguous and may be positive only when public spending is a productive, i.e. increase the productivity of private capital (e.g. investment in infrastructure). Some economists believe that high public debt, mainly in developing countries, rather worsens conditions for investment and capital formation, which in turn contributes to a slowdown in economic growth of the state. This is hypothesis of "debt overhang", which indicates that high public debt, mainly foreign, leading to a decline in investments resulting in a slowdown of economic growth.[14]

In the context the significance of application and observance of fiscal rules should quote M. Larch and A.Turrini research, who studied the effects of fiscal rules, i.e. quantitative restrictions on the size of public debt and the budget deficit or public spending - on the sustainability of reforms in the economy. The results of these studies suggest that fiscal rules increase the chance of permanent fiscal reforms (and in turn by other studies sustained reduction in the budget deficit beneficially affects on economic growth).[15] Additionally, in this context, among others F. Halen and G. Everaert emphasize that sustainable reduction of the budget deficit is often accompanied by GDP growth, in turn labile reduce the deficit - a drop in GDP.[16] In the literature, there were views that the reduction in public finance imbalance, the reduction of the budget deficit turns out to be more durable if it is made by reducing expenditure than raising taxes.[17]

1.2. BUDGET DEFICIT, DEBT PUBLIC AND ECONOMIC GROWTH IN POLAND IN THE CONTEXT OF MONETARY POLICY

The relationship between GDP growth and the level of the budget deficit, there is assuredly through the mechanism of fiscal automatic stabilizers, but such a significant worsening of the balance of public finances in 2010. (-7.9% Of GDP) in Poland can not be explained solely by a decline in GDP growth, so a factor-induced by independent of Polish economy - financial crisis.[18]

Below are the results of a simple relationship between economic growth or public spending and the variables associated significantly with the conduct of monetary policy - which, through channels depending also have a significant impact on economic growth and fiscal policy.

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[12] P. Misztal, *Dług* ..., op. cit. pp. 108.

[13] A. Alesina, S. Ardagna, *Large changes in fiscal policy: taxes versus spending*. "NBER Working Paper", no. 15438/2009.

[14] J. Siwińska – Gorzelak, *Nierównowaga fiskalna – makroekonomiczne skutki i możliwości jej zmniejszania,* „Analiza FOR" nr 15/ 2012, p. 7.

[15] M. Larch, A. Turrini, *Received wisdom and beyond: Lessons from fiscal consolidations in the EU,* "European Economy. Economic Papers" no. 320/2008.

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[18] J. Tomkiewicz, *Redukcja deficytu w kontekście krajowej i międzynarodowej sytuacji makroekonomicznej*, [in:] *Ekonomiczne…*, op. cit. p. 97.

In the study were used the following variables: GDP at current prices in million zloty [PKB_N]; The nominal reference rate - at end of the period, in% [REF_N]; CPI - last month of the period - December of previous year = 100 [CPI]; the real government expenditure in million zloty [GOV_real] ; the variables are presented in real values by using CPI (I_1 = 2000 year = 100). The variables used in the regressions were checked for stationarity by using the ADF test. In the case of [PKB_N], a time series proved to be stationary only as the first difference of variable. In other cases (CPI, REF_N) variables proved to be stationary at the levels.

Table 1 presents the results for the dependent variable GDP (of GDP_N - as the increments of nominal GDP) and the independent variable - the price index - the CPI.

Table. 1. The regression results: the dependent variable (Y): d_PKB_N; independent variable (X) - CPI

Variable name	*coefficient*	*standard error*	*t- Student*	*p-value*
const	46319.0	11479.6	4.035	0.0017 ***
CPI	9916.43	3997.36	2.481	0.0289 **
Selected statistics regression and analysis of variance: **used observations 2000-2014 (N = 14)**				
R-square 0.338992				
F(1, 12) 6.154084 ***p-value for F test*** 0.028919				

Source: The own source based on statistical data by NBP, Central Statistical Office in Poland, using GRETL programme.

Table 2 presents results of regression - where the dependent variable is government expenditure, and the independent variable - the nominal reference rate of NBP. In the analyzed case, we note that the NBP reference rate affects the real government expenditure [GOV_real].

Based on the analysis (Tab. 1 and Tab. 2), it can be concluded that the variables associated with conducting monetary policy [CPI] and [REF_N] affect the size of GDP and macroeconomic variables associated with it, e.g. government expenditure.

Table. 2. The regression results: the dependent variable (Y)**:** GOV_real; independent variable (X) – REF_NOM_1

Variable name	*coefficient*	*standard error*	*t- Student*	*p-value*
const	484902	24595.7	19.71	1.65e-010 ***
REF_NOM_1	-11438.1	3329.62	-3.435	0.0049 ***
Selected statistics regression and analysis of variance: **used observations 2001-2014 (N = 14)**				
R-square 0.495821				
F(1, 12) 11.80107 ***p-value for F test*** 0.004937				

Source: The own source based on statistical data by NBP, Central Statistical Office in Poland, using GRETL programme.

Table 3 presents results of regression - where the dependent variable is GDP growth and the independent variable - the nominal reference rate delayed by one year. According to the results presented in Table 3 we can argue that also the nominal NBP reference rate delayed by one year has impact on GDP growth.

Table. 3. The regression results: the dependent variable (Y)**:** D_PKB; independent variable (X) – REF_NOM_1

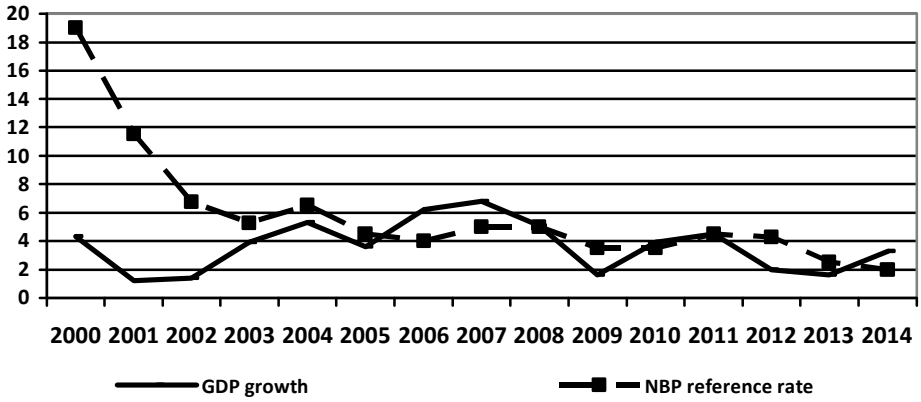
Variable name	*coefficient*	*standard error*	*t- Student*	*p-value*
const	4.88802	0.802676	6,090	5.42e-05 ***
REF_NOM_1	-0.210289	0.108661	-1.935	0.0769 *
Selected statistics regression and analysis of variance: **used observations 2001-2014 (N = 14)**				
R-square 0.237867				
F(1, 12) 3.745277 ***p-value for F test*** 0.076874				

Source: The own source based on statistical data by NBP, Central Statistical Office in Poland, using GRETL programme.

In the context of the impact of monetary policy on the economy, in particular on economic growth, should quote the results of macroeconomic analyzes conducted by the NBP, namely: the raise of the interest rate by 100 basis points over 4 quarters results: reduction of inflation by 0.4 percentage points after 4 quarters of increases and also a reduction in GDP growth by 0.5 percentage points after 4 quarters. It also indicates that the interest rate is the most effective tool of influence of the central bank on the Polish economy. While the decomposition of the impact of changes in interest rates by the NBP indicates that about half of the change in inflation comes directly from changes in interest rates and the remaining half of the volume of loans and fluctuations in exchange rates caused by changes in interest rates.[19]

Figure 1 shows the NBP reference rate and economic growth in Poland in the years 2000-2014 on an annual basis.

Figure. 1. Reference NBP rate and economic growth in Poland over the period of 2000 – 2014



Source: The own source based on statistical data by NBP

While in Table 4 are shown the results of the Pearson correlation coefficient between real GDP and nominal NBP reference rate without delayed variables and delayed the reference rate by 1 year and 2 years. Between the examined variables there is a significant negative correlation, which the strength increases with the delay of the reference rate of respectively 1 year and 2 years.

[19] *Dziennik Ekonomiczny. Analizy Makroekonomiczne*, Bank PKO BP [za:] http://www.dm.pkobp.pl/analizy-i-rekomendacje/analizy-codzienne/analizy-makroekonomiczne/dziennik-ekonomiczny-28-05-2015/?download

Table. 4. GDP and the nominal NBP reference rate in Poland in 2000 - 2014

The correlation coefficient	GDP_real and the nominal NBP reference rate
The correlation coefficient without time lag	-0.68 (p-value=0,0056)
1 year lag	-0.72
2 year lag	-0.75

Source: The own source based on statistical data by NBP

Analyzing the data presented in Table 5, regarding the dynamics of GDP, we can notice a significant decline in GDP during the economic slowdown in 2001-2002 (1.2% GDP in 2001 and 1.4% GDP in 2002) and during the recent financial crisis, especially in 2009 . (1.6% GDP It seems that as a result of the events that provoked the disturbances of the economy and the financial crisis and the related to financial crisis - the crisis in public finances, GDP growth remained at a significantly low level (in the years 2012-2013 respectively 2% GDP and 1.6% GDP) .

During the analyzed period, CPI inflation remained at level close to the target. As a result, in the years 2008 - 2010 average inflation was within the inflation target (2.5% +/- 1 percentage point. Proc.). After a period of financial crisis, CPI inflation rose again in 2011 (4,6%) but in 2014 it reached -1% level (Tab. 5).

The recent financial crisis adversely affected the general government deficit in Poland (7% GDP in 2009 and 7.6% in 2010.). The crisis usually contributes to the weakening influence on the tax side and combined with an increase in budgetary expenditure (a significant increase especially in 2009.) affects the growth of public debt, which is not conducive to the stability of the financial system. Furthermore, the increasing -during the crisis -budget deficit, public debt, then the decline in GDP resulting from the turmoil in financial markets and an increase in budgetary spending which stimulating growth in consumption and investment, and liabilities arising from anti-crisis measures - contributed to the growth of public debt (Tab. 5).

Table. 5. Nominal GDP, CPI and public finances in Poland in 2000 -2014

Rok	Nominal GDP (current prices)	CPI Inflation	Government expenditure in total, in million zloty	General government deficit in % of GDP	General government debt in % of GDP
2000	747 032	8.5	293115.80	-3.0	36.5
2001	779 975	3.6	329682.60	-5.0	37.3
2002	810 617	0.8	351064.80	-5.0	41.8
2003	845 930	1.7	365252.80	-6.0	46.6
2004	927 306	4.4	387834.60	-5.0	45.3
2005	984 919	0.7	412130.70	-4.0	46.7
2006	1 065 209	1.4	442609.50	-4.0	47.1
2007	1 186 773	4	483182.40	-2.0	44.2
2008	1 277 322	3.3	535837.60	-4.0	46.6
2009	1 361 850	3.5	590019.80	-7.0	49.8
2010	1 437 357	3.1	635774.30	-7.6	53.6
2011	1 553 582	4.6	660082.10	-4.9	54.8
2012	1 615 894	2.4	689280.60	-3.7	54.4
2013	1 662 052	0.7	699177.50	-4.0	55.7
2014	1 724 723	-1	716857.50	-3.2	50.1

Source: The own source based on statistical data by Central Statistical Office in Poland

T. Lubińska stresses that in the years 2007 - 2011 in Poland the revenues in the budget were significantly reduced (i.e. indicator of fiscalism (taxes, fees) in the economy has fallen), while expenses increased. Considering the indicator of fiscalism - a basic income in Poland, in 2007 was recorded at level 35% of GDP, and in 2010 at level 29% GDP, so we note the decrease of 6% of GDP (6 p.p.). The situation on the expenditure side i.e. the scale of redistribution amounted to 41% of GDP in 2007 and 46% in 2010, so difference is 5 percentage points. Hence there is the need to take actions to increase the revenue on the side of the state budget.[20]

It should also make a reference of the economic indicators that have been achieved over the period 2000-2014 in Poland to important macroeconomic variables in EU countries. In EU countries, the average economic growth rate is much lower than in Poland at a lower consumer price index. In turn, the public debt in the European Union is on average significantly higher than in Poland, while the deficit of public finances on average in the EU seems to be at similar level.

Table. 6. General government deficit and public debt in EU28 (% GDP)

Rok	Real GDP growth rate in EU28	HICP inflation	General government deficit	Public debt in EU28
2000	-	-	-	-
2001	-	-	-	-
2002	-	-	-	-
2003	1.5	2.1	-3.2	60.7
2004	2.5	2.3	-2.9	61.2
2005	2.0	2.3	-2.6	61.8
2006	3.4	2.3	-1.6	60.4
2007	3.1	2.4	-0.9	57.8
2008	0.5	3.7	-2.5	61.0
2009	-4.4	1.0	-6.7	73.0
2010	2.1	2.1	-6.4	78.4
2011	1.7	3.1	-4.5	81.0
2012	-0.5	2.6	-4.3	83.8
2013	0.2	1.5	-3.3	85.5
2014	1.4	0.6	-3.0	86.8

S o u r c e: The own source based on statistical data by Eurostat

J. Osiatyński says that reform of public finances in Poland is needed even taking into account the fact that three-quarters of public expenditure consists of stiff expenditure. In addition, public finance management should be based on active actions with non-accidental, long-term and rational character[21]. On the other hand K. Piotrowska-Marczak recommends considering several measures that could help to reduce the deficit without causing adverse effects. Among these mentioned actions we distinguish:[22] not striving for a rapid reduction of the deficit in one year; not to focus mainly on the expenditure in the pursuit of a rational approach to public finance imbalance; increasing the level of tax collection; limit the shadow economy, increasing fiscal control and thus reduce tax arrears; extension of fiscal control in order to increase the degree of verification of tax returns and "sealing" of tax law to limit its different interpretations.

[20] T. Lubińska, *Zapis dyskusji panelowej na temat: Pożądane kierunki i scenariusze naprawy finansów publicznych w Polsce,* [w:] *Ekonomiczne…,* op. cit., pp. 19 -20.
[21] K. Piotrowska-Marczak, T. Uryszek, *Zarządzanie finansami publicznymi,* Difin, Warsaw 2009, p. 31.
[22] K. Piotrowska- Marczak, *Konsekwencje…*, p. 68.

2 CONCLUSION

During the last financial crisis in Poland and other EU countries an increase in budget deficit and public debt has been noted (see Table 5, 6). This was caused by slackening economic growth in those countries, outlays connected with additional financing of banking sector to support the states particularly affected by the crisis and bigger expenditures (investment outlays, public aid). The last crisis affected the monetary policy and fiscal policy loose in Poland and other EU countries. We observed that monetary policy has a relevant impact on economic growth and fiscal policy.

To sum up, the purpose of the article has been achieved concentrating on the essential significance of changes in public finances and economic growth in the Poland, in the context of financial crisis. Furthermore, the hypotheses were verified and confirmed: the first - that monetary policy has impact on the fiscal policy and finally on economic growth in Poland; and the second: that during the financial crisis were noticed simultaneously worsening situation of public finances and economic growth.

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