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PUBLIC DEBT STRUCTURE AS AN ORIGIN OF ECONOMIC INSTABILITY*

Generally, a government is not able to avoid an increase in public debt if budget deficit is caused by exogenous factors, such as a war or an economic crisis. The paper discusses and analyses whether the differences in approaches to public debt management and the public debt structure are the origins of economic instability and which consequences can be expected. In this context the role of public debt as a monetary policy instrument in the hands of a government is examined.
Keywords: *public debt; domestic debt; external debt; budget deficit; monetary policy.*
JEL classification: E41, E44, E51, E52, E53, G10, H61, H62, H63.

Міхаль Стреча

СТРУКТУРА ДЕРЖАВНОГО БОРГУ ЯК ДЖЕРЕЛО ЕКОНОМІЧНОЇ НЕСТАБІЛЬНОСТІ

У статті продемонстровано, що уряди, як правило, не можуть уникнути збільшення державного боргу, якщо дефіцит бюджету викликаний зовнішніми чинниками, наприклад, війною або економічної кризою. Проаналізовано різні підходи до управління державним боргом та його структури як джерела економічної нестабільності, а також можливі наслідки від змін у структурі боргу. У цьому контексті також досліджено роль державного боргу як інструменту фінансової політики уряду країни.
Ключові слова: *державний борг; внутрішній борг; зовнішній борг; дефіцит бюджету; грошово-кредитна політика.*
Форм. 14. Рис. 1. Табл. 2. Літ. 22.

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СТРУКТУРА ГОСУДАРСТВЕННОГО ДОЛГА КАК ИСТОЧНИК ЭКОНОМИЧЕСКОЙ НЕСТАБИЛЬНОСТИ

В статье показано, что, как правило, правительство не в состоянии избежать повышения государственного долга, если дефицит бюджета вызван внешними факторами, такими как война или экономический кризис. Проанализированы различные подходы к управлению государственным долгом и структуре государственного долга как источника экономической нестабильности, а также возможные последствия. В этом контексте исследована роль государственного долга как инструмента финансовой политики правительства страны.
Ключевые слова: *государственный долг; внутренний долг; внешний долг; дефицит бюджета; денежно-кредитная политика.*

1. Introduction. In the last 3 decades, many both OECD and non-OECD countries were affected by several crises of different forms; the currency crises in Mexico and in South-West Asian countries in the 1990s, the so-called Dot com crisis at the beginning of the millennium and the latest and the most serious crisis which originated in 2007 and extended into the global level with its impacts and damages surpassing the impact of the economic crisis of the 1930s. The origin of the current crisis is at the credit market. There was an excessive granting of mortgages to less solvent economic subjects and while prices at the real estate market started descending and

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* This paper has been created with a support of a grant project IGA F2/15/2013 "Impacts of economic development of China on selected developing and developed regions".

people were not able to repay their liabilities, banks started accumulating losses. Because of it the indebtedness of households, companies and governments turned to be more controlled and nowadays it is paid more attention to.

The increasing indebtedness and the public debt-to-GDP ratio have been raising many fears, and another crisis in future which could be even more destructive. Nowadays we are witnessing the crisis in the credit and banking sector which extended into the entire financial market and the real economy. In this case only governments are able to protect households' savings and rescue many banks and enterprises from bankruptcy. However, public overindebtedness could be the gravest potential problem because there is not another subject in the economy which could rescue governments from bankruptcy.

This paper is dedicated to the analysis of macroeconomic impacts of various forms of public debt which is not paid so much attention. This paper is also discussing the importance and the role of public debt as a monetary instrument in the context of macroeconomic stability.

The text is composed of 5 parts. The introduction is the first one. The second part offers a literature review. The third part states the problem and research objectives. The fourth part is dedicated to the origins of public debt. The fifth part studies the macroeconomic impacts of various forms of public debt. The sixth part contains the conclusion.

2. Literature review. A considerable amount of literature has been published on the topic of macroeconomic impacts of budget deficits and interconnections between households' indebtedness and macroeconomic environment. Most of them are empirical in nature. However, there is relatively little literature on the topic of public debt and macroeconomic impacts in its various forms.

Macroeconomic impacts of budget deficits have been examined in studies, e.g. (Bernheim, 1989; Eisner, 1994; Gale et al., 2004).

Some authors study macroeconomic impacts of an increase in households' indebtedness (Roffia et al., 2007; Sedova, 2011) or on the contrary they examine changes in households' indebtedness in response to changes in interest rates, income or economic environment (Debelle, 2004; Frait et al., 2011).

A relation between the level of debt and important macroeconomic variables has been examined by (Jacobsen et al., 2004; Finocchiaro et al., 2011). Authors which consider directly the topic of macroeconomic impacts of public debt are (Greiner, 2009; Engen et al., 2004). Less literature is devoted to the analysis of macroeconomic impacts of various forms of public debt, or authors normally don't set the impacts of budget deficit or government fiscal policy apart.

3. Public debt structure as a monetary instrument. The current economic and financial crisis was an impulse to start controlling and paying more attention to public debt. However, crises are not the only origins of an increasing debt. There exist plenty of both exogenous and endogenous factors which cause budget deficit. Currently, one of the most serious and standing out is a war which results in an increase in public debt. This paper would like to point out the macroeconomic impacts of various forms of public debt to start a discussion on the role of public debt as a monetary instrument.

Monetary authorities normally carry out their policy by means of 4 monetary policy tools – discount and bank reserves rates, open market operations and foreign currency operation. Through these tools they can influence the domestic price level, market interest rates, monetary base, money supply or the exchange rate. In general monetary authorities are independent from governments. When a government wants to influence the real economy, it carries out the fiscal policy. On the grounds of the discussion in this paper, it will be evident that public debt structure too has various impacts according to a residence of the creditor or how the debt is created (and if new money is created as well).

Monetary authority is not able to manage money supply because generally it depends on commercial banks and on economic subjects, whether they want to borrow money or not. Government has the same inability of influencing other subjects if they want to lend money to it or not. However, if a government operates with a public debt only as a means of funding its budget deficit, this can have unexpected negative macroeconomic consequences.

4.1. Origins of a public debt. Public debt can be created on the basis of a government budget or in reaction to some unexpected expenditures. It means that public debt can be caused by both budgetary and extrabudgetary expenses. The OECD definition of public debt is "obligations of government and public sector agencies" (OECD). In other worlds, public debt is a cumulative amount borrowed by a public sector from any subject of both domestic and foreign economy. In majority of countries debt exists in a form of bonds (Table 1). Other debt instruments are currency and deposits, loans, trade credits, debt securities, money market instruments etc.

We have to stress that public debt is not any ordinary item which public institutions count with while preparing a public budget. It is only an accounting consequence of an excess of public expenditures over public revenues (a public deficit). Therefore, a public debt and a budget deficit have equal origins but they differ in that a budget deficit is abstract and the impacts are related to the origins. A public debt is a real financial flow witch influences the economy.

Macroeconomic impacts of a public deficit differ according to the considered economic approach. We can distinguish 3 approaches to budget deficit (Bernheim, 1989; Dvorak, 1995):

1) Neoclassical approach which finds macroeconomic impacts of budget deficit to be negative (Eisner, 1994; Gale et al., 2004; Jackson et al., 2003);

2) Keynesian approach which finds macroeconomic impacts of budget deficit to be positive in some cases;

3) Neo-Ricardianism (the so-called Ricardian equivalence) which refuses both positive and negative impacts.

4.2. Origins of budget deficit. If we assume that the initial situation is a balanced budget, on the basis of the equation (1) the origins of budget deficit are caused by changes in government revenues (R_G) or expenditures (E_G). From this point of view, we can identify 4 ways how budget deficit can be created. Budget deficit can be caused by (Dvorak, 1995):

1) an increase of E_G while R_G are constant;

2) a decrease of R_G while E_G are constant;

3) a greater increase of E_G than the increase of R_G;

4) a lower decrease of R_G than the decrease of E_G.

Table 1. **Share of long-term debt securities (bonds) in the total public debt, %**

	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
CZE	19.9	52.4	59.7	64.4	70.0	67.1	67.6	69.3	69.4	67.1	69.9
HUN	50.3	66.0	68.5	67.2	71.1	67.1	59.5	59.9	59.0	60.6	63.3
POL	-	-	-	-	-	-	73.1	73.3	69.1	83.9	83.6
AUS	74.1	81.2	81.0	81.9	82.0	80.1	79.5	79.1	80.1	79.0	79.1
DEU	60.9	65.6	67.1	68.3	69.8	69.0	67.5	63.6	64.5	66.8	68.6
SPA	67.2	67.6	67.7	66.2	64.1	60.9	60.5	61.6	62.2	61.8	66.5
FRA	64.5	65.9	67.1	68.7	68.5	65.2	61.1	62.5	64.0	65.2	65.6
ITA	63.9	64.8	64.6	64.0	65.1	64.1	65.4	67.9	67.3	67.7	67.8
GBR	64.3	64.6	65.6	66.1	69.3	66.2	73.0	76.1	77.2	80.0	81.0
USA	67.6	64.2	65.0	66.3	65.7	57.0	62.2	64.6	66.8	67.7	70.1

Sources: World Bank data and own construction.

Actually, a government is not able to influence or avoid some negative changes in its budget. Therefore, budget deficit can be divided into active budget deficit and passive budget deficit by the origin (Dvorak, 2008).

4.2.1. Origins of the passive budget deficit. Any exogenous factors which result in a decrease of R_G or in an increase in E_G lead to passive (cyclical) budget deficit. Exogenous factors are any factors independent from government decisions. Barro points out the importance of two exogenous factors which cause passive budget deficit – war and economic recession. Besides these two factors, there exist others (Barro, 1979; Dornbusch et al., 1981):

1) a decrease in GDP growth which influences both R_G and E_G;

2) cost shocks generated by changes at international markets (e.g., oil price shocks);

3) expense shocks related to some extraordinary incidents which cause an unexpected rise in E_G (e.g., a war conflict or some natural disaster);

4) a rise in interests from public debt.

A government is not able to prevent negative exogenous factors from happening and therefore it is not able to avoid a passive budget deficit.

4.2.2. Origins of the active budget deficit. Origins of an active budget deficit are any government decisions or activities which result in a decrease in R_G or in an increase in E_G. Macroeconomic impacts differ a lot by various fiscal multipliers and differences in the context of the Pareto efficiency (Jackson et al., 2003). A government is not able to manipulate E_G or R_G in real time in response to a current economic situation. Changes in a short term period are complicated or a government is not able to influence it and changes come with delay.

Therefore, we can state that ***it is impossible to avoid a budget deficit on the grounds of exogenous factors*** and a government has no means to solve this budget unbalance in a short term period.

4.3. Possibilities for financing budget deficit. There exist 3 ways of funding a budget deficit (Dvorak, 2008; Rvenda, 2001):

1) Sale of assets;
2) Debt financed deficit (domestic debt or external debt);
3) Money financed deficit.

Budget deficit represents a difference between revenues and expenditures.

$$D = -(R_G - E_G), \quad (1)$$

where D is deficit; R_G and E_G – see above. R_G are mainly composed of taxes. E_G are composed of expenditures on goods and services and transferable payments. If we put the expression for a budget deficit on the left and all possible forms of financing on the right, we obtain the equation:

$$-(R_G - E_G) = B_D + B_F + B_{MA} + A, \quad (2)$$

where B_D are government bonds bought by the domestic private sector; B_F are government bonds bought by foreigners; B_{MA} are government bonds bought by a monetary authority and A is public assets sale.

At the national level, government can cover a budget deficit, either from available domestic savings ($S - I$) or from available foreign savings ($M - X$).

$$-(R_G - E_G) = (S - I) + (M - X). \quad (3)$$

The equation says that the more a government spends beyond its own revenues (taxes), the lower must be the consumption of domestic households or the greater must be the financial inflow from abroad. Various forms of debt (forms of financing a budget deficit) have different macroeconomic impacts which will be analysed in the following chapter.

5. Public debt structure and macroeconomic impacts. If we want to distinguish the macroeconomic impacts of public debt from the impacts of government fiscal activities and of a budget deficit, it is necessary to look for the impacts at the financial market which is unlike them directly connected with a debt.

Financial market contains a wide range of financial instruments such as currencies, various kinds of securities or derivatives. Currency represents money supply and therefore it is convenient to start with an analysis of possible ways how a government can borrow money and how it influences money supply. Actually, only some of them lead to a formation of new money. We will consider the existence of government bonds (GB), banking (BC) and non-banking (NBC) credits.

1. GB purchased by domestic households: When a government borrows money from non-banking subjects within domestic economy, it doesn't create any new money. Beside the monetary authority, banks are the only subjects in the economy authorized to create new money by giving credits. Therefore, in case when households or companies buy government bonds, money is only circulating within an economy.

2. GB purchased by domestic banks: When a government borrows from domestic banks, it creates new money and it will lead to an increase in money supply.

3. GB purchased by a monetary authority through the primary market: This practice is forbidden or limited in the majority of countries. Nevertheless, in this case new money is created and it will lead to an increase in money supply as well.

4. GB purchased by a monetary authority through the secondary market: This practice lead to a creation of new money but it also leads to an increase in the monetary base (MB). More attention is paid to it in Section 5.3.

5. BC from domestic banks: When a government takes a credit from commercial banks, the effect is the same like in the case of a purchase of GB by commercial banks. New banking credit always creates new money.

6. BC from domestic households: When a government takes a credit from households or companies, it doesn't create any new money.

7. Any kind of loan to a government from abroad: When a government borrows from abroad, it is irrelevant whether new money has been created or not. Money is new for the examined economy anyway.

5.1. Domestic public debt. Domestic public debt is created when a government borrows from domestic economic subjects. Potential financial sources for a government are that part of private savings which is not used for investments or financing the net import. At the same time there exists a possibility that domestic households will also borrow money from abroad, therefore we have to modify the equations (2) and (3) to obtain a more complex view.

$$(S - I) = B_D + B_{MA} + A - L_F, \quad (4)$$

where L_F is borrowed money by the domestic private sector from foreigners.

When budget deficit is financed by domestic debt, in order not to have negative impacts on investments, it is necessary to raise the amount of private savings by the same amount of money lent to a government (4). It would result or in a decrease of consumption (see below) or in an increase of external private debt. We will discuss two scenarios of changes in savings and consumption.

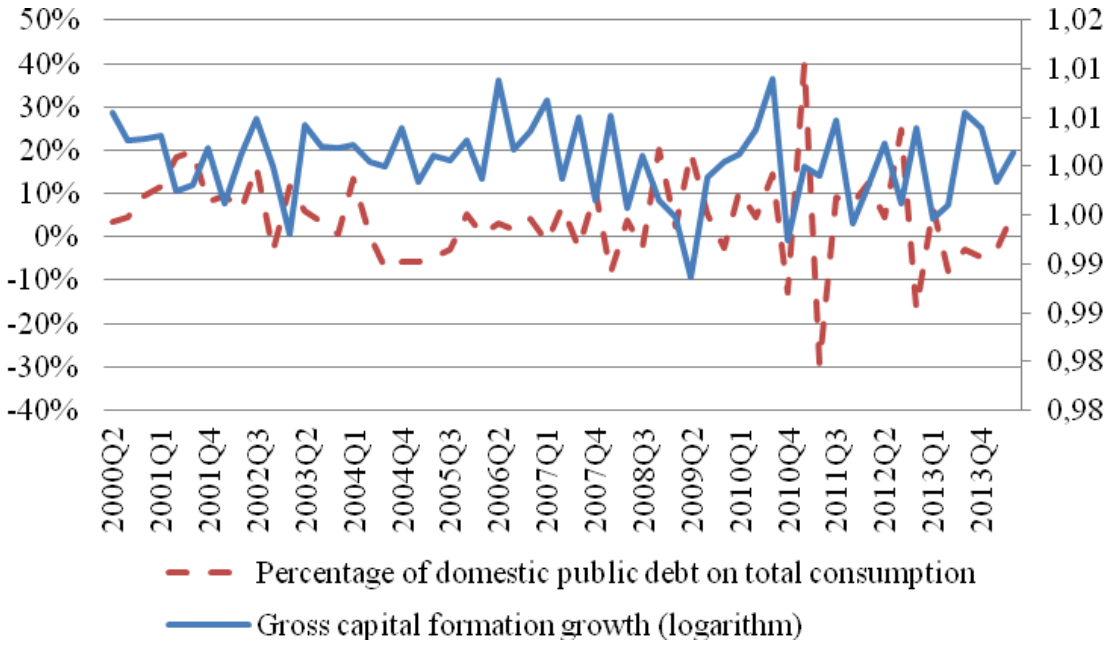
The *first scenario* is the situation *when households reduce their savings.* It will result in an increase in the total consumption and a decrease in national savings. The decrease of savings will cause an unbalance in the money and capital market. This unbalance is supposed to be resolved by the market itself; the unbalance will cause a raise in interest rates which will result subsequently in a decrease in capital demand (investments) and an increase in capital supply (savings). Therefore, under this scenario *we can expect an increase in interest rates and a decrease in domestic investments.*

There is an assumption which has received widespread acceptance that private savings are perfectly interest inelastic. It means that in a short term period there is no response of private individual savings to changes in real interest rates (Romer, 2001; Rvenda, 2001). Therefore, *we can expect the renewal of balance at the money market in a long term period.*

The second scenario is the situation when savings don't decrease. Keynes said that money demand is influenced by two assets – money and obligations. Monetarists consider 5 kinds of assets in which we can hold our wealth – money, bonds, shares, physical capital and human capital (Soukup et al., 2007; Romer, 2001). Except for money, all of these investments into all of these assets are considered as consumption. It means that if households buy government bonds, they spend part of their disposable income on public debt instruments and then they cut down their consumption on products and services, or reduce their savings.

If households' don't reduce their savings, it will result in a decrease in the consumption on goods and services (in favour of consumption on a debt) and it will affect companies and their investments. It means that the result will be the same like under the previous scenario – *an increase in public domestic debt results in a decrease of domes-*

tic investments (if a creditor is not a bank). If a creditor is a bank, an increase in public domestic debt results in an increase in money supply (consequences are equal like in the case of public external debt). The relationship between a percentage of domestic public debt on the total consumption and investments growth is shown in Figure 1.



Source: Eurostat data and own construction.

Figure 1. **Percentage of domestic public debt on total consumption** *(%; left side)* **and gross capital formation growth in logarithmic expression** *(right side)*: **Case of Czech Republic**

If we continue our reflections, according to the theory of fiscal policy and the Phillips curve (Soukup et al., 2007; Romer, 2001), a decrease in investments is supposed to result in an increase in the unemployment rate and a decrease in the average price level. Of course, there exist many factors which influence these indicators simultaneously. However, we can state that a continual *increase in domestic public debt should result in a decrease in the average price level or even in deflation*. In case of Japan we can observe an evident connection between the public domestic debt (more than 90 % of the total public debt is in hands of the residents) and the deflation (Table 2). The same danger we can observe in the cases of high indebted countries with a predominant domestic debt (Spain or Italy) which face the same situation.

5.2. External public debt. If there are not enough savings in the economy to cover the requirements of domestic investors and at the same time requirements of the government, it is necessary to finance the budget deficit from foreign sources – then the external public debt is created. In many countries the predominant form of public debt is the external debt (Table 2). This financial inflow can influence the balance of payments and other indicators which are in relation to it. The impacts of an external debt financed deficit on the balance of payments and on the exchange rate are strong first of all in the case of developing countries because of a great share of external debt in the total balance of payments.

As it was mentioned above, *any kind of external public debt results in an increase in money supply in the domestic economy*. Macroeconomic impacts of external public

debt will be the same like in the case when a government borrows money from domestic banks. So what are the consequences of a raise in money supply? We will use the modified equation of Irving Fisher in product formulation proposed by M. Friedman:

$$M \times V_T = P \times Y^*, \quad (5)$$

where M stands for money supply; V_T represents the product velocity of money; P represents the average price level; Y^* represents the real economic product at the potential level. Actually, V_T is considered as a constant, *therefore, an increase in money supply should result only in an increase in the price level.*

Table 2. **Share of external debt in the total public debt,** *%*

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
CZE	15.6	21.8	22.7	24.3	22.4	23.9	27.4	26.2	26.2	29.3
HUN	40.7	44.3	44.6	47.5	49.1	53.6	54.4	60.9	61.9	57.4
POL	44.9	41.8	40.0	37.4	32.3	35.9	41.2	44.2	53.7	50.5
AUS	76.3	81.0	79.9	81.7	83.8	80.2	81.3	81.1	84.8	82.2
DEU	41.5	45.5	44.9	46.6	51.9	51.7	52.9	60.9	62.4	58.7
SPA	48.4	49.8	49.4	45.3	47.0	47.1	40.0	33.3	34.8	41.0
FRA	46.5	50.0	49.5	47.7	53.5	55.2	54.5	53.6	54.7	55.7
ITA	37.7	41.6	41.5	40.1	42.4	44.7	43.9	35.3	36.0	33.5
GB	18.1	21.4	24.2	26.6	29.0	25.4	28.7	32.2	31.6	29.1
USA	19.8	20.2	21.1	22.4	22.9	24.5	25.6	26.4	27.3	28.5
JAP	3.9	4.6	5.4	7.5	6.9	6.4	6.6	8.3	8.4	8.5

Sources: World Bank data and own construction.

In case there exists a danger of deflation or inflation is too high, monetary authorities carry out monetary policy to affect the inflation and hold it in required limits. As it was mentioned above, one of them are open market operations. These are buying and selling government securities at the open market which directly affects bank reserves. This mechanism is called the monetization of public debt and it will be analysed in the following part of this chapter.

Besides an increase in the price level, an increase in money supply can result as well in a decrease of market interest rates and subsequently in a depreciation of the domestic exchange rate. An increase in money supply will cause an imbalance at the money market. People have to hold more money than they want to. Therefore, interest rates must fall. *If an increase in money supply results in a decrease of a domestic interest rate, according to the equation of the international Fisher effect a decrease in domestic interest rates is accompanied by an expectation of higher inflation in the domestic economy.* The equation of the international Fisher effect (Soukup et al., 2007) and its simplified version including an interest rate differential (on the left) and an inflation rate differential (right) are showed in (6) and (7).

$$\frac{1+i_{Dt}}{1+\pi^e_{Dt+1}} = \frac{1+i_{Ft}}{1+\pi^e_{Ft+1}}; \quad (6)$$

$$i_{Dt} - i_{Ft} = \pi^e_{Dt+1} - \pi^e_{Ft+1}. \quad (7)$$

If we use the international Fisher effect theory, the uncovered interest parity theory and the relative purchasing power parity theory together (Romer, 2001; Soukup et al., 2007), we can analyse the impacts of changes in domestic interest rates on the

exchange rate. According to the equations (8) and (9), *a decrease in a domestic interest rate results in depreciation of the exchange rate in a short term and in an expected appreciation of the exchange rate in a long term*.

$$\frac{E^e_{D/Ft+1} - E_{D/Ft}}{E_{D/Ft}} = \pi^e_{Dt+1} - \pi^e_{Ft+1}; \tag{8}$$

$$i_{Dt} - i_{Ft} = \frac{E^e_{D/Ft+1} - E_{D/Ft}}{E_{D/Ft}}. \tag{9}$$

An increase in money supply can result in a depreciation of domestic exchange rate in a short term period. However, there exist many factors which influence the exchange rate, e.g. export and import prices and amounts, a price level in both domestic and foreign economies and interventions of both domestic and foreign monetary authorities. *Therefore, we can expect that there must not be any significant impact of external debt on the exchange rate*. Actually, the effect can be stronger if the increase of external public debt is accompanied by other factors – for example, speculations on domestic currency. At the national level, by the synthesis of (2), (3) and (4) the net import can be divided into loans to public and private sectors.

$$(M - X) = B_F + L_F. \tag{10}$$

5.3. Monetization of a public debt. Monetization of a public debt is a process when a monetary authority buys and sells government bonds from commercial banks at the secondary market. Purchase at the primary market is generally forbidden by law (Rvenda, 2001). If a monetary authority operates in the primary or the secondary market, it influences two different monetary aggregates – money supply (in case of primary market) and monetary base (secondary market). An increase in monetary base and in money supply differs in impacts on various macroeconomic indicators such as the price level or real interest rates.

If a monetary authority buy government bonds at the primary market, new money will be created in the economy and money supply ($M1$) will increase. According to the exogenous theory of money, a monetary authority manages money supply by the monetary base (Rvenda, 2001). When they change interest rates or when they buy securities from banks, they try to influence money supply. Monetary base (MB) is composed of currency (C – money in circulation), bank reserves (R) and money supply ($M1$ or $M2$) is composed of currency (C) and deposits (D). The relation between monetary base and monetary aggregates $M1$ and $M2$ are shown in equations (11) and (12).

$$\frac{M1}{MB} = \frac{C + D}{C + R}; \tag{11}$$

$$\frac{M2}{MB} = \frac{C + D + T}{C + R_D + R_T + R_V}, \tag{12}$$

where T represents term deposits; R_D represents bank reserves from current deposits; R_T represents bank reserves from term deposits; R_V represents bank voluntary reserves. Actually, the monetary base serves to a monetary authority as a tool in managing money supply by means of a deposit multiplier.

$$\frac{D}{R} = \frac{1}{r}. \tag{13}$$

The right side of the equation represents a simple deposit multiplier which describes an amount of money created in a bank's money supply by an increase in bank's reserves in the central bank (the monetary authority). Reserves represent loans to commercial banks from a monetary authority or securities purchase from commercial banks by a monetary authority. If the currency doesn't exist and the simple deposit multiplier is stable and fully under control of a monetary authority, then it can manages money supply through the monetary base. The relation is evidenced in the equation (Rvenda, 2001; Romer, 2001):

$$M1 = \frac{1}{r} \times MB. \quad (14)$$

But this assumption of full control of a monetary authority over the money supply is wrong. Public debt monetization doesn't cause an increase in money supply ($M1$) automatically. Furthermore, an increase in the monetary base doesn't always have impact on the real economy. It will lead only to a better liquidity of commercial banks and credits to both private and public sectors become more accessible. The result in the case of other monetary policy tools is equal.

6. Conclusion. There are significant differences between macroeconomic impacts of public debt. Firstly, macroeconomic impacts depend on the way they are created or who is the creditor. However, quality of debt instruments can have some impact as well. If the interest rate of a debt instrument is fixed or not can affect future interest payments and costs of the debt management. Tradability of debt instruments is another important characteristic because if an instrument is traded at the secondary market, then impacts are equal as if it was issued at the primary market. According to the creditor, then new money can be created or not.

Therefore, monetary authority is not able to manage money supply because it depends on commercial banks and on economic subjects if they will want to borrow money or not. A government has the same inability of influencing other subjects if they want to lend money to it or not. Actually, when a government wants to influence the real economy, it carries out fiscal policy. From the discussion in this paper, it is evident that public debt structure has various impacts according to the residence of a creditor or how the debt is created (and if new money is created as well).

Various forms of public debt influence the real economy along with other economic factors. But the influence of public debt can be significant and it can serve as one of origins of changes in other economic indicators. Specific form of funding a budget deficit is public debt monetization which can result in an increase in money supply but it depends on the subjects in the real economy if they will ask for new credits or not. If there is no capital demand in the real economy, a monetary authority is not able to influence it. The only impact of public debt monetization is an increase in monetary base and banks liquidity.

The conclusion of this paper is a statement that a government can carry out in a limited way its own monetary policy by means of public debt management. Besides affecting traditional "targets" of the fiscal policy, a government can as well affect market interest rates, the exchange rate, money supply and the average price level. Therefore, if a government operates with public debt like with a monetary policy instrument, it can influence the economy and can avoid economic instability which could result in an economic or financial crisis.

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Стаття надійшла до редакції 28.11.2014.