

**Zsuzsanna Novák**

Magyar Nemzeti Bank

Monetary policy instruments, foreign exchange reserves and risk management, Hungary

E-mail: novakzs@mnb.hu

## **PUBLIC DEBT IN THE CEECS: IS THE SOVEREIGN DEBT CRISIS OVER?**

JEL classification: H63

### ***Abstract***

*The paper investigates how the global financial and the ensuing European sovereign crisis affected the public debt dynamics of the EU member countries of Central and Eastern Europe, which countries are generally facing difficulties in keeping fiscal discipline as a negative consequence of global and regional financial turbulences. It reveals how economic factors (real GDP growth, interest rates, primary deficit) affected the trend of public debt in the period after 2008 among new EU members on the basis of Eurostat and European Economy statistics. After the briefing of some relevant government debt theories (among others Marcet and Scott, 2003, Díaz-Giménez and Giovanetti, 2007, Garcia et al., 2011, Broner et al., 2014), the paper provides a descriptive analysis of the debt structure of eight Central and Eastern European countries in recent years. It compares the currency composition of the governments' liabilities, discusses the role the domestic public sector plays in financing public debt, and whether there is evidence of domestic financing crowding out private investment in these countries. In the light of CDS premia and reference yields financing costs are contrasted and the way debt management strategies are formulated and government debt instruments are chosen in order to mitigate the financial burden caused by government indebtedness are compared. Finally, the paper summarises the lessons of the Hungarian self-financing programme launched in April 2014 by the Magyar Nemzeti Bank (Central Bank of Hungary).*

***Key words: public debt structure and dynamics, CDS premia***

## INTRODUCTION

The 2008 global financial crisis shook all countries of Europe independent of geographical situation or economic development and transformed to the crisis of sovereigns. The sovereign debt problem of Europe became more pronounced with the announcement of the true level of budgetary deficit in Greece in November 2009. A series of negotiations started how to protect Greece from default on debt, how European institutions can take part in the financing of public debt in the PIIGS and what measures should be taken to prevent financial instability caused by budgetary imbalances of member states in the future. The sovereign debt crisis of Europe spread over to the Eastern periphery: at the end of 2011 Hungary was downgraded again then followed Slovakia, Slovenia, Croatia and Slovakia<sup>1</sup>. The process seems not to be over as Greece is still fighting with everyday payment problems arising from debt, Slovenia launched new bailout package for banks and Hungary uses a series of unconventional economic policy measures to tackle the debt problem. The paper investigates the dynamics of public debt in the CEECs after 2007, the structure of debt and addresses some policy implications.

## CAUSES AND CONSEQUENCES OF PUBLIC DEBT

A simple macroeconomic framework cited by among other Oblath-Valentinyi (1983) describes the dynamics of public debt accumulation by deriving the equation below:

$$\dot{b} = d - \mu m + (r + \frac{\delta}{\epsilon} - r_y) b \quad (1)$$

This equation illustrates the real economic factors which affect the dynamics of public debt in time: the primary balance as a percentage of GDP ( $d$ ), the real increase of the quantity of money in the given period ( $\mu m$ ), and the initial level of the debt-to-GDP ratio ( $b$ ), where the latter contributes to the increase in the stock of liability to the extent at which the real interest rate ( $r$ ) (plus real depreciation in the case of foreign currency denominated liabilities:  $\frac{\delta}{\epsilon}$ ) exceeds the real growth of GDP ( $r_y$ ). The causes of the accumulation of public debt are well summed up in the above equation: apart from government overspending, whose effect is obviously debt generating, the slowing down of the economic performance of the economy and the interest expectations, as well as currency depreciation are important determinants as well.

Especially since the onset of the global financial crisis the scope of public debt theory has oriented to explain the consequences of government indebtedness. The seminal study of Reinhart and Rogoff (2010) confirmed that a debt-to-GDP level exceeding 90% can be a strong impediment to growth whereas

---

<sup>1</sup> Croatia's and Hungary's credit rating is still below the investment grade.

it is difficult to detect any reliable relation between growth and public debt below this level. A lot of criticism was raised against this finding, Herndon-Ash-Pollin (2013) attacked the methods and called the attention of the importance of the time period and country, Égert (2013) also emphasised that the impact of public debt on real GDP growth is rather dependent on the data series and modelling choices.

In any case governments in the EU countries have to face a serious constraint to stimulating the economy and at the same time intending to comply with the Maastricht fiscal policy rule if interest rates are high and interest expenditures leave no room for manoeuvre for fiscal policy. Garcia et al. (2011) call the attention to the problem of procyclical fiscal policy and ensuing macroeconomic volatility as a possible consequence of applying fiscal rules especially in emerging economies. Marcet and Scott (2003) compare complete and incomplete bond markets for investigating the impact of macroeconomic shocks on public debt. They are dubious about the application of fiscal rules as these rules do not differentiate between those governments which have to suffer great fluctuations in the debt-to-GDP ratio because of their incomplete security markets and those which simply conduct an insolvent economic policy. The formation of a complete market is therefore more advantageous as the volatility of taxes can be directly mitigated and the sustainability of debt better tested. In the opposite case higher interest rates today mean higher taxes in the future.

Many studies address the question of inflating public debt (Díaz-Giménez and Giovanetti, 2007, Martin, 2009). It is again not a real alternative for EU member countries but some authors suggest that in certain economic circumstances active and discretionary monetary policy can be a remedy for the problem of indebtedness instead of strict rules (for instance Araujo and Leon, 2004 on public debt in a currency union).

Finally, Miller and Foster (2012) call our attention to the relationship between public debt and economic freedom<sup>2</sup> by stating the governments favouring economic freedom are likely to strengthen a country's growth potential and "create an environment that reduces the risk of debt". Notwithstanding, Miller and Kim (2012) acknowledge that debt can contribute to increased productivity if it is used to reduce the tax burden and finance productive investment. If the increase in public debt is a permanent phenomenon it might reflect poor policy choices and the lack of economic freedom as well.

## **PUBLIC DEBT IN THE CEECS BEFORE THE CRISIS**

It is interesting to see on what economic path Central and Eastern European countries were progressing in terms of public finances before the

---

<sup>2</sup> According to Miller and Kim (2012, p. 14): „three fundamental principles of economic freedom – empowerment of the individual, non-discrimination, and open competition – underpin every measurement and policy idea” related to the term.

financial crisis. Among the many explanations of debt accumulation as regards economic freedom Treidler (2015) pointed out that the Czech Republic has an outstanding score in economic freedom (covering freedom of fiscal policy decisions as well), whereas Slovenia is appraised to be below the regional average. At the same time Németh (2015) examined whether election budgeting was present in the region and came to the conclusion that increased government spending can be detected in the Visegrad countries (including the Czech Republic, Hungary Poland and Slovakia): in election years governments tended to spend more in order to obtain voter's trust and the consequence was a deficit path following political cycles. In the case of Hungary this cyclicity of the budget meant an unequivocal contribution to today's above average debt level, mostly in the years of 2002 and 2006. Another explanation why fiscal policy decision-makers were interested in raising debt-to-GDP levels is offered by the public debt as strategic variable approach (Alesina-Tabellini, 1990). According to this interpretation current policy-makers pile up massive government liabilities to make it difficult for new incoming parties. In the years preceding the crisis again the Visegrad countries can be suspected of this political gimmick whereas Slovenia and Bulgaria did not use debt as strategic variable. EU accession could be also used strategically to create confidence in the economy and make austerity measures more acceptable, as was observable in the case of the Czech Republic, Slovakia and Romania, this in contrast contributed to the stabilisation of the budget (Takács-Benczes, 2015). Hungary, on the contrary, had to apply procyclical fiscal policy by breaching the Maastricht deficit rule between 2002 and 2008 and had to undergo the excessive deficit procedure due to a distorted structure (the still dominant social transfer payments like during socialist times) of the general government, budgetary overspending and stop-and-go economic policy (Constantinovits, 2014, Benczes, 2015). Slovakia did not need to build trust by increasing social payments, it instead reformed the budget as early as in 1997 and then could maintain the results of this reform (Györffy, 2015). Poland has also been strongly committed to the 60% debt-to-GDP rule which is even stipulated in the Polish constitution. (Kozenkow, 2015) Finally, Croatia followed an atypical model of economic policy (Sieger, 2015). Facing the double challenge of an armed conflict and transformation at a time, the debt ratio could only be kept moderate until privatisation revenues could counterbalance budgetary overspending. Between 2002 and 2008 Croatia could then achieve a declining public debt ratio but due to the growing economy and not major fiscal policy reforms (Sieger, 2015). It did not really take advantage of EU accession as strategic tool as there was a lot of scepticism around this policy step.

In the course of the financial crisis mostly external factors dominated the forming of government debt and most governments simply reacted by budgetary loosening (except Hungary). The picture since then concerning figures is probably more diverse than the strategies leading to the current post-crisis situation.

## THE DYNAMICS OF PUBLIC DEBT AND ECONOMIC PERFORMANCE

In the course of the European sovereign crisis it became a striking question whether the excessive indebtedness prevailing in Western European countries would also reach the block of new member states. As regards Hungary, the debt-to-GDP ratio was not much lagging behind the eurozone average already in 2007 before the global financial crisis also hit Europe.

The severity of the debt problem by now is manifested by the data of last year when three countries of the Central European region recorded over 60% public debt, the threshold defined by the Maastricht Treaty, according to the new statistical methodology ESA 2010. In the V4 countries (the Czech Republic, Hungary, Poland and Slovakia) the upward tendency seems to have come to a halt but Slovenia and Croatia are facing a menacing debt accumulation process and getting closer to the eurozone average (Figure 1).

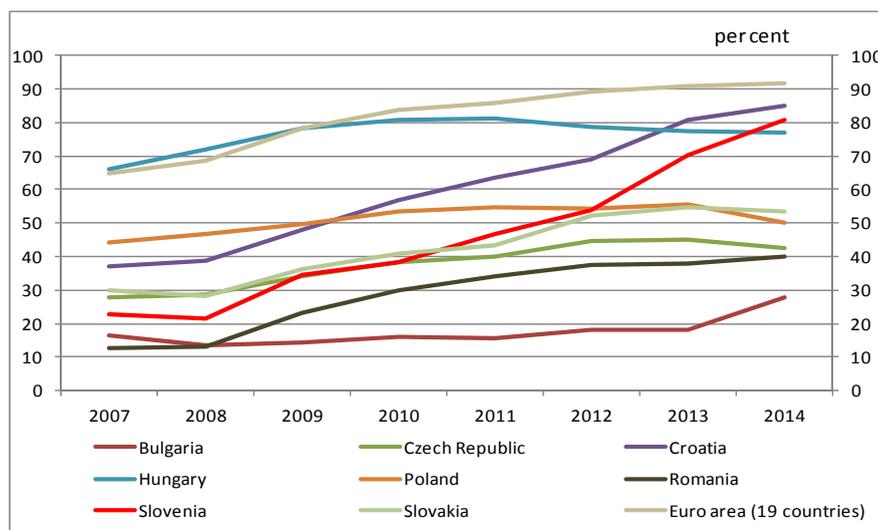


Figure 1: Debt-to-GDP in the CEECs and the eurozone between 2007-2014,  
Source: Eurostat, 2015

Among the factors driving public debt levels high (see Appendix 1) it is apparent that primary deficit was much responsible to the accumulation of public liabilities. As most EU countries used Keynesian fiscal stimulus to spark economic growth, primary deficit was above 2% on average in the majority of the countries under examination after 2008. Hungary is a striking exception as due to its highest debt-to-GDP in the region reaching 80% in 2009 it had to maintain budgetary discipline through procyclical fiscal policy to exit the excessive deficit procedure. The interest expenditure of the government itself accounts for more than 3% of GDP every year, therefore the compliance with the deficit criterion

requires the positive balance of the primary budget. The other reason why it had to hold the budget tight was that the interest-growth differential was evolving in an unfavourable way, a tendency of growing out of debt only commenced in 2014. This resulted in a policy targeting primary surpluses between 2008 and 2014 in order to offset debt increasing real economic factors (real interest spending minus real GDP growth, see formula 1). The interest burden is the highest here, not only due to higher GDP proportional levels in the period average but also due to the highest risk premium in the region until 2014. Having a paralysed budget, the Central Bank of Hungary (MNB) had to introduce a credit easing programme in order to facilitate the recovery from recession. The Czech Republic was the other country characterised by moderate budgetary spending due to its mostly negative real GDP growth in the last couple of years. Poland was investing much in the economy and could maintain a growing GDP throughout the period. With the help of these three different strategies the Czech Republic, Poland and Hungary could almost return to the pre-crisis ratio of public debt by the end of 2014. The fourth Visegrad country, Slovakia, was performing somewhat less successfully due to the large economic stimulus packages but its continuously positive real economic growth prevented it from surpassing the 60% threshold.

Bulgaria and Romania had to cope with a sharp increase in debt as a consequence of high CDS premia together with a moderate growth. Romania could start cutting back spending before reaching any threatening level of and Bulgaria could totally avoid a significant increase in the debt-to-GDP ratio due to their low initial levels. The evident losers of the crisis are Croatia and Slovenia. In the lack of reliable data it is difficult to gauge the role of the government in the sharp increase in debt in Croatia, but the real economic factors (interest and GDP growth) meant a strong contribution. Between 2012 and 2013 there must have been a strong stock-flow adjustment due to change in methodology that triggered government debt as there is no explanation for the extreme growth in the underlying data. The situation in Slovenia has become similarly severe in Slovenia, beside the fairly negative real economic conditions the government spent more than 10% of GDP in 2012 than its revenues mainly as a consequence of the bank bailout programme.

Despite the growing debt in the region between 2008 and 2014, it is difficult to find any relation between the public debt level of a country and GDP growth. Comparing the average of the eight years preceding the crisis with that of the crisis and post-crisis period we can ascertain that the economic performance of Central and Eastern European countries has become extremely diverse. Among the best performing are those having a debt-to-GDP ratio around 40-60% on average but there are outliers both in the low, middle and high debt ratio countries as well. As concerns the real GDP growth data in recent years the crisis does not seem to be over and there are signs of the threat of a renewed South Central European sovereign debt crisis (encompassing Serbia and Slovenia and other post Yugoslavian countries).

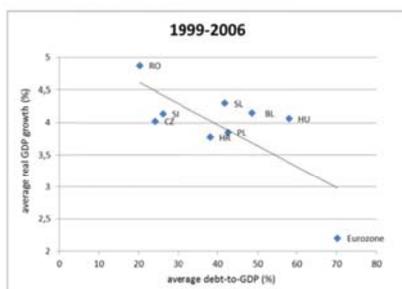


Figure 2 Public debt and GDP growth between 1999-2006, Source: Eurostat, 2015 (own figure)

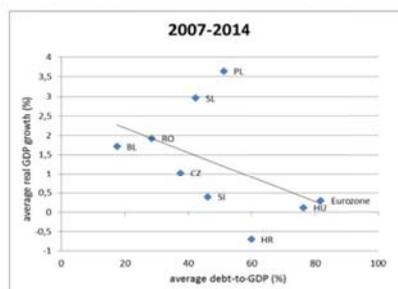


Figure 3 Public debt and GDP growth between 2007-2014, Source: Eurostat, 2015 (own figure)

## THE STRUCTURE OF PUBLIC DEBT

On the basis of 2012 and 2013 data, reliance on foreign savings is most characteristic of the Hungarian public debt in the group of the Central European new members of the EU (Figure 4). The unfavourable structure is not simply a consequence of domestic investors' investment preferences but it is also a result of the above regional average of Hungarian public debt which might not be possible to cover from domestic savings. (In 2012 and 2013 the gross nominal public debt amounted to more than a quarter of the gross /non-consolidated/ stock of financial assets of the domestic financial corporations and households and some 70% of the financial assets of credit institutions therein.) It is a promising phenomenon, however, that households play a greater role as investors in the government securities market in Hungary than in the neighbouring countries. Among the countries under examination the financial sector of Croatia<sup>3</sup> a country also having more than 60% debt-to-GDP enjoys more dominance in public debt financing (its share exceeds 60%) than in Hungary where this value is the lowest (hardly more than 30%). We can conclude that domestic financing has to have room for manoeuvre in Hungary and above all the participation of the financial sector can be extended.

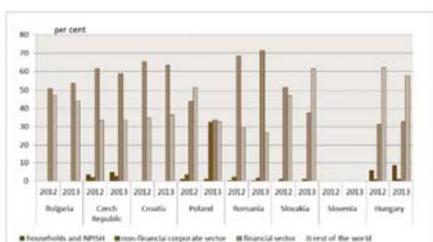


Figure 4 The ownership structure of public debt, Source: Eurostat, 2015 (own figure)

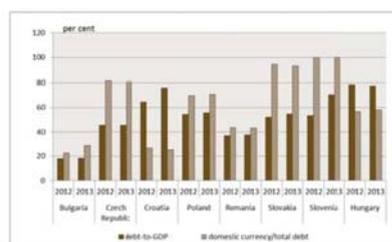


Figure 5 Domestic currency in financing public debt, Source: Eurostat, 2015 (own figure)

<sup>3</sup> There are no sectoral data available for Slovenia in Eurostat and on the website of the Slovenian Ministry of Finance

Examining the currency denomination of public debt (Figure 5) it can be established that the share of domestic currency in total public debt is the greatest in Slovakia and Slovenia (above 90%) which is not surprising as the two countries have already joined the eurozone (Slovenia in 2007 and Slovakia in 2009.) The Slovenian Ministry of Finance does not use any benchmark in its yearly financing programme of the central government, it describes the set of securities used for financing and defines the debt management guidelines respecting the Public Finance Act (PFA). However, it also uses swap transactions in USD denominated bonds and this way contributes to the almost 100% euro dominated financing structure. Slovakia does not use any declared portfolio benchmarks. The two countries are very active in the international sovereign bond markets with the issuance of government securities (eurobond issues are dominant).

Among the countries outside the eurozone Croatia, Bulgaria and Romania have a significant part of their debt in foreign denominations (close to 60-80%). The economy can be characterised by strong dollarisation and euroisation in Southern Slavic countries and Bulgaria which can be well traced in the liabilities structure of banks (in 2012 the stock of foreign currency denominated deposits in total liabilities accounted for more than 40% of all liabilities and 70% of the total deposit stock in Croatia /Živko-Kandžija, 2013/). Whereas Croatia earlier aimed at reducing the share of foreign denominated public debt to around 40%, in 2011-2013 the financing plan does not include any benchmark for currency structure. (Bajo-Primorac, 2011). In its two-year government debt management strategy the Bulgarian Ministry of Finance puts emphasis on the importance of a diversified debt portfolio but does not use numeric policy targets. Romania sets target intervals for currency denomination, maturity and interest composition of public debt in its two-year debt management strategy.

Among the Visegrad four Hungary evidently occupies the last place as concerns financing public debt from domestic currency in 2012 and 2013 (with an approximately 55 per cent rate). According to the strategic benchmarks of the State Debt Management Agency a maximum of 45% in 2014 and 40% in 2015 can be the share of foreign currency denominated assets in total debt and the purpose is to gradually reduce this share further (ÁKK, 2014). The issuance of a growing share of domestic household securities is also an important feature of the debt financing strategy together with maturity and interest rate targets. The Czech Ministry of Finance publishes its yearly financing strategy, defines maturity, fixed and variable rate securities ratio and foreign currency denomination benchmarks (in the last years below 15% foreign currency exposure ratio) and offers saving bonds available for private persons in its diverse government securities portfolio.

The domestic financing of public debt has a lot of advantages as interest income does not leave the country, the surplus liquidity of financial institutions can be sterilised without monetary policy interventions and the decreased share of

foreign currency and external financing can mitigate the external vulnerability of the economy. At the same time domestic financing might lead to inflation and enhance the crowding-out effect. Growing government debt often goes together with raising interest rates. Broner et al., 2014 warn of the crowding out effect of unproductive investment (and corrupt spending) leading to increased CDS premia, slowing economic performance leading to default on debt if debt is dominantly financed from domestic resources. Since 2009 the declining (though volatile) interest rates in Europe, however, made it easier for governments of the CEECs to fulfil debt service obligations which somewhat contradicts theory.

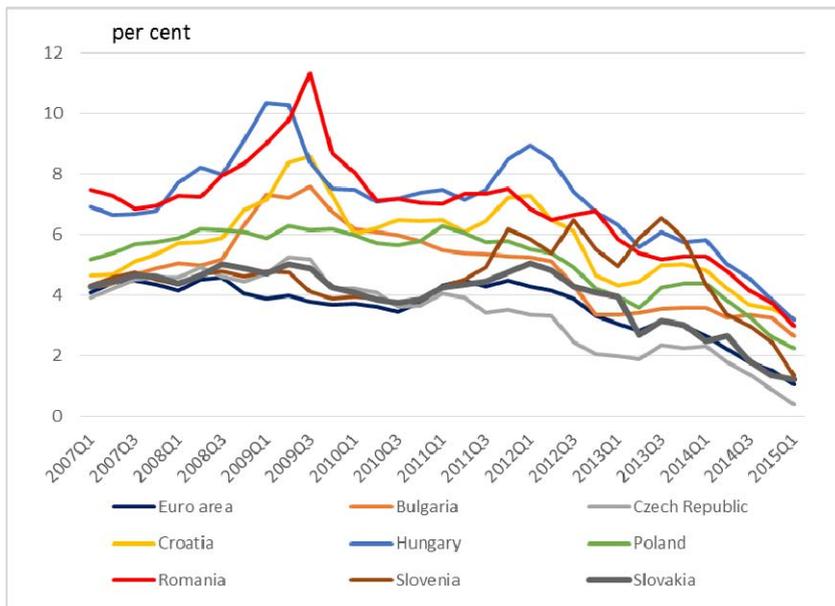


Figure 6 EU convergence criterion bond yields in the CEECs and the eurozone 2007Q1:2015 Q1, Source: Eurostat, 2015 (own figure)

In addition to the international interest rate tendencies, the loose monetary policy conducting continuous interest rate cuts, the reduction in external vulnerability and positive outlook on the future solvency of the country mitigates the risk premia. In the Central European region a stark decrease in the risk premia started in mid 2012 which was further fostered by the Council of the European Union adopting a regulation on short selling and certain aspects of credit default swaps.<sup>4</sup> Since mid 2013 the Hungarian CDS premium seceded from the Croatian and decreased below the Bulgarian by the end of 2014 and came very close to the the Romanian probably due to favourable fiscal data and the

<sup>4</sup> According to Horváth et al. (2013) thanks to the regulation Central and Eastern European premia shifted 50 basis points lower as compared to their projected path without regulation between October and November 2012. The regulation affected CDS transactions concluded before 25th March 2012 (the entering into effect of the regulation).

commitment of the government to reduce external debt. (In the 2012 and 2014 period the Hungarian debt-to-GDP ratio transcended by 40 the Bulgarian and 5-10 percentage points the Croatian.) Finally, at the end of 2014 the country risk of the emerging countries of the European region went the opposite direction to the regional average covered by the CEEMEA<sup>5</sup> index.

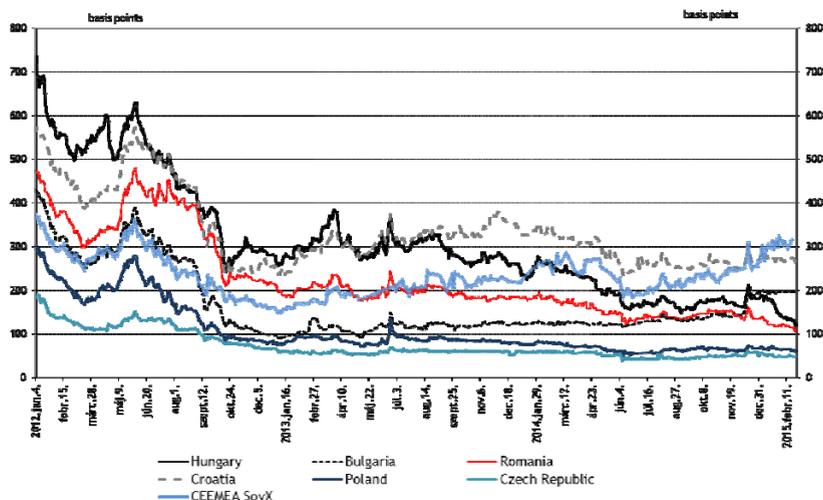


Figure 7 5-year CDS premia in emerging economies (2012. 01-2015.02.)

Source: MNB, 2015

The growing share of the domestic sector in the government securities markets, however, implies serious threats for the performance of the private economy. However, the negative impact of the stronger and stronger penetration of the public sector in the capital market can be verified by the way the increased public debt goes together with a declining gross fixed capital formation of the economy. The negative correlations have no statistical explanatory power though, they can serve as an indication or warning that crowding out is a natural consequence of government overspending.

Table 1  
Correlation between public debt-to-GDP and gross fixed capital formation to GDP in the CEECs between 2005 and 2014

Bulgaria	Croatia	Czech Republic	Hungary	Poland	Romania	Slovakia	Slovenia
-0,34	-0,95	-0,93	-0,82	-0,5	-0,6	-0,85	-0,84

Source: Eurostat, 2015 (own calculation)

<sup>5</sup> A Markit iTraxx SovX CEEMEA composite index groups countries in the following categories: European Union: Bulgaria, Poland, Lithuania, Hungary, Romania, Croatia, emerging Europe: Casahstan, Russia, Turkey, emerging Africa: Abu-Dhabi, South Africa, middle East: Dubai, Israel, Qatar.

## THE HUNGARIAN SELF-FINANCING PROGRAMME

The Central Bank of Hungary (MNB) after a series of credit easing monetary policy measures launched the so called self-financing programme in April 2014 to promote commercial banks' purchases of government and other eligible securities. The aim of the programme is to decrease the external exposure of the country both concerning total external debt and public debt. The programme rests on realistic footing drawing on the example of neighbouring countries and also if we look back to the financing structure of the Hungarian public debt from the beginning of the years 2000 when both households and actors of the domestic financial sector represented a greater weight among the investors of government securities. The self-financing programme could not have been realised without the cooperation of the State Debt Management Agency, which reduced foreign currency issues to support domestic financing from the supply side.

The MNB aimed at increasing the government securities portfolio of banks with government securities and therewith decrease external exposure and also the surplus liquidity of banks piled up in central bank sterilisation instruments. The Hungarian banking sector is in the middle range among CEECs as regards governments securities to balance sheet total of monetary financial institutions, with a growing share.

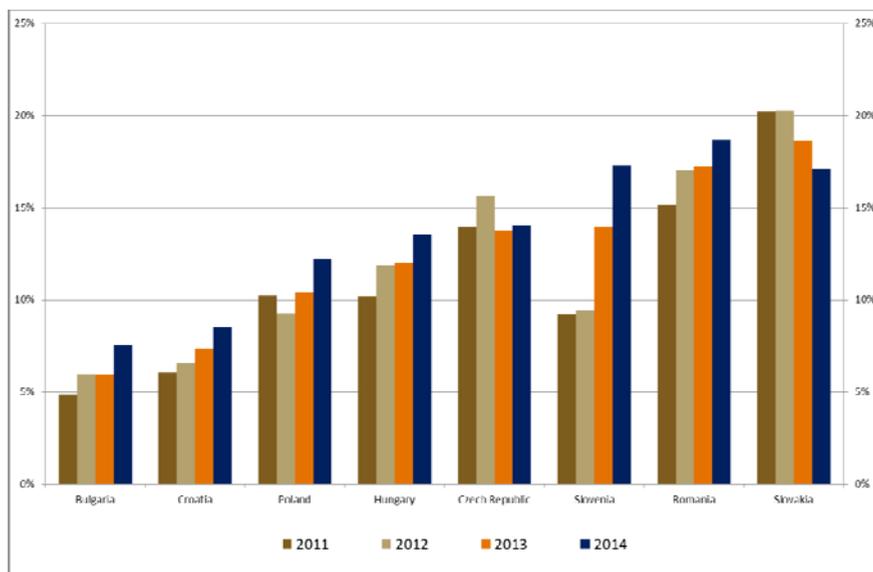


Figure 8 Government bonds to balance sheet total in the CEECs 2011-2014 (own figure) Source: ECB, 2015

The Hungarian self-financing programme included the introduction of the IRS tender, which is a variable to fixed conditional interest swap for covering

interest risk of credit institutions. Counterparties participating in the tender undertake to increase their eligible securities holdings by the amount of the IRS transaction. As a great portion of eligible securities selected by the MNB are government securities, the IRS tender contributes to the increase in the government securities holdings of banks. The success of the self-financing programme is – and therewith the positive impact of the IRS facility – can be underpinned by the change in the ownership structure in the forint government securities (especially bond) market. Between 2012 and 2014 the correlation between the time series of the daily forint government bond stock of monetary financial institutions and the foreign investors exceeded  $-0,9$ , which confirms that the banking sector and foreign investors were replacing each other in the government securities markets: the growing portfolio of the one was accompanied by the declining portfolio of the other. (MNB, 2015)

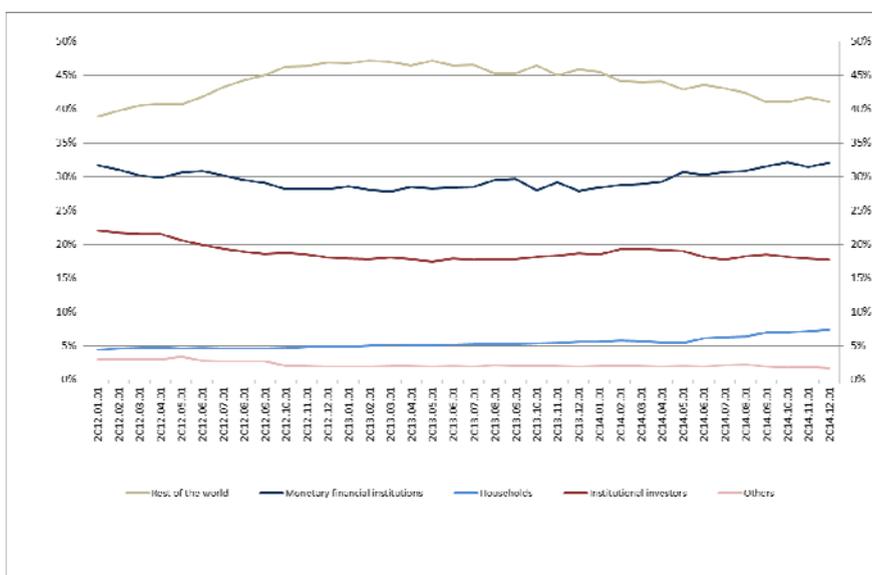


Figure 9 The ownership structure of Hungarian forint denominated government bonds 2012-2014. (percentage of total, own figure) Source: ÁKK, 2015

## SUMMARY

After having pursued different public finance strategies after the system change, the CEECs came up against the necessity of applying fiscal stimulus during the years of the global financial crisis. The growing budgetary expenditures hit those countries especially badly which had accumulated high levels of public debt preceding the crisis. The loose fiscal policy measures contributed to a fast growing debt-to-GDP ratio in countries with low real GDP growth compared to interest rate levels. Despite the continuous policy rate cuts

and the ameliorating international environment there are signs of crowding out effect as a result of growing debt levels as a result of the anticyclical policies. Most of the CEEC countries offer a wide range of government securities which helps make debt financing more sustainable together with the fiscal rules required by the EU. The dynamics of the debt-to-GDP ratio in the Southern countries is still alarming, which intimates that the sovereign debt crisis might upsurge in the Eastern periphery of Europe again.

As Hungary could not stimulate the economy with fiscal policy measures due to its close to eurozone debt level and the excessive deficit procedure, the only way to strengthen economic performance was to deploy procyclical fiscal and expansionary monetary policy measures. Monetary policy in Hungary is also active in employing measures aimed at alleviating the debt burden on the government. As monetary financing is strictly prohibited in the EU, the MNB had to use unconventional measures to improve the structure of public debt which is the least favourable among the CEEC as regards the share of the domestic sector in the government securities market. If public debt financed by the domestic sector, however, is absorbed in unproductive investment and raises risk premia it can lead to crowding out and deteriorating economic performance as suggested by public debt theories.

## REFERENCES

- Alesina, A., Tabellini, B. (1990). A positive theory of fiscal deficits and government debt. *Review of Economic Studies*. 57, no. 3. pp. 403-414.
- Araujo, A., Leon M.(2004): Speculative Attacks on Debts and Optimum Currency Area: a Welfare Analysis. Working Paper Series. 84/2004. Banco Central do Brasil.
- ÁKK (2014). A központi költségvetés éves finanszírozási terve. Előzetes finanszírozási kiadvány 2015, Budapest. [http://www.akk.hu/kepek/upload/2014/Finansz%C3%ADroz%C3%A1si%20kiadv%C3%A1ny\\_2015\\_HUN.pdf](http://www.akk.hu/kepek/upload/2014/Finansz%C3%ADroz%C3%A1si%20kiadv%C3%A1ny_2015_HUN.pdf).
- Bajo, A., Primorac, M. (2011) Public debt management strategy of Croatia. Institute of Public Finance, No. 28. Zagreb. <http://www.ijf.hr/eng/releases/28.pdf>
- Benczes, I (2015). Critical Junctures and Unintended Consequences: The Case of Hungary. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press.pp. 153-174.
- Broner, F., Erce, A., Martin, A., and J. Ventura (2014). Sovereign Debt Markets in Turbulent Times: Creditor Discrimination and Crowding Out, *Journal of Monetary Economics*, Volume 61.
- Constantinovits, M. (2014). The Hungarian economic policy in the light of the EU accession (2004–2013). In: Novák Zsuzsanna (ed.) *Konferencia a magyar-lengyel barátságáról - történelem, gazdaság, kultúra*: Conference on Hungarian-Polish

friendship - history, economy and culture. 2013.03.02 -2013.03.04. Budapest: Magyar Fiatalok Határok Nélkül Alapítvány, 2014. pp. 75-78.

Czech Republic Ministry of Finance (2015). The Czech Republic funding and debt management strategy. [www.mfcr.cz](http://www.mfcr.cz). downloaded 12.05.2015

Diaz-Giménez, J. – Giovanetti, G. (2007): Nominal Debt as a Burden on Monetary Policy. *EUI Working Paper*, ECO. 2007/53.

Égert, B. (2013). The 90% Public Debt Threshold: The Rise & Fall of a Stylised Fact," William Davidson Institute Working Papers Series, wp1048, William Davidson Institute at the University of Michigan.

Garcia, C., Restrepo, J. E., Tanner, E. (2011): Fiscal Rules in a Volatile World – A Welfare Based Approach. WP/11/56. *IMF Working Paper*.

Gyórfy, D. (2015). Structural Reforms in a Low-Trust Environment: The Case of Slovakia. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp. 175-196.

Financing Program of The Republic Of Slovenia Central Government Budget For The Fiscal Year 2015. <http://www.mf.gov.si>. downloaded 12.05.2015

Herndon, T., Ash, M., Pollin, R. (2013). Does High Public Debt Consistently Stifle Economic Growth? A Critique of Reinhart-Rogoff. Political Research Institute. *Working paper series*, No. 322

Horváth, D., Kuti, Zs., Ligeti, I. (2013). Is the CDS spread still a reliable risk indicator? The impact of the European regulation on uncovered CDS positions on market developments in the Central and Eastern European region. *MNB Bulletin*, May, [www.mnb.hu](http://www.mnb.hu)

Kozenkow, J. (2015). Values, Norms, and Beliefs: The Case of Poland. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp. 133

Marcet A., Scott A. (2003): Debt and Deficit Fluctuations and the Structure of Bond Markets. *UFAE and IAE working papers*, 728.08.

Martin, M. F. (2009): A Positive Theory of Government Debt. *Review of Economic Dynamics*, 12. pp. 608-631.

Miller, A. T., Foster, J. D. (2012). Public debt, economic freedom and growth. In: Miller, A. T., Holmes, K. R., Feulner, E. J. (2012). *2012 Index of Economic Freedom*. The Heritage Foundation and Dow Jones & Company, Inc. pp. 45-56.

Miller, A. T., Kim, A. B. (2012). Defining economic freedom. In: Miller, A. T., Holmes, K. R., Feulner, E. J. (2012). *2012 Index of Economic Freedom*. The Heritage Foundation and Dow Jones & Company, Inc. pp. 15-20.

Ministry of Finance Republic of Bulgaria (2012). Government debt management strategy for the period 2012-2014. [www.minfin.bg](http://www.minfin.bg). downloaded 12.05.2015

Németh, A. O. (2015). Political Business Cycles: Theory and Empirical Findings for the CEE Region. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp. 35-58.

Oblath, G., Valentinyi, Á. (1993): Seigniorage és inflációs adó – néhány makroökonomiai összefüggés magyarországi alkalmazása. *Közgazdasági Szemle*, XL. évf. 10. sz. pp. 825-847.

Reinhart, C. M., Rogoff, K. S. (2010). Growth in a time of debt. *American Economic Review*. 100(5). pp. 573-578.

Romanian Ministry of Public Finance (2014). Government Debt Management Strategy 2014-2016. Bucharest. [http://discutii.mfinante.ro/static/10/Mfp/buletin/executii/Gov\\_publicdebtmanag\\_strategy2014\\_2016.pdf](http://discutii.mfinante.ro/static/10/Mfp/buletin/executii/Gov_publicdebtmanag_strategy2014_2016.pdf)

Sieger, F. (2015). Europeanization with a Detour: The Case of Croatia. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp.197-218.

Takács, V., Benczes, I. (2015). The Strategic Use of Public Debt in Central and Eastern Europe. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp. 59-86.

Treidler, O. (2015). Economic Freedom and Public Debt in Central and Eastern Europe. In: *Deficit and debt in Transition*. The Political Economy of Public Finances in Central and Eastern Europe (2015). (ed. Benczes, I.) Central European University Press. pp. 15-34.

Živko, I., Kandžija, T. (2012). Impact of financial crisis on banking sector stability in Republic Croatia. *POSLOVNA IZVRSNOST ZAGREB*, GOD. VII (2013) BR. 1 pp. 129-144.

APPENDIX									
COUNTRY	Component/determinant of public debt	2007	2008	2009	2010	2011	2012	2013	2014
<b>Bulgaria</b>	<b>Public debt to GDP</b>	<b>16,61</b>	<b>13,30</b>	<b>14,16</b>	<b>15,93</b>	<b>15,67</b>	<b>17,98</b>	<b>18,35</b>	<b>27,62</b>
Bulgaria	Primary deficit	-2,26	-2,48	3,44	2,51	1,29	-0,17	0,10	2,12
Bulgaria	Interest to GDP	1,14	0,86	0,75	0,72	0,74	0,82	0,76	0,73
Bulgaria	Implicit interest rate	6,34	5,89	5,60	5,21	5,08	5,36	4,26	4,05
Bulgaria	Impact of the nominal GDP increase	-3,38	-2,08	0,14	-0,26	-1,33	-0,32	-0,05	-0,42
Bulgaria	Real GDP growth	6,90	5,80	-5,00	0,70	2,00	0,50	1,10	1,70
Bulgaria	Snow ball effect	-2,24	-1,22	0,89	0,46	-0,58	0,51	0,71	0,31
<b>Czech Republic</b>	<b>Public debt to GDP</b>	<b>27,81</b>	<b>28,66</b>	<b>34,06</b>	<b>38,16</b>	<b>39,88</b>	<b>44,56</b>	<b>45,02</b>	<b>42,57</b>
Czech Republic	Primary deficit	-0,38	1,11	4,27	3,08	1,39	2,47	-0,19	0,66
Czech Republic	Interest to GDP	1,07	1,00	1,24	1,33	1,32	1,43	1,35	1,32
Czech Republic	Implicit interest rate	4,21	3,78	4,24	3,94	3,51	3,60	3,05	3,06
Czech Republic	Impact of the nominal GDP increase	-2,37	-1,27	0,68	-0,27	-0,65	-0,25	-0,42	-1,90
Czech Republic	Real GDP growth	5,50	2,70	-4,80	2,30	2,00	-0,80	-0,70	2,00
Czech Republic	Snow ball effect	-1,29	-0,27	1,93	1,06	0,66	1,18	0,92	-0,58
<b>Croatia</b>	<b>Public debt to GDP</b>	<b>37,06</b>	<b>38,87</b>	<b>48,02</b>	<b>56,98</b>	<b>63,71</b>	<b>69,23</b>	<b>80,61</b>	<b>84,99</b>
Croatia	Primary deficit	NA	NA	NA	NA	4,48	1,91	1,87	2,24
Croatia	Interest to GDP	NA	NA	NA	NA	3,05	3,39	3,48	3,49
Croatia	Implicit interest rate	NA	NA	NA	NA	5,43	5,29	5,03	4,31
Croatia	Impact of the nominal GDP increase	-3,31	-2,70	1,96	0,43	-0,78	0,41	0,07	0,30
Croatia	Real GDP growth	5,20	2,10	-7,40	-1,70	-0,30	-2,20	-0,90	-0,40
Croatia	Snow ball effect	NA	NA	NA	NA	2,27	3,80	3,55	3,79
<b>Hungary</b>	<b>Public debt to GDP</b>	<b>65,85</b>	<b>71,88</b>	<b>78,21</b>	<b>80,90</b>	<b>81,04</b>	<b>78,51</b>	<b>77,35</b>	<b>76,90</b>
Hungary	Primary deficit	1,01	-0,43	0,08	0,40	1,30	-2,29	-2,11	-1,54
Hungary	Interest to GDP	4,07	4,08	4,53	4,14	4,18	4,60	4,57	4,11
Hungary	Implicit interest rate	6,63	6,57	6,12	5,45	5,38	5,79	6,08	5,67
Hungary	Impact of the nominal GDP increase	-3,60	-3,67	2,13	-2,24	-3,14	-1,46	-3,41	-4,96
Hungary	Real GDP growth	0,50	0,90	-6,60	0,80	1,80	-1,50	1,50	3,60
Hungary	Snow ball effect	0,46	0,41	6,66	1,90	1,04	3,15	1,16	-0,85
<b>Poland</b>	<b>Public debt to GDP</b>	<b>44,18</b>	<b>46,61</b>	<b>49,81</b>	<b>53,60</b>	<b>54,80</b>	<b>54,36</b>	<b>55,70</b>	<b>50,13</b>
Poland	Primary deficit	-0,33	1,50	4,85	5,13	2,36	1,07	1,53	1,24
Poland	Interest to GDP	2,18	2,13	2,47	2,50	2,55	2,67	2,49	1,96
Poland	Implicit interest rate	5,15	5,18	5,65	5,30	5,14	5,07	4,71	3,65
Poland	Impact of the nominal GDP increase	-4,83	-3,13	-2,89	-2,62	-4,01	-2,11	-1,53	-2,13
Poland	Real GDP growth	7,20	3,90	2,60	3,70	4,80	1,80	1,70	3,40
Poland	Snow ball effect	-2,65	-1,00	-0,42	-0,11	-1,46	0,56	0,96	-0,17
<b>Romania</b>	<b>Public debt to GDP</b>	<b>12,73</b>	<b>13,16</b>	<b>23,21</b>	<b>29,90</b>	<b>34,19</b>	<b>37,34</b>	<b>37,99</b>	<b>39,81</b>
Romania	Primary deficit	2,19	4,88	7,36	5,15	3,74	1,18	0,43	-0,13
Romania	Interest to GDP	0,71	0,70	1,50	1,50	1,61	1,75	1,75	1,61
Romania	Implicit interest rate	6,96	6,88	11,11	6,76	5,69	5,39	5,00	4,44
Romania	Impact of the nominal GDP increase	-2,09	-2,58	0,36	-1,02	-1,65	-1,81	-2,40	-1,66
Romania	Real GDP growth	6,90	8,50	-7,10	-0,80	1,10	0,60	3,40	2,80
Romania	Snow ball effect	-1,38	-1,88	1,86	0,48	-0,04	-0,06	-0,65	-0,04
COUNTRY	Component/determinant of public debt	2007	2008	2009	2010	2011	2012	2013	2014
<b>Slovenia</b>	<b>Public debt to GDP</b>	<b>22,66</b>	<b>21,65</b>	<b>34,48</b>	<b>38,21</b>	<b>46,47</b>	<b>53,70</b>	<b>70,35</b>	<b>80,90</b>
Slovenia	Primary deficit	-1,17	0,73	4,82	4,01	4,75	1,99	12,35	1,63
Slovenia	Interest to GDP	1,24	1,10	1,31	1,63	1,90	2,02	2,54	3,25
Slovenia	Implicit interest rate	5,33	5,22	5,77	4,74	5,06	4,24	4,74	4,77
Slovenia	Impact of the nominal GDP increase	-2,66	-1,67	1,07	-0,05	-0,67	1,11	-0,21	-2,08
Slovenia	Real GDP growth	6,90	3,30	-7,80	1,20	0,60	-2,60	-1,00	2,60
Slovenia	Snow ball effect	-1,42	-0,57	2,38	1,58	1,23	3,13	2,33	1,17
<b>Slovakia</b>	<b>Public debt to GDP</b>	<b>29,84</b>	<b>28,20</b>	<b>35,98</b>	<b>40,93</b>	<b>43,44</b>	<b>52,11</b>	<b>54,59</b>	<b>53,58</b>
Slovakia	Primary deficit	0,56	1,11	6,50	6,18	2,57	2,42	0,69	0,94
Slovakia	Interest to GDP	1,36	1,25	1,43	1,31	1,54	1,78	1,89	1,92
Slovakia	Implicit interest rate	4,97	4,53	4,73	3,83	3,93	4,22	3,70	3,60
Slovakia	Impact of the nominal GDP increase	-3,27	-2,32	1,93	-1,82	-1,72	-1,22	-1,00	-1,18
Slovakia	Real GDP growth	10,70	5,40	-5,30	4,80	2,70	1,60	1,40	2,40
Slovakia	Snow ball effect	-1,91	-1,08	3,35	-0,52	-0,18	0,56	0,90	0,75

Source: European Economy, 2015 (own table)