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The Global Financial Crisis and Public Finances in the New EU Countries from Central and Eastern Europe

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Karsten Staehr*

Abstract

This paper discusses the public finances of the 10 new EU Countries from Central and Eastern Europe, with particular emphasis on the effects of the global financial crisis that started in 2008. The budget outcomes have differed markedly across the new EU countries, both before and during the crisis. The direct impact of the crisis on public finances was limited, but the severe downturns have strained public finances and increased debt ratios considerably. Estimations of budget reaction functions reveal that the budget balance has, in general, been moderately counter-cyclical, but also that the counter-cyclicality derives entirely from the revenue side. The medium-term fiscal outlook rests, to a large extent, on growth prospects. The uncertainties regarding future economic growth and stability in financial markets suggest that several of the new EU countries need to tighten fiscal policies as a medium-term prudential measure.

JEL Code: H6, E62, P27

Keywords: global financial crisis, fiscal policy, budget reaction functions, Central and Eastern Europe

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Non-technical summary

This paper discusses the development of the public finances in the 10 new EU Countries from Central and Eastern Europe since the global financial crisis broke out in 2008. The first-round effect of the financial crisis was a "flight to quality", where investors shunned non-prime financial assets. This led to a sharp retrenchment of capital flows to the new EU countries resulting in much tighter borrowing conditions for households, individuals and the public sector. The second-round effect was deep downturns in the real economy as export demand as well as domestic consumption and investment demand contracted.

The crisis has opened up a fundamental dilemma regarding the public finances. On the one hand, the crisis calls for more government intervention in the economy with the aim to curb the downturn, save jobs and reduce social problems. On the other hand, it has exposed the government's fiscal vulnerability, which constrains the possibilities of the public sector playing an active role in the economy. The implication is that the global financial crisis poses considerable challenges to the management of public finances in the new EU countries from Central and Eastern Europe.

The immediate effect of the financial crisis on public finances in the 10 new EU countries was an impediment to government borrowing. Credit Default Swap spreads shot up as financial markets demanded higher prices for taking on risks and revised upwards the risk assessment estimates. Facing imminent financing problems, Hungary and Latvia had to turn to the IMF in autumn 2008; Romania followed suit at the beginning of 2009.

The direct budgetary costs of the financial crisis have been modest, except in Latvia where a domestic bank was bailed out in the autumn 2008. Elsewhere the mainly foreign-owned banks and financial institutions have been kept afloat by their owners. The impact of the global financial crisis on the fiscal situation has, thus, primarily been indirect via the effect on revenues and spending of lower economic growth, increased unemployment, etc.

Given the growth setback, it is unsurprising that fiscal balances deteriorated in the aftermath of the global financial crisis, but there are substantial differences across the 10 new EU countries. Four different country clusters can be identified based on their fiscal performance in 2009. *The casualties* comprise Latvia, Hungary and Romania, which had to turn to the IMF for support and which subsequently have directed their fiscal policies towards satisfying the loan conditionalities. *The activists* include the Czech Republic, Poland, Slovenia and Slovakia, which have followed relatively expansionary policies to counter-act the effect of the crisis. *The hardliners* are Bulgaria and Estonia, which have maintained a tight fiscal stance in spite of considerable

downturns. Finally, *the outlier* refers to Lithuania, which has managed to finance substantial deficits during the crisis without having to turn to the IMF.

The estimations of budget reaction functions reveal that the overall general budget balance has been moderately counter-cyclical, but also that this counter-cyclicality derives entirely from the revenue side. The estimations suggest that if the global financial crisis has, on average, caused a reduction of output growth in the new EU countries equal to 10 percentage points in 2009, then this output loss has entailed an average worsening of the budget balance by 3 percentage points or more in 2009 and with substantial carry-over effects in the following years.

The medium-term budget outlook rests to a large extent on the growth outlook. If growth returns to pre-crisis levels, budget balances will improve rapidly and debt as a share of GDP will stabilise or fall. If the crisis is protracted and leads to low or zero growth in the medium term, budget deficits as a percentage of GDP will remain large and the financing of the debt may be in jeopardy. The budgetary situation is subject to substantial uncertain including a number of additional factors, which may affect the budget balance in negative direction.

The upshot is that a number of the new EU countries would need to tighten fiscal policies in the medium-term in order to improve the budget balance and reduce financial vulnerabilities. Such an improvement of the structural balance is particularly pertinent, given the unsettled situation in world financial and goods markets. A more counter-cyclical fiscal stance may also be beneficial, in part to ensure that a future upturn is used to consolidate public finances. In this context, it may be particularly important to consider steps seeking to avoid a-cyclicality or pro-cyclicality in government expenditures.

Contents

1. Introduction

The epicentre of the global financial crisis was the American financial sector, where increasing strains during 2008 culminated in the bankruptcy of Lehman Brothers in September 2008. The global repercussions were immediate and severe. Financial markets throughout the world exhibited extreme instability in the months following the bankruptcy. Private investment and consumption contracted as financial intermediation broke down and uncertainty increased. Trade and manufacturing production went into freefall with the consequence that worldwide economic growth turned negative in the first quarters of 2009 and unemployment shot up. A crisis that started in the American financial sector had become a worldwide real-economy crisis (IMF, 2009a, Ch. 1).

The global financial crisis has seriously affected the 10 new EU members from Central and Eastern Europe, i.e. the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia, which joined in 2004, and Bulgaria and Romania, which joined in 2007. Capital inflows to the countries retrenched markedly already in 2008 resulting in tighter borrowing conditions for businesses, individuals and the public sector. Domestic demand contracted and export volumes fell with the consequence that all countries in the region experienced markedly lower GDP growth and increasing unemployment in 2009.

This paper discusses the impact of the global financial crisis on public finances in the new EU countries from Central and Eastern Europe as well as the challenges stemming from the crisis in the short and medium term. The crisis has opened up a fundamental dilemma. On the one hand, the crisis has increased the appeal for more government intervention in the economy with the aim to curb the downturn, save jobs and reduce social problems. On the other hand, it has exposed the government's fiscal vulnerability, which constrains the possibilities of the public sector playing an active role in the economy. The implication is that the global financial crisis poses considerable challenges to the management of public finances in the new EU countries from Central and Eastern Europe.

The impact and challenges of the financial crisis change over time. The short-term challenges unfolded in 2008–2009 and were essentially a question about adapting to the immediate fallout of the crisis, in particular increasing financing needs as GDP growth dropped combined with reduced liquidity in non-prime government debt markets. The medium-term challenges consist in devising policies which adequately address the demands stemming from increased unemployment and a possible lower trend growth, while ensuring that fiscal sustainability is not compromised.

The topic has been discussed in a number of publications from 2009; inter alia, Darvas (2009), EC (2009b, Part I, Ch. 2), EC (2009d), IMF (2009b), IMF (2009c) and WB (2009a, Ch. 1). The contribution of this paper is mainly its regional focus on the 10 new EU countries from Central and Eastern Europe, its use of budget reaction functions and its broad discussion, including fiscal management issues.

At this stage it is worth bringing up two limitations of this paper. First, the global financial crisis spread across the world with fundamental changes unfolding at alarming speed. This implies that any analysis of the crisis and its effects may be made obsolete in a short time. Second, we generally use consolidated data for the general government and do discuss the performance of different levels and budgetary units of government. This choice saves space, but is also based on the reasoning that although local governments and other budgetary entities play important roles in the public sectors in all 10 new EU countries, the central government ultimately have the authority to determine overall expenditure and revenue levels.

The rest of the paper is organised as follows: Section 2 gives background information on the size, role and management of the government sector in the new EU countries. Section 3 discusses the impact of the global financial crisis on the economies of the new EU countries. Section 4 presents data on the immediate fiscal response to the crisis. Section 5 estimates budget reactions based on data from 1995 to 2008 to assess the reaction to, inter alia, cyclical shocks. Section 6 discusses the medium-term fiscal policy challenges. Finally, Section 7 concludes the paper.

2. The public sector in the new EU countries

Beyond sharing their geographical position in Central and Eastern Europe and a communist past, the new EU countries are relatively heterogeneous. The size of the population varies from more than 38 million inhabitants in Poland to less than 1.4 million in Estonia at the beginning of 2009. The per capita income levels range from approximately 30 percent of the EU15 average in Bulgaria to 80 percent of the EU15 average in Slovenia when taken as averages during 2006–2008 (Eurostat, 2009a, own calculations).

As regards the public sector in the new EU countries, Figure 1 shows a cross plot of the purchasing power adjusted GDP level and the general government expenditures as a percent of GDP in 26 EU countries (Luxembourg is excluded) taken as averages for 2006-08.[1]

[1] Figure 1 is based on averages for the three years 2006 to 2008 of GDP per capita and government expenditures. Many European countries, in particular the new EU countries, ex-

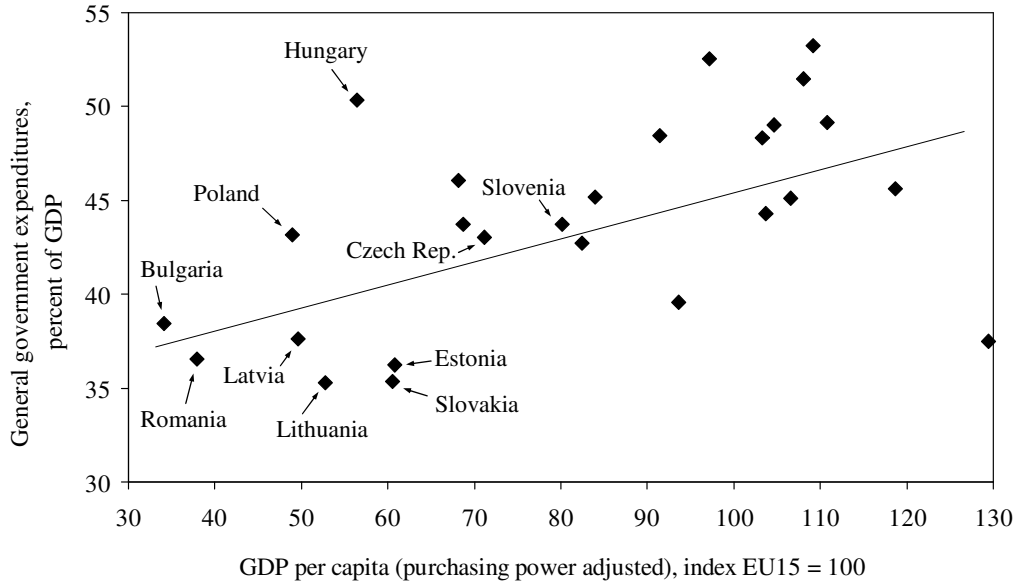


Figure 1: Relative per capita GDP and government expenditures as percent of GDP in the EU countries, averages 2006–2008

Note: Luxembourg is not included.
Source: Eurostat (2009a, 2009b); own calculations.

Three main observations follow from Figure 1. First, on average the public sectors are relatively small in the new EU countries compared to most West European EU countries, although there is substantial variability across the 10 new EU countries. Second, as illustrated by the trendline, there is a clear positive correlation between income level and government size; the 10 new EU countries are no exception in this respect. Third, there is substantial variation in the size of governments across countries with broadly similar income level. Among the new EU countries the Baltic States and Slovakia stand out, having smaller public sectors than would be expected given the income level, while Poland and in particular Hungary have larger public sectors than would be expected.

The different government sizes in the new EU countries partly reflect different economic and social models across the 10 countries (Fenger, 2007; Kogan et al., 2008). The Baltic countries adopted at an early stage of the transition process an economic model based on openness, low taxes and relative-

perienced substantial GDP falls in 2009, which were not followed by corresponding reductions in government expenditures. The upshot would be that a similar figure for 2009 would entail some changes in the relative position of the countries.

ly basic provisioning of education, health and social welfare. Variations of this economic and social model were adopted by Slovakia, Bulgaria and Romania at later stages of the transition process, often following economic and/or political crises.

The Central European countries Poland, the Czech Republic, Hungary and Slovenia have relatively large public sectors, with public expenditures around or above the level that could be expected based on the income level. These countries have generally maintained a more predominant role of the government and relatively generous pensions, unemployment insurance and social subsidies. Hungary stands out with its very large government expenditures as a share of GDP, in part reflecting substantial interest payments from accumulated government liabilities.

Table 1 shows the dynamics of the gross debt of the general government in each of the 10 new EU countries as well as the average in old EU15 countries from 1995 to 2008. The debt levels in most of the new EU countries have been relatively moderate compared to the EU15 average, with the exception of Hungary.

Many of the countries entered the post-communist period in the early 1990s with limited government debt. The exceptions were Poland, Hungary and Bulgaria. Poland rescheduled its debt (and received substantial debt relief) in the early 1990s. Hungary opted not to restructure its debt from the communist period, but nevertheless saw its debt as a share of GDP decline until the turn of the century. The debt grew markedly thereafter, increasing from around 50 percent of GDP in 2002 to more than 70 percent in 2008. Bulgaria underwent a very pronounced debt consolidation in from 1997 to 2008, doubtless aided by a high rate of economic growth.

In many respects, the government debt position in 2008 and the years before mirrors the government's size of the individual countries. Poland and Hungary have the largest public sectors and the highest debt ratios in 2008, while the Baltic countries, Romania and Bulgaria have relatively small public sectors and the lowest debt ratios.

The overall picture is that the fiscal position was fairly benign in most of the new EU members until 2008, i.e. until the outset of the global financial crisis. The size of the government in the countries has been restrained and kept in proportion to the income levels. Moreover, the government debt has been maintained at manageable levels. The main exception to this overall picture is Hungary, where expansionary fiscal policies from 2002 interrupted an ongoing debt consolidation and increased the size of the government sector.

Table 1: Government consolidated gross debt in the new EU countries, percent of GDP, 1995–2008

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Bulgaria	..	..	105.1	79.6	79.3	74.3	67.3	53.6	45.9	37.9	29.2	22.7	18.2	14.1
Czech Republic	14.6	12.5	13.1	15.0	16.4	18.5	25.1	28.5	30.1	30.4	29.7	29.4	29.0	30.0
Estonia	9.0	7.4	6.2	5.5	6.0	5.2	4.8	5.7	5.6	5.0	4.6	4.5	3.8	4.6
Latvia	15.1	13.9	11.1	9.6	12.5	12.3	14.0	13.5	14.6	14.9	12.4	10.7	9.0	19.5
Lithuania	11.9	14.3	15.6	16.6	22.8	23.7	23.1	22.3	21.1	19.4	18.4	18.0	16.9	15.6
Hungary	87.4	73.7	64.0	62.0	61.1	54.2	52.1	55.8	58.1	59.4	61.8	65.6	65.9	72.9
Poland	49.0	43.4	42.9	38.9	39.6	36.8	37.6	42.2	47.1	45.7	47.1	47.7	45.0	47.2
Romania	7.0	11.1	15.2	16.6	21.9	22.5	25.7	24.9	21.5	18.7	15.8	12.4	12.6	13.6
Slovenia	..	..	..	..	..	..	26.8	28.0	27.5	27.8	27.0	26.7	23.3	22.5
Slovakia	22.1	31.1	33.8	34.5	47.8	50.3	48.9	43.4	42.4	41.4	34.2	30.5	29.3	27.7
EU15	..	..	69.9	68.1	67.2	63.2	62.2	61.6	63.0	63.3	64.1	62.8	60.4	..

Source: Eurostat (2009c).

The relatively benign fiscal outcome is arguably the result of political priorities in the 10 new EU countries. As mentioned above, there seems to be a link between the size of the government and the overall indebtedness. The outcome should, however, also be seen in light of the high trend growth in most of these countries since 1995 (c.f. also Section 3). High trend growth allows for increasing real government expenditures, while maintaining the expenditures as a *share of GDP* at moderate levels. High trend growth makes it easier to improve the fiscal balance and also contributes to a lower debt as a *share of GDP* by expanding the denominator.

The institutional setup of fiscal policies and budgetary institutions in the new EU countries broadly follows the setup in the old EU15 countries. This stems from the fact that the applicant countries were obliged to satisfy all "chapters" of the *acquis communautaire* as part of the requirements for gaining membership of the EU. A number of the chapters of the fifth enlargement dealt with fiscal policies, taxation, financial control and budgetary provisions (Daviddi and Ilzkovitz, 1997).[2]

Membership of the EU also implies that the fiscal policy outcome is subject to the Stability and Growth Pact (SGP), which stipulates that the budget deficit must not exceed 3 percent of GDP and that the government debt must not exceed 60 percent of GDP or must be approaching that value. The European Commission monitors the performance of the individual EU countries and can initiate an Excessive Deficit Procedure in case a country is found to breach the limits of the SGP. The SGP was reformed in 2005 so that it became explicit that the limits can be exceeded in a number of circumstances. The impact of the SGP on fiscal policy is uncertain, because a country exceeding the limits can allude to exceptional circumstances, and also because non-EMU members cannot be subjected to monetary penalties.[3] It has been argued, however, that the targets of the SGP have functioned as important navigation marks for the broad fiscal policy formulation in the new EU countries (Annett, 2006).

The Maastricht Treaty posits a number of convergence criteria which must be satisfied for an EU country to qualify for membership of the European Economic and Monetary Union (EMU). The fiscal criterion stipulates that a country must not be subject to the excessive deficit produce. The effectiveness of this institutional constraint on fiscal policy in the new EU countries

[2] Studies suggest that the fiscal governance in the new EU countries improved markedly prior to the accession to the European Union, while less progress is discernable afterwards (Hallerberg and Ylaoutinen, 2008).

[3] Collignon (2006) finds that the SGP has had no discernible effect on the sustainability of public finances in the old EU countries, possibly because public finances were already on a sustainable path in all countries before the introduction of the SGP.

outside the EMU evidently hinge on the priority given to EMU membership in the individual country and to which extent the country satisfies the other three requirements convergence criteria.

Studies have shown that the fiscal outcome is influenced by the *quality* of the institutions, in which budget policies are formulated, decided and implemented. Fabrizio and Mody (2008) have constructed indices depicting the quality of institutions regarding the three main phases of the fiscal policy-making process, namely: i) the preparation of acts and regulations, ii) the legislative decision-making process ("authorisation") and iii) the implementation of the decisions. The quality of the preparation and implementation institutions mainly reflects administrative and bureaucratic capabilities, while the authorisation measure also includes the political institutions and regulatory regime affecting the decision-making process.

Indices for the fiscal policy quality are available for 23 out of the 27 EU countries for 1994 and 2003–2004. A higher index value indicates fiscal institutions of higher quality. The indices remain unchanged or increase for all 10 new EU from 1994 to 2003–2004, although there is substantial variation across the countries. Figure 2 shows the three indices as well as their average, the overall index of fiscal policy effectiveness, for the period 2003–2004.

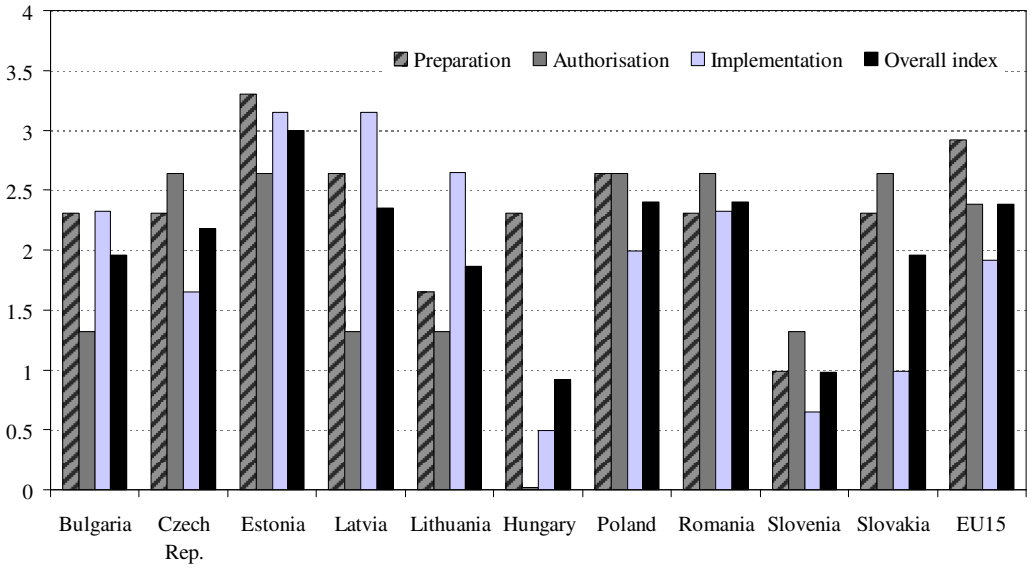


Figure 2: Indices of quality of fiscal policy institutions, 2003–2004

Note: EU15 denotes a simple average of the indices for the EU15 countries except France and Ireland.
Source: Fabrizio and Mody (2008:17); own calculations.

The indices of institutional fiscal policy quality do not differ markedly between the new EU members from Central and Eastern Europe and the average of the old EU15 countries. Countries like Estonia, Poland and Romania generally attain high scores along all three components of fiscal governance and, consequently, also of the overall index of effectiveness. Hungary and Slovenia are in the other end of the spectrum and generally attain low scores. Interestingly, both Hungary and Latvia attain very low scores regarding the authorisation, i.e. the institutions regarding the political decision-making of fiscal policy measures.

The picture of the fiscal institutions in the new EU countries being comparable to or slightly less effective than in the old EU15 countries is in accordance with the picture obtained if broader governance measures are considered. The World Bank collects data on, inter alia, government effectiveness, regulatory quality, the rule of law and control of corruption control (WB, 2009b). The overall picture is that the best performing new EU countries have scores around the EU15 average, while the rest score below the EU15 average but substantially above the levels attained by other post-communist countries (Darvas, 2009).

3. The impact of the global financial crisis on the new EU countries

The first-round effect of the collapse of Lehman Brothers was a "flight to quality", which immediately led to extreme instability in financial markets across the world, including in the main markets in the USA and Western Europe (EC, 2009c). The second-round effect emerged already in the fourth quarter of 2008 as the financial crisis spread to the real economy. Private investment and consumption demand contracted as firms and households experienced capital losses, financing problems and increased uncertainty. Global trade volumes contracting significantly starting already in the fourth quarter 2008. The resulting downturn in the world economy is of extraordinary proportions. As a group the advanced economies, mainly in North America and Europe, attained barely positive economic growth in 2008 and are estimated to have attained growth of –3.4 percent in 2009 (IMF, 2009a, Ch. 1).

The "flight to quality" immediately spilled over to credit markets in the new EU countries from Central and Eastern Europe, as investors shunned non-prime financial assets. Several governments faced borrowing problems (as discussed in more detail in Section 4), while many banks in the region saw their access to foreign borrowing severely curtailed as international lenders cut their exposure to the region. It is noticeable that in spite of the tightening of credit conditions, very few banks in the new EU countries experienced

life-threatening problems. The main reason for this is arguably the foreign ownership of most banks in the region. The owners (typically West European banks) of the bank have stood by their affiliates in the region, but avoiding excessive withdrawal of fund. In summation, the region as a whole experienced a "sudden stop", but net capital outflows were limited (ERBD, 2009, Ch. 2).

The global financial crisis affected the real economy in new EU countries through two main channels. First, the credit squeeze affected borrowing conditions for firms and households with subsequent adverse effects on domestic investment and consumption demand. Second, the downturn in the global economy, affected export demand severely. The new EU countries are generally very open economies, having countries in Western Europe as their main export markets and the export.

Table 2 show the real GDP growth in each of the 10 new EU countries from 1995 to 2009, where the 2009 data are estimates produced by the European Commission and published in November 2009. Until the outset of the global financial crisis, the growth rates in the new EU countries generally exceeded the EU15 average, reflecting a catch-up process where the new EU countries with relatively low initial income levels have been narrowing the income gap to the more developed old EU countries. It is noticeable that economic growth accelerated in most of the new EU countries in the run-up to the EU accession in 2004 or 2007; the prospect of membership instilled confidence among financial markets participants and led to substantial capital inflows.

The (estimated) GDP growth in 2009 is depicted in the last column of Table 2. There are substantial differences in output performance across the 10 countries. The three Baltic States stand out with double-digit GDP falls in 2009. Poland stands out, but for the opposite reason, namely for maintaining positive — albeit limited — economic growth in 2009. The remaining new EU countries all exhibit estimated GDP declines ranging from 5 to 8 percent in 2009.

Econometric analyses based on cross-sectional datasets suggest that the GDP declines resulting from the global financial crisis were largest in countries with highly leveraged financial systems and rapid credit growth prior to the crisis (Berkmen et al., 2009). A larger share of foreign bank ownership appears, however, to have mitigated the GDP decline (Berglof et al., 2009). There may also have been a tendency for countries with inflexible exchange rate systems and large foreign trade to have suffered larger GDP declines although these results seem to hinge on the particular choice of countries in the sample (Berkmen et al., 2009).

Table 2: Real GDP growth in the 10 new EU countries, 1995–2010, percent per year

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
Bulgaria	..	–9.4	–5.6	4.0	2.3	5.4	4.1	4.5	5.0	6.6	6.2	6.3	6.2	6.0	–5.9
Czech Republic	..	4.0	–0.7	–0.8	1.3	3.6	2.5	1.9	3.6	4.5	6.3	6.8	6.1	2.5	–4.8
Estonia	2.8	5.7	11.7	6.7	–0.3	10.0	7.5	7.9	7.6	7.2	9.4	10.0	7.2	–3.6	–13.7
Latvia	0.5	3.6	8.3	4.8	3.3	6.9	8.0	6.5	7.2	8.7	10.6	12.2	10.0	–4.6	–18.0
Lithuania	..	5.2	7.5	7.6	–1.1	3.3	6.7	6.9	10.2	7.4	7.8	7.8	9.8	2.8	–18.1
Hungary	..	1.0	4.3	5.2	4.2	4.9	4.1	4.4	4.3	4.9	3.5	4.0	1.0	0.6	–6.5
Poland	..	6.2	7.1	5.0	4.5	4.3	1.2	1.4	3.9	5.3	3.6	6.2	6.8	5.0	1.2
Romania	..	..	..	..	–1.2	2.4	5.7	5.1	5.2	8.5	4.2	7.9	6.3	6.2	–8.0
Slovenia	6.8	3.6	4.9	3.6	5.4	4.4	2.8	4.0	2.8	4.3	4.5	5.8	6.8	3.5	–7.4
Slovakia	7.9	6.9	4.4	4.4	0.0	1.4	3.4	4.8	4.7	5.2	6.5	8.5	10.4	6.4	–5.8
EU15	..	1.7	2.7	3.0	3.0	3.9	1.9	1.2	1.2	2.3	1.8	3.0	2.6	0.6	–4.1

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009a), EC (2009d).

The unenviable output performance in 2009 should be seen in light of the preceding high growth rates. The Baltic States have, for instance, seen reversals of GDP growth from 2007 to 2009 amounting to 20–30 percentage points. Other countries have seen reversals during the same time interval of the magnitude 5–15 percent points. The downturns are distributed unevenly across individuals and are certain to entail substantial social costs in the form of higher unemployment and increased poverty rates.

Figure 3 shows the unemployment rate for each of the 10 countries in 2007 and 2008 and the estimated unemployment rate for 2009. The unemployment increases in the Baltic States are remarkable, but all countries in the region have seen increasing (estimated) unemployment in 2009 and the European Commission forecasts the increase to continue in 2010 and 2011 (EC, 2009d).

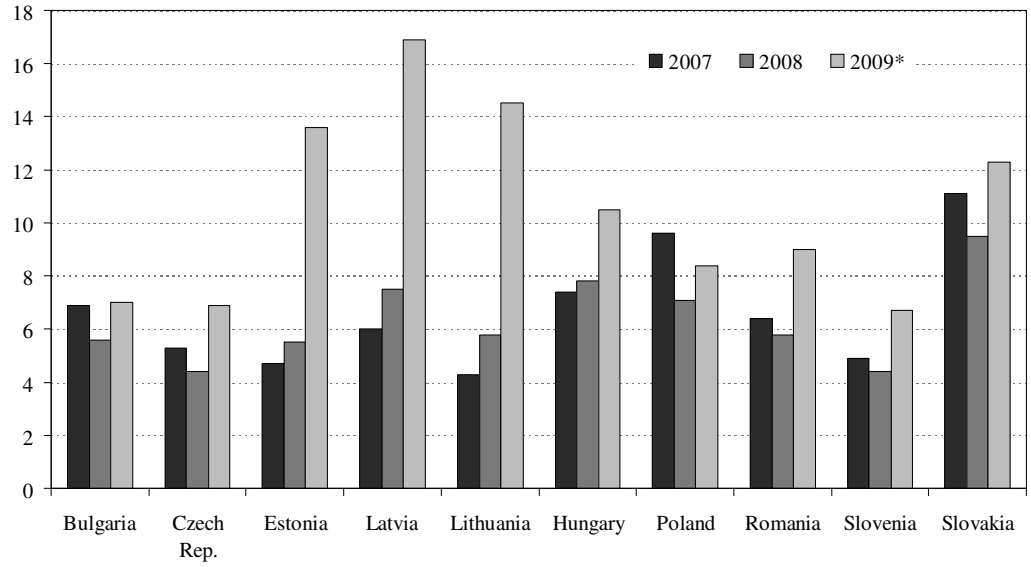


Figure 3: Unemployment rates, percent of labour force

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC, 2009d).*
Source: Eurostat (2009d), EC (2009d).

4. The short-term fiscal effects

The global financial crisis affected public finances in the new EU countries in many ways. The main challenge immediately after the bankruptcy of Lehman Brothers was the credit squeeze which affected all government borrowing in the region. Data on long-term interest rates are unlikely to give a

full picture as governments simply ceased to issue new debt and to roll over existing debt and instead turned to other sources of borrowing such as direct borrowing from banks or multilateral lenders like the IMF. An alternative measure of the credit market tightness is the cost of issuing against the default of the borrower through credit default swaps (CDS). Figure 4 shows the annual CDS spreads on 5 year government bonds for the new EU countries. The CDS spread is a measure of the market's pricing of the risk that the government will default on the specified bond series within a year, but the measure should be interpreted with caution as liquidity in many CDS markets is very limited.

The rapid increases in the CDS rates in the autumn 2009 coincides with the default of Lehman Brothers and is the result of the "flight to quality" in financial markets across the world. It is noticeable, however, that the spreads differ across the countries, signifying different assessments of the risk of the government defaulting. In the figure, Latvia, Hungary and Poland have the highest CDS spreads, while Poland and in particular Slovenia have substantially lower spreads. The CDS spreads have generally tampered since the second quarter of 2009, but remain substantially above the levels recorded before the global financial crisis broke out.

The CDS spreads provide a gauge of the financing problems faced by the governments in the new EU countries. Hungary and Latvia faced severe liquidity squeezes immediately after the Lehman Brothers bankruptcy in 2008. After relatively short preparations, the two countries received bailouts in the form of lending packages arranged and financed by, inter alia, the IMF, the European Union and neighbouring countries. Hungary had accumulated substantial government debt and was as such susceptible to changes in financial market sentiments. The conditionality of the programme required the Hungarian authorities to take steps to improve the fiscal balance at an early stage. The Latvian financing problems emerged in a situation where the government debt did not exceed 20 percent of GDP. Refinancing problems had, however, led to a collapse of the largest domestically owned bank, Parex Bank, and the government had to step in and rescue the bank. The confidence loss was associated with increased uncertainty regarding the future path of government finances as a result of the bailout of Parex Bank and the possibility of further problems in the financial sector.

Continued financial instability, including weakness in non-prime government bond markets, induced Romania to seek assistance from the IMF, the European Union and other partners at the beginning of 2009. Poland followed suit in spring 2009 by being among the first countries to enter a "flexible credit line" agreement with the IMF; the credit line is precautionary and only to be used in case of deteriorating market sentiments bringing about financial problems in Poland.

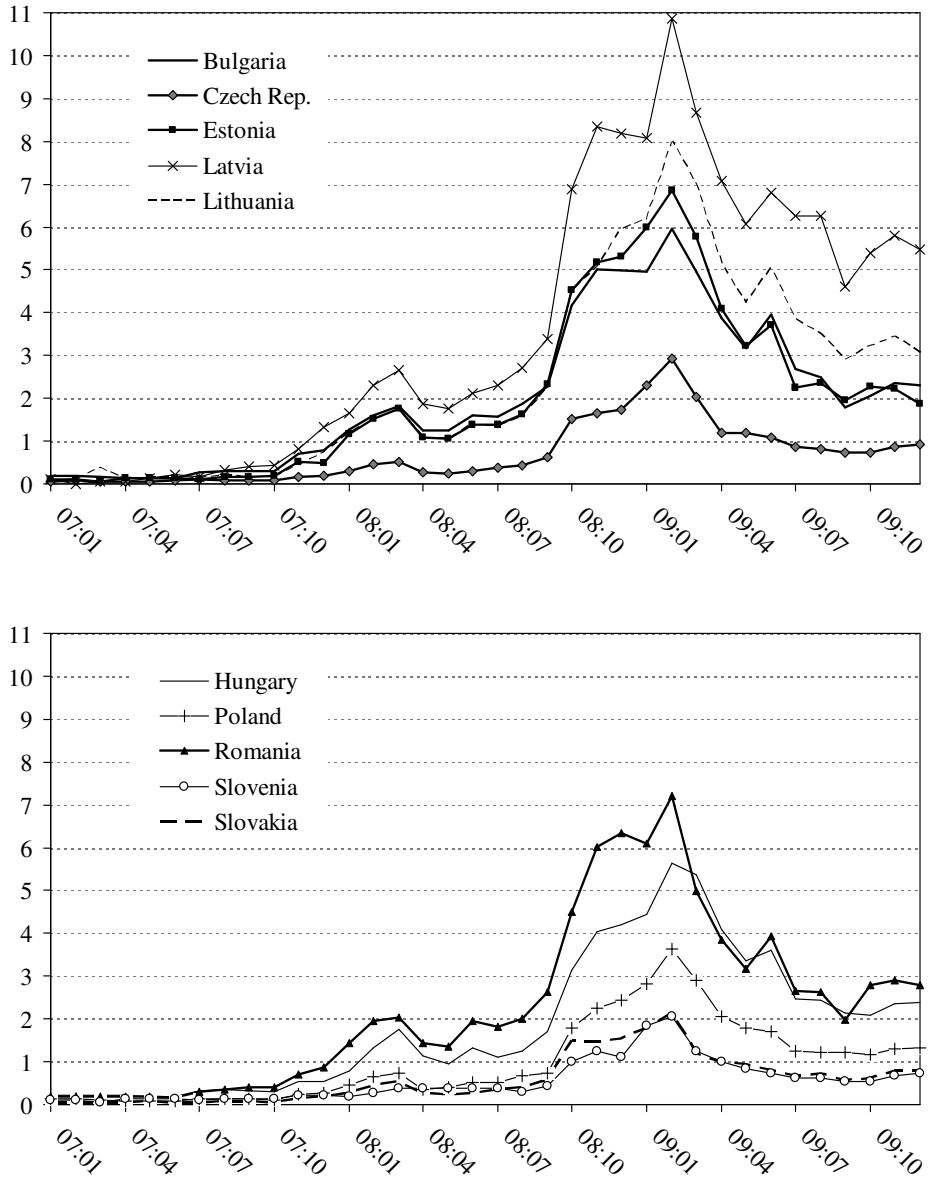


Figure 4: Credit default spreads on 5 year government bonds, percent per year, monthly frequency, end of month, Jan. 2007 – Dec. 2009

Source: Datastream (2010), own calculations.

The immediate financing concerns in autumn 2008 and at the beginning of 2009 were followed by concerns regarding the overall budgetary stance. It is noticeable that the *direct* budgetary impact of the financial crisis has been modest in most countries as no major financial sector bailouts have been undertaken, except in Latvia (EC, 2009d: 61). Thus, the impact of the global financial crisis on public finances in the 10 new EU countries has primarily been *indirect* through the derived effects on economic activity, interest rates, unemployment, etc. The budget developments in the new EU countries are discussed in EC (2009b, 2009c) and Darvas (2009) provides an appendix listing discretionary expenditures and revenue measures as well as various policies to support the financial sector. The treatment below focuses on developments in the main budget items, i.e. revenues, expenditures and the budget balance.

As output plummeted at the end of 2008, tax revenues undershot projected levels in many countries, while expenditures did not fall correspondingly. Figure 5 shows the general government revenue as a percent of GDP for 2007–2009, where the 2009 data are estimates by the European Commission based on statistical information from a large part of 2009. (Data for the period 1995–2009 are available in Table A.1 in Appendix A.) For 2009 the measure is greatly affected by GDP falling rapidly in almost all countries, which "mechanically" increases the government revenues as a percent of GDP if real (price deflated) government revenues remain unchanged. We therefore also include an *adjusted* 2009 revenue share, which is computed as the 2009 revenue share multiplied by one plus the real GDP growth rate for 2009. If the price indices of GDP and government revenues coincide, the adjusted revenue share is simply the 2009 revenues divided by GDP in 2008. Moreover, the adjusted 2009 revenue share relative to the (unadjusted) revenue share for 2008 expresses the relative change in real government revenues.[4] Thus, in Figure 5, comparing the last column with the second column exposes the development of *real* government revenues in the 10 new EU countries from 2008 to 2009.

[4] This is actually valid under the milder assumption that the *increases* of the two prices indices are similar. Use the symbol P_R to denote the price index of government revenues, P_Y to denote the price index of GDP, R to denote the real revenues and g to denote the growth rate of GDP. The revenues as share of GDP multiplied by one plus the growth rate is then $[(P_R R)/(P_Y \mathrm{GDP})]\cdot(1+g)$. The measure relative to the revenue in the previous period is:

$$\frac{P_R R}{P_Y \mathrm{GDP}}(1+g)\Bigg/\frac{P_R(-1)R(-1)}{P_Y(-1)\mathrm{GDP}(-1)} = \frac{R}{R(-1)}\cdot\frac{P_R}{P_R(-1)}\Bigg/\frac{P_Y}{P_Y(-1)}.$$

If the price increases of government revenues and GDP coincide, the expression simplifies to $R/R(-1)$, i.e. the real revenues in the current period relative to the real revenues in the previous period.

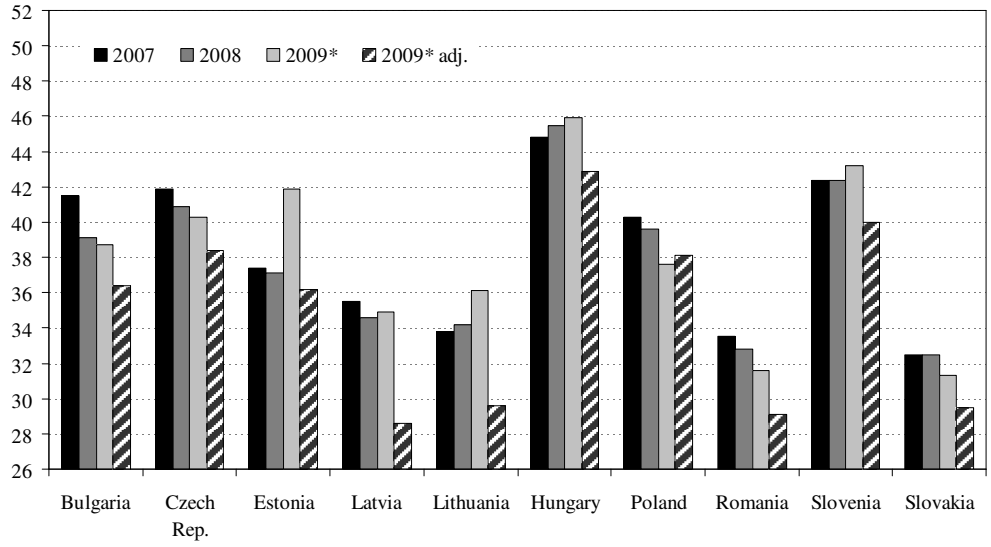


Figure 5: General government revenues, percent of GDP, 2007–2009

Notes: 2009 adj. = general government revenue in 2009 as a percent of GDP in 2008.* Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009e, 2009b), EC (2009d), own calculations.

Government revenues as a percent of GDP were broadly at the same level in the three years under review, with the main exception being Estonia, where revenues *increased* markedly in 2009 as a percent of GDP. Estonia adopted aggressive revenue enhancing policies including higher unemployment insurance contributions, divergence of pension contributions from private pension accounts to the budget, a higher value added tax rate, higher excise taxes on energy, alcohol and tobacco as well as some one-off transfers from state-owned companies (IMF, 2010).

The picture is, however, affected by the large GDP falls in most of the new EU countries. Comparing the revenue shares for 2008 (second column) and the revenues for 2009 as a percent of GDP for 2008 (last striped column), it follows that none of the countries sustained the 2008 revenue intake in real terms during the crisis year 2009. The real revenue shortfalls were particularly large in Latvia and Lithuania, where the GDP losses were the largest. The most striking finding is the fact that Estonia, in spite of an estimated GDP loss amounting to 13.7 percent, only saw a small reduction in real revenues between 2008 and 2009 (further discussed in Section 5).

Regarding the government expenditures immediately following the crisis, it is noticeable that the direct budgetary costs of the financial crisis in most countries have been modest in 2008–2009 mainly because of the ownership

structure of the financial sectors in all 10 countries. Whereas bailouts of banks and other financial sector entities have led to substantial direct and indirect costs in many west European countries, such costs have been largely absent in the new EU countries, with the exception of the bailout of Parex Bank in Latvia (EC, 2009d).

Figure 6 shows the general government expenditures as a percent of GDP for the new EU countries for 2007–2009; as before the expenditures for 2009 are also computed as a share of GDP for 2008. (Data for the period of 1995–2009 are available in Table A.2 in Appendix A.) All countries in the region exhibit increasing expenditures as a percent of GDP from 2008 to 2009 and the increase is substantial for many countries. However, comparing the change in real expenditures from 2008 to 2009, it follows that most of the new EU countries kept government expenditures in real terms largely unchanged during the first year of crisis.[5]

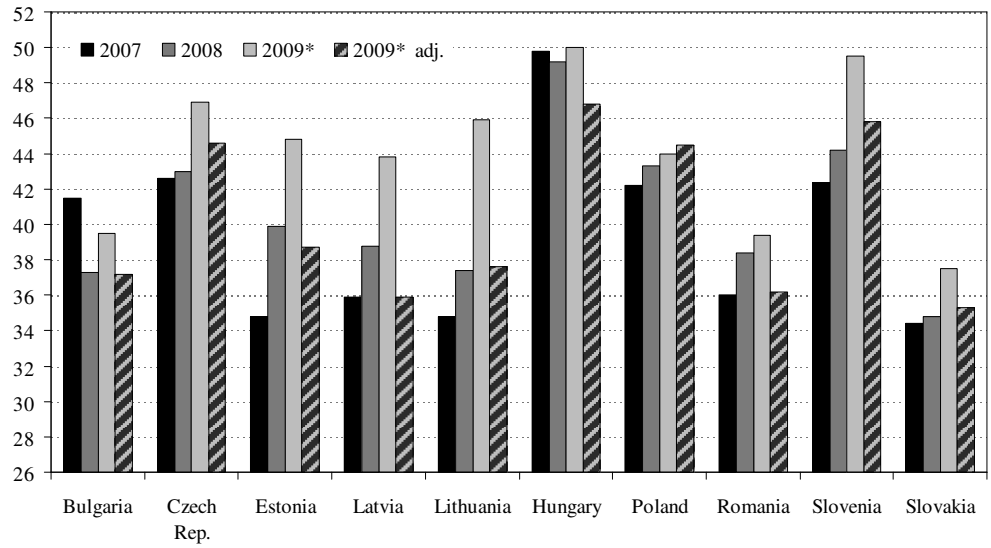


Figure 6: General government expenditures, percent of GDP, 2007–2009

Notes: 2009 adj. = general government expenditures in 2009 as a percent of GDP in 2008.[*] Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).Source: Eurostat (2009b, 2009b), EC (2009d).*

[5] This also includes a number of countries which saw significant increases in the interest payments on their public debt, for instance resulting from depreciating currencies and loans denominated in foreign currency.

Latvia, Hungary, Romania — and to a lesser extent Estonia — managed to reduce the real government expenditures from 2008 to 2009; the first three countries were adjusting the budgetary policies as part of the conditionality of IMF loans, whereas Estonia sought to bring its fiscal balance into compliance with the deficit criterion of the Maastricht Treaty. The Czech Republic, Poland and Slovenia saw moderate increases in their real government expenditures resulting from stimulus packages implemented in these countries (Darvas, 2009).

Finally, Figure 7 shows the net effect of the changes in revenues and expenditure discussed above, i.e. the headline consolidated government budget balance for 2007–2009. (Data for the period of 1995–2009 are available in Table A.3 in Appendix A.) The budget balance worsens in all cases from 2008 to 2009 and is estimated to exceed 6 percent of GDP for 7 out of the 10 countries. The deterioration of the budget from 2008 to 2009 is most dramatic for Latvia and Lithuania, but also very substantial for the Czech Republic, Poland, Romania, Slovenia and Slovakia.

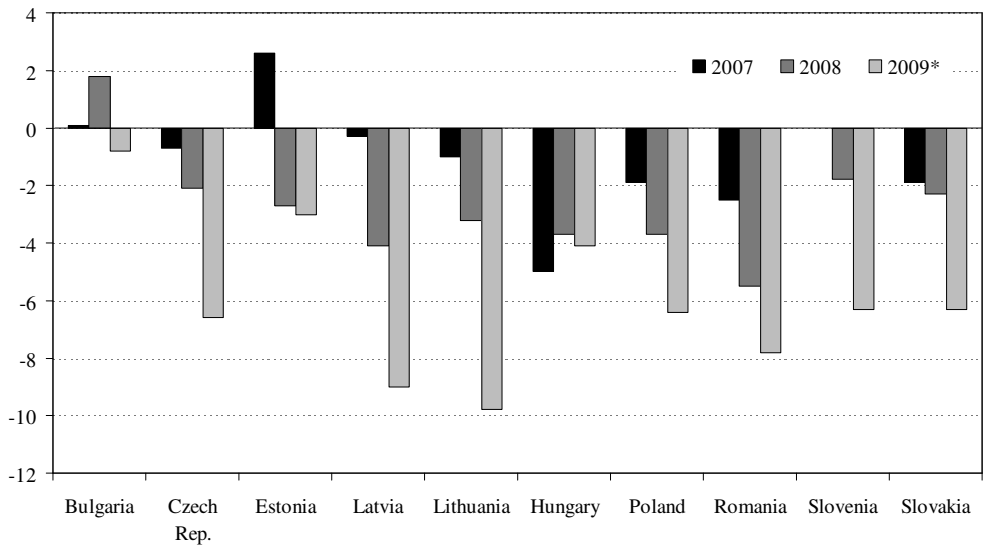


Figure 7: Net consolidated government lending, percent of GDP, 2007–2009

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009f), EC (2009d).

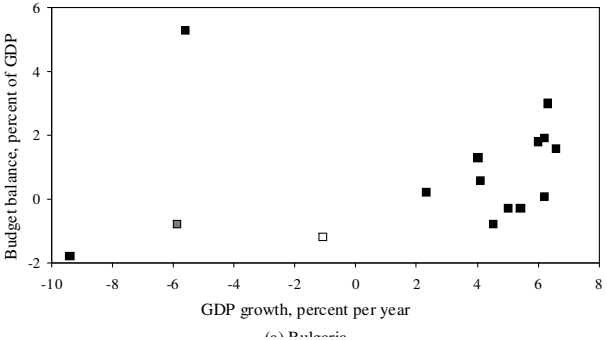
Based on the discussion above, it is possible to divide the 10 new EU countries into four "clusters" based on their short-term fiscal policy response to the crisis.

- *The casualties*: Latvia, Hungary and Romania encountered serious financing problems and had to turn to the IMF for support. The countries have seen contracting revenues in real terms, but also managed to lower real expenditures in 2009. In this group, Hungary has been most successful in curbing the budget deficit.
- *The activists:* The Czech Republic, Poland, Slovenia and Slovakia have deficits of 6–8 percent of GDP in 2009. The deficits are largely the results of relatively expansionary expenditure policies. The latter two countries have arguably been aided by their membership of the EMU, which has helped reduce their exchange rate exposures and increase investor confidence.
- *The hardliners:* Bulgaria and Estonia have retained a high degree of budgetary discipline and attained budget deficits in 2009 at or below 3 percent of GDP in spite of substantial GDP declines.
- *The outlier:* Lithuania is an "outlier" in the sense that it has seen a very large GDP fall in 2009, but has still managed to finance its very substantial deficit without turning to the IMF.

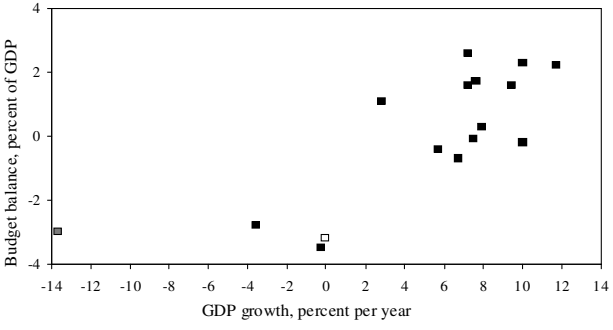
5. Automatic and discretionary budget reactions

In this section the fiscal policy in the new EU countries is discussed based on the estimations of budget reaction functions on data from 1995 to 2008. The aim is to assess the sensitivity of the fiscal balance, expenditures and revenues to shocks in output growth, and more generally to assess the factors driving the headline budgetary measures. The reaction functions are also used in Section 6 when the medium-term response to the global financial crisis is considered.

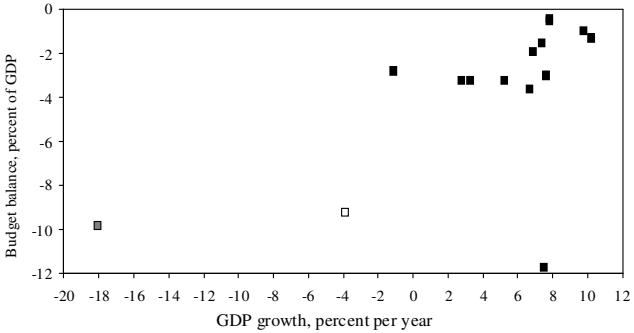
Figure 8 shows simple crossplots of real annual GDP growth in percent and the budget balance as a percent of GDP for each of the 10 new EU countries. The data start in 1995 or nearest year for which data are available and end in 2010, where data for 2009 are estimates and data for 2010 forecasts of the European Commission (EC, 2009d). Notice that the scales of both the first and the second axis differ across the countries.



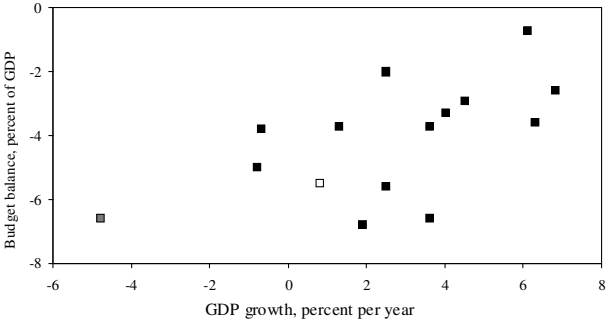
(a) Bulgaria

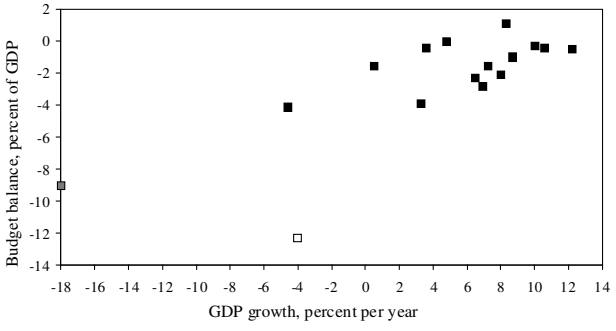


(c) Estonia

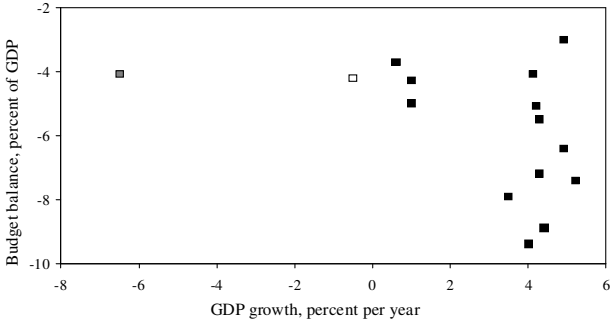


(e) Lithuania





(d) Latvia



(f) Hungary

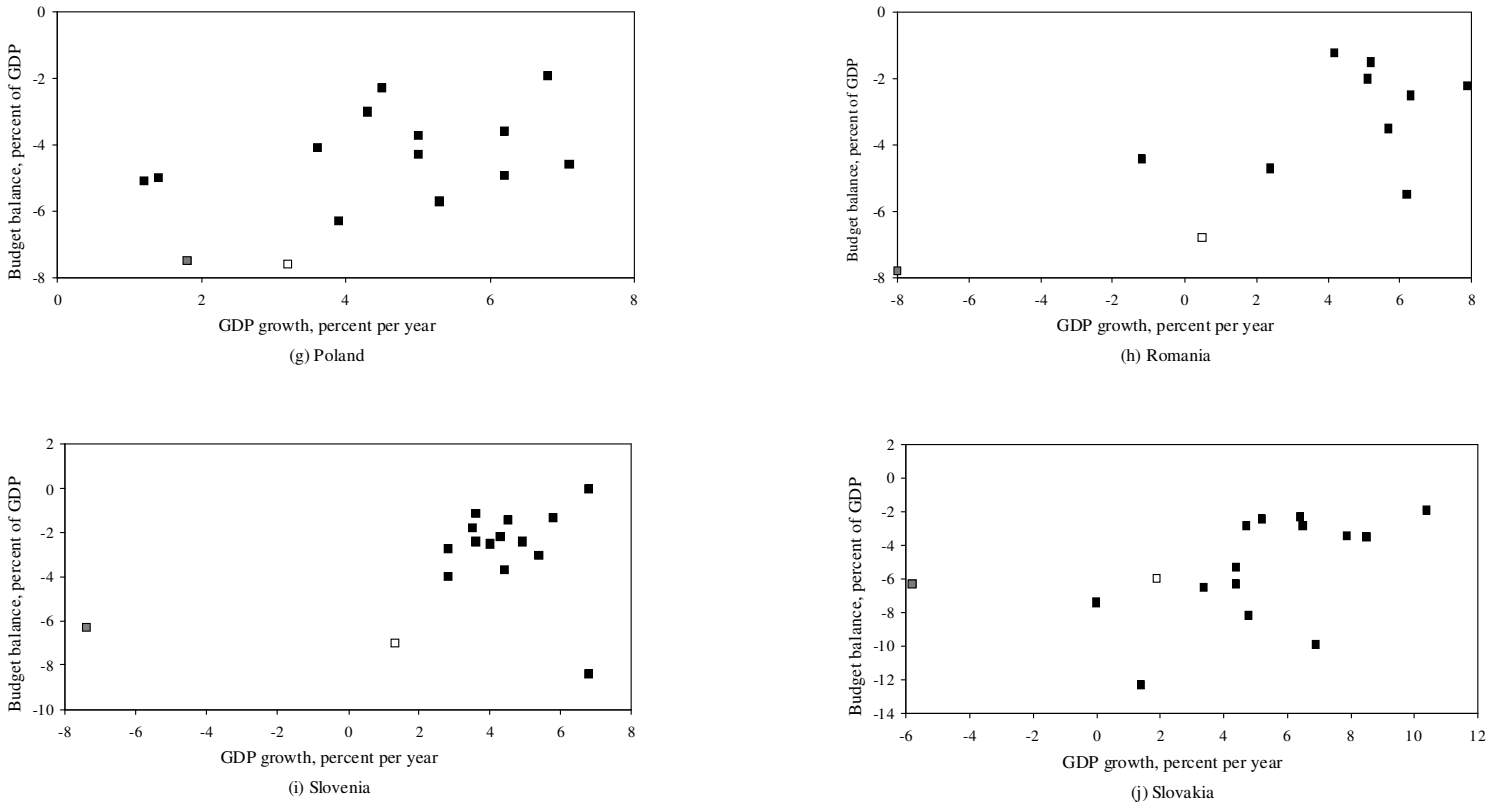


Figure 8: GDP growth and general government budget balance, 1995–2011

Notes: Black bullets are used for 1995-2008, grey bullets for 2009 estimates and white bullets for 2010 forecasts. Estimates and forecasts are from the European Commission's Autumn Forecast 2009 (EC 2009d).
Sources: Eurostat (2009b), EC (2009d).

Considering the crossplots in Figure 8 for the years 1995–2008 (the black bullets), a negative correlation emerges in all cases with the exception of Hungary. Higher GDP growth has been associated with an improved budget balance in almost all the new EU countries. In a few cases there is an "outlier" where the budget discipline has been either lacking (Lithuania, Slovenia) or unusually strong (Bulgaria). In general, the overall fiscal balance appears to be counter-cyclical whether as a result of automatic stabilisers operating or policy measures induced by the cyclical position.

As discussed above, the global financial crisis led to exceptional downturns in many new EU countries and consequent deterioration of the fiscal position. The estimates for 2009 (the grey bullets) and the forecasts for 2010 (the white bullets) of the European Commission are also included in the crossplots in Figure 8. For most of the countries the estimates for 2009 and the forecasts for 2010 lie close to a hypothetical regression line based on the observations for 1995–2008. In other words, the budgetary responses to the downturns following the global financial crisis seem to follow previous behaviour; for most new EU countries the global financial crisis does not appear to have led to a major change in fiscal policies.

The finding of "structurally" unchanged budget reactions has some exceptions. In Estonia the budget balance appears to be much stronger in 2009 than could be predicted based on the historical pattern. This can be explained by several rounds of budget cuts and — in particular — tax increases with the aim of keeping the budget deficit below or close to the 3 percent deficit required to satisfy the Maastricht Treaty's deficit criterion.[6] The estimated deficit in Hungary is around 4 percent of GDP, which is one of the smallest deficits attained within the sample period 1995–2008. One reason for this is the IMF lending programme launched in autumn 2008, which entails conditionality regarding the public finances of Hungary. Slovenia may be another country where the deficit is smaller than could be expected given the historical behaviour.

The crossplots in Figure 8 show the correlation between GDP growth and the budget balance in the new EU countries. The direction of causality is unexplained, as each of the slopes reflects the net outcome of the effect from the business cycle to the budget and from the budget to the business cycle. Moreover, omitted factors may help explain the budgetary stance independently of the cyclical stance.

One way to capture the effect *from* the cyclical position *to* the budget variable is to estimate budget reaction functions with several explanatory variab-

[6] Latvia, on the other hand, has a deficit in 2009 which is broadly in line with pre-crisis behaviour although the very large GDP fall implies that the deficit will be substantial.

les and the business cycle instrumented (Gali and Perotti, 2003; Fatas and Mihov, 2001). The lack of data points for the countries individually makes it expedient to employ panel data methods to estimate budget reaction functions, basically reflecting the "average" behaviour in the 10 new EU countries (Staehr, 2008). Figure 8 suggested that the reactions to changes in GDP growth exhibit substantial similarities across the 10 countries with Hungary being a noticeable exception.

We estimate models for the overall government budget balance, the primary balance, the revenues and the expenditures. Each of these dependent budget variables are generally modelled as a linear function of its one-year lagged value, the debt stock lagged one year, GDP growth and the unemployment rate.[7] The lagged dependent variable is included to capture possible persistence in the budget variable. The lagged debt stock can influence the budget directly as it affects the debt servicing costs and indirectly as it is an important part of the government's net asset position. The GDP growth and the unemployment variables are included to assess the impact of business cycle fluctuations on the budget variables.

The main purpose of the estimations is to uncover the effect from the business cycle position to different aggregate budget measures. This estimated effect on the budget variable will generally include both "automatic" adjustment and discretionary policy steps based on the cyclical position. Thus, the estimated effect is an aggregate measure based on the *outcome* of fiscal policies and not in terms of fiscal policy instruments such as tax rates and discrete spending measures (Kaminsky et al., 2004; Ilzetzki and Vegh, 2008).

The estimation methodology must take into account three main factors. First, the estimated models should allow for fixed effects across the country dimension, given the simple specification of the dependent variables. The variables reflecting the business cycle, for instance, are not scaled to allow for different trend growth or different "natural unemployment" across the 10 countries. Country fixed effects would mop up such time-invariant heterogeneity. Second, the GDP growth and unemployment variables — and to a lesser extent the lagged unemployment — will be endogenous with respect to the budget variable to the extent that the budget variable affects these variables. Third, the inclusion of the lagged dependent variable implies that the estimated coefficients will be subject to the Nickell bias if the model is estimated using fixed effects OLS (Nickell, 1981).

The three estimation issues can be addressed using the Difference GMM method developed by Arellano and Bond or the System GMM method devel-

[7] The data source of the general government primary balance is Eurostat (2009g); the data sources of all other variables are provided in Sections 2–4.

oped by Arellano, Bover, Blundell and Bond (Roodman, 2009). Both methods increase efficiency by making use of "expanding instruments", i.e. by including progressively more lags of the instruments as they become available. The System GMM estimator is generally the most efficient of the two estimators, and simulations suggest it performs well even in small panels with a low number of cross sections (Soto, 2009).

Table 3 shows the results of the panel data estimations with different budget measures as dependent variable. The estimation sample starts in 1999 and ends in 2008. The choice of time sample implies that some very large deficits for, inter alia, Bulgaria and Lithuania are left out, reducing the risk of "outliers" affecting results unduly.

Column (3.1) shows the results when the budget balance as a percent of GDP is the dependent variable. There is substantial persistence in the variable although the estimated coefficient of the lagged budget balance is substantially below one. The coefficient of the debt stock is negative but not statistically significant. The coefficient of contemporaneous GDP is positive and around 0.3, while the unemployment rate does not enter with coefficients. It is noticeable that the business cycle fluctuations affect the budget balance via the growth variable and not in a discernable way via the unemployment variable.[8]

The System GMM estimation method does not allow the direct extraction of country-specific fixed effects. We have instead recouped the fixed effects from the residuals (which include the fixed effects). The residuals were used as the dependent variable in a fixed effect regression with the country fixed effects as the only explanatory variables. Positive fixed effects were found for Bulgaria, Estonia and Slovenia, while the (numerically) largest negative effects were found for Latvia, Hungary and Slovakia.[9]

[8] Even if the growth variable is excluded, the coefficient of the unemployment variable remains statistically insignificant (estimation not shown).

[9] The recouped fixed effects from (3.1), in percentage points of GDP, are: Bulgaria 1.5, Czech Republic 0.0, Estonia 0.5, Latvia –0.6, Lithuania –0.1, Hungary –0.4, Poland –0.2, Romania –0.3, Slovenia 0.8, and Slovakia –0.7.

Table 3: Estimation of budget reaction functions, 1995–2008

	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)
Dependent variable →	**Budget balance**	**Budget balance**	**Budget balance**	**Primary balance**	**Revenues**	**Expenditures**
	Percent of GDP	Percent of GDP	Percent of GDP(–1)	Percent of GDP(–1)	Percent of GDP(–1)	Percent of GDP(–1)
Dependent variable (–1)	0.594*** (0.109)	0.540*** (0.073)	0.594*** (0.113)	0.514*** (0.100)	0.865*** (0.051)	0.731*** (0.065)
Debt (–1)	–0.008 (0.016)	..	–0.009 (0.018)	0.015* (0.009)	0.037*** (0.007)	0.051*** (0.017)
GDP growth	0.318*** (0.042)	0.341*** (0.042)	0.317*** (0.044)	0.294*** (0.045)	0.230** (0.079)	–0.099 (0.091)
Unemployment rate	0.005 (0.038)	..	0.005 (0.039)	–0.003 (0.033)	–0.068** (0.030)	–0.120** (0.050)
Constant	–2.511*** (0.257)	–2.966*** (0.355)	–2.524*** (0.298)	–2.405*** (0.334)	3.498 (2.023)	11.419*** (2.761)
AR(1) in first differences	–1.61 [0.108]	–1.62 [0.106]	–1.62 [0.105]	–1.65 [0.098]	–2.51 [0.012]	–2.09 [0.037]
AR(2) in first differences	0.48 [0.630]	0.54 [0.588]	0.53 [0.597]	0.47 [0.640]	0.79 [0.429]	1.58 [0.115]
Sargan over-identification	114.18 [0.608]	68.13 [0.277]	113.39 [0.577]	114.81 [0.540]	123.13 [0.331]	105.23 [0.774]
Sample years	1999–2008	1999–2008	1999–2008	1999–2008	1999–2008	1999–2008
No. of observations	96	100	95	95	95	95

*Notes: Estimation method is One-step System GMM with instruments lagged 2 and 3 periods. White diagonal robust standard errors are shown in round brackets; p-values are shown in square brackets. Superscripts ***, **, * denote that the coefficient estimate is statistically different from 0 at the 1, 5 and 10 percent level of significance, respectively.*

Column (3.2) shows the results when the lagged debt stock and the unemployment rate are left out; the autoregressive coefficient and the coefficient of GDP growth are largely unchanged from the more extensive specification in (3.1).[10] Column (3.3) exhibits the results when the budget balance as a percent of GDP the previous year is used as dependent variable. The results are essentially as those found in (3.1) and it is particularly interesting that the estimated coefficient to the GDP variable does not change. Thus, the counter-cyclicality of the budget balance is not affected by a "denominator effect", where for instance higher contemporaneous GDP growth mechanically reduces the (absolute) value of the budget variable (see also Kaminsky et al., 2004).

Column (3.4) provides the results when the primary budget balance is used as dependent variable. The coefficient of the lagged debt stock is now positive and statistically significant albeit only at the 10 percent level. Taken at face value, the result implies that a permanent increase in the debt stock by 10 percentage points would improve the primary balance by 0.15 percentage points in the short term and around 0.3 percentage points in the longer term. These magnitudes appear reasonable and are consistent with the effect of increased debt on the overall budget balance, being insignificant in both statistical and economic terms.

Column (3.5) presents the result when the general government revenue as a percent of GDP for the *previous year* is the dependent variable.[11] The variable exhibits substantial persistence as witnessed by the coefficient of the lagged dependent variable being estimated at 0.85. A higher debt stock induces governments to increase the revenue (ostensibly to be able to service the debt). GDP growth increases the revenue as a percent of GDP for the previous year, i.e. increases the revenue in real terms. A higher unemployment rate is found to reduce the revenue intake. The latter two results imply that the counter-cyclicality of revenues derives from the income and unemployment changes.

Finally, Column (3.6) shows that government expenditures exhibit substantial persistence. They are, unsurprisingly, a positive function of the debt stock. The estimated coefficient of GDP growth variable is negative, indicating counter-cyclical expenditures, but it is small and statistically insignificant. Moreover, the unemployment rate enters with a negative sign, indicating that higher unemployment leads to lower government expenditures.

[10] The results are reasonably robust to sample changes. For instance, the qualitative results obtained in (3.1) are essentially unchanged if the sample is shortened to include only a few years (estimations not shown).

[11] See the discussion of Figure 5 in Section 4 for the definition and interpretation of the variable.

This surprising result may be an aberration but it may also reflect that a government in a downturn with increasing unemployment reduces expenditures. In combination, the results suggest a weak or non-existent counter-cyclicality in the government expenditures of the new EU countries.

The analyses in this section entail important findings, which we will use in the discussion of the medium-term fiscal policy challenges emerging from the global financial crisis. The budget balance exhibits substantial persistence, implying that changes to the balance may be long-lived. Budget deficits following a negative GDP growth shock may persist after the impulse triggering the deficit has vanished, even when controlling for an increased accumulated debt. The debt stock has no discernible effect on the overall government budget balance, but higher debt improves the primary balance. The budget balance is moderately counter-cyclical. Furthermore, the counter-cyclicality of the budget balance primarily originates from the revenue side of the budget, while the expenditure side might be a-cyclical or even pro-cyclical.

6. Fiscal policy and management in the medium term

It is clear from the findings in Sections 4 and 5 that future macroeconomic developments will play a major role regarding the outlook of public finances in the region (see also Wolf, 2009). This follows from the regressions in Table 3 (based on data for 1999 to 2008), which suggest that 1 percentage point higher growth improved the budget balance in an "average" new EU country by 0.3 percentage points within the same year.

We begin by computing a hypothetical benchmark scenario for the general government balance for the three years 2009–2011. It should be underscored that this hypothetical benchmark does not amount to a forecast or, for that matter, the most probable scenario. The purpose is entirely to establish a benchmark, against which the impact of a number of factors can be discussed.

We use the regression in Column (3.2) in Table 3 to compute scenarios for the budget balance in each new EU country, based on the GDP growth projections from the European Commission's Autumn Forecast 2009 (EC, 2009d). The forecasted GDP growth rate is on average –0.3 percent for 2010 (ranges from –4 to 1.9 percent) and 2.8 percent for 2011 (ranges from 2 to 4.2 percent). The estimation in Column (3.2) assumes country-specific fixed effects, but common coefficients of the lagged dependent variable and the GDP growth rate. Figure 8 shows the hypothetical benchmark scenarios based on dynamic forecasting of the budget balance for 2009–2011 and also the esti-

mated budget balance for 2009 from the Autumn Forecast 2009 of the European Commission (EC, 2009d).

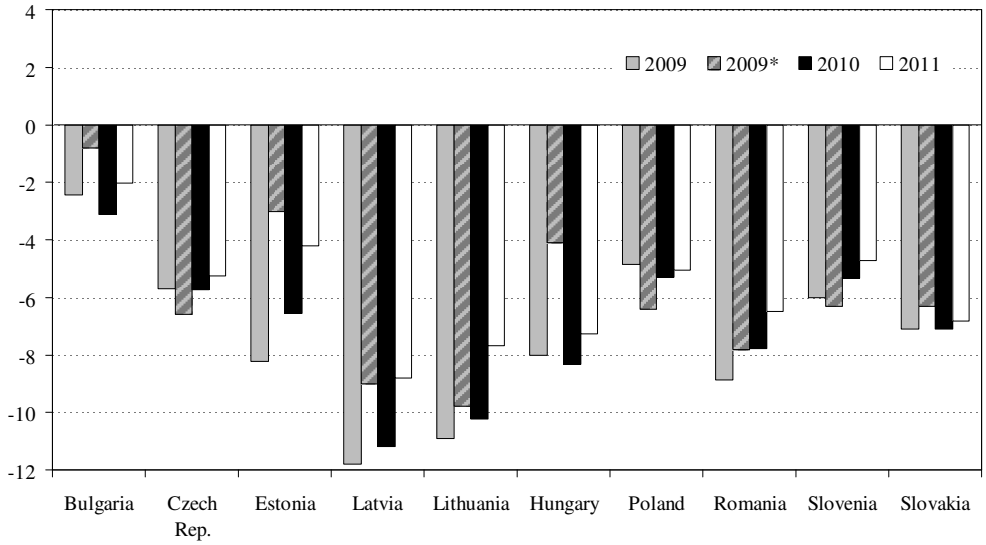


Figure 8: General government budget balance, percent of GDP, hypothetical benchmark scenarios 2009-11, European Commission forecast 20

Notes: 2009 denotes the budget balance estimates of the European Commission's Autumn Forecast 2009 (EC, 2009d).*
Sources: Eurostat (2009b), own calculations.

Comparing the hypothetical benchmark scenarios and the EC estimates for 2009, it is clear that there is a substantial congruence between the benchmark scenarios based on dynamic forecasting using (3.2) and the estimates from the European Commission. This is partly the result of having used the GDP growth estimates of the European Commission, but it also illustrates that a simple specification of the budget reaction function can provide guidance regarding future budgetary outcomes.

There are some interesting exceptions for 2009, where the budget deficit of the benchmark scenario exceeds the deficit according to the EC estimate. This is the case for Bulgaria, Estonia, Latvia and Hungary. The discrepancies can be attributed to the discretionary fiscal consolidation measures undertaken by these countries in order to improve their fiscal situation in 2009. The differences between the EC estimates and the benchmark scenario signify that the benchmark scenarios are based on unchanged budget reaction functions, while in actuality these countries tightened their budget balance as part of IMF conditionality (Latvia, Hungary) or to strengthen the credibility of

their currency boards (Bulgaria, Estonia). The differences between the benchmark scenarios and the EC estimates provide a rough measure of the discretionary fiscal tightening undertaken. It is noticeable that the budget balance according to the benchmark scenario is lower than the EC estimate for Poland; this reflects the discretionary loosening of fiscal policy undertaken in Poland at an early stage of the crisis.

Regarding the years 2010–2011, the hypothetical benchmark scenario suggests that the budget balance will remain in negative territory in all new EU countries. The benchmark scenario relies on dynamic forecasting so that, for instance, the budget balance forecast for 2010 is computed using the budget balance in the scenario for 2009. The 2010–2011 scenarios are therefore likely to overstate the deficits for the countries that undertook substantial fiscal tightening in 2009, i.e. Bulgaria, Estonia and Hungary.[12]

In the benchmark scenario, the average budget deficit in the 10 new EU countries amounts to around 6 percent of GDP in 2010 and 2011. This should be seen against the background of forecast average GDP growth of –0.3 percent in 2010 and 2.8 percent in 2011. If growth turns out to be below the forecasts, the resulting budget deficits will likely be larger. Deficits of 6 percent of GDP or larger combined with low or negative growth would lead to rapidly increasing debt-to-GDP ratios.

In sum; the global financial crisis has both in the short and medium term led to a substantial deterioration in the fiscal balance, which in some countries has been partly counteracted by fiscal tightening. The main issue is to which extent the crisis and the accompanying deterioration of the budget has jeopardised fiscal sustainability. It is beyond the scope of this paper to set out explicit scenarios for the debt dynamics, but a number of factors affecting fiscal sustainability in the *short term* and in the *medium term* will be discussed.[13]

Given that most of the new EU countries, with the exception of Hungary and Poland, entered the global financial crisis with low debt stocks, the main *short term* problem relates to the *financing* of the budget, i.e. the roll-over of existing public debt and the issuance of new debt to cover budget deficits. The experiences of Latvia and Romania show that liquidity problems resulting from sudden stops of government financing can emerge at low levels of debt.

[12] The forecasts of the budget balance in percent of GDP published in the Autumn Forecast 2009 of the European Commission are, for 2010 and 2011 respectively: Bulgaria –1.2 and –0.4, Czech Republic –5.5 and –5.7, Estonia –3.2 and –3.0, Latvia –12.3 and –12.2, Lithuania –9.2 and –9.7, Hungary –4.2 and –3.9, Poland –7.5 and –7.6, Romania –6.8 and –5.9, Slovenia –7.0 and –6.9, Slovakia –6.0 and –5.5 (EC, 2009d).

[13] EC (2009d, Ch. 3) provides debt to GDP scenarios until 2010 for all 27 EU countries.

It is difficult to pinpoint the exact factors that affect the probably of sudden stops in the case of the new EU countries. Kaminsky et al. (2004) show that capital flows to emerging markets tend to be pro-cyclical. This feature may complicate financial management if the result also holds for the new EU countries: a (renewed) economic downturn increases the need for public borrowing while at the same time impedes public borrowing.

The global financial crisis has underscored the importance of external factors. Renewed disruptions in financial markets in high income economies are likely to affect the government debt markets in the new EU countries disproportionately. Large deficits and high debt stocks arguably leave the new EU countries exposed to instability emerging in European or global financial markets. This may be of particular importance for countries outside the Eurozone and therefore do not benefit from the absence of currency risk (against the euro).

In the *medium term* fiscal sustainability is to a large extent dependent on the evolvement of the debt as a share of GDP. More specifically, sustainability requires that the debt servicing costs remain below a level which is deemed acceptable by the policy-makers. Large government deficits and increasing debt ratios are potentially also a problem in the medium term, beyond 2011. The deficits need to be financed and the increasing debt stocks need to be refinanced on a continuous basis. It is frequently found that investors "tolerate" much less debt in emerging market economies than in high-income economies, so that sovereign debt crisis frequently appear at relatively low debt levels in emerging market economies (Sturzenegger and Zettelmeyer, 2006).

An important problem relates to the challenges associated with forecasting trend growth in the new EU countries in the medium term, i.e. during the next 3–8 years (IMF, 2009, Ch. 4). There are three main possibilities: a) The crisis will be long-lasting, implying medium-term growth rates to remain unstable and at low levels; b) Medium-term economic growth rates will return to the levels recorded prior to the global financial crisis, which implies rapid convergence, possibly based on renewed capital inflows; c) Medium-term growth will remain substantially below the previous levels, given the economic restructuring and reduced capital inflows. Experiences from previous crises suggest that all three possibilities are likely.

The estimation of budget reaction functions in Section 5 suggested that government *expenditures* were a-cyclical or even pro-cyclical. The global financial crisis has, however, led to extraordinarily large downturns of GDP growth with subsequent negative effects on employment and unemployment in most new EU countries. The possibility of increasing social problems may

add an element of uncertainty with respect to the ability of governments to tighten fiscal policies.

As noted in Section 4, the direct budgetary costs in support of the financial sector have been modest because the financial sector has held up well in most of the new EU countries. Governments in some countries might, however, end up taking over liabilities from the private sector, which would weaken public finances. First, problems could emerge in the financial sector in the medium term if the downturn becomes protracted and borrowers default on their obligations. Second, there may be political pressure to support borrowers who face problems with servicing their debt, for instance households that may default on housing debt. Third, there may be attempts to support ailing firms, as has happened in, for instance, old EU countries.

The estimation of budget reaction functions in Section 4 suggested that the primary balance reacted very modestly to the debt stock, while the overall government budget balance did not react in a discernible way. If this behaviour remains unchanged, the rapid increases in debt as a share of GDP in 2009 and beyond may be protracted, as there is limited feedback from the debt stock to the fiscal balance.

There are, however, also a number of factors which contribute to reduced pressure on the public finances and point towards a benign development path in the medium term. First, the IMF-led financing packages to 3 of the 10 new EU countries appeared from the second half of 2009 to have stabilised financial markets and given the governments space to revise their fiscal policies and management in an orderly manner.[14] The support packages might also have reduced the financing pressure on the countries that have not received the loans. Second, the new EU countries will continue to receive substantial support from the Structural and Cohesion Funds of the European Union, which to a large extent will be channel through the budget as revenues.[15] The support may allow governments to cut other expenditure items and thus improve the budget balance. Moreover, an effective utilisation of the resources from the EU may stimulate economic growth which may help facilitate the fiscal adjustment necessitated by the economic crisis.

[14] The IMF also provided a financing facility to Poland, but the facility is precautionary and Poland had not drawn on the facility at the time of writing in January 2010.

[15] In the case of Estonia, the projected net transfers from the EU amounts to 5.4 percent of GDP in 2009 and 7.0 percent of GDP in 2010 (IMF, 2010: 12).

7. Final comments

This paper has discussed the development of public finances in the 10 new EU countries from Central and Eastern Europe since the global financial crisis broke out in 2008. The financial turmoil spread in a short time to the new EU countries and impeded government borrowing in the region. Credit Default Swap spreads shot up, signifying that financial markets had reduced appetite for risk and assessed default risks to have increased in the region. Facing imminent financing problems, Hungary and Latvia had to turn to the IMF in autumn 2008; Romania followed suit at the beginning of 2009.

The direct budgetary costs of the financial crisis have been modest, except in Latvia where a domestic bank was bailed out in the autumn 2008. Elsewhere the mainly foreign-owned banks and financial institutions have been kept afloat by their owners. The impact of the global financial crisis on the fiscal situation has, thus, primarily been indirect via economic growth and other variables. All new EU countries, with the exception of Poland, are estimated to have experienced substantial output falls in 2009. The Baltic countries are in a unique situation with estimated output falls between 13 and 18 percent.

Given the growth setback, it is unsurprising that fiscal balances deteriorated in the new EU countries in 2009. Four different country clusters were identified based on their fiscal performance in the aftermath of the global financial crisis breaking out in autumn 2008. *The casualties* comprise Latvia, Hungary and Romania, which had to turn to the IMF for support and which subsequently have directed their fiscal policies towards satisfying the loan conditionalities. *The activists* include the Czech Republic, Poland, Slovenia and Slovakia, which have followed relatively expansionary (Keynesian-inspired) policies. *The hardliners* are Bulgaria and Estonia, which have maintained a tight fiscal stance. Finally, *the outlier* refers to Lithuania, which has managed to finance substantial deficits during the crisis without having to turn to the IMF.

The estimations of budget reaction functions revealed that the general budget balance has been moderately counter-cyclical, but also that this counter-cyclicality derives entirely from the revenue side. The estimations suggest that if the global financial crisis has, on average, caused a reduction of output growth in the new EU countries equal to 10 percentage points in 2009, this has entailed an average worsening of the budget balance by 3 percentage points or more in 2009 (and with substantial persistence in the following years).

The medium-term budget outlook rests to a large extent on the growth outlook. If growth returns to pre-crisis levels, budget balances will improve

rapidly and debt as a share of GDP will stabilise or fall. If the crisis is protracted and leads to low or zero growth in the medium term, budget deficits will remain large and the financing of the debt will be jeopardised. It was underscored that it is very difficult to produce reliable medium-term growth forecasts. Moreover, the budgetary situation is subject to a number of additional factors, which may affect the budget balance in negative direction.

The upshot is that a number of the new EU countries would need to tighten fiscal policies in the medium-term in order to improve the budget balance and reduce financial vulnerabilities. Such an improvement of the structural balance is particularly pertinent, given the unsettled situation in world financial and goods markets. A more counter-cyclical fiscal stance may also be beneficial, in part to ensure that a future upturn is used to consolidate public finances. In this context, it may be particularly important to consider steps seeking to avoid a-cyclicality or pro-cyclicality in government expenditures.

The management of public finances plays an important role in the implementation of measures aimed at improving the structural balance and ensuring country-cyclicality. It may be beneficial to establish new institutions and governance structures if the ambitious objectives are to be realised. The governments in the new EU countries may, for instance, consider setting up "stabilisation funds", as those increasingly used in countries exporting oil or other export goods with highly fluctuating prices.[16] Pre-accumulated public funds may make the countries less dependent on international financing conditions. Strengthened budgetary institutions and the introduction of fiscal policy rules may also facilitate the adjustment required in many of the new EU countries. Along the same lines, Fabrizio and Mody (2008) suggest that a strengthening of fiscal management and budgetary institutions can contribute to improved budgetary outcomes in several European countries.

The normative discussion above raises the question under which conditions such changes of public finance management and institutions may occur. The encouraging conclusion in Fabrizio and Mody (2008) is that large shocks, such as deep economic crises, in the past have been instrumental in bringing about changes in fiscal management and institutions, possibly because the scarcity of resources changes the power of different political constituencies. The global financial crisis, which in the short term has strained public finances in the new EU countries, may thus in the medium term

[16] Kamps et al. (2009) report data on the transfers from the Structural and Cohesion Funds to each of the new EU countries (except Slovenia). They estimate that the transfers each year during the period 2010–2013 will amount to 2–3 percent of the recipient countries' GDP. The lower GDP growth in most of the new EU countries, resulting from the global financial crisis, implies that the transfers as percent of GDP will be somewhat larger than these estimates.

function as a catalyst for changes in fiscal management and lay the ground for future adjustment of the budget stance.

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[Links valid 18 Jan. 2010; data downloaded from databases on 5 Nov. 2009 and 18 Jan. 2010.]

Appendix A: Headline budgetary figures for the new EU countries

Table A.1: General government revenues, percent of GDP, 1995–2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
Bulgaria	..	..	..	40.6	42.0	42.2	40.9	39.5	40.0	41.3	41.2	39.5	41.5	39.1	38.7
Czech Republic	41.0	39.3	39.4	38.2	38.6	38.1	38.7	39.5	40.7	42.2	41.4	41.1	41.9	40.9	40.3
Estonia	42.4	39.1	39.6	38.5	36.7	35.9	34.7	36.0	36.5	35.6	35.2	36.3	37.4	37.1	41.9
Latvia	37.0	36.5	37.5	40.2	37.9	34.6	32.5	33.4	33.2	34.7	35.1	37.7	35.5	34.6	34.9
Lithuania	32.9	33.1	37.9	37.1	37.1	35.9	33.2	32.9	31.9	31.8	32.8	33.1	33.8	34.2	36.1
Hungary	46.9	46.3	43.7	43.0	43.3	43.8	43.2	42.3	42.2	42.3	42.2	42.6	44.8	45.5	45.9
Poland	43.3	46.1	41.8	40.1	40.4	38.1	38.6	39.2	38.4	36.9	39.4	40.2	40.3	39.6	37.6
Romania	33.8	30.9	30.5	32.0	34.8	33.8	32.5	33.0	32.0	32.3	32.3	33.1	33.5	32.8	31.6
Slovenia	44.3	43.3	42.5	43.3	43.4	43.0	43.6	43.9	43.7	43.6	43.8	43.2	42.4	42.4	43.2
Slovakia	45.2	43.8	42.6	40.5	40.7	39.9	38.0	36.8	37.4	35.3	35.2	33.5	32.5	32.5	31.3
EU15	45.2	45.9	45.9	45.7	46.1	45.8	45.1	44.5	44.5	44.3	44.8	45.2	45.3	45.1	..

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009e), EC (2009d).

Table A.2: General government expenditures, percent of GDP, 1995–2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
Bulgaria	..	..	..	39.3	41.8	42.6	40.3	40.3	40.3	39.7	39.3	36.5	41.5	37.3	39.5
Czech Republic	54.5	42.6	43.2	43.2	42.3	41.8	44.4	46.3	47.3	45.1	45.0	43.8	42.6	43.0	46.9
Estonia	41.3	39.5	37.4	39.2	40.1	36.1	34.8	35.8	34.8	34.0	33.6	34.0	34.8	39.9	44.8
Latvia	38.6	36.9	36.3	40.2	41.8	37.3	34.6	35.6	34.8	35.8	35.6	38.2	35.9	38.8	43.8
Lithuania	34.4	36.4	49.6	40.1	39.9	39.1	36.8	34.7	33.2	33.3	33.3	33.6	34.8	37.4	45.9
Hungary	55.6	50.6	49.2	50.4	48.4	46.9	47.3	51.2	49.4	48.7	50.1	52.0	49.8	49.2	50.0
Poland	47.7	51.0	46.4	44.3	42.7	41.1	43.8	44.2	44.6	42.6	43.4	43.9	42.2	43.3	44.0
Romania	35.9	34.7	34.9	35.2	39.2	38.5	36.0	35.0	33.5	33.5	33.5	35.3	36.0	38.4	39.4
Slovenia	52.6	44.5	44.8	45.7	46.5	46.7	47.6	46.3	46.4	45.8	45.2	44.5	42.4	44.2	49.5
Slovakia	48.6	53.7	49.0	45.8	48.1	52.2	44.5	45.0	40.1	37.6	38.0	36.9	34.4	34.8	37.5
EU15	52.4	50.1	48.5	47.5	47.0	45.4	46.4	46.8	47.5	47.1	47.2	46.6	46.0	47.3	..

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009b), EC (2009d).

Table A.3: Net consolidated government lending, percent of GDP, 1995–2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009*
Bulgaria	–3.4	–1.8	5.3	1.3	0.2	–0.3	0.6	–0.8	–0.3	1.6	1.9	3.0	0.1	1.8	–0.8
Czech Republic	–13.4	–3.3	–3.8	–5.0	–3.7	–3.7	–5.6	–6.8	–6.6	–2.9	–3.6	–2.6	–0.7	–2.1	–6.6
Estonia	1.1	–0.4	2.2	–0.7	–3.5	–0.2	–0.1	0.3	1.7	1.6	1.6	2.3	2.6	–2.7	–3.0
Latvia	–1.6	–0.4	1.1	0.0	–3.9	–2.8	–2.1	–2.3	–1.6	–1.0	–0.4	–0.5	–0.3	–4.1	–9.0
Lithuania	–1.5	–3.2	–11.7	–3.0	–2.8	–3.2	–3.6	–1.9	–1.3	–1.5	–0.5	–0.4	–1.0	–3.2	–9.8
Hungary	–8.7	–4.3	–5.5	–7.4	–5.1	–3.0	–4.1	–8.9	–7.2	–6.4	–7.9	–9.4	–5.0	–3.7	–4.1
Poland	–4.4	–4.9	–4.6	–4.3	–2.3	–3.0	–5.1	–5.0	–6.3	–5.7	–4.1	–3.6	–1.9	–3.7	–6.4
Romania	–2.1	–3.7	–4.5	–3.2	–4.4	–4.7	–3.5	–2.0	–1.5	–1.2	–1.2	–2.2	–2.5	–5.5	–7.8
Slovenia	–8.4	–1.1	–2.4	–2.4	–3.0	–3.7	–4.0	–2.5	–2.7	–2.2	–1.4	–1.3	0.0	–1.8	–6.3
Slovakia	–3.4	–9.9	–6.3	–5.3	–7.4	–12.3	–6.5	–8.2	–2.8	–2.4	–2.8	–3.5	–1.9	–2.3	–6.3
EU15	–7.2	–4.2	–2.6	–1.8	–0.9	0.4	–1.2	–2.4	–3.0	–2.8	–2.4	–1.3	–0.7	–2.2	..

*Note: * Estimates for 2009 from the European Commission's Autumn Forecast 2009 (EC 2009d).*
Source: Eurostat (2009f), EC (2009d).

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