Retreat from mandatory pension funds in countries of the Eastern and Central Europe in result of financial and fiscal crisis: causes and effects[1]

Kamila Bielawska[2]
Agnieszka Chłoń-Domińczak[3]
Dariusz Stańko[4]

Abstract:

The aim of the paper is to assess in various dimensions the causes and effects of the reduction of mandatory pension funds in selected countries of Central-Eastern Europe. The pension systems with partial funding were introduced during the 1998 – 2008 by eight CEE countries (Hungary, Poland, Latvia, Estonia, Bulgaria, Lithuania, Slovakia and Romania). The 2008 financial and economic crisis triggered the reversals of pension funding decisions. Many countries decided to diverge from their initial reform scenario, downscaling or fully reversing the development of the funded components of their mandatory pension schemes, by reducing the amount of contributions transferred to the funds or changing fund participation rules. These actions were a part of the fiscal consolidation undertaken by the countries of region due to the need to remove the excessive deficit and reduce government debt growth. Contrary to the initial plans, the transition costs related to the reforms were financed to a large extent with the public debt. At the same time, the social policies at the beginning of the century in many countries expanded, creating a fiscal pressure that escalated during the crisis, leading to the decisions of reversals of funded systems. After the economic crisis, the fiscal situation in many of the CEE countries worsened further, which means that the risk of fiscal sustainability, related also to the high level of implicit pension liabilities, remains high.

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[2] Department of Finance, University of Gdansk, Poland, kamila.bielawska@ug.edu.pl
[3] Institute of Statistics and Demography, Warsaw School of Economics, Poland, achlon@sgh.waw.pl
[4] Department of Social Insurance, Warsaw School of Economics, Poland, dariusz.stanko@sgh.waw.pl

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Introduction

The aim of the paper is to assess in various dimensions the causes and effects of the reduction of mandatory pension funds in selected countries of Central-Eastern Europe[5].

The need for reforming public pension systems has been apparent both from the current stage of their development and the change in (demographic, economic and social) circumstances in which they operate. Maintaining a high level of (in relation to GDP) public spending on pensions in the light of ageing populations is not possible, hence one needs to seek solutions that would allow states to maintain their solvency to meet pension obligations.

The debate on the directions of the reform of public pension systems in Central and Eastern Europe was fuelled by a seminal World Bank report of 1994 "Averting the Old Age Crisis" (World Bank, 1994), which pointed to the need for introduction of systems with significant role of mandatory funded components, that would contribute to the diversification of the pension financing in the light of projected demographic change. The report triggered various reactions in the literature, including some critical opinions (Beattie, McGillivray, 1995; Singh, 1996). As well as further discourse based on economics appeared in the literature (Orszag, Stiglitz 1999, Barr 1999). Many of the CEE countries, informed with these debates, introduced their pension reforms including mandatory funded components.

The early experiences of (mainly) developing countries from Latin America and Europe and Central Asia that had replaced or supplemented their public systems with mandatory funded component as well as further research have significantly increased knowledge and insight regarding pension systems. These developments contributed to further conceptual underpinnings for the World Bank's thinking on pension systems and reforms and further

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reflection on the key design and implementation issues presented in (Holzmann and Hinz 2005). The great recession and worsening public finance situation in many of the countries that reformed their pension systems in 1990s and at the beginning of the 21st century yet again lead to further considerations on political and economic sustainability of the pension reforms.

The public pension systems are not a part of European Union policy-making but from the perspective of the objectives of pension systems specified in the Open Method of Co-ordination (OMC) of pension systems in the EU, the pension system should have the following characteristics: to provide benefits, which amounted to prevent poverty (adequate), to be possible to be financed by taxpayers (affordable), to be capable of functioning in the long term (sustainable) and to be resistant to shocks generated by economic, demographic, and political factors (robust). Most of these characteristics have been concluded in the Green Paper (EC, 2010) and in the White Paper on Pensions (EC, 2012).

In the late 1990s the wave of pension reforms transformed the pension landscape in Central and Eastern Europe. The transition from centrally planned to market economies triggered societal changes and the significant restructuring of labour markets. Shifts in the structure of labour demand increased pressures for early retirement and raised concerns about pension system sustainability. Falling fertility levels and rising life expectancy accentuated population ageing. As a result, pension systems faced the challenge of short- and long-term sustainability. Many CEE countries introduced structural reforms, shifting towards pension systems with both pay-as-you-go and fully funded components.

These reforms were introduced during the 1998 – 2008 in the CEE region by eight countries (Hungary, Poland, Latvia, Estonia, Bulgaria, Lithuania, Slovakia and Romania) which coincide with the accession to the European Union (in 2004 and 2007 enlargement rounds).

The introduction of funded components was perceived in many of the countries as a reform process that served several purposes. First, with population ageing it seemed that systems that relied on labour and financial markets provided better risk diversification (see Chłoń et al., 1999, Chybalski 2012). Second, with relatively low level of savings and underdeveloped financial markets, the introduction of mandatory funding provided a stable instrument that would support the development of financial markets. The reformers also anticipated that pension reforms would provide further incentives for structural changes intended to reduce excessive public spending.

The design of the CEE pension systems and the way they were changed was an outcome of a country-specific mix of economic, social and political criteria. National policymakers made the final decisions, but international institutions frequently influenced the design (Orenstein, 2008; Chłoń-Domińczak and Mora, 2003) by both providing an input to the pension debate through publications and reports, (i.e. World Bank, 1994) and, more directly, through financial aid and loans (Orenstein, 2008; Guardiancich, 2013).

Almost two decades after the pension reforms the EU accession initiated a new wave of socio-economic changes, characterised by an increasing role being played by European institutions. Experiences from the implementation of the reforms, including the performance of pension funds, reopened national discussions on pension systems and their design. The 2008 financial and economic crisis triggered the second wave of pension system changes. Many countries decided to diverge from their initial reform scenario, downscaling or fully reversing the development of their funded components in mandatory pension systems.

Furthermore, some of the reform results did not meet initial expectations. As Barr and Diamond (2010, p.72) point out, the expected reform outcomes are contingent on beneficial effects on growth and on country-specific factors, including the institutional capacity: skills in allocating pension funds, skills in administering pension accounts and the capacity to regulate financial markets. Whether such reforms can be sustained depends also on a government's capacity to maintain the sound public finances necessary to meet long-term transition requirements.

In the years 2008–2011 many of the CEE countries introduced changes to their pension systems, including the mandatory funded part (Chłoń-Domińczak, 2010; Chłoń-Domińczak and Stańko, 2011). These actions were a part of the fiscal consolidation undertaken by the countries of region due to the need to remove the excessive deficit and reduce government debt growth (Bielawska, 2011a).

Action taken by the governments of CEE countries have significantly reduced – temporarily or permanently – the growth of funded pension assets by reducing the mandatory contributions paid into pension funds. These changes have so far been reported mainly from the standpoint of political economy of reform (Guardiancich 2010; Orenstein 2011; Datz and Dancsi 2013; Adascalitei 2017), the state of public finances, mainly through the disclosed amount of the public debt (Velculescu 2011, Jarrett 2011, Naczyk and Domonkos 2015), from the perspective of the development of the financial markets (Drazenovic, Olgic, and

Kusanovic 2016; Enache, Milos and Milos 2015) and the rates of return of mandatory pension funds (Altiparmakov 2014; 2017[6]).

This paper is an updated and abridged version of the study (Bielawska et al., 2017) that for the first time provided the analysis of the scope and sources of covering the transition costs in the pre-crisis and post-crisis period and so extends the research presented so far in the literature.

This paper also aims to determine the impact of decisions concerning funded components of the pension systems on the public finance situation in analysed countries, related to non-pension debt in the context of changed fiscal rules - most importantly, the revised in 2011 Stability and Growth Pact and signed in March 2012 fiscal compact. After the EU accession and thanks to the first reform of Stability and Growth Pact of 2005 countries with partially funded pension schemes were allowed to treat a part of the contribution diverted to a funded component' as a general government revenues for the initial five years of reform. These preferences were gradually withdrawn by 2009. As a result, the level of general government deficit and debt was higher due to the fact that through the introduction of the funded component part of the implicit pension liabilities was turned into the explicit public debt. This last issue has already been raised in the literature (Bukowski, Chłoń-Domińczak, Góra, 2009; Pater 2011). Some proposals offering a measure of budget balance that takes into account the long-term nature of pension obligations have been presented (Soto, Clements, Eich 2011; Velculescu 2011), but have not been so far considered in the process of strengthening the fiscal governance within the EU. Our research compliments other research in the area, such as (Guardiancich, 2013; Borowski et al., 2013; Milos and Milos, 2013; Schwarz and Arias, 2014).

The paper has four sections. The first section presents the design and changes in the pension systems in the CEE countries in the light of their public finance situation and broader socio-economic context. Section 2 makes an assessment of the short-term effects of reduction of pension funds sectors on the public finance situation and the public pension system in each of the analysed countries. Section 3 provides an assessment of the long-term impact of changes in funded systems for the stability of public finances and pension systems. Section 4 concludes.

[6] Also, Chapter 2 in Bielawska et al. (2017) provides a detailed analysis of the performance of funded pensions in the CEE countries.

1. Pension reforms, their transition costs and sources of financing

Starting from a descriptive analysis of the functioning of mandatory funded systems in each country and a short description of the developments in 2008-2011, we focus on the contribution of transition financing to the change in the general government deficit and debt. We also investigate the impact of transition costs on the public finance situation, also taking into account the social expenditures and labour market situation.

1.1. Pension systems' features and public finance in the 8 countries

Despite the common shift towards pension system design with mixed pay-as-you-go and funded components there are substantial differences between the pension systems of the analysed countries both in terms of their design and transition rules (Table 1). In parallel to the introduction of mandatory financial parts, the countries also reformed their non-financial components, either downscaling the defined benefit (DB) schemes, introducing point systems or introducing a paradigmatic shift to non-financial defined contribution (NDC) schemes. All the countries also decided to increase their retirement age and five of them equalised the retirement ages for men and women.

Changes to the PAYG system design, including increases to the retirement age, were important measures towards reaching the long-term financial sustainability of pension systems and generating savings that could cover transition costs. Such costs occur when the prefunding is obtained by transferring part of the existing mandatory pension contribution to the newly established financial component. Among the analysed countries, only Estonia decided to prefund old-age pensions through a partial increase of the mandatory contribution paid by employees. Other countries in the region did not use this method due to the relatively high levels of tax wedges. As a rule, pension reforms were designed to avoid distorting the labour market. To achieve this aim, most of the countries chose to reduce the revenues to the PAYG part of the system to build the financial part of the mandatory pension system. These decisions had affected the financial situation of the non-financial systems what is described in more detail in the Section 2.

Table 1. Main features of pension schemes in 8 CEE countries at the time when reform was introduced

	Public pension scheme (PAYG)	Retirement age	Mandatory Funded Scheme (FDC)		
			Initial contributions	Enactment date	Who participates
Bulgaria	DB	60/55 to 63/60	2% to 5%	2002	Mandatory for all workers <42, no cohorts with choice option
Estonia	DB	60/55 to 63/63	6% (4% +2%)	2002	Mandatory for new entrants, voluntary for 19-60 in year of reform
Latvia	NDC	60/55 to 62/62	2% to 8%	2001	Mandatory for entrants and workers < 30, voluntary for 30-50
Lithuania	DB	60/55 to 62.5/60	2.5% to 5.5%	2004	Voluntary for current and new workers but no opt-out
Hungary	DB	60/55 to 62/62	6% to 8%	1998	Mandatory for new entrants, voluntary for all employed
Poland	NDC	65/60 (60/55)	7.3%	1999	Mandatory for new and workers < 30, voluntary for 30-50
Romania	DB	62/57 to 65/60	2% to 3%	2008	Mandatory for new and workers < 35, voluntary for 36-45
Slovakia	Points	60/53-57 to 62/62	9%	2005	Mandatory for born after 1983, voluntary for all being in the social insurance before 2005

Source: Schwarz and Arias (2014) with authors' update.

The CEE states applied different transition strategies to the new system. In five countries, the part of old-age contribution transferred to the funded scheme was to be increased gradually, in three (Estonia, Poland and Slovakia) the contribution level was determined at the very beginning. There were also different approaches to the participation in the system. While mandating participation for new entrants to the labour market was common (with the exception of Lithuania), some countries decided to cover also part of the current workforce (up to the age 42, depending on the country). All countries apart from Bulgaria made the system voluntary for some parts of the workforce, in several cases introducing an upper age limit (50 years in Latvia and Poland, 45 years in Romania).

The different strategies applied to the contribution level of the funded component, the switching rules (Table 1), and choices made by employees, influenced the level of transition costs.

Actual transition costs before the financial crisis ranged from 1.6% of GDP in Poland and Hungary (due to high contribution rates, high participation, the longest period from the

introduction of the reform), through 1.3-1.1 % of GDP in Estonia, Latvia, Lithuania and Slovakia, to 0.8% of GDP in Bulgaria (due to relatively low contribution rates and the restriction of participation to specified cohorts) and 0.4% in Romania (due to the lowest contribution rates and the shortest period since reform implementation).

The fiscal effects of transition costs on overall general government deficit/surplus are shown in Table 2. Fiscal situation prior to financial and economic crisis differed between analysed countries. Countries with the highest transition costs (Hungary and Poland) entered pension reform having already high public deficits. Both countries did not manage to bring the public revenue and expenditures close to balance even in the periods of high economic growth. Transition costs were not predominant factor of fiscal imbalance. Fiscal stance of Slovak Republic was better, although before and after pension reform implementation the country run deficits balancing on the 3% GDP edge for EU member states.

The Baltic States and Bulgaria, had more fiscal space to cover transition costs. Up to 2008 Bulgaria and Estonia noted surplus in general government sector, which covered at least partially contributions diverted to the mandatory pension funds. Latvia and Lithuania were in fiscal stance close to balance, so the transition costs did not significantly worsen this situation.

In 2009 fiscal position of CEE countries changed significantly. This was mostly due to the deep economic recession (except Poland). Among the rest of the countries, the Baltic States have unusually strong business cycles (Staehr 2016). Public deficits exploded to 8-9% of GDP (with notable exception of Estonia, which run extremely prudent fiscal policy over the whole period of transition of the economy) and most of the countries decided to permanently reverse or reduce the funded component of their pension systems as one of the instruments of fiscal consolidation. The scale of reduction significantly differed between countries: from sequestration of assets of pension funds and/or total suspension of contribution to pension funds by permanent or temporary reduction of contribution to pension funds also accompanied by opt-out option. As a result, fiscal effects differed between countries (Table 1.2), with an average of 50% cuts of transition costs in years 2008-2012.

The period of reform implementation allowed for assessment, whether the initial predictions occurred. The assessment of independent experts revealed that:

> *In many countries with multi-pillar systems (...) investments in privately funded pillars are not well diversified, although rates of return are high as a result of investments in government bonds. While these bonds offer high returns, they often compensate for macroeconomic and investment risk. In addition, privately funded systems remained open to political influence, just like PAYG plans, particularly in the times of economic crisis. (World Bank, 2006a, p. xxiv).*

While this assessment was made before the hit of the financial and economic crisis, developments after 2008 also led to the changes in pension systems. These changes were triggered not only by the developments within pension systems, but mainly by macroeconomic and fiscal circumstances, which are presented and discussed in further parts of the paper. These circumstances also diverted from initial projections, which assumed, among others, stable growth of labour market, both in terms of employment levels as well as wage growth. Under such assumptions, the transition costs were affordable from the perspective of the public finance situation in the reforming countries. The ex-post analysis reveals that in reality these expectations were not met.

In consequence of economic, public finance and pension system developments after 2008 the wave of pension systems changes was initiated again. These developments comprised of various both external and internal factors, that led to reduction of the scope or reversals of funded parts of pension systems. Such changes were implemented in seven out of eight discussed countries, which is shown in Table 2.

The reversal decisions led, among others, to the elimination of transition costs (in Hungary) or their reduction in the other countries. The reduction is due to a lower level of contributions, but also the opt-out possibilities, noticeable in Poland and Slovakia. In the latter country, the opt-out wave was particularly high in 2015, which is attributed to the reaction on the low level of actual benefits paid out from the pension funds.

As a result, the growth of funded systems' assets in CEE countries is smaller in the second decade of the century and in turn, financing of future pensions will rely mainly on PAYG pension schemes. In two countries, namely Hungary and Poland all or part of assets already accumulated were diverted back to the PAYG schemes. The Hungarian government was explicit about its objectives of reversing the funded scheme, declaring: "the key objectives of the proposed measures is to improve the budget balance that has been gradually deteriorated year after year since the implementation of the multi-pillar system, [. . .] and to cut explicit

public debt relative to GDP in order to minimise the country's exposure to external shocks" – announcement of the Hungarian Ministry for the National Economy (Datz and Dancsi, 2013). Polish Prime Minister and the Minister of Finance advocated that the main reason of reversal were too high administrative costs and insufficient investment in the real economy due to the high engagement in the Polish T-bonds.

Table 2. Reversals of funded components of pension systems in CEE countries

Country	Short description of the change to contributions, assets, membership
Bulgaria	**No change.**
Estonia	**Temporary reduction with off-set**. 6% contribution rate cut to 0% between June 2009 and January 2011 and shifted to PAYG. Gradual increase from 2011. Rate set at 3% in January 2011 and 6% in January 2012. In 2014-2017 at 8% to offset missed contributions
Latvia	**Partial reduction.** 8% contribution rate reduced to 2% in May 2009. Rates increased to 4% from 2013
Lithuania	**Partial reduction.** 5.5% contribution rate reduced to 2% in July 2009. Rates further lowered to 1.5% in January 2012 and 2.5% in 2013. Change to 3% (2%+ 1%) January 2014, voluntary participation. Additional contribution at 2% in 2016-2019.
Hungary	**Permanent reversal.** Contribution rate reduced to 0% in January 2011 assets transferred to the mandatory PAYG system.
Poland	**Permanent reduction and partial reversal.** Contribution rate reduced to 2.3% in May 2011. From February 2014 contribution at 2.92%, in February 2014 assets invested in government bonds transferred to PAYG scheme and redeemed. In 2014 system made opt-out and opt-in in specified time slots. Assets from pension funds transferred gradually to PAYG 10 years prior to retirement.
Romania	**Temporary reduction.** Reduction in planned growth path of contribution rate from 2% to 6%. Rate froze at 2%, started to increase from 2010 at annual rate of 0,5pp. up to 5% in 2015. In 2016 contribution rate 5.1% instead of 6%
Slovakia	**Permanent reduction.** 9% contribution reduced to 4% in 2013; since 2017 increase in contribution rate by 0.25pp up to 6% in 2024. Funded scheme opt-out and opt-in system; since 2008 with reopening every 2 years (from 2009). New entrants are by default enrolled only to PAYG part but may apply for membership in the funded component up to age 35

Source: Schwarz and Arias (2014) updated by authors.

Table 3. Transition costs (TC) versus general government deficit/surplus (%GDP)

		1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bulgaria	**transition costs (TC)**					**0.6**	**0.5**	**0.6**	**0.7**	**0.8**	**1.1**	**1.1**	**1.1**	**1.0**	**0.9**	**0.9**	**1.3**	**1.1**	**1.3**
	GG deficit/surplus					-1.2	-0.4	1.8	1.0	1.8	1.1	1.6	-4.2	-3.2	-2.0	-0.5	-0.4	-5.5	-1.6
	GG balance less TC					**-0.6**	**0.1**	**2.4**	**1.7**	**2.6**	**2.2**	**2.7**	**-3.1**	**-2.2**	**-0.9**	**0.6**	**0.9**	**-4.4**	**-0.3**
Estonia	**transition costs (TC)**					**0.0**	**0.4**	**0.6**	**0.7**	**0.7**	**0.8**	**0.5**	**1.1**	**0.1**	**0.4**	**0.9**	1.4	1.8	1.9
	GG deficit /surplus					-0.2	-0.1	0.3	1.7	1.6	2.4	-2.9	-2.0	0.2	1.1	-0.2	-0.2	0.7	0.1
	GG balance less TC					**-0.2**	**0.3**	**0.9**	**2.4**	**2.3**	**3.2**	**-2.4**	**-0.9**	**0.3**	**1.5**	**0.7**	**1.2**	**2.5**	**2.0**
Latvia	**transition costs (TC)**				**0.1**	**0.2**	**0.4**	**0.4**	**0.6**	**0.7**	**1.0**	**1.1**	**0.1**	**0.1**	**0.1**	**0.1**	**0.5**	**0.5**	**0.8**
	GG deficit/surplus				-2	-2.2	-1.6	-1.0	-0.4	-0.6	-0.6	-4.0	-8.9	-8.2	-3.4	-0.8	-1.0	-1.2	-1.2
	GG balance less TC				**-1.9**	**-2.0**	**-1.2**	**-0.6**	**0.2**	**0.1**	**0.4**	**-2.9**	**-8.8**	**-8.1**	**-3.3**	**-0.7**	**-0.5**	**-0.7**	**-0.4**
Lithuania	**transition costs (TC)**							**0.3**	**0.4**	**0.6**	**0.9**	**1.1**	**0.6**	**0.3**	**0.4**	**0.4**	0.4	0.5	0.5
	GG deficit / surplus							-1.5	-0.5	-0.4	-1.0	-3.3	-9.3	-6.9	-9.0	-3.2	-2.6	-0.6	-0.2
	GG balance less TC							**-1.2**	**-0.1**	**0.2**	**-0.1**	**-2.2**	**-8.7**	**-6.6**	**-8.6**	**-2.8**	**-2.2**	**-0.1**	**0.3**
Hungary	**transition costs (TC)**	**0.2**	**0.5**	**0.5**	**0.5**	**0.5**	**0.7**	**0.8**	**1.0**	**1.0**	**1.2**	**1.2**	**1.4**	**1.1**					
	GG deficit / surplus	-7.5	-5.1	-3	-4.1	-8.9	-7.2	-6.4	-7.9	-9.4	-5.1	-3.7	-4.6	-4.5	-5.5	-2.3	-2.6	-2.7	-2.0
	GG balance less TC	**-7.3**	**-4.6**	**-2.5**	**-3.6**	**-8.4**	**-6.5**	**-5.6**	**-6.9**	**-8.4**	**-3.9**	**-2.5**	**-3.2**	**-3.4**	**-5.5**	**-2.3**	-2.6	-2.7	-2.0
Poland	**transition costs (TC)**		**0.3**	**1.0**	**1.1**	**1.2**	**1.2**	**1.1**	**1.3**	**1.4**	**1.4**	**1.6**	**1.6**	**1.6**	**1.0**	**0.5**	0.7	0.5*	0.2*
	GG deficit / surplus		-2.2	-3.0	-4.8	-4.8	-6.1	-5.2	-4.0	-3.6	-1.9	-3.6	-7.3	-7.6	-4.9	-3.7	-4.1	-3.6	-2.6
	GG balance less TC		**-1.9**	**-2.0**	**-3.7**	**-3.6**	**-4.9**	**-4.1**	**-2.7**	**-2.2**	**-0.5**	**-2.0**	**-5.7**	**-6.0**	**-3.9**	**-3.2**	**-3.4**	**-3.1**	**-2.4**
Romania	transition costs (TC)											**0.2**	**0.3**	**0.3**	**0.4**	**0.5**	**0.7**	**1.0**	**1.2**
	GG deficit / surplus											-5.5	-9.5	-6.9	-5.4	-3.7	-2.1	-1.4	-0.8
	GG balance less TC											**-5.3**	**-9.2**	**-6.6**	**-5.1**	**-3.2**	**-1.4**	**-0.4**	**0.4**
Slovakia	**transition costs (TC)**								**0.6**	**1.1**	**1.2**	**1.2**	**1.2**	**1.2**	**1.2**	**1.1**	**0.6**	**0.6**	**0.6**
	GG deficit / surplus								-2.9	-3.6	-1.9	-2.4	-7.9	-7.5	-4.1	-4.2	-2.7	-2.7	-2.7
	GG balance less TC								**-2.3**	**-2.5**	**-0.7**	**-1.2**	**-6.7**	**-6.3**	**-2.9**	**-3.1**	**-2.1**	**-2.1**	**-2.1**

** in Poland transition costs are reduced due to the transfer of assets from the OPFs starting 10 years before the member reaches the legal pensionable age*

Source: data from country experts' questionnaires, author's review of Convergence Programmes of CEE, country statistical offices, countries financial supervision authorities and Eurostat for general government deficit/surplus.

1.2. Transition cost and their financing – expectations and outcomes

Between 2001 or the later year when funded components were introduced to the pension systems, the total level of transition cost in relation to GDP (measured as a sum of the value of contributions transferred to the pension funds) ranged from 17.4% of GDP in Poland to 4.6% of GDP in Romania. This means that the fiscal effort necessary to meet the transition costs of pension systems reforms that included introduction of the mandatory funded component differed significantly between countries.

Table 4. Overall level of transition costs between 2001 (or reform start) and 2015, % of GDP

Country	Period	Total transition costs
Poland	2001-2015	17.4
Bulgaria	2002-2015	13.0
Estonia	2002-2015	11.2
Slovakia	2005-2015	10.7
Hungary	2001-2010	9.9
Latvia	2001-2015	6.7
Lithuania	2004-2015	6.4
Romania	2008-2015	4.6

Source: Data from country experts' questionnaires, author's review of Convergence Programmes of CEE countries, country statistical offices, countries financial supervision authorities

The sources for covering transition costs were also differently mixed. In general, there are three such sources: financing from taxes and other budgetary revenues (a burden for working generation), financing from savings in the existing PAYG system (a burden for the retired generation), and an increase of the general government debt (a burden for future generations). Lindeman et al. (2001) underline that placing the entire burden of transition on any single sources is likely to be sub-optimal, as it would unevenly burden one of generations. It is important to carefully consider the size and distribution of all benefits, costs and risks when deciding on the size and financing of the funded component. As shown in the Table 4, many countries in CEE region, decided on relatively smaller funding, which means smaller risks and smaller potential benefits. This applies mainly to countries that introduced their reforms later.

The initial strategies for covering the transition costs differed between countries, which is indicated in the Table 5. Most of the countries of the CEE region assumed that the main source of financing the transitional deficit would be the rationalization of pension

expenditures in existing PAYG public schemes, although the appropriate laws were not (in most cases) passed before the mandatory pension funds started (Fultz, 2012).

Table 5. Initial plans for covering transition cost in 8 CEE countries

Country	Increase in government sector revenues (taxes, social security contributions)	Savings in existing PAYG system	Privatisation revenues
Bulgaria	x	x	
Estonia	x	x	
Latvia	x	x	
Lithuania		x	x
Hungary		x	
Poland		x	x
Romania	x	x	
Slovakia	x	x	

Source: Authors' compilation based on Pension Reform in Central and Eastern Europe (E. Fultz, ed., 2002), ILO 2002 and Convergence Programmes of CEE countries.

Reformers planned that savings in the PAYG systems would be achieved by:

- introducing indexation of pension benefits closer to prices than wages,
- raising the retirement age,
- limiting early retirement and pension formula changes in the public scheme.

Less generous indexation rules contributed to limiting public pension expenditure in Bulgaria, Estonia, Hungary and Poland. However, most of the pension expenditure rationalization tools, even if implemented, were expected to reduce pension spending in medium and long term (Bielawska, 2014).

In effect, the internal capacity of public pension systems to absorb the transition costs was reduced, what meant higher reliance on the general government subsidies.

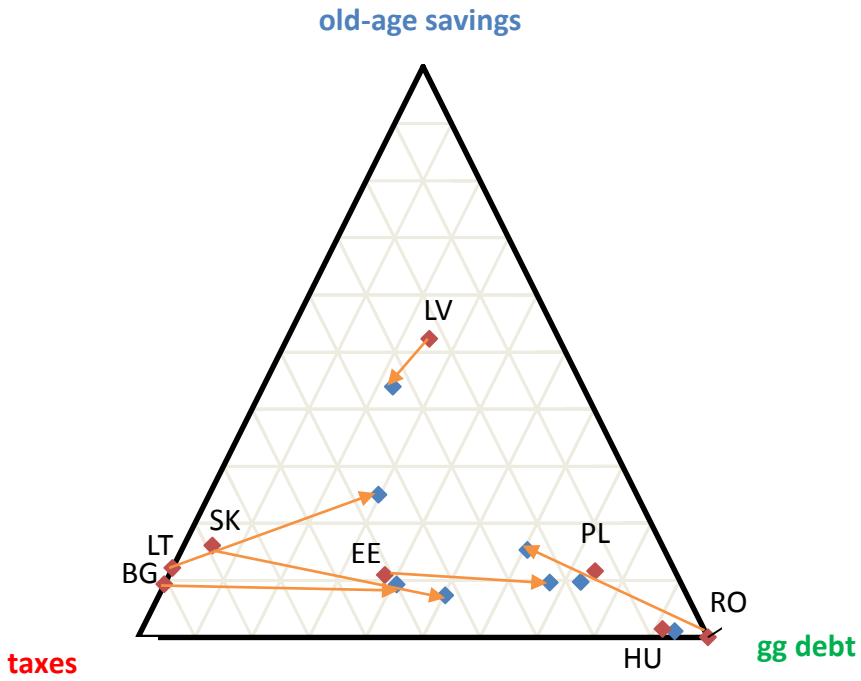
In order to assess the actual sources of financing the transition cost, we decomposed the transition cost of the contribution transfer to the mandatory funded component (as % of GDP) to three parts:

- Financing from savings in the old-age expenditure measured as annual decline in old-age pension expenditure, i.e. we assume that any reduction in expenditure on pensions finances the transition (as planned in all of the analysed countries);

- Financing from current taxes measured as decrease in the level of general government debt, i.e. we assume that in the case of decline of the government debt any additional transition cost was financed from current revenue;
- Financing from general government debt as the remaining (residual) part of the transition cost not covered by the first two items.

In order to assess the approach to finance the transition cost until crisis and after the crisis, we decomposed the sources of financing transition costs for two periods: from 2001 (or inception of the reform if it is later) until 2008 and, in the second decomposition, from the same starting point until 2015, which are shown in Figure 1.

Figure 1. Share of old-age pension savings, taxes and debt in transition cost financing in the CEE countries from 2001 or inception of the reform until 2008 and until 2015



Note: Red points illustrate the decomposition of transition costs in the period 2001-2009 and blue points the decomposition of transition costs in the period 2001-2015.

Source: Authors' analysis.

Results of the decomposition show that the overall transition cost from the inception of the pension reform until 2008 in in Romania, Poland and Hungary was financed to a large extent by the rise of the government debt. The debt financing was highest in Romania (100% of all transition cost), Hungary (91%) and Poland (73%). Bulgaria, Latvia and Slovakia relied

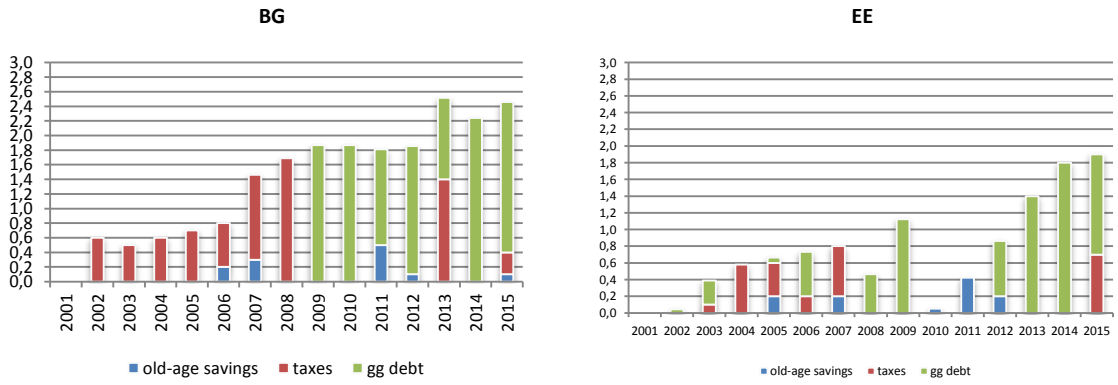
mainly on the tax income when financing the transition costs. Contrary to the initial plans, financing from old-age savings did not contribute much to the financing of the transition cost. Only in Latvia the role of savings in the pension expenditure was substantial (52%). In Slovakia, it was 16% of the total transition cost, while in remaining countries it was below 10%.

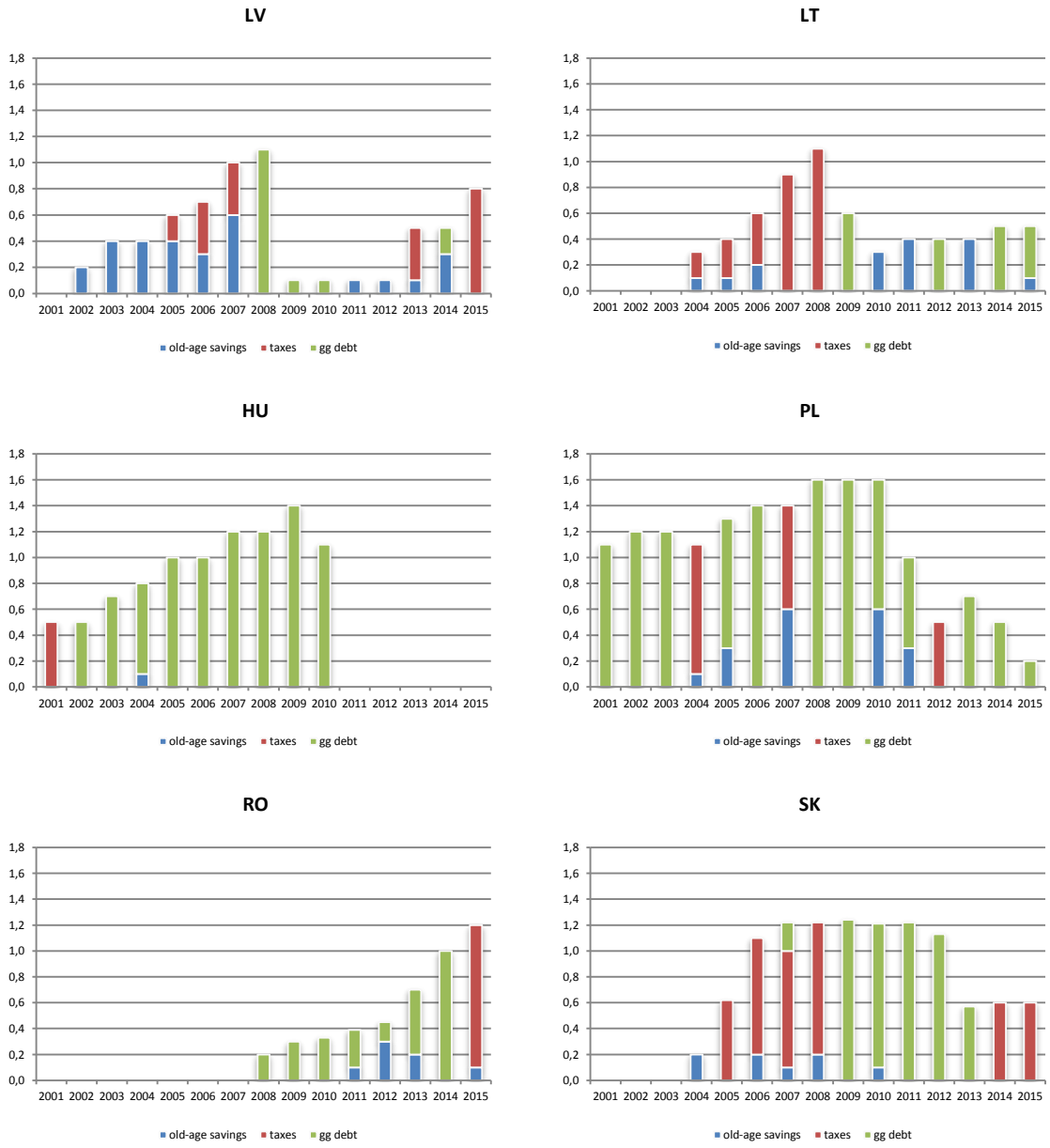
The need to finance transition from government debt in all of the CEE countries under consideration became visible especially in the Great Recession time. Debt financing replaced other means in Bulgaria, Estonia, Lithuania and Slovakia, while it remained the main source of financing of pension reform in Hungary, Poland. In Romania and Latvia, the share of current tax revenue in financing of the transition cost increased after the crisis.

Decomposition of the sources of financing the transition cost (Figure 2) clearly indicates that the crisis led to the shift towards debt financing for most of the countries that did not use this source of financing before. This combined with the overall decline in public finance situation led to the retreat or suspension of pension reform efforts in the CEE countries.

After the crisis, several countries managed to diversify the sources of financing the transition costs, but still, with exception of Bulgaria, Latvia and Lithuania, the general government debt remains the source that covered more than 50% of total transition cost.

Figure 2. Decomposition of financing of annual transition costs in the CEE countries, 2001-2015





Source: Authors' analysis.

2: CEE pensions systems after the crisis: short-term effects of reduction of funded components on public finance situation

In this section, we analyse the data on public finance and transition cost in the CEE countries. We seek to identify factors essential to the development of mandatory funded pension schemes while maintaining fiscal sustainability.

We use panel regression with variables related to the situation of public finance, pension system, social and labour market situation. By applying this method, we seek to identify factors that are essential to the development prospects of mandatory funded pension schemes while maintaining fiscal sustainability and which of the selected variables are statistically significant in explaining the level of general government deficit and general government debt, before and after the crisis and reversal decisions

2.1. Fiscal position of CEE countries after the crisis

When the crisis hit economies of CEE countries, their fiscal position worsened. Estonia was the only country that avoided excessive deficit procedure (EDP) in years 2009-2010. The Estonian government conducted fiscal consolidation, which resulted in a surplus or close to balance situation in 2010 and in the following years. The main motivation for such tight fiscal consolidation was the intention to join the euro area, what had happened in 2011 (Staehr 2016). The same mechanism of strong fiscal consolidation worked in Bulgaria, the second country (after Estonia) with very tight national fiscal rules, which pursue fiscal policy in line with budgetary medium-term objective. In other countries, general government deficit exploded to 7-9% of GDP during 2009-2010.

All countries of the CEE being member states of EU must conduct fiscal consolidation process in case of exceeding the reference value of general government deficit to GDP (3%). Gross general government debt should be kept below 60% GDP. The scope of a minimum annual fiscal effort for a specified period is usually urged in the Council Recommendation. Additionally, euro area countries are strictly obliged to run fiscal policy according to their MTOs (which in general is GG balance in structural terms). Requirements defined by the Council in terms to eliminate the EDP for the specified countries are shown in Table 6.

Table 6. Decisions of Council on existing and abrogating excessive deficit procedure in 2009 – 2015 for CEE countries

Country	Date of the Decision on existing excessive deficit	Minimum average annual fiscal effort required in structural terms	Deadline for correction	Abrogating of EDP
Bulgaria	13 July 2010	1,25% GDP	2011	22 June 2012
Estonia	Not applicable	Not applicable	Not applicable	Not applicable
Latvia	7 July 2009	2,25% GDP	2012	21 June 2013
Lithuania	16 February 2010	2.25% GDP	2012	21 June 2013
Hungary	5 July 2004	0.5% GDP for 2012 - 2013	Initial 2008, prolonged to 2009 and further to 2011 and 2012	21 June 2013
Poland	7 July 2009	1.25% GDP	Initial 2012, prolonged by 2014	12 May 2015
Romania	7 July 2009	1.75% GDP	Initial 2011 prolonged by 2012	21 June 2013
Slovakia	2 December 2009	1.0% GDP	2013	17 June 2014

Source: Council Decisions and Recommendation on existence and (where appropriate) the abrogation of excessive deficit procedure, http://ec.europa.eu/economy_finance/economic_governance/sgp/corrective_arm/index_en.htm

As presented in previous section, the fiscal consolidation applied in the CEE countries included the measures within pension system. This covered most importantly the funded components: 7 out of the 8 analysed countries (the exception is Bulgaria), decided on temporal or partial reduction of contribution to funded component and/or partial or permanent reversal from prefunding of pension. Other instruments of fiscal consolidation within the pension systems were: freeze of pensions or reduction of pensions' indexation (except Estonia and Poland), increase in retirement age or acceleration of increase in retirement age and other parametric changes to pension system aiming to reduce public pension expenditures (i.e. phase-out of early retirement). This shows that the austerity measures adopted by the governments in the area of pensions affected both the funded and PAYG components. These cuts may have been greater because of the existence of the pension system with funded components and necessity to meet the transition cost.

The measures taken on changes in funded component played a significant role in fiscal consolidation process amongst the CEE countries with most radical scope during analysed period in the case of Hungary. The sequestration[7] of pension assets in Hungary improved fiscal balance approximately of 10% GDP. In Baltic States, temporary reduction or partial reduction of contribution diverted to funded component during 2009-2011 improved fiscal position by 1.4% GDP in Lithuania, 2.3% GDP in Estonia and 3.2% in Latvia. In Poland,

[7] This expression has been used by B.H. Casey (2014).

permanent reduction of contribution to funded part of pension system since May of 2011, brought a fiscal effect of 0.6% GDP in 2011. The changes implemented in Poland in 2013 (effective in 2014) - acquisition of 51.5% of assets of OPF's, changing the character of pension funds from mandatory to voluntary and final constitution of contribution to the funded component at 2.92% of wage further improved current fiscal position. The one-off measure: sequestration of T-bonds held by pension funds accounted for 5 pp drop in public debt to GDP ratio in 2014 and changes in contribution level diverted to OPFs complemented with voluntary character of participation accounted for further reduction of transition cost to 0.3 – 0.4% of GDP. Additionally, the gradual transfers of assets from FDC to NDC accounts 10 years prior to retirement results in higher revenues for social insurance fund that outflow of the contribution to funded part of the pension system.

Table 7. Fiscal position of CEE countries in 2007 - 2015

Country	General Government net lending (+) / net borrowing (-) (% GDP)								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bulgaria	1.2	1.7	-4.3	-3.1	-2.0	-0.5	-1.2	-5.5*	-1.6
Estonia	2.4	-2.9	-2.0	0.2	1.0	-0.3	-0.2	0.7	0.1
Latvia	-0.4	-4.2	-9.7	-8.1	-3.4	-0.8	-0.7	-1.4	-1.2
Lithuania	-1.0	-3.3	-9.4	-7.2	-9.0	-3.2	-2.6	-0.7	-0.2
Hungary	-5.1	-3.7	-4.6	-4.4	-5.5	-2.3	-2.5	-2.6	-2.0
Poland	-1.9	-3.7	-7.5	-7.9	-5.0	-3.7	-4.0	-3.2	-2.6
Romania	-2.9	-5.7	-9.0	-6.8	-5.6	-3.0	-2.1	-1.5	-0.8
Slovakia	-1.8	-2.1	-8.0	-7.7	-5.1	-4.5	-2.6	-2.9	-2.7
	Government consolidated gross debt (%GDP)								
	2007	2008	2009	2010	2011	2012	2013	2014	2015
Bulgaria	17.2	13.7	14.6	16.2	16.3	18.5	18.3	27.6	26.0
Estonia	3.7	4.5	7.1	6.7	6.1	9.8	10.1	10.6	10.0
Latvia	9.0	19.8	36.9	44.4	41.9	40.6	38.2	40.0	36.9
Lithuania	16.8	15.5	29.3	37.8	38.3	40.5	38.8	40.8	42.6
Hungary	67.0	73.0	79.8	82.2	82.1	79.8	77.3	76.9	74.7
Poland	45.0	47.1	50.9	54.9	56.2	55.6	55.7	50.1	51.1
Romania	12.8	13.4	23.6	30.5	34.7	37.9	39.0	39.8	37.9
Slovakia	29.6	27.9	35.6	41.0	43.4	52.4	54.6	53.6	52.3

** the deficit considered as exceptional by the EU Commission*
Source: Eurostat.

As Table 7 shows, all the fiscal effort undertaken by the CEE countries led to abrogating of excessive deficit procedure as the general government deficit had fallen below 3% of GDP and eventual excess (as in the case of Poland) was explained by costs of structural reforms up to 2014. After this date, the transition cost cannot be considered under the structural reform clause. It is worth to mention, that countries which introduced the far-going changes in the funded part of the pension systems, are still having the highest deficits in general government sector despite the favourable economic conditions.

2.2. Quantitative assessment of drivers of after-crisis pension system changes.

In order to assess the impact of the transition cost on the general government deficit and the general government debt in the 8 countries we conducted a panel regression analysis for the period between 2000 and 2015.

The analysis is performed for the period of 2000-2015 and split for two periods: between 2000 and 2008 (pre-crisis and crisis) and 2009-2015 (post crisis). The independent variables include: the transition costs, the level of social spending and the employment rate. In the model, we measure the impact of transition costs on the general government debt and the general government deficit, while controlling for the social policy developments, measured by social spending and the labour market development, measured by the employment rate.

Table 8 presents the level and changes of social spending measured in relation to GDP and employment rate of the population in age group 20-64 years.

Table 8. Level and change of the social spending and employment rate in the CEE countries

	Social spending (% of GDP)						
	2000	2008	2009	2015	Change 2000-2008	Change 2008-2009	Change 2009-2015
BG	n.a.	14.7	16.1	17.9	n.a.	1.4	1.8
EE	13.8	14.7	18.8	16.4	0.9	4.1	-2.4
LV	15.4	12.1	16.8	14.9	-3.3	4.7	-1.9
LT	15.7	15.9	21.0	15.6	0.2	5.1	-5.4
HU	19.6	22.4	22.8	20.2	2.8	0.4	-2.6
PL	19.6	19.3	20.3	19.1	-0.3	1.0	-1.2
RO	13.0	14.1	16.9	14.6	1.1	2.8	-2.3
SK	19.1	15.7	18.5	18.3	-3.4	2.8	-0.2
	Employment rate (% of population in age group 20-64 years)						
	2000	2008	2009	2015	Change 2000-2008	Change 2008-2009	Change 2009-2015
BG	56.5	70.7	68.8	67.1	14.2	-1.9	-1.7
EE	67.5	77.1	70.0	76.5	9.6	-7.1	6.5
LV	63.4	75.4	66.6	72.5	12.0	-8.8	5.9
LT	66.1	72.0	67.0	73.3	5.9	-5.0	6.3
HU	60.9	61.5	60.1	68.9	0.6	-1.4	8.8
PL	61.1	65.0	64.9	67.8	3.9	-0.1	2.9
RO	70.5	64.4	63.5	66.0	-6.1	-0.9	2.5
SK	63.0	68.8	66.4	67.7	5.8	-2.4	1.3

Source: Authors' analysis based on Eurostat data

Prior to the economic crisis (in years 2000-2008) there were divergent developments in the social spending – it expanded in Hungary, Romania and Estonia. The level of spending in 2000 was highest in Hungary, Poland and Slovakia. By 2008, Hungary further increased its social spending; in Poland it remained relatively stable, while it decreased in Slovakia. Countries with high level of spending (Poland, Hungary) as well as expansion of social spending (Hungary, Romania) are also the ones that financed their transition cost mainly from the general government debt.

The hit of the crisis led to the expansion of social spending in relation to GDP (which in all countries but Poland was also caused by the decline of the GDP level). The relative level of social spending increased mostly in Baltic countries: Lithuania, Latvia and Estonia. After 2009, the level of social spending declined, following the stabilisation of the social and economic situation.

Evolution of employment rates also shows clearly the different developments in the two periods. The increase of employment rate prior to the crisis was noted across the board, with exception of Romania. In the countries, that note higher increases of employment rates, transition costs were financed to a large extent from tax revenue. The crisis hit the labour markets and the employment rate fell in all of the countries, again affecting mostly the Baltic states. Since 2009 we observe gradual improvement of the employment rate, though its level in half of the countries is still below the one observed in 2008. Only in the case of Hungary the increase of employment rate between 2008 and 2015 is substantial.

Results of the regressions are shown in Table 9.

Table 9. Results of panel regression analysis with random effects. Dependent variables: general government deficit and general government debt

	2000-2015		2000-2008		2009-2015	
	GG debt	GG deficit	GG debt	GG deficit	GG debt	GG deficit
transition cost	-4.81	-0.65	0.33	**-2.08** ***	-0.61	0.01
social spending	**4.87** ***	**0.81** ***	**3.71** ***	**1.04** ***	1.06	**0.77** ***
employment rate	0.54	-0.001	-0.02	**0.21** ***	0.39	**-0.19** *
R sq within	0.28	0.41	0.21	0.41	0.01	0.49
R sq between	0.86	0.53	0.93	0.76	0.37	0.14
R sq overall	**0.67**	**0.42**	**0.85**	**0.62**	**0.26**	**0.22**
Prob > chi2	0.00	0.00	0.0001	0.00	0.48	0.01

Note: *** p<0.01; ** p<0.05, * p<0.1

Source: Authors' analysis.

The overall fit of the models, particularly for the pre-crisis period is high. Significant part of the fit is explained by the development between countries. Yet, the time changes measured by the level of R squared within countries (that is in time) are also relatively high, particularly in the case of the models explaining GG deficit.

In the case of the model for the entire period (2000-2015), the results show that the increase of social spending affects the increase of GG debt and GG deficit across the countries. The same is true for the period between 2000 and 2008. In the post-crisis period, the social spending had statistically significant impact on the GG deficit only. The employment rate has significant panel regression coefficients in the case of the two split periods. In the first one – the regression coefficient shows that the rise of employment rate as positively associated with the rise of the deficit, while after the crisis the sign of the coefficient changed. This means that while in the pre-crisis period the expansion of employment rate was accompanied with the rise of the deficit, after the crisis the increases of employment rates in the analysed countries lead to lower GG deficit.

For the transition cost variable regression coefficients for the entire period are negative, but not significant statistically, when controlling for social spending and labour market developments.

The panel regression coefficient it statistically significant only in the case of one out of six models: for the GG deficit for the pre-crisis period. The negative signs of regression coefficients indicate that the higher (and rising) level of transition costs influenced a stricter fiscal policy, which was a part of the reforms' assumptions. However, particularly in the pre-crisis period the impact of the level of social spending on the increase of GG debt was higher than the impact of the transition costs to reduce it. Therefore, we can say that the impact of factors increasing GG debt (such as social spending) was higher than the impact of transition costs on the reduction of the level of debt.

3: Long-term impact of changes in mandatory funded systems in selected CEE countries on the stability of public finances and pension systems

In this section, we analyse the results of long-term projections of pension expenditure, including the impact of various factors such as: changes in demographic structure (population ageing), changes in retirement age, changes in benefit levels and sources of financing (division between pay-as-you-go and funded parts of the system). We also look at the sustainability measures of public finances related to the population ageing.

3.1. Ageing and fiscal sustainability on the European Union agenda

The issue of long-term sustainability of public finances in the EU became more important when the decision about creation of the monetary union was taken. Focus on the long-term assessment of the functioning of social security systems was reflected in the establishment of the Ageing Working Group of the Economic Policy Committee (AWG/EPC) in 1999. First demographic projections and their impact on public spending associated with an ageing population (ageing-related public expenditures) were published by the AWG in 2001. The EU summit in Stockholm in 2001 adopted a strategy to strengthen the long-term sustainability of public finances due to the ageing population, based on three measures (Oksanen 2009):

a) the rapid reduction of public debt,
b) an increase in employment and labour productivity,
c) review, and where necessary, reforming public pension systems, health and long-term care.

From that moment analysis of the impact of public expenditure related to demographic change on the sustainability of public finance has become a permanent action taken at the EU level.

Every three years since 2006, a set of reports covering the issue of impact of ageing on public finances has been published. As the first one arrives the Joint Report prepared by the European Commission (DG ECFIN) and the Economic Policy Committee (AWG) on Underlying Assumptions and Projection Methodologies for the exercise of age-related expenditure projections. It covers demographic and economic assumptions which are crucial to evaluate public programs connected with ageing. This methodological report is followed by the Ageing Report: Economic and budgetary projections for the EU Member States, which covers the long-term projections of age-related public spending in the area of pensions, health

care, long-term care, education and unemployment benefits (further called Ageing Report). On the basis of this report the Fiscal Sustainability Report is presented, which assess the medium and long-term fiscal stability of EU Member States in light of ageing populations.

The long-term stability of public finances became a part of member states stability or convergence programs (SCPs's) presented annually to the European Commission and ECOFIN Council to assess the compliance of national fiscal policies with the EU regulations. Every implemented structural reform needs to be assessed in terms of medium and long-term stability of public finances and presented in SCPs.

In fact, for many years these forward-looking projections had no practical influence on current evaluation of fiscal stance. According to the Maastricht Treaty member states were expected to avoid excessive deficits (ex post nominal deficit of general government sector less than 3% of GDP) and keep the gross public debt below 60% of GDP or reduce it gradually.

The situation changed when Sweden and several Central and Eastern European countries introduced structural pension reforms implementing pension systems that include a mandatory fully funded component. This type of structural pension reform makes public finance sustainable in long run, but causes a pressure on fiscal balance in short and medium term. According to the Eurostat Decision on Classification of funded pension schemes and impact on government finance (Eurostat, 2004), neither contributions diverted from the PAYG system to mandatory pension funds, nor assets of pension funds invested in T-bonds, could be taken into account when calculating the public deficit and debt. To smooth the difference in government accounts between reformers and non-reformers, the Stability and Growth Pact reform of 2005 allowed transition costs to be taken into account on a linear regressive basis for a transitory period of five years if the general government deficit remained close to the value of 3% of GDP (Council Regulation (EC) No 1056/2005). Transitory period ended when economic crisis hit the economies of European countries. In 2010 reformers renewed a request to the European Commission to redefine GGS deficit and debt excluding public spending related to creation of funded component of pension systems (Égert, 2013). However, the request was accommodated by the regulation during the second reform of Stability and Growth Pact in 2011, effective in 2012 evaluation round of SCPs, when most of the analysed countries had already decided on changes to the funded parts of their pension systems.

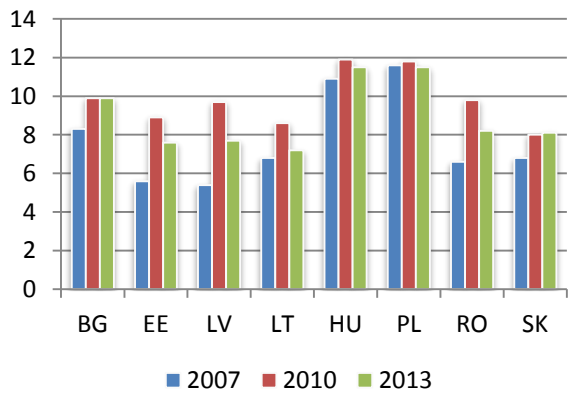
3.2. Projections of pension expenditures based on Ageing Reports

In this section, we analyse projections of pension expenditure in three consecutive ageing reports: from 2009, 2012 and 2015. In that way we compare, how the projections evolved given the change of pension systems as well as underlying assumptions that took place between 2007 and 2013.

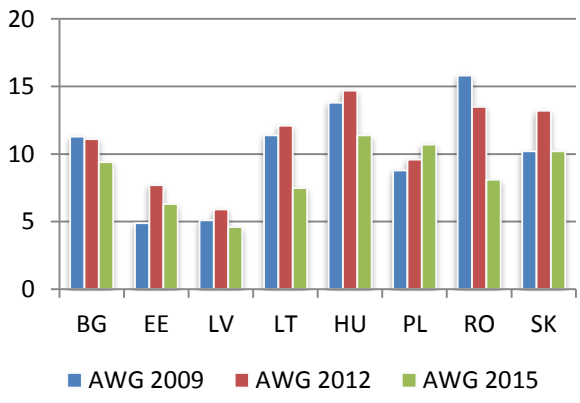
AWG projections show heterogeneity in the level and changes in pension expenditure in the CEE countries. As discussed in Chapter 1 and in Figure 3A, the level of pension expenditure in the CEE countries increased between 2007 and 2010, while between 2010 and 2013 it declined (except Bulgaria and Slovakia). Pension projections for year 2060 Ageing Reports (Figure 3 B and C) show that many countries implemented measures that aim to reduce the future pension expenditure. In 2009 and 2012 Ageing Reports (European Commission DG ECFIN, 2009, 2012) the pension expenditure projections indicate the rise in expenditure level by 2060 in five countries: Bulgaria, Lithuania, Hungary, Romania and Slovakia. However, already in 2012, the projected increase was smaller in Bulgaria, Lithuania and Romania. According to the last Ageing Report (European Commission DG ECFIN, 2015) in all countries (except Slovakia) pension expenditure will decline by 2060. The decrease in pension expenditure was projected already from 2009 in Estonia, Latvia and Poland – in the two latter countries this was the result of the shift to the NDC system in the public pay-as-you-go component. In Latvia and Poland, the decline in pension expenditure in 2015 Ageing Report is smaller compared to the 2012 Ageing Report.

Figure 3. Actual pension expenditure and projected level of pension expenditure in Ageing Reports

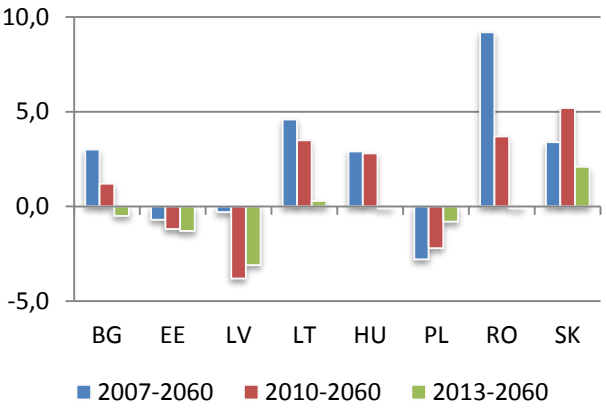
A. Actual pension expenditure in base year (% GDP)



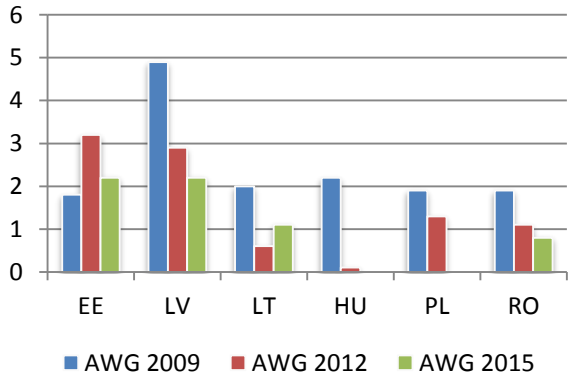
B. Projected pension expenditure in 2060 (% GDP)



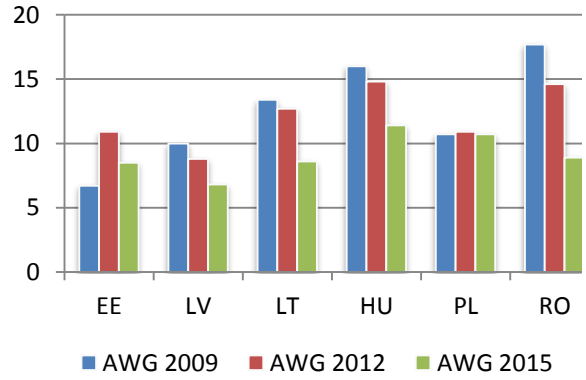
C. Change in pension expenditure between base year and 2060



D. Private pension expenditure in 2060 (% GDP)



E. Public and private expenditure in 2060 (% GDP)



Source: European Commission DG ECFIN (2009, 2012, 2015).

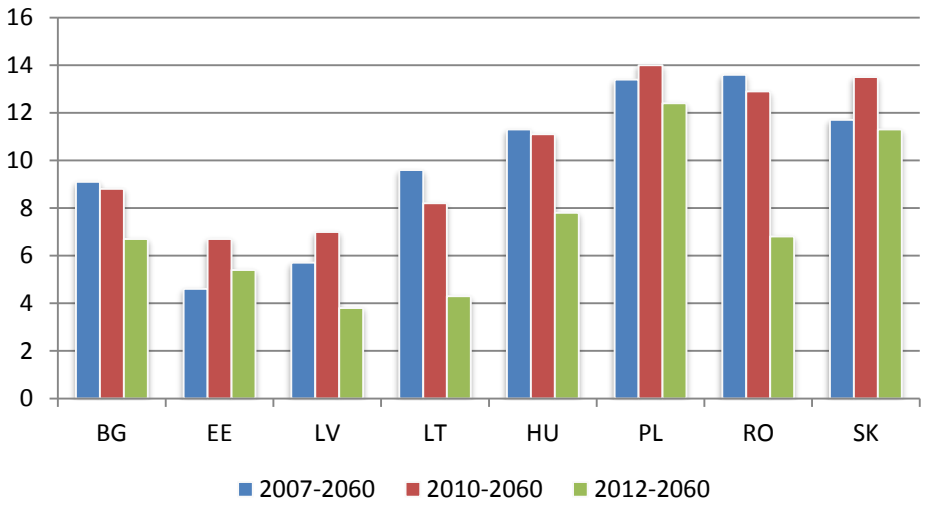
Pension system changes and reduction of the size of funded components also leads to the changes in the projected levels of private pension expenditure (Figure 3 D). Ageing Reports present these projections for six countries (with exception of Bulgaria and Slovakia). The private pension expenditure in the 2015 Ageing Report will be smaller, compared to the 2009 Ageing Report in all countries, with exception of Estonia. Due to the reversal of funded systems, in Poland and Hungary there will be no private pension expenditure projected in 2060. If we add both public and private pension expenditure (Figure 3 E), we can see that the total pension expenditure will increase in Estonia (i.e. the private pension expenditure will be higher than the decline projected in public spending), while the decline will be smaller in Latvia, Lithuania, Poland and Romania. It is also worth to note that in the case of Poland, the combined public and private pension spending is relatively constant at the level of 10% of GDP. This indicates that the increase in projected level of public expenditure in consecutive Ageing Reports is due to the reduction of the role of the funded component in the mandatory pension system.

The decomposition of change in pension expenditure included in the Ageing Reports allows identifying what the contribution of demographic and pension system changes is to the overall evolution in pension expenditure. This includes, in particular:

- dependency ratio contribution, which indicates what would be the increase of pension expenditure caused by the change in population age structure;
- coverage ratio contribution, which measures the ratio of pensioners to the population 65+; this means that it presents the effects of changes in pensionable age;
- benefit ratio contribution; which shows the effect of benefit level changes (relative to average wage) to the change of overall pension expenditure.

As discussed in section 1, population ageing is the main long-term reason that triggered reforms of pension systems in the CEE countries. The demographic developments leading to changes in the age structure continue for the past two decades. Thus, the dependency ratio contribution to potential increase of pension expenditure is significant in the CEE countries (Figure 4).

Figure 4. Contribution of the dependency ratio effect to the change in public pension expenditure (in p.p. of GDP)



Source: European Commission DG ECFIN (2009, 2012, 2015).

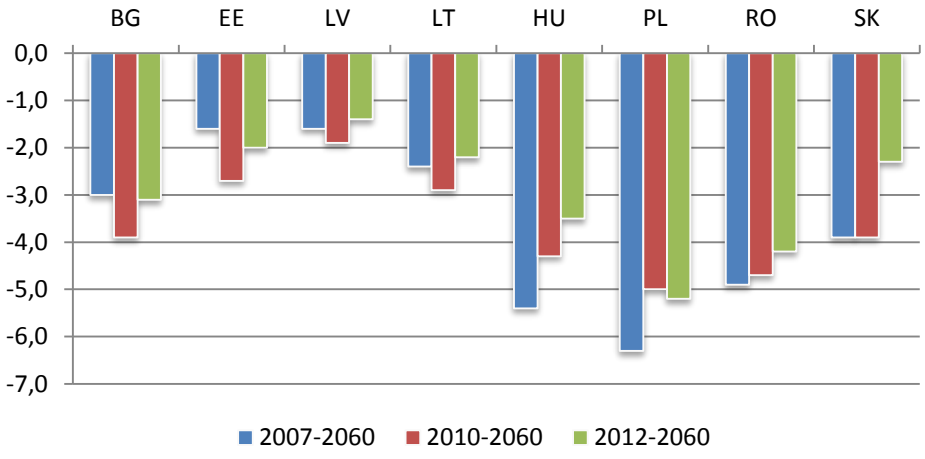
The dependency ratio contribution to the change of pension expenditure is the highest in Poland and Slovakia, while the lowest in Latvia, Lithuania, Estonia and Bulgaria.

The other two analysed factors contributing to the change in pension expenditure are related to the changes of pension systems, which aim to reduce the increase of spending caused by

the population ageing. The first one is the coverage ratio change, which shows how the change in retirement age contributes to the decline of pension expenditure by 2060.

According to the 2015 Ageing Report, the coverage ratio contributes to the decline of pension spending from 1.4% of GDP in Latvia to 5.2% of GDP in Poland (Figure 5). This contribution depends on the level of change of pensionable age as well as the initial level of pension expenditure. In Latvia, the retirement age of men and women is 62 and according to the 2015 Ageing Report it will increase to 65, with early retirement possible from age 63. In Poland, retirement age was planned to increase from 65.3 for men and 60.3 for women in 2013 to 67 by 2020 for men and in 2040 for women. However, this increase was reversed. Following the pre-election campaign, the retirement age in Poland as of 1 October 2017 has been brought to the pre-increase level (65 for men and 60 for women). This effect is offset for Poland and will be most likely visible in the 2018 Pension Adequacy Report and Ageing Report, in the form of lower benefit adequacy and higher expenditure on minimum pensions (Chłoń-Domińczak 2016).

Figure 5. Contribution of the coverage ratio effect to the change in public pension expenditure (in p.p. of GDP)

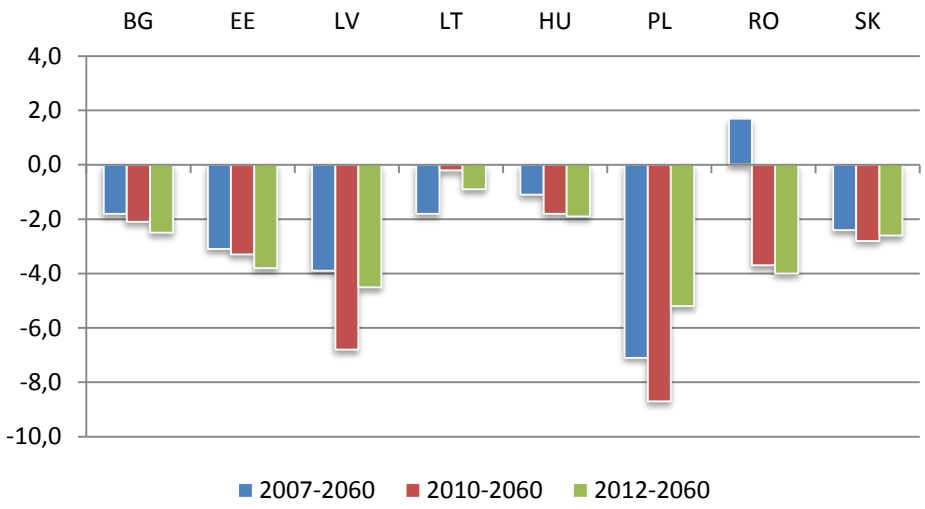


Source: European Commission DG ECFIN (2009, 2012, 2015).

The contribution of the benefit ratio effect to the mitigation of pension expenditure increase is the highest in Poland and Latvia (Figure 6); consistently in the all analysed Ageing Reports. This can be linked to the NDC formula in the pay-as-you-go pension system. The 2015 report assessment indicates that benefit ratio contributes to the reduction of pension expenditure until 2060 by 5.2 p.p. of GDP in Poland and 4.7 p.p. of GDP in Latvia. In the remaining countries, this effect ranges from almost 1 p.p. of GDP in Lithuania to 3.8 pp. of GDP in

Estonia. In half of the CEE countries the benefit ratio effect is higher than the EU average (3.0 p.p. of GDP).

Figure 6. Contribution of the benefit ratio effect to the change in public pension expenditure (in p.p. of GDP)



Source: European Commission DG ECFIN (2009, 2012, 2015).

In conclusion, the introduction of a pension system with mixed funding is not a necessary condition for the stabilisation of pension expenditure in the long run. The effect of changes in retirement age as well as in public pension levels is also important. These changes, together with the shift of part of pension system liabilities to funded systems, contribute to the projected decline in pension expenditure in the analysed seven countries by 2060.

3.3. Assessment of fiscal sustainability

The analysis of fiscal sustainability in the EU takes into account the capacity of public authorities to provide servicing the public debt in the long term. In other words, it is assumed that fiscal policy is not sustainable, if it leads to an excessive public debt and ever-increasing debt service. Ensuring the sustainability of public finances means avoiding excessive growth of public debt, which is a burden for future generations. This should be achieved upon the condition that the State is able to provide citizens with access to public and social services, even in adverse economic conditions and that the challenges associated with an ageing populations were taken into account. Measures of sustainability of public finances used in the Fiscal Stability Reports are called S1 and S2 indicators. In a report (of 2012) they were complemented with S0 indicator that shows the risk of fiscal pressure in the short term. And The 2015 Report contains an additional measure of medium-term risk - the debt sustainability

analysis (DSA). In this research, we focus on indicators S1 and S2. The meaning and interpretation of indicators is presented in Table 10, components of indicators - in Table 11.

S1 and S2 indicators are calculated on the basis of unchanged policies over time, which means that any structural change acting on the balance and debt of public sector debt entails changes in their value.

Table 10. General characteristic of S1 and S2 indicators

Indicator	Meaning	Interpretation of values
S1 – Medium-term sustainability indicator (up to 2030)	Shows the upfront adjustment effort required, in terms of steady improvement in the structural primary balance to be introduced until 2020, and then sustained for a decade, to bring debt ratios back to 60% of GDP in 2030, including financing for any additional expenditure until the target date, arising from an ageing population	S1 < 0 – low risk 0 < S1 < 2.5 – medium risk S1 > 2.5 – high risk
S2 – Long-term sustainability indicator (indefinite horizon)	Shows the adjustment to the current structural primary balance required to fulfil the infinite horizon inter-temporal budget constraint, including paying for any additional expenditure arising from an ageing population.	S2 < 2 – low risk 2 < S2 < 6 – medium risk S2 > 6 – high risk

Source: Authors' analysis based on Fiscal Sustainability Report (2012).

Table 11. Components of S1 and S2 indicators

Indicator / components	Required adjustment given the initial budgetary position (IBP)		Required adjustment to reach debt to GDP ratio of 60% in 2030 (DR)		Required adjustment due to cost of ageing (CoA)
S1 =	Gap to debt-stabilizing primary balance in 2020 through a steady gradual adjustment	+	Additional adjustment required to reach a debt target of 60% of GDP in 2030	+	Additional adjustment required to finance the increase in public expenditure due to ageing population up to 2030
S2 =	Gap to debt-stabilizing primary balance	+	0	+	Additional adjustment required to finance the increase in public expenditure due to ageing population over an infinite horizon

Source: Fiscal Sustainability Report (2012, p. 19).

In the current Fiscal Sustainability Report of 2015, the input data for the assessment of long-term public finances of Member States are based on European Commission's Autumn 2015 forecasts. The 2012 Report results had larger than usual level of forecasting risk. Difficulties, among others, were due to the uncertainty of formation of potential GDP and the output gap. In particular, the primary structural balance (cyclically adjusted balance less of debt servicing expenses) was adjusted in recent years at a much greater rate than the average in the decade that preceded the occurrence of the fiscal crisis. The path of fiscal consolidation adopted by

EU countries in 2009-2013 seems questionable to continue in future periods. The current macroeconomic context of very low inflation, together with moderate GDP growth, poses additional challenges to the reduction of public debt burdens in the EU.

Compared to the 2015, in the 2012 Fiscal Sustainability Report, three among analysed countries were characterized by a medium risk of sustainability of public finances in 2030 (Lithuania, Poland and Slovakia). The main reason for greater fiscal effort necessary to improve the stability predicted up to 2030 was due to an increase in age-related public expenditures. In the case of Poland and Slovakia, S1 indicator did not include the permanent reduction of mandatory funded component. This effect is seen in the 2015 report, which proves the low medium-term risk in case of Slovakia. Poland has kept the rate of medium risk as described by S1 indicator but it does not count for the already mentioned reduction of the retirement age to 65 for men and 60 for women (from October 2017). S1 indicator for Lithuania has increased by 0.2 p.p. in comparison to 2012 Report, but it need to be mentioned that the expected cost of ageing has doubled (Table 12).

Table 12. S1 values and its components for the CEE countries

Country	Risk		S1		IBP		DR		CoA	
	2012	2015	2012	2015	2012	2015	2012	2015	2012	2015
Bulgaria	low	low	-1.5	-1.2	-0.1	1.3	-2.3	-1.9	0.8	-0.6
Estonia	low	low	-3.4	-4.0	-0.4	-0.4	-3.0	-3.8	0.2	0.2
Latvia	low	low	-2.0	-2.1	-0.3	-0.1	-0.9	-1.8	-0.8	-0.3
Lithuania	medium	medium	0.3	0.5	0.8	0.2	-1.1	-1.1	0.7	1.5
Hungary	low	low*	-0.4	-0.6	-0.2	-0.6	0.9	0.9	-1.3	-1.0
Poland	medium	medium	0.1	1.0	-0.3	1.3	-0.2	-0.5	0.6	0.2
Romania	low	medium**	-1.4	1.4	-0.4	2.4	-1.4	-1.3	0.4	0.3
Slovakia	medium	low	2.2	-0.7	1.1	-0.1	-0.2	-0.6	1.3	0.0
EU 27	x		1.8	2.0	-0.4	-0.2	1.7	1.9	0.4	0.3

* DSA for Hungary is medium so is overall assessment of fiscal sustainability in medium term
** DSA for Romania is high and so is overall assessment of fiscal sustainability in medium term
Where:

IBP – initial budgetary position

DR - required adjustment to reach debt to GDP ratio of 60% in 2030

Co - required adjustment due to cost of ageing

Source: Authors' analysis based on Fiscal Sustainability Report (2012, 2015).

For other countries, the value of S1 indicates a low level of risk of fiscal stability up to 2030, although the situation in individual countries varies. Generally, low debt levels in relation to

GDP of analysed CEE countries compared to the EU average means that in the medium term a significant fiscal adjustment is not required.

The long-term fiscal sustainability of CEE countries showed greater variation (Table 13). Only one of the analysed countries, that is Slovakia, was qualified to the group of countries with a high risk of loss of fiscal stability in 2012 Report, which resulted from the expected increase in expenditure on pensions (the highest among the surveyed countries and more than three times the average for the EU-27). The S2 indicator for Slovakia under that evaluation did not account for the reduction of contributions to pension funds and changes in rules of participation in the funded part of pension system, as well as other changes to the PAYG part of the system (such as linking the retirement age with an average duration of life, and reduction of the indexation of benefits). Additional factor was the highest fiscal effort associated with the stabilization of the public debt (the largest in the group of countries surveyed and more than three times higher than the average in the EU-). In the 2015 Report Slovakia has been classified as a country of medium risk as of S2 indicator. Poland moved from the low to medium risk countries, mainly because of the insufficient steps to improve the primary balance.

Table 13. The risk of loss of fiscal stability in the infinite horizon in the countries of Central and Eastern Europe

Country	Risk		S2		IBP (initial budgetary position)		LTC (long-term cost of ageing):		of which change in pension expenditures	
	2012	2015	2012	2015	2012	2015	2012	2015	2012	2015
Bulgaria	medium	medium	**2.8**	**2.4**	0.5	1.9	2.3	0.5	1.6	0.0
Estonia	low	low	**1.2**	**0.7**	0.5	0.5	0.7	0.2	-0.1	-1.1
Latvia	low	low	**-0.7**	**0.9**	0.7	1.3	-1.5	-0.4	-1.4	-1.6
Lithuania	medium	medium	**4.7**	**2.9**	0.9	0.1	3.8	2.8	3.0	0.1
Hungary	low	low	**0.5**	**1.5**	0.1	0.5	0.3	1.0	-0.2	0.3
Poland	low	medium	**1.5**	**3.5**	0.4	2.4	1.1	1.1	-0.6	-0.2
Romania	medium	medium	**3.7**	**4.4**	0.1	2.9	3.6	1.5	2.4	0.1
Slovakia	high	medium	**6.9**	**3.5**	1.8	1.4	5.1	2.1	3.5	0.9
EU27	x	x	**2.6**	**1.7**	0.5	0.6	2.2	1.1	1.1	0.1

Note: The S2 indicator for Poland does not count for the restoration of the retirement age of 65 for men and 60 for women (from October 2017).
Source: Authors' analysis based on Fiscal Sustainability Report (2012, 2015).

Other countries have not change significantly their position, but for example S2 indicator for Romania increased by 0.7 p.p. due to initially budgetary position. Most of the analysed countries will face the reduction of the cost of ageing within the pension expenditures in 2015 assessment, compared to the 2012 calculations. The new Ageing Report, expected in 2018 can have an impact on this assessment, following the changes in pension systems and in the economies that were introduced between 2013 and 2016.

3.4. Long-term sustainability gap

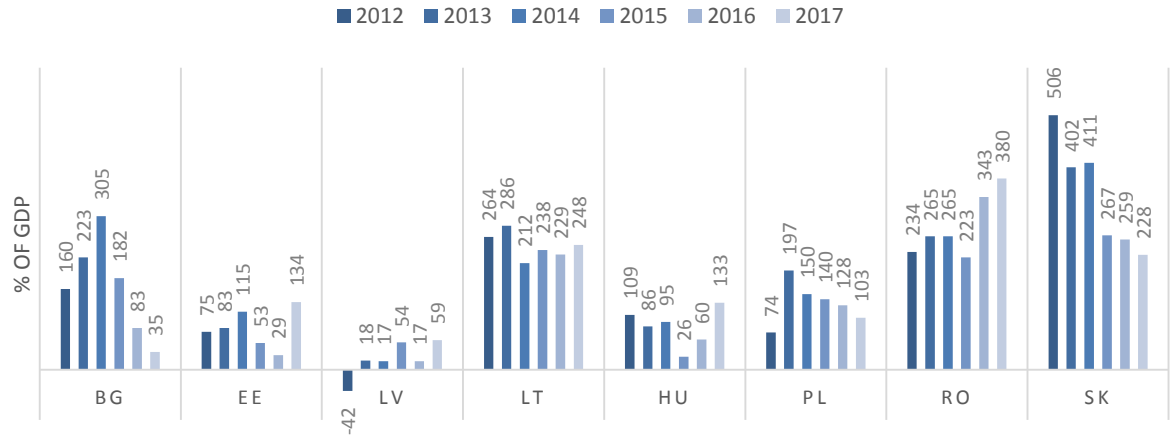
Another way to measure the long-term public debt burden in the analysed economies is the development of the Sustainability Gap. This indicator presents the actual level of the past, present and future debts, measured as a sum of the existing general government debt, the government deficit and the implicit debt. The Sustainability Gap is regularly assessed by Raffelhuschen and Mogg (2017 and earlier).

Figure 7 shows that countries that introduced permanent reductions of their funded pension system components belong to the group with higher level of this indicator (Slovakia, Poland, Lithuania, Hungary).

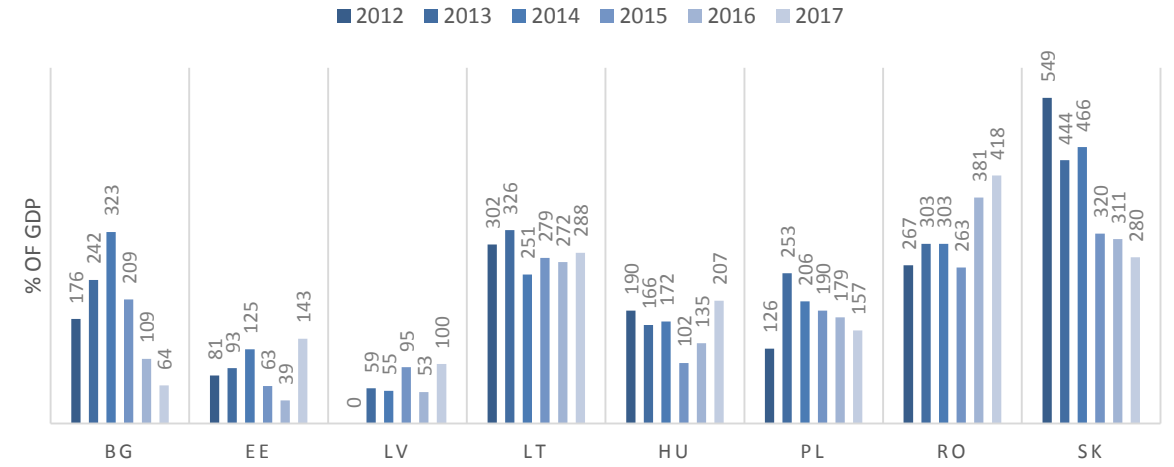
As shown in the panel B, the level of sustainability gap remains below the level of 100% of GDP in Bulgaria and Romania, which means that they are the among the countries with the low risk of fiscal sustainability. Estonia and Poland, have the medium level of risk as their sustainability gap ranges between 100% and 200% of GDP. Hungary, Slovakia, Lithuania and Romania face the high risk of sustainability in the future, with sustainability gap above 200% of GDP. This is driven mainly by the high levels of implicit pension debt. Out of the three countries, Slovakia notes gradually declining implicit debt, while rises in Romania. In the case of Hungary, significant share of sustainability gap relates to the explicit debt, which is the largest out of the 8 countries discussed in the paper.

Figure 7. Level of public liabilities

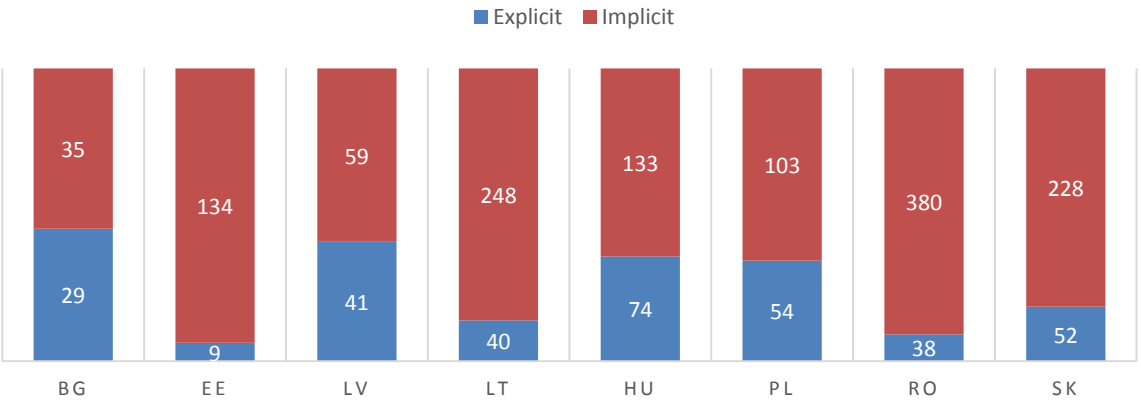
A. Implicit Debt



B. Sustainability Gap



C. Contribution of explicit debt and implicit liabilities to the sustainability gap, 2016



Note: the assessment does not take into account changes in pension systems that were reported and projected in the 2015 AWG Report

Source: Raffelhuschen and Mogg (2017 and earlier).

4: Conclusions

The reversal of the pension systems in CEE countries was an outcome of the mix of different, external and internal conditions that led to the worsening fiscal situation. While many of these factors were not directly linked to the pension reforms, the fiscal consolidation measures included the reversal of these reforms. Below, we summarise the main findings of the analysis provided in the paper.

Rise of the public debt and fiscal deficit in the CEE countries was not primarily caused by the costs of financing transition to funded pension systems.

The overview of socio-economic and fiscal situation, presented in the paper indicates that there are many differences in all of the analysed areas between the eight CEE countries taken into account. Each of these factors, alongside the political economy had a contribution to the sustainability of pension systems during the times of the economic crisis as well as in the long run.

Countries with the smallest changes in pension systems – Bulgaria and Estonia indeed have the most favourable situation when we look at the overall outcome, including most importantly low levels of government debt and deficit, but also stable or declining pension expenditure and rising employment levels. Countries that followed most radical reversals or reductions – Hungary, Poland and Slovak Republic – have the worst public finance indicators, but also their demographic outlook shows fast population ageing and current pension expenditure puts additional fiscal pressure, despite relatively favourable employment level as well as performance of the mandatory pension funds.

This comparison indicates that indeed the fiscal situation is one of the strongest drivers behind decisions on stepping back from initial pension reforms. The lesson from experiences of CEE countries is that a weak political consensus on reform priorities and a lack of strong national fiscal rules dilute the initial concept of financing the transition cost. As a result, rising fiscal pressure leads to decisions to scale down or effectively eliminate the funded components and return to pension financing based fully or predominantly on PAYG basis.

Short-term effects of reduction of contributions to pension funds were positive for public finance and did not have a negative impact on pension systems, but may lead to increased volatility of financial markets.

Fast fiscal consolidation, carried out both on revenue and expenditure side, including changes in the funded components of mandatory pension system in analysed countries, brought the fiscal position to the required levels (all of the studied countries came out of the excessive deficit procedure as for fiscal year 2014). Given the relatively short period of time that passed after the changes in the pension system were introduced, we cannot verify the impact of the change on the financial markets volatility.

Future stability of pension systems and public finance will worsen due to reduction of contributions to mandatory pension funds.

Long-term projections of pension systems prepared by the member states and published in the Ageing Reports show that only in Poland the level of public pension expenditure according to the 2015 projections will be higher compared to previous reports, which can be attributed to the shift of the funded contribution to the public system. In other CEE countries, the level of pension expenditure in 2060 projected in 2015 will be lower than projected three years before. This indicates that other changes to the PAYG systems, such as modifications of benefit formula or rising retirement ages contribute to increasing sustainability of pension systems. While the result of the change of the level of contributions may have contributed to the increase in the pension spending, other parallel changes, such as raising retirement age levels, reduces this effect. There is no available evidence that could allow for the assessment of the marginal effect of the change related to the reduction of the fully funded pension system parts.

Changes to the funded components of mandatory pension systems helped to improve the fiscal stability measured by S1 and S2 indicators in analysed countries, both in the medium and long term (except Poland). However, it should be noted that in most of the CEE countries, the effect of the increase in public pension expenditures related to the acquisition of all or a part of the contribution from the funded components will emerge in the years beyond the forecast horizon (after 2060). The Fiscal Sustainability Report (2015) reflects positive changes in public finances stability in medium term and at most of the countries in the long-term.

References

Aaron H. J. (1966). The social insurance paradox, Canadian Journal of Economics and Political Science, Vol. 32, 371-374

Altiparmakov N. (2014). Initial Performance of Pension Privatization in Eastern Europe Are Reform Reversals Justified?, https://www.researchgate.net/profile/Nikola_Altiparmakovj

Altiparmakov N. (2017), Another Look At Causes and Consequences of Pension Privatization Reform Reversals in Eastern Europe, https://www.researchgate.net/profile/Nikola_Altiparmakov

Barr N. (2000), Reforming Pensions: myths, truths and policy choices, IMF Working Papers, no 139

Barr, N., P. Diamond (2010). Pension Reform: A Short Guide, Oxford University Press

Beatie R., McGillivary W. (1995), A risky strategy: reflections on the World Bank Report Averting the Old Age Crisis, International Social Security Review, Vol. 3-4

Bielawska K. (2011a), Zmiany w społecznych systemach emerytalnych jako reakcje państw Europy Środkowo-Wschodniej na wzrost ryzyka destabilizacji finansów publicznych [Changes in social pension systems as a reaction of CEE countries to the increase of the risk of public finance destabilisation], [in:] Makroekonomiczne aspekty zarządzania w warunkach kryzysu [Macroeconomic aspects of management in crisis conditions], Prace i Materiały Wydziału Zarządzania Uniwersytetu Gdańskiego, nr 4/4

Bielawska K. (2011b), Czynniki wzrostu deficytu Funduszu Ubezpieczeń Społecznych po 1998 roku [Factors of Social Insurance Fund deficit growth after 1998], [in:] Ubezpieczenia gospodarcze i społeczne. Wybrane zagadnienia ekonomiczne [Commercial and social insurance. Selected economic issues], Oficyna Wolters Kluwer Business, Warszawa 2011

Bielawska K. (2013), The Impact of the Fiscal Situation on Retreat from Mandatory Pension Funds in the Countries of Central and Eastern Europe: the Case Study of Poland and Hungary in Pension Reforms – Comparison and Evaluation, M. Szczepański (ed.), Publishing House of Poznan University of Technology, Poznań

Bielawska K. (2014), Fiscal impulse for changes in mandatory pension funds across the Central and Eastern European countries, Social security systems against the challenges of demographic and market, ed. M.Szczepański, T.Brzęczek, M.Gajowiak, Publishing House of Poznan University of Technology

Bielawska, K., Chłoń-Domińczak, A., and Stańko, D. (2017). Retreat from mandatory pension funds in countries of the Eastern and Central Europe in result of financial and fiscal crisis: Causes, effects and recommendations for fiscal rules. Instytut Zarządzania Ryzykiem Społecznym, Warszawa

Borowski, J., Ciżkowicz, P., Rzońca, A. Wojciechowski, W. (2013). Kapitałowy filar emerytalny a wzrost gospodarki, Wydawnictwo Beck, Warszawa

Bukowski M., Chłoń-Domińczak, Góra M. (2009), Zmiany w systemie emerytalnym a deficyt i dług publiczny [Changes in the pension system and the deficit and public debt], IBS Policy Paper No.1/2009

Casey B.H. (2014), From Pension Funds to Piggy Banks: (Perverse) Consequences of the Stability and Growth Pact Since the Crisis, International Social Security Review, Vol.67, no 1

Chłoń-Domińczak A, Stańko D. (2011), Mandatory funded systems in Central and Eastern Europe. What is left after the crisis?, conference report, GUSTO Pensions Workshop, University of Warwick, 6-7 January, Warwick, http://kolegia.sgh.waw.pl/pl/KES/struktura/KUS/publikacje/-Documents/Chlon_Stanko_firstdraft_Copy.pdf

Chłoń-Domińczak A. (2002), The Polish Pension Reform of 1999, in E. Fultz (ed.) Pension Reform in Central and Eastern Europe, ILO, Budapest

Chłoń-Domińczak A. (2010), Wpływ sytuacji gospodarczej na system emerytalny [Impact of economic situation on the pension system], [in:] Gospodarka i czynniki demograficzne a system emerytalny [Economy and demographic factors vs pension system], IBnGR, Gdańsk

Chłoń-Domińczak, A. (2016), Reversing the 2013 retirement age reform in Poland. ESPN Flash Report

Chłoń-Domińczak, A. and M. Mora. (2003). Commitment and Consensus in Pension Reform. in: R.Holzmann, M.Orenstein, M.Rutkowski (eds.). Pension Reform in Europe: Process and Progress. World Bank, Washington, pp. 131-156

Chłoń A., Góra M., Rutkowski M. (1999). Shaping the Pension Reform in Poland: Security through Diversity. World Bank Social Protection Discussion Paper No 9905

Chybalski F. (2012), The Resilience of Pension Systems in the CEE Countries to Financial and Economic Crisis: the Need for Higher Diversification; Proceedings of the 13th International Conference on Finance and Banking

Datz G., Dancsi K. (2013): The politics of pension reform reversal: a comparative analysis of Hungary and Argentina, East European Politics, DOI:10.1080/21599165.2012.759940

Drazenovic Olgic, Kusanovic (2016), Determinants of capital market in the new meber EU countries, Economic Research - Ekonomska Istrazivanija, Vol. 39, Issue 1

Egert, B. (2012). The impact of changes in the second pension pillars on public finances in Central and Eastern Europe, Economic Department Working Paper no 942, OECD, Paris.

Enache C, Milos L.R., Milos M.C. (2015), Pension reform and capital market development in Central Eastern European countries, Economic Research - Ekonomska Istrazivanija, Vol. 28, Issue 1

European Commission (2004), Classification of Funded Pension Schemes and Impact on Government Finance

European Commission DG ECFIN. (2009). The 2009 Ageing Report: economic and budgetary projections for the EU-27 Member States (2008-2060). European Economy, 2, 27. doi:10.2765/80301

European Commission (2010), Towards adequate, sustainable and safe European pension system, European Commission, COM(2010) 365

European Commission (2012), Specification on the implementation of the Stability and Growth Pact and Guidelines on the format and content of Stability and Convergence Programmes

European Commission (2012), An agenda for adequate, safe and sustainable pensions, White Paper, European Commission, COM(2012) 55 final

European Commission (2012), Fiscal Sustainability Report 2012, European Economy No 8

European Commission (2015), Fiscal Sustainability Report 2015

European Commission DG ECFIN. (2012). The 2012 Ageing Report. Economic and budgetary projections for the 27 EU Member States (2010-2060) (Vol. 2012), doi:10.2765/19991

European Commission DG ECFIN. (2014). The 2015 Ageing Report. Underlying Assumptions and Projection Methodologies. European Economy, (8), doi:10.2765/76255

European Commission DG ECFIN. (2015). The 2015 Ageing Report. Economic and budgetary projections for the 28 EU Member States (2013-2060). European Economy, 3, doi:10.2765/877631

Feher, C. and Holtzer, P. (2012) 'There and Back Again: A Short Story of the Hungarian Pension Reform', (mimeo)

Fultz E. (ed.) (2002). Pension Reform in Central and Eastern Europe, Vol.1 Restructuring with privatization: case studies of Hungary and Poland, International Labour Office – Subregional Office for Central and Eastern Europe, Budapest

Fultz E. (2012). The retrenchment of second-tier pensions in Hungary and Poland: a precautionary tale, International Social Security Review, Vol. 65, no. 3, p.1 – 25

Guardiancich, I. (2017). "Instability Despite Consensus: The reversal of private pensions in Poland." In: D. Natali, ed. The New Pension Mix in Europe: Recent Reforms, Their Distributional Effects and Political Dynamics. Brussels: PIE Peter Lang.

Guardiancich, I. (2013). Pension Privatization in CEE : World Bank's failures and European inconsistencies. The 'new pension orthodoxy', (February), pp. 1–20

Guardiancich., I. (2013). Pension Reforms in Central, Eastern and Southeastern Europe. From post-socialist transition to the global financial crisis. Routledge

Holzmann R., Hinz R. (2005), Old age income support in the 21st Century, World Bank

Holzmann, R., M.Orenstein, M.Rutkowski (ed.) (2003). Pension Reform in Europe: Process and Progress, World Bank

Jarrett P. (2011), Pension reforms in Poland and elsewhere: the view from Paris, CASE Network Studies and Analysis, No. 425

Jeko M., Nenovsky N. (2012). Capital Pension Schemes in Bulgaria, Hungary and Slovakia Under the Impact of the Ongoing Financial Crisis, East-West Journal of Economics and Business, Vol. XV – 2012, No 1 and 2 (71-88), page 75, http://www.u-picardie.fr/eastwest/fichiers/art108.pdf

Kawiński M., Stańko D., Rutecka J. (2012). Protection mechanisms in the old-age pension systems of the CEE countries, Journal of Pension Economics and Finance Vol. 11(4): 581-605

Kritzer, B.E. (2001-2002) 'Social Security Reform in Central and Eastern Europe: Variations on a Latin American Theme', Social Security Bulletin 64(4)

Lindeman, D. M. Rutkowski, O. Sluchynskyy (2001). The Evolution of Pension Systems in Eastern Europea and Central Asia: Opportunities, Constraints, Dilemmas and Emerging Practices, The World Bank

Milev J., Nenovsky N. (2012). Capital Pension Schemes in Bulgaria, Hungary and Slovakia Under the Impact of the Ongoing Financial Crisis, East-West Journal of Economics and Business, Vol. XV – 2012, No 1 and 2 (71-88)

Milos, M. C., Milos, L. R. (2013). Pension Funds and the Financial Crisis in the CEE Countries. Resita, Faculty of Economics

Müller K. (2003). Privatising old-age security: Latin America and Eastern Europe Compared, Edward Elgar

Naczyk M., Domonkos S. (2015), The Financial Crisis and Varieties of Pension Privatization Reversals in Eastern Europe, Governance, Volume 29, Issue 2

OECD (2007). Pensions at a Glance 2007. Public Policies across OECD countries

OECD (2009). Pensions at a Glance 2009. Retirement Income Systems in OECD Countries

OECD (2011). Pensions at a Glance 2011. Retirement-Income Systems in OECD and G20 Countries. OECD Publishing

OECD (2013). Pensions at a Glance 2013: OECD and G20 Indicators

Oksanen H. (2009), Setting targets for government budgets in the pursuit of intergenerational equity, Economic Papers 358, EC, Brussels

Orenstein M.A., (2011), Pension privatization in crisis: death or rebirth of a global policy trend? International Social Security Review, Vol. 64. 3/2011

Orenstein M.A. (2008), Out-liberalizing the EU: Pension privatization in Central and Eastern Europe, JOURNAL OF EUROPEAN PUBLIC POLICY, Volume: 15, Issue: 6

Orenstein, M.A. (2008). Privatising Pensions: The Transnational Campaign for Social Security Reform. Princeton University Press

Orszag P.E, Stiglitz J.E. (1999), Rethinking pension reforms: ten myths about social security systems, World Bank

Pater K. (2011), Fiscal debts associated with the European Union policy [w:] Advancing in the strengthening and consolidation of the individually – funded pension systems, FIAP

Piketty, T. (2013). Capital in the Twenty-First Century, Harvard University Press, ISBN 978-0674430006

Price, W., Rudolph, H. P. (2013). Reversal and Reduction, Resolution and Reform Lessons from the Financial Crisis in Europe and Central Asia to Improve Outcomes from Mandatory Private Pensions. World Bank Report, (77779), pp. 1–82

Raffelhuschen, Mogg (2014). Honorable States? EU Sustainability Ranking 2014 – Key Results, http://www.stiftung-marktwirtschaft.de/fileadmin/user_upload/Generationenbilanz/Key_Results_Honorable_States_2014.pdf

Regulation (EU) No 1173/2011 of the European Parliament and of the Council of 16 November 2011 on the effective enforcement of budgetary surveillance in the euro area, Official Journal of the European Union L306

Regulation (EU) No 1175/2011 of the European Parliament and of the Council of 16 November 2011 amending Council Regulation (EC) No 1466/97 on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies, Official Journal of the European Union L306

Regulation (EU) No 1177/2011 of 8 November 2011 amending Regulation (EC) No 1467/97 on speeding up and clarifying the implementation of the excessive deficit procedure, Official Journal of the European Union L306

Rocha R., D. Vittas. (2002). The Hungarian pension reform: a preliminary assessment of the first years of implementation in M. Feldstein, H. Siebert (eds.), University of Chicago Press, pp. 365 – 400

Schwarz, A., Arias, O. (2014). The Inverting Pyramid. Pension Systems Facing Demographic Challenges in Europe and Central Asia. Washington: World Bank

Security through Diversity (1997). The Programme of Polish Pension Reform

Singh A. (1996), Pension reform, the stock market, capital formation and economic growth: a critical commentary on the World's Bank proposal, International Social Security Review, Vol.3

Soto M., Clements B., Eich F. (2011), A fiscal indicator assessing the first and second pillar pension reforms , IMF Staff Discussion Note, SDN/11/09

Staehr K. (2016), Public Finances and Fiscal Policy in the Baltic States 1991–2015, Research in Economics and Business: Central and Eastern Europe, Vol. 8, No.1

Velculescu D. (2011), Pension reforms in Emerging Europe: the uncertain road ahead, http://www.ebrd.com/downloads/research/news/4441347_-_Pension_Reforms_in_Emerging_Europe_The_Uncertain_Road_Ahead_(D.Velculescu)_-_1_-_DMSDR1S.pdf

Volskis E. (2012). Challenges and enhancements of funded pension schemes in Baltic States, presentation at the Estonian Ministry of Finance and EBRD workshop: "Reforming Baltic pension funds: sound investment and local finance", 6-7 December 2012, Tallinn, Estonia, http://www.ebrd.com/downloads/news/Challenges_and_enhancements_of_funded_pension_schemes_in_Baltic_States.pdf

World Bank. (1994). Averting the Old-age Crisis. Policies to Protect the Old and Promote Growth. Oxford University Press

World Bank. (2006a). Pension reform and the development of pension systems: An evaluation of World Bank assistance. Independent Evaluation Group. World Bank

Additional sources:

Statistical data from EUROSTAT and OECD
Country information based on authors' questionnaire
Convergence and Stability Programmes of analysed CEE countries 2004-2012