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Private and Public Debt[#]

*Vratislav Izák**

Introduction

The last financial and economic crisis has been a reminder of the multifaceted nature of crises which can have domestic or external origins (Reinhart – Rogoff, 2010). They are extreme manifestations of the interactions and spillovers between all sectors of the economy.

According to Claessens – Ayhan Kose (2013) financial crises have several common elements: a) large scale balance sheets problems in both financial and real sectors; b) severe disruptions in financial intermediation and the supply of external financing to the various sectors; c) substantial changes in credit volume and asset prices; d) large scale government support in the form of liquidity support and recapitalization.

But the last financial crisis was also rooted in some new factors including the increased interconnectedness among financial markets, the high degree of leverage of financial institutions and the central role of households and non-financial corporations. Generally, the crisis can start on the real side (less corporate or households spending due to high debt levels) or on the financial side (overleveraged lenders cut back). What is important not only for this paper is the fact that the real and financial sectors interact both on the way up and on the way down.

The undergoing crisis has been contributing to underlying financial instability not only in the public sector but also in private sectors. When the public sector has to raise saving to stabilize the debt at the macrolevel, it is helpful if private sectors can run down savings to offset the negative impact on economic growth. Hence, alongside the indebtedness of the public sector one must take into account also the incurring private debts.

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1. Literature overview

The surge of debt in the full-fledged market economies since the mid-1990s has raised concerns about macroeconomic performance. On one hand, accumulating debt can help smooth real activity, but on the other hand it can create vulnerabilities in private and public sectors and affect macroeconomic performance (Merola, 2012).

It is often argued (White, 2012) that the policy responses to the crisis, both macroeconomic and structural, will not succeed in restoring sustainable growth. Monetary and fiscal stimulus might raise aggregate demand in the short run, but they contribute to higher debt levels in private and public sectors. Fundamental policy changes are now required, relying much more on supply side reforms than simple demand side stimulus.

The implications for crises (one distinguishes four types of financial crises – currency crises, sudden stops, debt crises and banking crises, see Claessens – Ayhan Kose, 2013) are for both real and financial sector. Crises are often preceded by asset and credit booms that eventually turn into busts. Both distant past and more recent crises episodes typically witnessed a period of significant growth in credit and external financing. When debt levels, particularly in the household and corporate sectors, are above trend, recessions are typically longer and deeper, often following a prolonged expansions (Sutherland et al., 2012).

The financial and economic crisis starting in 2007 has put considerable strains on private and public finances in the EU. One important question refers to the economic consequences of a regime of high debts in the economic sectors. From a policy perspective, a negative impact of public debt on economic growth strengthens the arguments for ambitious debt reduction through fiscal consolidation. The relationship between both public and private debt and the economic growth have been investigated in many papers (e.g. Checherita – Rother, 2010, Cecchetti – Mohanty – Zampolli, 2011, Kumar – Woo, 2010).

Private credit, at low levels, is good for economic growth, because according to the theory, raises trend growth. But there comes a point where the additional lending and a bigger financial system become a drag on growth (Cecchetti – Kharroubi, 2012).

High levels of debt have been achieved not only in the public sector, but also in the household and corporate sectors in the majority of the EU states (Blundell – Wignall, 2012, Izák, 2012, Bouis et al., 2013, Izák,

2013). In the run up to the financial crisis, households and non-financial corporations expanded their balance sheets massively. Much of the increase in debt may be regarded as „excessive“ and private sector debt has had to be reduced (in the literature the terms „reduced indebtedness“ and „deleveraging“ are used interchangeably with falling debt-to-GDP ratios, Bouis et.al., 2013). Reducing private sector debt must be addressed as the economy in full-fledged market economies recovers.

In a well known article (Bernanke – Gertler – Gilchrist, 1996) the authors assert that firms with weak balance sheets are likely to bear the brunt of an economic downturn and that the adverse shocks to the economy may be amplified by worsening credit-market conditions. Their „financial accelerator“ was deduced from the empirical evidence (a panel of large and small manufacturing firms).

When a large part of the private sector is overdebted, a full-scale banking crisis may result. The financial and economic crisis has underlined the destabilising effects of excessive debt builds-up in the private sector. When households and corporations are overindebted even small income shortfalls prevent them from smoothing consumption and making new investments. Larger shortfalls trigger a rise in default and bankruptcies (Drehmann – Juselius, 2012). One must take into account that private sector indebtedness surged in several EU Member States prior to the financial and economic crisis. Household debt in particular rose considerably in the countries that experienced a housing boom (Tang – Upper, 2010).

The attention devoted to the balance sheet approach has been fully justified in several research fields. An analytical framework for understanding crises, based on examination of stock variables in the aggregate balance sheet of a country and the balance sheets of its main sectors (assets and liabilities), focuses on vulnerabilities among economic sectors (Allen et.al., 2002). Further, a framework where the sustainability conditions of all sectors are considered simultaneously, is required (Burger, 2003). The unsustainability can be shifted from public to private sectors of the economy and if this happens, indebtedness may cause a spate of bankruptcies in household and non-financial corporations (Cecchetti – Mohanty – Zampolli, 2011).

The paper attempts to provide some empirical evidence of the development of private debt to GDP in the sample of 18 EU Member states including cross-sectional differences mainly between old EU states and postsocialist countries. Further we examine the development of

private to public debt including spillovers across private and public debt. Last but not least decomposition of private debt stresses the differences between household's debts and the indebtedness of non-financial corporations.

After the introduction and the literature overview in the second Section utilised data are shown. In the third Section named Debt ratios we examine successively ratios of private debt to gross domestic product (subsection 3.1), ratios of private to public debt (3.2), spillovers across private and public debt (3.3) and decomposition of private debt (3.4).

2. Data

The starting point of the paper is to utilize an analytical framework for understanding linkages between main private sectors on one side and public sector on the other side. This analytical framework is based on the financial accounts. They record transactions that involve financial assets and liabilities and that take place between public and private sectors.

An asset is a store of value representing a benefit accruing to the economic owner by holding or using the entity over a period of time. As concerns liabilities one must be aware that there are no non-financial liabilities recognized in the System of National Accounts (SNA 2008), thus the term liability necessarily refers to a liability that is financial in nature. A liability is established when one unit (the debtor) is obliged, under specific circumstances, to provide a payment to another unit (the creditor).

The sources of data in this paper are detailed national accounts published regularly by OECD. More concretely National Accounts-Volume IIIb-Financial Balance Sheets-Stock. They record the stocks of financial assets and liabilities by institutional sectors (in our case households S 14 and Non-profit institutions serving Households S 15 taken together, non-financial corporations S 11 and General government sector S 13) at the end of the accounting period and are presented in two tables 710: a) Balance sheets for financial assets and liabilities and b) Balance sheets for financial assets, non consolidated. We have preferred consolidated Balance sheets in this paper.

This framework labeled „flow of funds“ or „from-whom-to-whom“ puts debt for each sector of the economy in the context of total debt and thus underlines the role of the public sector (and private sectors too) in total financial flows and stocks.

We have gathered data for the general government debt (public debt in what follows) and the debt of households including non-profit institutions serving households and non-financial corporations for 18 EU member states for the time period 1995-2011 (2012): Austria (AT), Belgium (BE), The Czech Republic (CZ), Germany (DE), Denmark (DK), Estonia (EE), Greece (EL), Spain (ES), Finland (FI), France (FR), Hungary (HU), Italy (IT), The Netherlands (NL), Poland (PL), Portugal (PT), Sweden (SE), Slovakia (SK), Slovenia (SL).

The raw data are reported at current prices in millions of national currency and in millions of Euros for EU countries which are members of the Euro zone. The changes in stock values (code 710) can be compared with flows-code 610 taking into account the differences due to holding gains/losses, price changes and other changes in the volume of assets and liabilities and net worth. This comparison has been omitted in the paper.

3. Debt ratios

3.1. Ratio of private debt to gross domestic product

Under the private debt it is understood the debt of two sectors-household and non-profit institutions serving household plus non-financial corporations. For households debt is defined as total liabilities and for non-financial corporations as total liabilities less shares and other equities. Data for private debt are in millions of national currency and for GDP in bill. of national currency. Exhaustive information in time for our sample has been displayed in Table 1.

Tab. 1: Ratio of private debt to GDP (time series)

	1995	1997	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012
AT	1.06	1.15	1.22	1.31	1.34	1.37	1.40	1.47	1.56	1.58	1.54	-
BE	1.10	1.24	1.19	1.24	1.24	1.22	1.23	1.42	1.42	1.40	1.51	1.55
CZ	0.90	1.02	0.89	0.79	0.77	0.75	0.82	0.91	0.92	0.96	1.00	-
DE	1.29	1.37	1.48	1.53	1.52	1.47	1.41	1.42	1.46	1.37	1.33	-
DK	1.67	1.78	1.81	2.03	2.03	2.23	2.51	2.61	2.74	2.66	2.59	2.60
EE	0.49	0.77	0.75	0.83	0.98	1.26	1.54	1.67	1.81	1.73	1.51	-
EL	0.48	0.52	0.64	0.78	0.84	1.00	1.17	1.30	1.33	1.39	1.42	-
ES	0.99	1.02	1.18	1.33	1.50	1.78	2.17	2.21	2.27	2.30	2.21	-
FI	1.09	0.99	1.00	1.06	1.22	1.35	1.42	1.59	1.71	1.74	1.70	-
FR	1.14	1.17	1.21	1.31	1.28	1.38	1.48	1.53	1.65	1.70	1.73	-
HU	0.54	0.56	0.65	0.80	0.91	1.06	1.27	1.55	1.66	1.50	1.64	-
IT	0.84	0.82	0.91	1.00	1.08	1.18	1.34	1.38	1.45	1.46	1.33	-
NL	1.71	1.82	2.11	2.23	2.30	2.40	2.39	2.39	2.55	2.55	2.55	-

	1995	1997	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012
PL	0.32	0.43	0.54	0.66	0.62	0.57	0.70	0.84	0.84	0.87	0.93	-
PT	1.11	1.53	1.75	1.97	2.05	2.08	2.28	2.40	2.53	2.55	2.59	-
SE	1.44	1.57	1.63	1.86	1.95	2.03	2.24	2.49	2.60	2.46	2.42	-
SK	1.23	1.22	1.15	1.03	1.01	0.94	1.05	1.05	1.10	1.10	1.14	-
SL	-	-	-	0.84	0.88	1.05	1.26	1.34	1.42	1.46	1.43	1.40

Source: Author's calculations.

Note: Data for Slovenia are at a disposal since 2001. In percents, e.g. in Belgium the ratio was in 2012 155 % of GDP.

Starting from Table 1, we see a rapid rise in the ratio of private debt to GDP in the majority of full-fledged economies with the acceleration in 2009 – 2011. The peak has been achieved in 5 countries in 2009, in 6 countries in 2010 and 2011. Even the countries with very low ratio in 1995 (Poland, Greece, Spain and Hungary) have exhibited a remarkable increase in private indebtedness.

Cross-sectional differences are displayed in Table 2. Two main facts stand out from the table. Mainly postsocialist countries exhibit on the average low indebtedness (Poland, Czech Republic, Hungary and also Greece). On the contrary the highest indebtedness has been, on the average, revealed in The Netherlands, Denmark, Portugal and Sweden. Very small standard deviation and hence the remarkable stability has been typical for Germany, Czech Republic and Slovakia.

Tab. 2: Ratio of private debt to GDP (descriptive statistics)

	Mean	Maximum	Minimum	St.deviation	Observations
Austria	1.32	1.58	1.06	0.16	17
Belgium	1.27	1.55	1.10	0.13	18
Czech Rep.	0.87	1.02	0.75	0.08	17
Germany	1.43	1.53	1.29	0.08	17
Denmark	2.18	2.74	1.67	0.14	18
Estonia	1.11	1.81	0.49	0.27	17
Greece	0.91	1.42	0.48	0.32	17
Spain	1.61	2.30	0.98	0.50	17
Finland	1.28	1.74	0.95	0.27	17
France	1.36	1.73	1.14	0.19	17
Hungary	1.00	1.66	0.54	0.40	17
Italy	1.11	1.46	0.82	0.23	17
Netherlands	2.22	2.55	1.71	0.27	17
Poland	0.63	0.93	0.32	0.18	17
Portugal	1.98	2.59	1.11	0.44	17

	Mean	Maximum	Minimum	St.deviation	Observations
Sweden	1.97	2.60	1.44	0.37	17
Slovakia	1.09	1.23	0.94	0.09	17
Slovenia	1.16	1.46	0.84	0.25	12

Source: Author's calculations.

3.2. Ratio of private to public debt

Some authors (e.g. Cecchetti – Mohanty – Zampolli, 2011) stress a clear interaction between public and private debt. When private borrowing has fiscal backing, default increases public debt. And the ability of the public sector to cope with high debt depends, first of all, on its ability to raise revenue. And this ability is compromised if the household sector and non-financial corporations are already highly indebted.

When private sector debt levels rise above trend the likelihood of a strong economic downturn increases. During a recession debt typically migrates from the private to the public sector (Debt and macroeconomic stability, OECD, 2012). Concerns about the health of balance sheets in one sector can have implications for others. Household, non-financial corporations or general government balance sheets affect the banking system, particularly when the banking system has too little capital cushion.

In a situation of high indebtedness in both household and non-financial corporation sectors a sudden shock can lead to cuts in aggregate demand with implications for government revenues. The implications of the vulnerabilities created by high indebtedness and the linkages between sectors suggest that high levels of debt can migrate and cascade across sectors. Typically, debt builds up in the private sectors and when the economy enters recession ratio of private sector to GDP decelerates or declines and the public sector debt has the tendency to rise.

Tab. 3: Ratio of private to public debt (time series)

	1995	1997	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012
AT	1.55	1.79	1.83	1.96	2.05	2.14	2.33	2.30	2.25	2.20	2.13	-
BE	0.85	1.01	1.05	1.16	1.26	1.33	1.47	1.59	1.48	1.46	1.54	1.56
CZ	6.42	8.07	5.65	3.31	2.68	2.65	2.93	3.19	2.69	2.53	2.44	-
DE	2.31	2.29	2.41	2.59	2.36	2.14	2.17	2.13	1.96	1.66	1.66	-
DK	2.30	2.72	3.12	4.09	4.31	5.91	9.24	7.83	6.73	6.23	5.58	5.69
EE	6.00	11.00	11.5	17.3	17.5	27.5	41.9	36.8	25.2	25.8	24.2	-
EL	0.50	0.53	0.67	0.74	0.85	0.98	1.09	1.15	1.03	0.93	0.83	-

	1995	1997	1999	2001	2003	2005	2007	2008	2009	2010	2011	2012
ES	1.56	1.54	1.89	2.40	3.06	4.12	5.97	5.49	4.21	3.74	3.19	-
FI	1.92	1.82	2.17	2.50	2.74	3.23	4.04	4.70	3.93	3.58	3.45	-
FR	2.06	1.98	2.05	2.30	2.03	2.07	2.30	2.25	2.08	2.06	2.01	-
HU	0.63	0.90	1.08	1.52	1.56	1.71	1.90	2.13	2.08	1.83	2.01	-
IT	0.69	0.70	0.80	0.93	1.04	1.12	1.30	1.30	1.25	1.23	1.10	-
NL	2.25	2.67	3.45	4.40	4.43	4.63	5.27	4.09	4.20	4.04	3.90	-
PL	0.64	1.01	1.37	1.76	1.31	1.21	1.57	1.78	1.65	1.58	1.66	-
PT	1.88	2.75	3.42	3.65	3.44	3.07	3.33	3.35	3.02	2.72	2.39	-
SE	1.98	2.20	2.54	3.39	3.76	4.03	5.56	6.43	6.11	6.24	6.31	-
SK	5.56	3.63	2.40	2.10	2.39	2.75	3.54	3.76	3.09	2.68	2.63	-
SL	-	-	-	3.18	3.25	3.91	5.47	6.12	4.06	3.78	3.05	2.59

Source: Author's calculations.

Note: The high ratio in the Czech Republic in the second half of 90's is due to the officially very low and masked public indebtedness. Ratios for Estonia are the outliers thanks to very low public debt.

The culmination of the ratio is, in accordance with expectations, mainly in the year 2007 (Austria, Denmark, Estonia, Spain, France, Italy and The Netherlands and in 2008 respectively (Belgium, Finland, Hungary, Poland, Portugal and Sweden). Since 2008 the ratio of private to public debt has the tendency to decline.

Cross sectional differences are again summarized in Table 4.

Tab. 4: Ratio of private to public debt (descriptive statistics)

	Mean	Maximum	Minimum	St.deviation	Observations
Austria	2.00	2.33	1.55	0.24	17
Belgium	1.26	1.59	0.85	0.23	18
Czech. Rep.	4.10	8.07	2.44	1.93	17
Germany	2.22	2.59	1.66	0.27	17
Denmark	4.95	9.24	2.30	2.03	18
Estonia	20.65	41.86	5.96	10.23	17
Greece	0.81	1.15	0.50	0.21	17
Spain	3.16	5.97	1.45	1.44	17
Finland	2.91	4.70	1.82	0.86	17
France	2.11	2.30	1.92	0.12	17
Hungary	1.48	2.13	0.63	0.47	17
Italy	1.00	1.30	0.68	0.22	17
Netherlands	3.91	5.27	2.25	0.88	17
Poland	1.38	1.78	0.64	0.34	17
Portugal	3.04	3.74	1.88	0.54	17

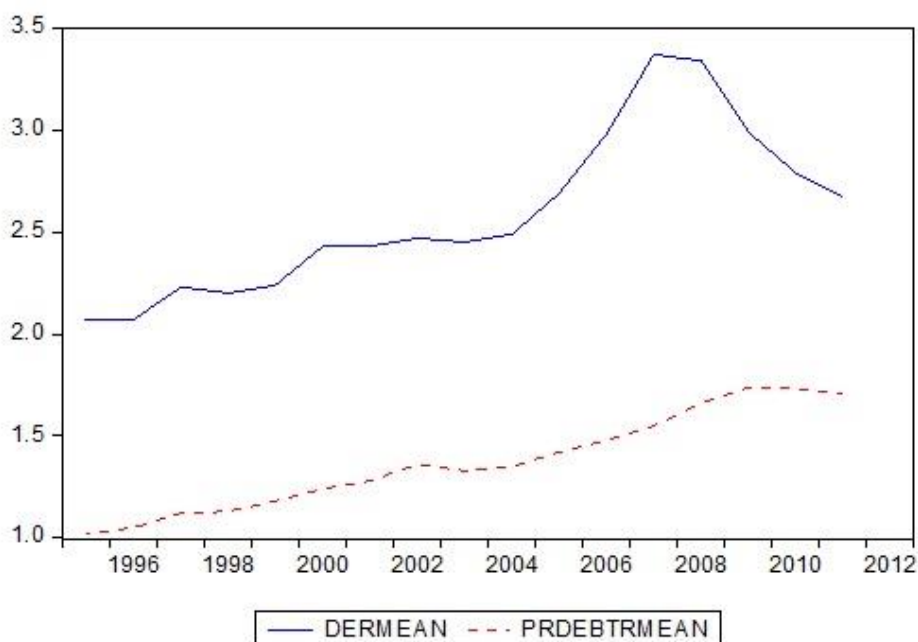
	Mean	Maximum	Minimum	St.deviation	Observations
Sweden	4.01	6.43	1.98	1.60	17
Slovakia	3.06	5.56	2.05	0.88	17
Slovenia	3.83	6.12	2.59	1.04	12

Source: Author's calculations.

Putting aside the outliers Estonia (very low public debt in the whole period) and The Czech Republic (artificially low public debt in the second half of 90's) we witness again considerable cross-country variation. High ratio is first of all in Denmark and The Netherlands and, on the contrary, very low ratio is in Greece and Italy (in the trouble makers with very high public indebtedness).

A dynamic look can be offered by Figure 1.

Fig. 1: Development of means ratios



Source: Author's calculations.

The graph depicts the evolution of two ratios in the period 1995 – 2011 (horizontal axis). Data are unweighted averages for the countries in our sample. The bold curve (indicated dermean) shows the ratio of private debt to GDP for 17 countries (data for Slovenia are at the disposal since

2001, therefore this country has been omitted). The dashed curve (prdebtmean) shows the ratio of private debt to public debt (besides Slovenia also Estonia has been excluded due to very low public debt).

Ratio of private debt to GDP in current prices has been steadily increasing till 2009 with a high decrease in two following years. Discussions of the ongoing deleveraging in the private sector and weakening near-term aggregate demand see (BIS 82nd Annual Report, 2012).

As concerns ratio of private to public debt since 2004 the acceleration of private indebtedness has been observed and culminated in the crisis years 2007 and 2008 and has gone down thereafter.

3.3. Spillovers across private and public debt

During the financial and economic crisis government budgets could have been affected by steadily increasing private debts. As is known, at high public debt levels, contagion from the private to the public sector can force governments to become procyclical during economic recessions.

The Granger causality test shows whether including lagged information (in our case 1 and 2 lags) of one variable (private debt) can help explain the current value of another variable (public debt). As has been emphasized many times in the literature, it does not prove by itself causality.

Pairwise Granger causality tests reveal if run-ups in private sector borrowing tend to „Granger cause“ increases in public debt. In what follows private debt is, as in the previous parts of this article, the sum of households and non-financial corporations debts on the one side and general government debt on the other side. Group unit root tests show that both private and public debt series are non-stationary (according to the test assuming common unit root process and also according to 3 tests assuming individual unit root processes). Hence the changes of both variables which are stationary have been applied.

Null hypothesis is: A: Private debt does not Granger cause public debt

Null hypothesis is: B: Public debt does not Granger cause private debt

Tab. 5: Pairwise Granger causality tests

	Lags					
	1		2		3	
	F	P	F	P	F	P
A						
Germany	6.34	0.027	6.32	0.019	6.33	0.027
Greece	3.26	0.096			13.91	0.004
Spain			6.77	0.016		
Finland	4.32	0.060	2.92	0.105		
France			4.07	0.055	5,57	0.036
Poland	3.50	0.086	3,41	0.079		
B						
Spain			4.28	0.049	4.52	0.056
Poland			2.47	0.102	5.81	0.033
Portugal	6.39	0.027				

Source: Author’s calculations.

Note: Low probability (P-values) implies that information on lagged debt in the private sector does not help explain debt development in the public sector (case A) or information on lagged debt in the public sector does not help explain debt development in the private sector (case B).

The P-values in Table 5 inform that only in some countries (6) we have discovered contagion going from the private to the public sector. The reverse causation, from the public to the private sector, has been revealed in 3 countries only. The partial conclusion must be taken with caveat due to small number of observation.

3.4. Decomposition of private debt

Private sector indebtedness can be decomposed on the household’s debt on one side and on the debt of non-financial corporations on the other side. The descriptive statistics in Table 7 give the information about the differences across countries.

Tab. 6: Household's debts (descriptive statistics, % of GDP)

	Mean	Maximum	Minimum	St.deviation	Observations
Austria	50.0	57.3	42.1	5.2	17
Belgium	45.4	56.6	39.5	5.8	18
Czech Rep.	19.5	34.8	10.6	8.8	17
Germany	67.9	74.0	59.8	4.8	17
Denmark	121.7	156.4	91.8	21.7	18
Estonia	32.0	68.2	4.4	24.0	17
Greece	35.3	68.7	11.1	19.9	17
Spain	67.2	91.5	40.8	19.2	17
Finland	46.7	68.2	32.4	13.5	17
France	50.4	66.6	38.7	9.1	17
Hungary	21.8	42.6	7.2	13.7	17
Italy	35.5	51.3	20.5	10.8	17
Netherlands	100.8	134.6	59.2	24.9	17
Poland	16.8	36.8	2.4	11.4	17
Portugal	79.7	105.5	39.5	21.6	17
Sweden	63.9	86.3	46.4	14.7	17
Slovakia	17.2	29.1	10.2	6.6	17
Slovenia	27.6	35.4	20.5	6.1	12

Source: Author's calculation.

Several facts stand out when looking at the table:

- a) Highly indebted, on the average, are households in Denmark and The Netherlands.
- b) Postsocialist countries still have low indebtedness, but are catching up.
- c) High public debts in Greece, Italy and Belgium have been accompanied by lower household's indebtedness.

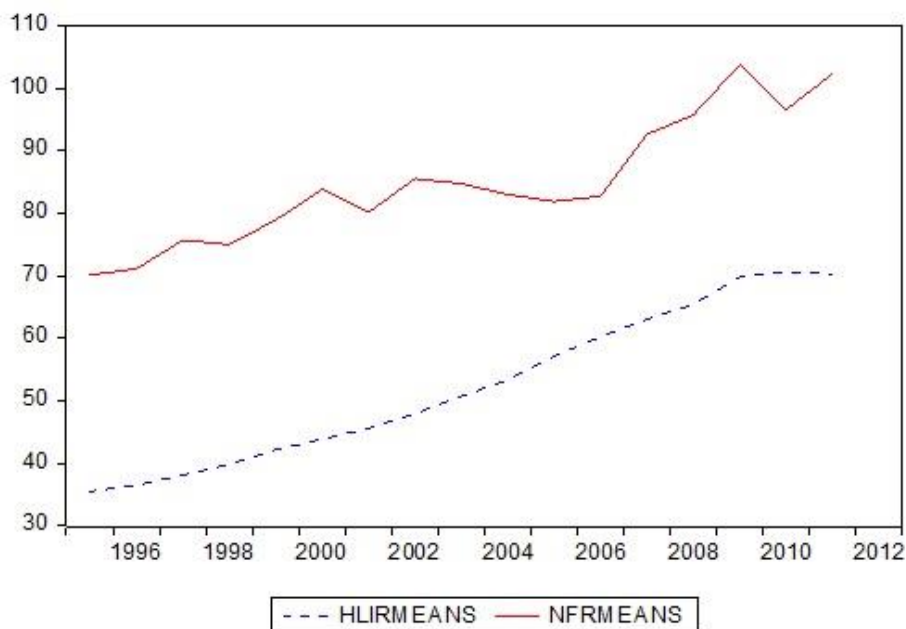
Debts of non-financial corporations (Tab. 7) exhibit again great cross-country differences. The highest indebtedness, on the average, has been revealed in Sweden (132.6 % of GDP), The Netherlands (121.7 %) and Portugal (118.6 %). Rather surprisingly, low indebtedness of non-financial corporations can be seen in Greece (as a counterpart to the very high public debt).

Tab. 7: Debts of non-financial corporations (descriptive statistics)

	Mean	Maximum	Minimum	St.deviation	Observation
Austria	82.5	101.1	63.7	11.1	17
Belgium	81.9	98.9	70.3	8.0	18
Czech. Rep.	67.4	90.0	55.1	10.6	17
Germany	75.5	81.6	66.2	4.7	17
Denmark	96.2	118.2	74.8	16.0	18
Estonia	79.4	113.3	44.7	19.7	17
Greece	55.4	75.2	36.7	12.9	17
Spain	93.4	138.3	56.5	30.9	17
Finland	80.9	105.6	62.2	14.1	17
France	85.8	105.9	72.4	10.5	17
Hungary	77.9	124.4	44.2	26.5	17
Italy	75.1	95.2	60.1	12.3	17
Netherlands	121.7	136.7	112.2	7.3	17
Poland	46.1	59.4	29.2	8.2	17
Portugal	118.6	157.6	71.9	23.5	17
Sweden	132.6	174.0	97.8	23.3	17
Slovakia	91.5	112.7	76.5	13.1	17
Slovenia	88.7	110.3	63.9	18.8	12

Source: Author's calculations.

**Fig. 2: Debt of households and non-financial corporations
(% of GDP)**



Source: Author's calculation.

The figure 2 displays the development of both debt of households (bold line-hlirmeans) and non-financial corporations (dashed line-nfrmeans) in the sample of 16 countries (except Slovenia and Estonia).

The debt of households, on the average, culminated in 2010 (70.6 % to GDP) with a slow decline afterwards as households have begun to reduce their debt-to-GDP ratio. Worth of mentioning is the sharp increase of ratio from 2006 to 2009 (from 60.2 % to 69.8 %).

The debt of non-financial corporations culminated in 2009 (103.8 % to GDP). For the majority of countries the highest debt-to-GDP ratio was achieved in 2010 (Austria, Spain, Finland, Italy, Slovenia), then in 2009 (Estonia, Greece, Hungary, Sweden) and 2011 (Belgium, France, Poland, Portugal). Since 2009 the process of deleveraging has been going on (Bouis et al., 2013).

Hence the expansion of debt in the EU Member States was not confined to households but also to non-financial corporations. In several countries indebtedness increased mainly to finance real estates and

housing boom was accompanied by soaring household's and corporation's debt.

Conclusion

The ongoing financial and economic crisis has been contributing to debt unsustainability not only in the public but also in the private sector. The unsustainability can be shifted from public to private sectors of the economy and if this happens, it may cause a spate of bankruptcies in private sectors.

Under the private debt we understand in this paper the debt of: a) households and non-profit institutions serving households, defined as total liabilities, b) non-financial corporations, defined as total liabilities less shares and other equities. Data stem from detailed national accounts published by OECD (Financial accounts, stock values, code 710).

We have observed a rapid rise in the ratio of private debt to GDP in the majority of 18 EU Member States (our sample) with the acceleration in 2009 – 2011. The highest indebtedness has been, on the average, revealed in The Netherlands, Denmark, Portugal and Sweden. Mainly postsocialist countries exhibit, on the average, low indebtedness.

The culmination of the ratio of private to public debt is, in accordance with expectations, mainly in the crisis years 2007 and 2008. Since 2008 the ratio of private to public debt has the tendency to decline.

Spillovers across private and public debt have been examined using pairwise Granger causality tests. Null hypothesis that private debt does not Granger cause public debt has been rejected in a model with 1, 2 or 3 lags only for Germany, Greece, Spain, Finland, France and Poland. The null hypothesis that public debt does not Granger cause private debt has been rejected in Spain, Poland and Portugal. Due to the small number of observations these partial conclusions must be taken with caveat.

Private sector indebtedness has been decomposed into the household's debt and debt of non-financial corporations. Several facts stand out. Highly indebted, on the average, are households in Denmark and The Netherlands. Postsocialist countries have still low indebtedness, but are catching up. High public debts in Greece, Italy and Belgium have been accompanied by lower household's indebtedness.

The main implication for current economic policy is that not only the sustainability of state budget but also the sustainability of finances at the

level of private agents (both households and non-financial enterprises) must be taken into account due to the spillovers between the mentioned sectors.

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Private and Public Debt

ABSTRACT

In the paper we provide some empirical evidence of the development of private debt to GDP ratio in the sample of 18 EU Member States. We use detailed national accounts published regularly by the OECD-financial assets and liabilities by institutional sectors (flow of funds). The ratio of private to public debt culminated mainly in the year 2007 and since 2008 this ratio has the tendency to decline. Spillovers across private and public debt have revealed mainly a mutual dependency. Cross-country differences have been discovered in both household's and non-financial corporation's debt.

Key words: Private debt; Public debt; Flow of funds.

JEL classification: D9, E6, H3