

Sectoral Deleveraging in Europe and Its Economic Implications

Martin Gächter,
Martin Geiger,
Florentin Glötzl,
Helene Schuberth¹

We examine net lending/net borrowing and the underlying debt dynamics at the sectoral level in the European Union. Saving and investment patterns indicate that there have been considerable deleveraging efforts since the start of the global financial crisis, particularly in the nonfinancial corporate and household sectors. In many EU countries, however, this decline in credit transactions has not yet led to a significant reduction of sectoral debt-to-GDP ratios. Subdued output growth and low or even negative inflation rates have undermined the deleveraging process and increased real debt burdens in a number of European economies. Since these are often the countries that had experienced strong credit booms prior to the crisis, rebalancing needs are likely to persist and may be a significant drag on the recovery in the near future. Furthermore, most of the ongoing rebalancing – both in terms of debt levels and current account deficits – is based on a sharp decline in investment rather than an increase in saving, which might lead to lower potential growth in the future. Recent developments may even jeopardize the catching-up process of peripheral euro area countries and non-euro area EU Member States in Central, Eastern and Southeastern Europe.

JEL classification: E22, E24, E44, G21, G31

Keywords: balance sheet recession, financial accelerator, credit crunch, investment

The slow recovery after the Great Recession in the United States and the double-dip recession in many European countries turned the spotlight on the role of deleveraging and balance sheet repair, particularly in the private sector among households and businesses. Sectoral deleveraging needs may seriously impair investment and employment, and thus might have long-term effects on potential growth rates. In 2013, the average level of real gross fixed investment in the EU (euro area) was still 17% (18%) below the peak reached in 2008 (European Commission, 2014). The decline in investment has been particularly sharp in stressed economies of the euro area where investment has fallen by up to more than 50%, while the fall has been less severe in Central, Eastern and Southeastern Europe (CESEE). A consensus view seems to emerge that the reasons for this extraordinary decrease in investment activity might be the combined effect of credit constraints and demand factors, and embedded negative feedback loops pushing some of the countries into a balance sheet recession. In such a situation, the companies' (and households') balance sheet positions themselves have an impact on investment decisions, irrespective of credit constraints. When the bubble bursts, asset prices collapse, but liabilities remain in nominal terms, forcing the household and corporate sector to increase savings or pay down debt at low or zero interest rates rather than to invest.

This study focuses on the current sectoral rebalancing challenge in Europe. We look at debt developments from different angles to investigate whether we can identify rebalancing efforts and whether these efforts lead to a reduction of sectoral debt levels. Moreover, we study the gap between saving and investment and draw conclusions for both growth perspectives and the catching-up process. Bakker and

¹ Oesterreichische Nationalbank, Foreign Research Division, martin.gaechter@oenb.at; University of Innsbruck, Department of Economics, martin.geiger@uibk.ac.at; Vienna University of Economics and Business, Department of Socioeconomics, florentin.gloetzl@wu.ac.at; Oesterreichische Nationalbank, Foreign Research Division, helene.schuberth@oenb.at. We are grateful for very helpful comments from two anonymous referees as well as from our colleagues Peter Backé and Julia Wörz.

Zeng (2013) suggest that national economic environments as well as the need to adjust balance sheets are extremely heterogeneous among European economies. While we are able to identify rebalancing efforts in almost all countries, these efforts do not systematically materialize in a reduction of debt levels due to low growth and deflationary pressures in a number of countries. Against the background of prevailing rebalancing needs, deleveraging efforts may continue to drag on the recovery and the catching-up process. Therefore, in the following analysis we aim to give an overview of current sectoral deleveraging efforts and their economic implications across European countries.

The paper proceeds as follows. Section 1 reviews the relevant literature, while section 2 presents our empirical results. Section 2.1 approaches the issue of deleveraging in Europe by simply looking at net lending/net borrowing and sectoral debt-to-GDP ratios so as to identify deleveraging efforts and whether they materialize in decreasing debt levels. Section 2.2 studies the development of debt ratios by decomposing the change in debt levels into contributions from actual transactions, other changes as well as GDP growth and inflation. Section 2.3 examines saving/investment patterns underlying the net lending/net borrowing balances and analyzes how these developments affect current account balances. In section 2.4, we relate our findings on deleveraging to possible implications for growth and the catching-up process both within the euro area and between the CESEE region and the older members of the European Union. Finally, section 3 presents our conclusions.

1 Theoretical Background

Richard Koo (2009, 2011) coined the term balance sheet recession to highlight the crucial role of household and corporate sector balance sheets in Japan's lost decade and the sluggish recovery following the global financial crisis in 2008. Contrary to an ordinary recession, a "lost decade" recession, according to Koo, is characterized by many agents in the private sector minimizing debt instead of maximizing profits following the burst of an asset price bubble: Households and businesses have to increase savings to pay down debt, as liabilities remain high although asset prices have plummeted. This, in turn, reduces aggregate demand. During this special type of recession, people with high debt are reluctant to borrow regardless of the prevailing interest rate. In a balance sheet recession, due to the zero lower bound, the real interest rate cannot decrease sufficiently, and unborrowed funds remain in the economy. As expansionary monetary policy turns out to be ineffective in bringing the economy back to equilibrium, the decline in aggregate demand is equivalent to the saved but unborrowed funds, and the economy is in danger of entering a debt deflation spiral (Koo, 2014).

In a similar vein, Bornhorst and Arranz (2013a, 2013b) highlight the fact that countries in which private sector debt had surged prior to the financial crisis have had worse economic outcomes during the recovery phase. This effect is caused both by the negative impact of household debt on consumption as well as that of corporate debt on investment. Further, Cecchetti et al. (2011) find that the negative impact of debt in one sector (households, nonfinancial corporations, government) on real economic growth is positively linked to the level of indebtedness in other sectors. According to their analysis, simultaneous deleveraging in all sectors is therefore particularly harmful for economic growth. Claessens et al.

(2009) and Jordà et al. (2013) confirm that stronger precrisis credit booms tend to be followed by deeper recessions and slower recoveries, while financial crises further exacerbate those shocks and often lead to pronounced deflationary pressure.

Prior to the Great Recession starting in 2008, standard macroeconomic models mostly relied on the assumption of perfect capital markets, and therefore, financial markets hardly existed in those standard models.² While Koo (2009) brought the crucial role of debt and balance sheet positions back on the table, his idea is not entirely new but rather combines various lines of reasoning from the last century: Fisher (1933) already argued that over-indebtedness and deflation following soon after were the two main factors that made the Great Depression different from other recessions. According to his argument, over-investment and over-speculation are often essential for explaining deep recessions, but the two would be far less serious were they not based on borrowed money. Fisher's paper also highlights an adapted form of the Keynesian paradox of thrift, namely the paradox that the more debtors pay (i.e. save), the more they owe because the net present value of their debt increases due to the deflation they cause. He concludes with a crucial insight: When over-indebtedness is so great as to depress prices faster than liquidation, the joint effort to get out of debt pushes the economy into even more debt and may ultimately lead to a *debt deflation* spiral. While Fisher points to deflation as the key driver, Koo (2009) argues that deflation is a result, rather than a cause, of prolonged recessions. In a balance sheet recession, plunging asset prices are the key driver, forcing businesses to shift from profit maximization to debt minimization in order to repair their balance sheets. In the same line of argument, Mishkin (1978) highlights the role of household balance sheets and liquidity in the decline in aggregate demand during the Great Depression. In a similar vein, Mian and Sufi (2011, 2012) highlight the strong link between asset prices and household borrowing, and thus the crucial role of household balance sheets for economic activity. In fact, the findings by Mian and Sufi (2011) even suggest that household balance sheet shocks were a significant cause of the aggregate demand shock and explain almost two-thirds of the jobs lost between 2007 and 2009.

The work by Minsky (1986) is also connected to the idea of balance sheet recessions. He argues that the financial system itself is unstable and procyclical, as companies (and households) accumulate debt in boom phases, which leads to speculative bubbles. When the bubble bursts, the companies are unable to repay their debts from incoming cash flows, and a financial crisis emerges – the so-called Minsky moment. At the same time, lenders tighten their lending standards, even solvent companies are unable to get credit, and the economy moves into recession.

Also closely related, Bernanke (1983) was the first to argue that in a financial crisis, the real costs of intermediation are likely to increase due to incomplete financial markets, and therefore, the financial sector was one of the reasons for the rapid decline in output during the Great Depression. This idea was further devel-

² *There are a few exceptions in the literature. For instance, the models put forward in Bernanke and Gertler (1989) and Kiyotaki and Moore (1997) explicitly consider credit and financial aspects. For a recent review, see Gertler and Kiyotaki (2010).*

oped in Bernanke and Gertler (1989), who argue that information asymmetries make the Modigliani-Miller theorem (1958) inapplicable, which means there are significant interactions between real and financial factors in the economy. The decline in agency costs during booms and their rise during recessions, which is due to the procyclicality of borrower net worth, leads to an accelerator effect on investment. Those kinds of interdependencies are commonly referred to as the *financial accelerator*, a term introduced by Bernanke et al. (1996).

Eggertsson and Krugman (2012) explicitly consider the theoretical arguments put forward by Fisher (1933), Minsky (1986) and Koo (2009) and present a corresponding New Keynesian model which includes debt constraints for some agents. Those constraints lead to forced deleveraging and a rapid decline in aggregate demand. A shock to the debt limit (e.g. a plunge in asset prices) forces borrowers to save more and cut spending. As a result, the real interest rate needs to decline due to lower demand for borrowed funds. If the deleveraging shock is relatively small, the decline in the interest rate will pick up the slack and the output level will still be at its potential. In the case of a large shock, however, the economy is at the zero lower bound, and output falls below potential. The larger the shock, the larger is the decline in both output and prices, possibly resulting in Fisherian debt deflation. The paradox of thrift as well as the paradox of toil, as described in Eggertsson (2010), are crucial in this context, as both effects reinforce the output contraction and the debt deflation spiral. Besides the crucial role of inflation expectations, Eggertsson and Krugman (2012) propose (temporary) government spending as the solution, because the government is not (severely) debt constrained and because expansionary fiscal policy (i) does not lead to crowding-out effects and (ii) has a higher multiplier given the liquidity-constrained debtors and the effect on prices.³

From a historical perspective, empirical research suggests that accelerated financial sector growth is often followed by financial contractions (Aizenman et al., 2013) and that the increase in the nonfinancial private sector's debt during boom periods tends to be reversed (see Tang and Upper, 2010). Given that the reduction of private debt levels relative to GDP has been quite limited in the euro area, further deleveraging seems likely, which may severely affect the real economy (Aizenman et al., 2013). Additionally, most debt reductions after past crisis episodes were passive, i.e. firms and households did not actively pay down debt. Instead, the real value of their debt was eroded by inflation and income growth. In light of the currently low inflation rate and the very sluggish recovery associated with low real GDP growth, the contribution to debt reduction from those two factors will be limited indeed (Bornhorst and Arranz, 2013a). The deleveraging process will therefore rely more on people paying down debt, which is likely to put additional stress on the private sector.

³ From a long-run perspective, the concept of balance sheet recessions is also closely related to the idea of secular stagnation, as originally proposed by Hansen (1939) and recently revisited by many leading economists, including Summers (2013) and Krugman (2013). One possible implication of secular stagnation is that negative real interest rates are required to equate saving and investment with full employment (Teulings and Baldwin, 2014). Furthermore, low inflation and monetary policy stuck at the zero lower bound make it much harder to achieve full employment.

2 Empirical Results

The dataset used for the following analysis is the quarterly euro area accounts, as available through the ECB's Statistical Data Warehouse. It consists of a system of interlinked accounts and records all nonfinancial and financial transactions, other changes and balance sheets for the institutional sectors of EU countries (for a more detailed description, see Eurostat and ECB, 2007; Eurostat 2009). The data cover the time period from 1999 (Q1) to 2013 (Q3).⁴ In addition, we also use annual data from the AMECO database for some variables where the information is not available for all countries in the former database.

Earlier papers have shown that accelerating credit growth increases the probability of financial crisis (Jordà et al., 2011) and leads to deeper recessions in the bust phase of the business cycle (Jordà et al., 2013). For the global financial crisis starting in 2008, the same pattern can be observed in our sample of European economies: The more countries had increased their total debt levels, the lower their GDP growth was during the recession and the stronger the increase in unemployment during the crisis.

In this respect, many European economies are currently facing a dilemma: On the one hand, deleveraging of highly indebted economic sectors seems necessary to correct for both internal and external imbalances and to get a sustainable recovery off the ground. Advocates of this approach commonly argue that debt-related problems in stressed economies cannot be solved by building up even more debt. On the other hand, however, the deleveraging process across sectors dampens economic activity, which may also prove harmful for debt sustainability. Additionally, falling prices (or very low inflation rates) lead to a further increase in the real burden of debt and have the potential of bringing Europe to the brink of a debt deflation spiral. In a first step, we therefore aim at tracing the weakness of aggregate demand currently observed in many countries to deleveraging pressures at the sectoral level.

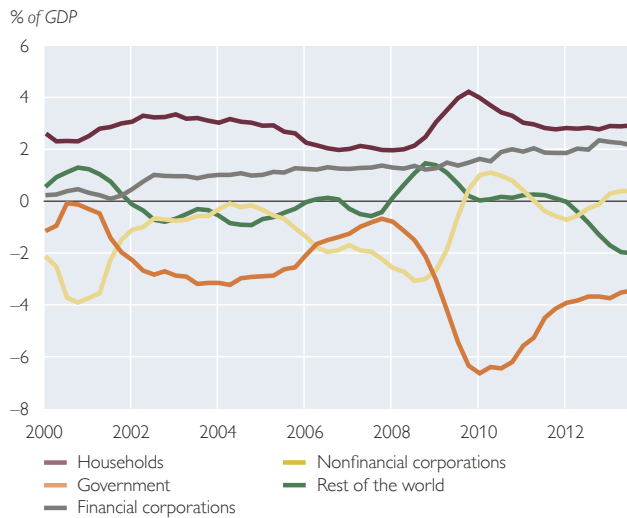
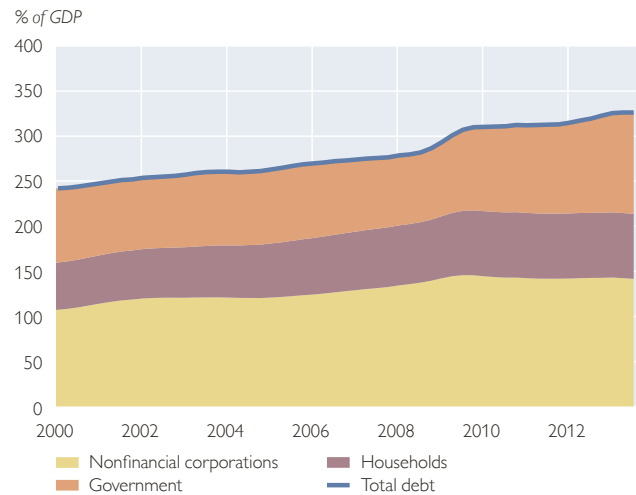
2.1 Changes in Net Lending/Net Borrowing Balances across Sectors

Chart 1 shows net-lending/net-borrowing (NLNB) balances and the corresponding debt ratios in percent of GDP by institutional sectors in the euro area, while chart 2 shows some results for individual countries. While debt ratios relative to GDP are a rough indicator of debt sustainability,⁵ they have also been studied with respect to their possible implications for consumption and investment behavior. The NLNB balance, on the other hand, essentially reflects the balance between saving and investment by institutional sectors.⁶ If the NLNB balance is negative, this should be reflected either in increasing (gross) debt levels (i.e. if the financing

⁴ Given the recent switch in reporting standards from the European System of Accounts (ESA) 1995 to the new ESA 2010 standards, some time series in this study may have changed considerably. While this is clearly a limitation of our study, it is currently impossible to use data under ESA 2010, as many time series are not yet available. Furthermore, while some level changes could be remarkable, the overall analysis and conclusions should not be severely influenced by those classification changes.

⁵ In chart 2 (right panel) financial corporations are not included in total (sectoral) debt levels, as we want to focus on the real economy. Furthermore, (most of) the financial corporations' debt would simply be the other side of the coin, i.e. the debt levels of the other sectors would simply show up in the financial sector.

⁶ NLNB is derived by comparing gross capital formation plus the net acquisition of nonproduced, nonfinancial assets with gross saving plus net capital transfers. If saving plus net capital transfers received exceed nonfinancial investment, a sector has a surplus of funds and becomes a net lender to other sectors and/or the rest of the world (see www.ecb.europa.eu/stats/pdf/eea/Background_note.pdf, p. 3).

Euro Area: Sectoral Net Lending/Net Borrowing**Euro Area: Sectoral Debt Ratios**

Source: ECB (euro area accounts).

gap is funded externally) or decreasing (financial) assets in the same sector. It is important to note, however, that financial accounts data do not provide insights into ex ante saving decisions as they always measure ex post outcomes. If some deleveraging efforts can be observed for one sector (or, alternatively, if a sector is forced to reduce its debts), this should materialize in positive NLNB balances or at least in an increasing trend.

In the run-up to the crisis, the euro area's total debt ratio was rising significantly. Contrary to general perception, the euro area is still leveraging up, mainly because of the rising public debt-to-GDP ratio (the private sector debt ratio has remained roughly constant since 2009).

The NLNB position, however, reveals significant adjustment in the saving and investment behavior of households and nonfinancial corporations. Until 2010, the latter had persistently negative NLNB balances (i.e. an excess of investment over saving), which since then have shifted to positive or zero values. This adjustment in the euro area was associated with a sharp decline in the (total) investment ratio from 22.0% of GDP in 2008 (Q2) to 18.1% in 2013 (Q2). More than half of this decline was due to lower investment of the nonfinancial corporate sector.

The household sector, on the other hand, exhibited positive NLNB balances prior to the crisis, although the surplus decreased in the boom phase before 2008. The reaction to the crisis was rather similar to that of the corporate sector: Households increased their NLNB balance between 2008 and 2010, but then started to decrease it again.

The public sector exhibited negative NLNB balances, reflecting budget deficits that increased sharply in 2008. In 2010, however, the public sector started to consolidate and to increase its NLNB balance. While the NLNB balance of the private sector has remained in positive territory in recent years, we have observed both a considerable adjustment in public sector NLNB to less borrowing (lower public deficits) and a decrease in the balance to the rest of the world, i.e. an

Δ NLNB: Public and Private Sector (2007 v. 2013)

Public sector (percentage points of GDP)

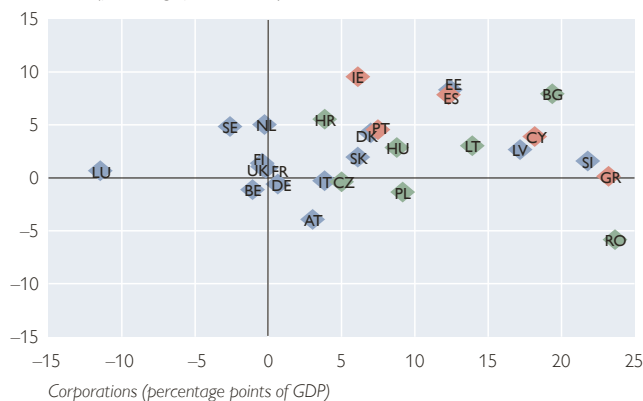


Source: European Commission (AMECO database).

Note: (Post-)program euro area countries are colored in red, non-euro area CESEE countries in green.

Δ NLNB: Households and Corporations (2007 v. 2013)

Households (percentage points of GDP)



Source: European Commission (AMECO database).

increase in the euro area current account surplus. Interestingly, despite the saving efforts of the private and the public sector, total debt ratios across sectors still increased considerably (from 280% to 326% of GDP) during the first five years after the crisis (ending in Q2/2013), as depicted in chart 2 (right panel).

Charts 2 takes a look at the changes in NLNB between 2007 and 2013 across sectors at the individual country level. In all countries except Luxembourg, Belgium and Austria, the *private sectors* (defined as corporations⁷ plus households⁸) increased savings⁸ considerably as a reaction to the global crisis, with Bulgaria (27 percentage points) and Slovenia (23 percentage points) showing the strongest increase in NLNB balances, followed by Greece (23 percentage points), Cyprus (22 percentage points), Estonia (21 percentage points) and Spain (20 percentage points). In other words, over a period of just six years, private sector demand declined considerably in the (post-)program euro area countries (red diamonds), some of the non-euro area EU countries (green diamonds) and the Baltic countries. Those adjustments appear even stronger when we consider the slow recovery path in the euro area, where many of the economies mentioned above have still not achieved their precrisis peaks in terms of GDP.

Deleveraging efforts were particularly strong in the corporate sector, while the public sector was leveraging up in almost all countries. Still, chart 2 (left panel) also shows that the NLNB balances of private sectors remained more or less unchanged in some large countries (including Germany, France and the United

⁷ In the AMECO database, the corporate sector covers both nonfinancial and financial corporations. While the euro area accounts would allow a distinction between financial and nonfinancial corporations, the country coverage would be significantly lower. And even though there are differences in some details, the overall outcome is quite similar.

⁸ A rise of the NLNB balance indicates an increase of saving (i.e. the difference between disposable income and consumption expenditure) and/or a decrease of investment by institutional sector. Please note that in the context of NLNB, an increase of the balance can always indicate either a change in saving or investment behavior, or both.

Kingdom), highlighting once again the considerable heterogeneity of the impact of the crisis across Europe. In fact, based on individual country data in the euro area accounts, *nonfinancial corporate sectors* have exhibited a positive NLNB balance since the start of the crisis in most European countries, i.e. they are now net lenders to the rest of the economy and the world (two important exceptions are France and Italy). Further, almost all economies record a rising NLNB balance of the non-financial corporate sector, indicating that nonfinancial corporations have increased saving and/or reduced their investment. In addition, in some countries, including Germany, the United Kingdom and Sweden, the corporate balance was already positive prior to the crisis. This means that even in the boom phase prior to the crisis, the corporate sector in those countries invested less than its earnings. NLNB balances of the public sector are characterized by a sharp deterioration in 2008 in all countries, both because of automatic stabilizers and due to various stimulus and bank stabilization packages. After this initial shock, the pattern is quite heterogeneous, although public NLNB balances increased (i.e. governments reduced their deficits) between 2010 and 2012 during the European debt crisis.

Despite the consolidation efforts, public debt ratios rise towards the end of the sample.⁹ Similarly, deleveraging also proceeds very slowly in the household and nonfinancial sectors across Europe (see section 2.2). Mainly because of public debt dynamics, most countries still increased their overall debt-to-GDP ratios in recent years, but there are also some exceptions, including Germany, Sweden, Denmark, Romania, Hungary and the Baltic states, which were all able to reduce their total debt ratios.¹⁰

Overall, NLNB patterns in Europe broadly confirm that many economies in Europe are in a process of adjusting their balance sheets. The intensity of these efforts varies widely across countries, though. Some countries that were strongly affected by increasing NLNB balances report considerable progress, as indicated by decreasing sectoral debt-to-GDP ratios (e.g. Spain, Portugal and Ireland). In other countries, however, deleveraging efforts (or forced deleveraging) have not yet led to a decline in private sector debt ratios due to unfavorable economic circumstances (e.g. in Cyprus and Greece). While we are not able to say with certainty whether further deleveraging is necessary (because we do not estimate “equilibrium” debt ratios or levels), historical evidence suggests that after large booms, more or less the entire household debt accumulated before the crisis and approximately two-thirds of the increase in corporate debt are reduced in the post-crisis period (see Bornhorst and Arranz, 2013a; Tang and Upper, 2010). Given the limited progress in the reduction of sectoral debt ratios, it therefore seems likely that further deleveraging pressures in the private sector will continue to drag on the recovery across Europe.

⁹ Another reason for this is that bank stabilization measures are mainly reflected in debt levels but not in budget deficits.

¹⁰ For a comprehensive study on private sector debt levels in the CESEE EU Member States, see Lahnsteiner (2013). He shows that the household debt-to-GDP ratio surged before 2008 and has only retreated slightly since then in most CESEE countries. The debt ratios of nonfinancial corporations also increased sharply until 2008. In contrast to the household sector, debt of this sector has already reached or exceeded the euro area figure in several CESEE EU Member States.

2.2 A Simple Decomposition of Sectoral Debt-to-GDP Changes

In a next step, we investigate why the widespread increase of NLNB in the private sector has not yet led to a systematic reduction in gross debt ratios. For that purpose, we decompose the change in sectoral debt ratios (in percent of GDP) into contributions of the numerator, i.e. transactions and other changes, and the denominator, i.e. real GDP growth and inflation (for a similar approach, see Cuerpo et al., 2013). An increase in the denominator reduces the real debt burden. In contrast, an increase in the numerator (actual transactions, i.e. credit flows, and other changes, such as write-downs, write-offs as well as revaluation and reclassification effects) raise the real burden of debt.¹¹ These contributions as well as the corresponding debt ratios for the euro area are shown in chart 3, which focuses on nonfinancial corporations, households and the public sector.

For the euro area as a whole, the debt ratios of households and nonfinancial corporations increased significantly during the boom period until 2009 and have been more or less stagnant ever since. In both sectors, transactions have still been positive (i.e. sectors have increased their nominal gross debt levels) during the last years, but borrowing has been quite subdued as compared to precrisis levels. In addition, except for 2011, real GDP growth has been low (or even negative) and therefore hardly contributed to decreasing debt-to-GDP ratios. While borrowing of the public sector has increased significantly since the crisis, public debt ratios also suffer from low real GDP growth, leading to unfavorable debt dynamics.

An analysis of debt ratio changes at the country level¹² reveals quite heterogeneous patterns across the EU. While inflation helped dampen debt-to-GDP ratios in most countries (particularly in Germany and the United Kingdom, but also in e.g. France, Sweden, Italy and Poland), such an effect was not present in Spain and other peripheral countries, such as Greece and Ireland, where (partly) negative inflation rates increased the real debt burden. The same pattern is visible for the contributions of real GDP growth: While real GDP growth contributed considerably to decreasing debt ratios in most countries, stressed economies such as Spain, Italy, Greece, Ireland or Portugal suffered from prolonged recessions with negative GDP growth, which further increased real debt burdens.

Although public sectors increased their deficits in response to the external shock, those stimulus policies did not increase aggregate demand sufficiently in many countries, leading to unfavorable debt dynamics both for the private and the public sector. In other words, subdued output growth associated with low (or even negative) inflation rates in stressed economies undermined deleveraging efforts, particularly in the private sector. That is why in many countries, deleveraging efforts are currently not associated with a reduction in debt ratios. This conundrum is reminiscent of the Keynesian *paradox of thrift* in that the attempt of businesses and households to save more actually leads to lower total savings due to lower consumption, investment and aggregate demand.

¹¹ Note that, by construction, this simple method of decomposition yields a small and positive difference between the sum of contributions and the absolute change in the debt level, which is negligible in magnitude for our calculations. This difference is assigned to other changes.

¹² Individual country results are not shown for the sake of brevity, but the respective figures are available upon request.

2.3 External Rebalancing and the Saving-Investment Ratio

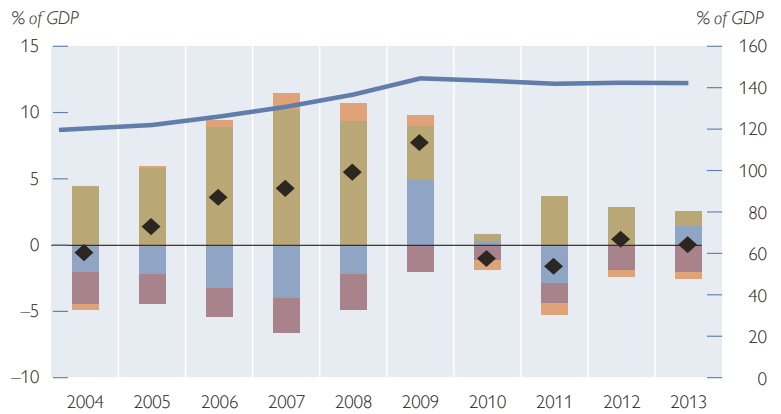
The increase of sectoral debt ratios during the precrisis boom was accompanied by a sharp rise in capital inflows, cross-border credit and external imbalances, particularly in peripheral economies of the euro area. Massive capital inflows, not least from core countries of the euro area, led to a significant reduction in interest rates. Consequently, corporate and also household debt ratios increased markedly, especially in housing boom countries. While the current account of the euro area as a whole was more or less balanced in the years prior to the crisis, imbalances within the euro area widened considerably. Increasing current account surpluses in some countries were accompanied by rising current account deficits in other countries, also reflected in financial account surpluses due to massive capital inflows. Starting in 2009, however, the deficit countries reduced their current account deficits, and by 2013 more or less all precrisis deficit countries had (almost) balanced or positive external balances. This process was, however, not accompanied by a decline in the current account balances of surplus countries, and thus resulted in a pronounced increase in the current account balance of the euro area as a whole. In most of the peripheral countries, rebalancing was mainly driven by low import demand rather than rising exports. Furthermore, the improvement of the euro area current account balance was associated with significant changes in sectoral saving and investment ratios across countries, which will be analyzed in depth below.

Let us recall some of the basics of macroeconomics: The current account balance can basically be defined in three different ways. First, a current account surplus is defined as a positive

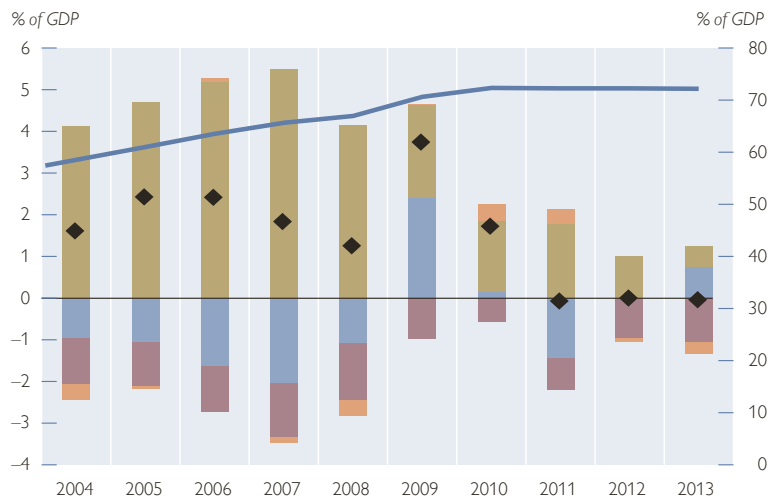
Chart 3

Changes in Debt-to-GDP Ratios

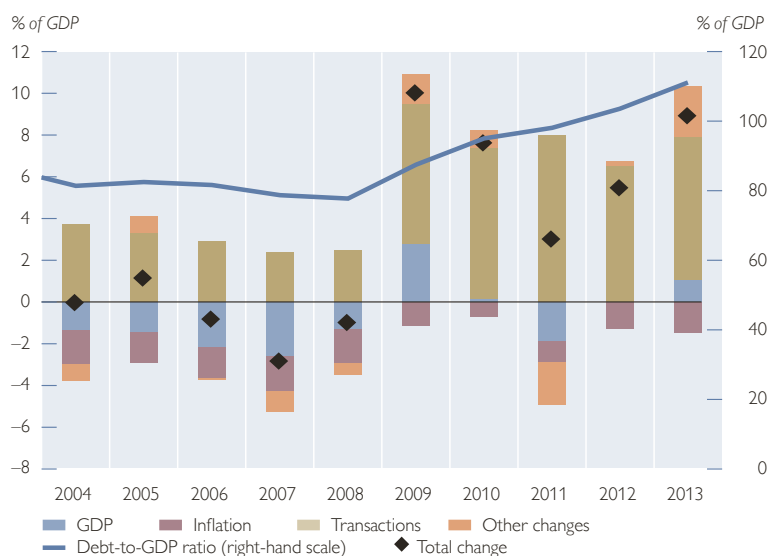
Euro Area Nonfinancial Corporations



Euro Area Households

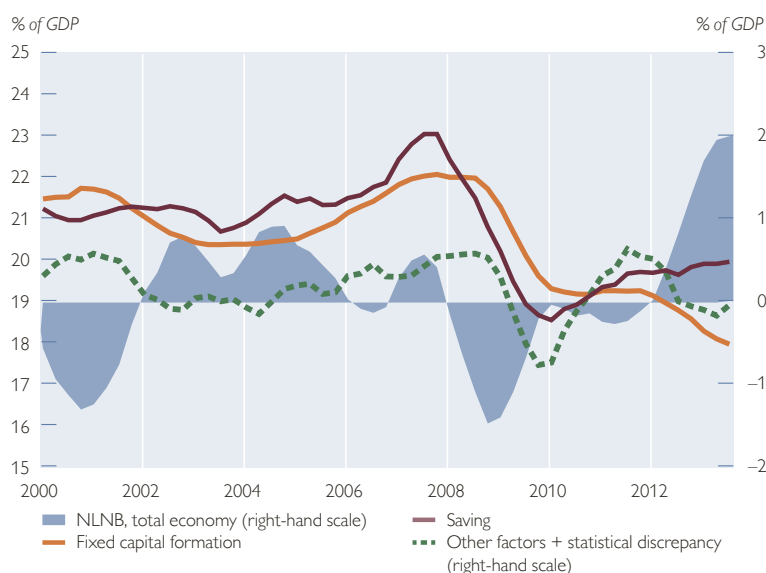


Euro Area Governments

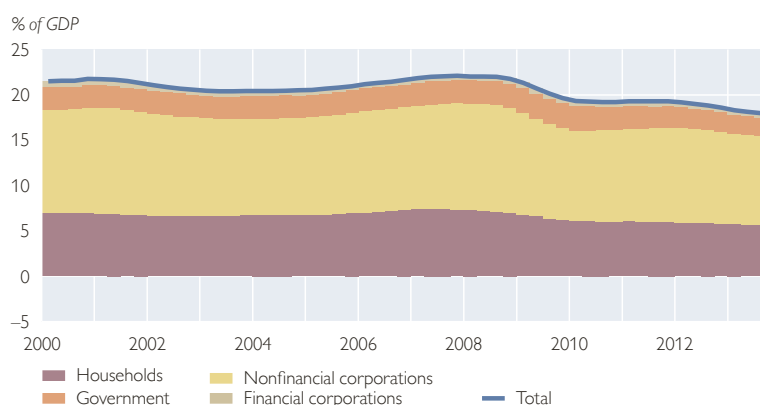


Source: ECB (euro area accounts), authors' own calculations.

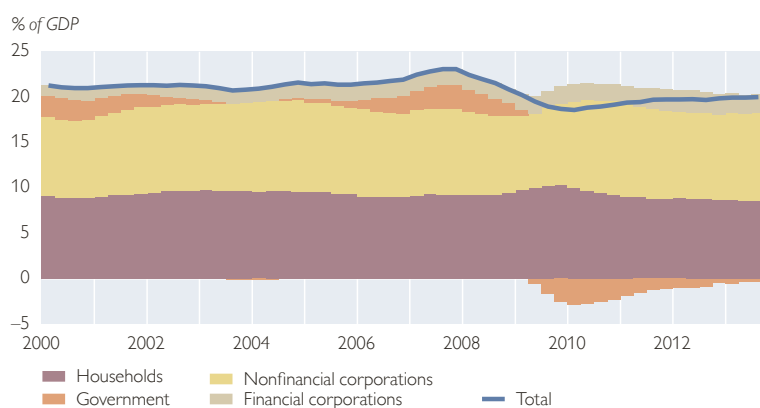
Chart 4

Euro Area: Saving, Investment and External Balance

Source: ECB (euro area accounts).

Euro Area: Sectoral Investment Ratios

Source: ECB (euro area accounts).

Euro Area: Sectoral Saving Ratios

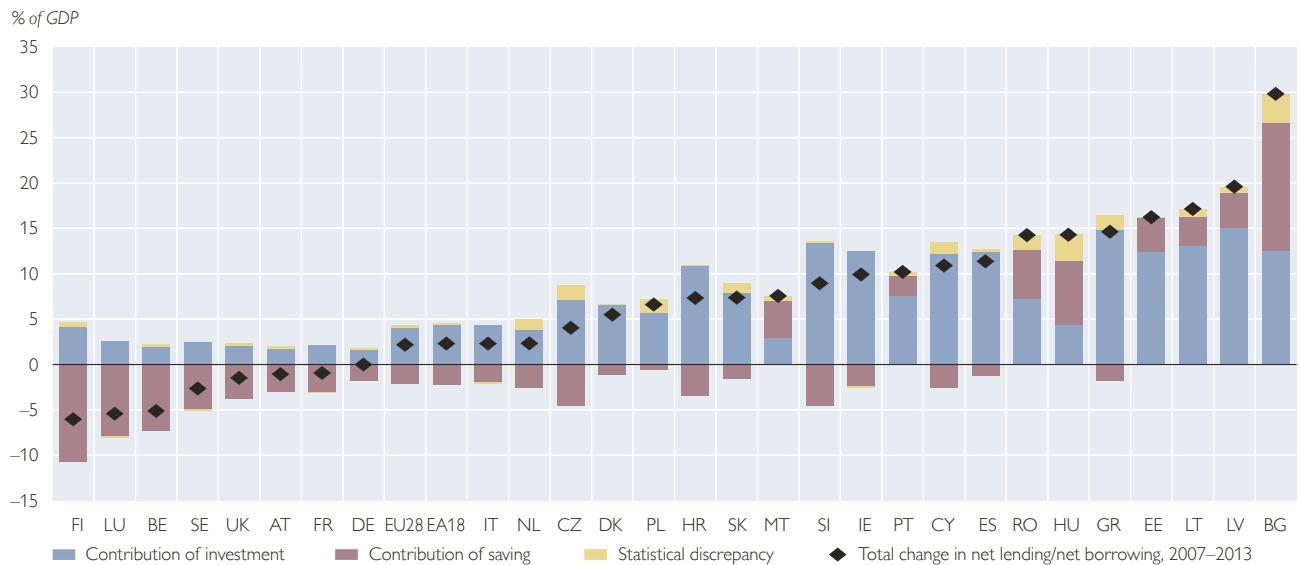
Source: ECB (euro area accounts).

balance of exports minus imports (and taking into consideration factor income and current transfers), which is probably the most common definition. Secondly, it can be seen as a financial account deficit, i.e. the current account surplus is mirrored by capital outflows of the same amount (when assuming a flexible exchange rate without any exchange rate interventions by the central bank). Finally, a current account surplus can also be interpreted as an excess of saving over investment across sectors within a country. The three perspectives on the current account must hold empirically by definition, whereas a causal effect in one direction cannot be identified.

Chart 4 (upper panel) shows the ratio of (overall) saving and fixed investment relative to GDP, as well as the external balance in percent of GDP for the euro area. The two lower panels of chart 4 show a decomposition of gross fixed capital formation (investment) and saving by institutional sector. While current account balances of the euro area fluctuated around zero between 2008 and 2012, the GDP shares of saving and investment show a completely different pattern. Between 2008 and 2010, both saving and investment ratios decreased considerably by about 4 percentage points of GDP. Since then, overall saving ratios have recovered marginally, while investment has dropped even further since 2012. This means that the current account surplus of the euro area does not result from higher savings but rather from lower investment.

Chart 4 (middle panel) indicates that the decline in investment mainly took place in the nonfinancial corporate sector and, to a lesser extent, in the household sector. Saving dynamics were dominated by public saving ratios, which turned significantly negative at

Chart 5

External Rebalancing: Change in Net Lending/Net Borrowing (Total Economy), 2007–2013

Source: European Commission (AMECO database).

the peak of the crisis (Chart 10). Similarly, the recent increase in (overall) saving ratios is also mostly due to government efforts to reduce budget deficits in various countries. This alternative perspective – namely that external rebalancing is hardly due to increased saving, but rather a phenomenon associated with a dramatic decline in investment ratios – raises important policy questions about the optimal speed of adjustment in stressed economies.

Chart 5 shows a decomposition of the total change in NLNB (total economy)¹³ between 2007 and 2013 into contributions from saving, investment and other factors. This simple decomposition reveals some interesting patterns.

First, since 2007, investment ratios have been decreasing in all economies (as shown by positive contributions to the total change in NLNB), although the magnitude of the decline differs strongly across countries.

Second, in countries which exhibited significantly negative current account balances prior to the crisis, external rebalancing was consistently associated with a sharp decline in investment rather than an increase in saving ratios (with the exception of Bulgaria, Hungary and Romania, where increased savings also contributed substantially to the ongoing rebalancing). In fact, overall saving ratios even decreased in most stressed economies (Cyprus, Spain and Greece), so that external rebalancing was driven by a stronger decline in investment as compared to saving. Remarkably, in Germany, the decline in investment relative to GDP took place considerably earlier, actually starting in 2001. During the boom phase, the saving ratio rose sharply in Germany (driven by increased saving of both the nonfinancial corporate and the public sector), which was completely contrary to

¹³ The NLNB balance of the total economy corresponds to the current account balance plus net capital transactions with the rest of the world. As the latter factor is typically small, NLNB (total economy) is roughly equal to the current account balance.

all other countries except Sweden. In France, the decline in investment has been comparatively small, resulting in virtually no external rebalancing since 2008. In Italy, both saving and investment remained more stable, although the recent external rebalancing is also mainly due to lower investment in the corporate sector.

Third, in countries affected by sharp declines in house prices, such as Spain and the United Kingdom, households (and, in the case of Spain, also businesses) increased their saving ratios as their net worth plummeted. The decline in household investment in those countries is likely to be part of a necessary rebalancing in the housing market. At the same time, however, corporate investment ratios have also declined, particularly in Spain.

Finally, investment and saving ratios differ considerably across countries. In 2014, overall gross capital formation as a share of the countries' GDP ranges from 11% in Cyprus and Greece to 26% in Estonia, whereas saving ratios are between 10% in Cyprus and approximately 29% in Sweden.

2.4 Long-Run Implications for the Catching-Up Process

Uncertainty since the start of the crisis has led to considerable capital outflows from stressed economies, which have been forced (at least partly) to rein in their current account deficits. Furthermore, recent studies point to a marked slowdown in income convergence across the EU since the global financial crisis (see e.g. Gächter et al., 2013). While the growth differential between the euro area and the CESEE EU Member States was 3–4 percentage points prior to 2008, it narrowed considerably in the aftermath of the crisis. Even though the large precrisis growth differential was partly cyclical, empirical evidence suggests that the differential in potential growth rates is likely to have decreased as well (Gächter et al., 2013).

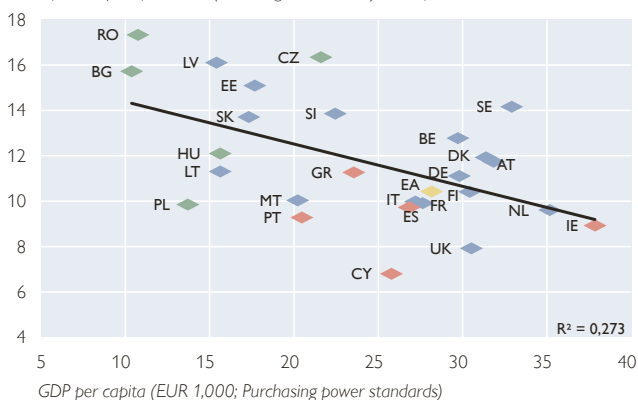
In this context, recent developments indicate that the slowdown of the European catching-up process might indeed be structural, both for new EU Member States (in CESEE) and for peripheral euro area members. Chart 6 shows the relationship between the share of gross fixed capital formation in a country's

Chart 6

GDP Per Capita and Gross Fixed Capital Formation Excluding Construction

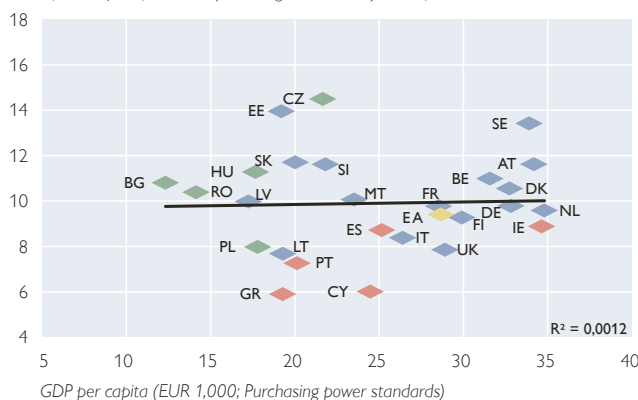
2007

Gross fixed capital formation (excluding construction) in % of GDP



2013

Gross fixed capital formation (excluding construction) in % of GDP



Source: European Commission (AMECO database), authors' own calculations. (Post-)program euro area countries are colored in red, non-euro area CESEE countries in green.

GDP (excluding the construction sector to control for precrisis housing booms) and the corresponding GDP per capita (in purchasing power standards, PPS). While there was a strong negative link between the two variables before the crisis, i.e. poorer countries had a higher share of (productive) investment, this relationship essentially broke down after the crisis. Besides the fact that the investment share has decreased in virtually all economies, it is also alarming that countries with lower per-capita GDP (and typically lower capital stocks) no longer invest disproportionately. Lower investment ratios, however, are likely to have a dampening effect on output growth in the future and may thus lead to a significant slowdown in income convergence across Europe.

While the decline in economic activity is not really surprising in countries with comparatively strong credit and housing booms, as suggested by e.g. Claessens et al. (2009), the broken link between investment ratios and per-capita GDP should be a cause for concern for policymakers.

3 Conclusions and Policy Implications

Despite marked differences across European economies, net lending/net borrowing patterns show considerable similarities in the deleveraging efforts of the corporate and household sectors. Interestingly, the decline in credit transactions has not led to a significant reduction of sectoral debt-to-GDP levels in many countries, because subdued output growth and low or even negative inflation rates have undermined the deleveraging process and contributed to an increase in real debt burdens in a number of European economies. Furthermore, this effect could even be reinforced in the medium term, as most of the ongoing rebalancing – both in terms of debt levels and current account deficits – is based on a sharp decline in investment (both in the private and public sector) rather than an increase in saving, which might lead to considerably lower potential growth in the future.

From an economic policy perspective, our findings raise questions about the optimal speed of fiscal consolidation after a financial crisis. Recently, the view has emerged that the European approach to solving the sovereign debt crisis – including austerity packages and measures to sharply reduce external imbalances – might have been suboptimal, and that stressed economies need more time to ensure an orderly adjustment, as simultaneous deleveraging across sectors and trading partners might be associated with high costs in terms of real GDP growth and deflation. Blanchard and Leigh (2013) argue that, in an environment where monetary policy is stuck at the zero lower bound, credit constraints exist in the financial sector and the economy exhibits a negative output gap, fiscal multipliers are likely to be larger than they would be at a later date in the future when things have gone back to normal. In combination with the dangers of low growth and pronounced hysteresis effects, these arguments would suggest back-loaded fiscal consolidation. Severe debt overhang and the risk of multiple equilibria, on the contrary, would rather speak for front-loaded consolidation. So when bank deleveraging is ongoing and credit demand by the private sector is low, public debt consolidation should be gradual and conditioned on the strength of private demand.

Clearly, the reasonableness of fiscal consolidation also depends on the specific type of consolidation measures. In particular, growth-enhancing public investment should not be cut in a situation when private investment is already subdued, as long-run growth prospects could be severely impaired in an environment of

declining capital stocks. Moreover, the commonly praised rebalancing of current account deficits in recent years appears in a different light when it is decomposed into its components, domestic saving and investment. That is, rebalancing has been mainly based on a strong decline of investment expenditures, which in turn is likely to hamper future growth prospects.

References

- Aizenman, J., B. Pinto and V. Sushko. 2013.** Financial Sector Ups and Downs and the Real Sector in the Open Economy: Up by the Stairs, Down by the Parachute. In: *Emerging Markets Review* 16(0). 1–30.
- Bakker, B. B. and L. Zeng. 2013.** Dismal Employment Growth in EU Countries: The Role of Corporate Balance Sheet Repair and Dual Labor Markets. IMF Working Papers 13/179. International Monetary Fund.
- Baldacci, E., S. Gupta and C. Mulas-Granados. 2013.** Debt Reduction, Fiscal Adjustment, and Growth in Credit-Constrained Economies. IMF Working Papers 13/238. International Monetary Fund.
- Bernanke, B. 1983.** Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression. In: *The American Economic Review* 73(3). 257–276.
- Bernanke, B. and M. Gertler. 1989.** Agency Costs, Net Worth, and Business Fluctuations. In: *The American Economic Review* 79(1). 14–31.
- Bernanke, B., M. Gertler and S. Gilchrist. 1996.** The Financial Accelerator and the Flight to Quality. In: *The Review of Economics and Statistics* 78(1). 1–15.
- Blanchard, O. and D. Leigh. 2013.** Fiscal Consolidation: At What Speed? voxEU.org. www.voxeu.org/article/fiscal-consolidation-what-speed (retrieved on September 16, 2014).
- Bornhorst, F. and M. R. Arranz. 2013a.** Indebtedness and Deleveraging in the Euro Area. 2013 Article IV Consultation on Euro Area Policies: Selected Issues Paper. Chapter 3. IMF Country Report 13/206. International Monetary Fund.
- Bornhorst, F. and M. R. Arranz. 2013b.** The Perils of Private-Sector Deleveraging in the Eurozone. voxEU.org. www.voxeu.org/article/private-deleveraging-eurozone (retrieved on August 27, 2014).
- Cecchetti, S., M. Mohanty and F. Zampolli. 2011.** The Real Effects of Debt. BIS Working Papers 352. Bank for International Settlements.
- Claessens, S., M. A. Kose and M. E. Terrones. 2009.** What Happens During Recessions, Crunches and Busts? In: *Economic Policy* 24(60). 653–700.
- Cuerpo Caballero, C., I. Drumond and P. Pontuch. 2013.** Assessing the Private Sector Deleveraging Dynamics. In: *Quarterly Report on the Euro Area* 12. European Commission. 26–32.
- Eggertsson, G. 2010.** The Paradox of Toil. Staff Report 433. Federal Reserve Bank of New York.
- Eggertsson, G. B. and P. Krugman. 2012.** Debt, Deleveraging, and the Liquidity Trap: A Fisher-Minsky-Koo Approach. In: *The Quarterly Journal of Economics* 127(3). 1469–1513.
- European Commission. 2014.** AMECO database.
- Eurostat. 2009.** ESS Guidelines on Seasonal Adjustment. Methodologies and Working Papers.
- Eurostat and ECB. 2007.** Quarterly Euro Area Accounts and European Union Accounts for Institutional Sectors. Background note. 3. www.ecb.europa.eu/stats/pdf/eea/Background_note.pdf (retrieved on August 18, 2014).
- Fisher, I. 1933.** The Debt-Deflation Theory of Great Depressions. In: *Econometrica* 1. 337–357.
- Gächter, M., A. Riedl and D. Ritzberger-Grünwald. 2013.** Business Cycle Convergence or Decoupling? Economic Adjustment in CESEE During the Crisis. In: Nowotny, E., P. Mooslechner

and D. Ritzberger-Grünwald (eds). *Achieving Balanced Growth in the CESEE Countries*. Edward Elgar: 47–70.

- Gertler, M. and N. Kiyotaki. 2010.** Financial Intermediation and Credit Policy in Business Cycle Analysis. In: *Handbook of Monetary Economics 3*. Elsevier: 547–599.
- Hansen, A. H. 1939.** Economic Progress and Declining Population Growth. In: *The American Economic Review* 29(1). 1–15.
- Jordà, O., M. Schularick and A. M. Taylor. 2011.** Financial Crises, Credit Booms, and External Imbalances: 140 Years of Lessons. In: *IMF Economic Review* 59(2). 340–378. International Monetary Fund.
- Jordà, O., M. Schularick and A. M. Taylor. 2013.** When Credit Bites Back. In: *Journal of Money, Credit and Banking* 45(s2). 3–28.
- Kiyotaki, N. and J. Moore. 1997.** Credit Cycles. In: *Journal of Political Economy* 105(2). 211–248.
- Koo, R. C. 2009.** *The Holy Grail of Macroeconomics: Lessons from Japan's Great Recession*. Singapore: John Wiley & Sons.
- Koo, R. C. 2011.** The World in Balance Sheet Recession: Causes, Cure, and Politics. In: *Real-World Economics Review* 58. 19–37.
- Koo, R. C. 2014.** It Is Private, Not Public Finances that Are Out of Whack. In: *German Economic Review* 15(1). 166–190.
- Krugman, P. 2013.** Secular Stagnation, Coalmines, Bubbles, and Larry Summers. In: *The New York Times*. <http://krugman.blogs.nytimes.com/2013/11/16/secular-stagnation-coalmines-bubbles-and-larry-summers/> (retrieved on October 7, 2014).
- Lahnsteiner, M. 2013.** Private Sector Debt in CESEE EU Member States. In: *Focus on European Economic Integration* Q3/13. 30–47.
- Mian, A. and A. Sufi. 2011.** House Prices, Home Equity-Based Borrowing, and the U.S. Household Leverage Crisis. In: *The American Economic Review* 101(5). 2132–2156.
- Mian, A. and A. Sufi. 2012.** What Explains High Unemployment? The Aggregate Demand Channel. NBER Working Papers 17830. National Bureau of Economic Research.
- Minsky, H. 1986.** *Stabilizing an Unstable Economy*. Yale University Press. New Haven, Connecticut.
- Mishkin, F. S. 1978.** The Household Balance Sheet and the Great Depression. In: *The Journal of Economic History* 38(4). 918–937.
- Modigliani, F. and M. H. Miller. 1958.** The Cost of Capital, Corporation Finance and the Theory of Investment. In: *The American Economic Review* 48(3). 261–297.
- Summers, L. 2013.** Transcript of a presentation given at the IMF Fourteenth Annual Research Conference in Honor of Stanley Fischer. <http://larrysummers.com/imf-fourteenth-annual-research-conference-in-honor-of-stanley-fischer/> (retrieved on September 25, 2014).
- Tang, G. and C. Upper. 2010.** Debt Reduction After Crises. *BIS Quarterly Review*. September. Bank for International Settlements.
- Teulings, C. and R. Baldwin. 2014.** *Secular Stagnation: Facts, Causes, and Cures*. Vox eBook. www.voxeu.org/article/secular-stagnation-facts-causes-and-cures-new-vox-ebook (retrieved on October 2, 2014).