

Size and dynamics of debt positions in Belgium and in the euro area

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Introduction

The current financial crisis has once again shown that our economic system may be prone to financial cycles with pro-cyclical lending which in an upward phase or a boom may trigger escalating debt ratios or leverage. If the debt ratio has risen so high as to become unsustainable, that will generally prompt a process of deleveraging or debt reduction during a financial bust, usually preceded by a financial crisis. Empirical research based on historical recessions in a large group of advanced countries has shown that recessions which follow such a financial crisis are usually much more deeper and protracted (see for example IMF (2009) or Jordà *et al.* (2011)). The scale of the preceding boom also seems to play a key role in this connection.

However, credit expansion does not automatically culminate in a financial crisis. In some cases the credit expansion may be structural, e.g. on account of structural or institutional changes, and leads to expansion and/or deepening of the financial markets (financial deepening). It is therefore vital to distinguish between 'beneficial' and 'dangerous' credit expansions, both from the point of view of welfare and for macroprudential policy reasons. In this context, a number of policy initiatives were taken to map any imbalances relating to excessive credit growth or debt ratios, so that risks to financial and macroeconomic stability can be identified in time. Examples of policy initiatives in Europe include the MIP (macroeconomic imbalance procedure) under which the European Commission monitors the debt position and debt accumulation of

the non-financial sectors, and the total liabilities of the financial sector.

Against that backdrop this article reviews the latest developments concerning debt levels and the associated risks, both in Belgium and in the other euro area countries. The debt situation is interpreted in the context of the financial cycle. The central question in this analysis is whether the deleveraging process – with its adverse macroeconomic consequences – has already begun in the euro area. This question is considered both from the point of view of the various non-financial sectors (households, non-financial corporations and general government) and from the point of view of the various countries⁽¹⁾. For that purpose, the article (i) examines the accumulation of debt over the past decade, when the debt ratio of the non-financial sector in the euro area climbed rapidly to an historically high level (from 173 % of GDP in the first quarter of 1999 to 233 % of GDP at the end of 2012); (ii) conducts a multidimensional analysis of the debt sustainability on the basis of a number of key indicators; and (iii) analyses the supply and demand aspects of deleveraging in the euro area.

The remainder of the article is divided into four sections which examine these developments in more detail. Section 1 considers debt developments from a more theoretical angle, focusing on how financial cycles operate and how the resultant leveraging/deleveraging cycles affect economic growth. Section 2 shows that the debt positions in the euro area countries are very heterogeneous in terms of level, accumulation and sectoral composition. Section 3 investigates whether the current debt positions in the euro area are excessive, by reference to a heat map based

(1) The cut-off date for the data used in this article was 3 May 2013.

on a number of sustainability indicators. Section 4 looks at the latest debt developments and examines to what extent the euro area countries have already embarked on a process of deleveraging or debt reduction. Points considered here include the scale of the deleveraging process in the various countries and sectors, and the role played in that process by both demand and supply factors concerning lending. Finally, the conclusion sums up the main findings and sets out a number of policy conclusions.

1. Debt dynamics and impact on the real economy

There is mounting empirical evidence of the existence and macroeconomic relevance of financial cycles driven by a small number of mutually reinforcing factors. Although the specific details differ from one cycle to another, a financial boom typically features an optimistic view of valuation and risk, low risk aversion, easy credit (in terms of both prices and non-price components) and less stringent financial supervision. During a boom, these factors lead to a rising debt ratio, escalating valuations of financial and real assets, and a positive impact on economic growth. However, the current financial crisis has once again shown that the inherent pro-cyclicality of lending can lead to excessive debt accumulation or leverage⁽¹⁾. Such unsustainable debt positions generally prompt a process of balance sheet repair via deleveraging or debt reduction during the financial bust. If such a process is preceded by a financial crisis, the result will be a substantial fall in the debt ratio and a deep, protracted recession. In practice, debt (in terms of both level and growth rate) is therefore a two-edged sword, with an impact on economic activity that depends very much on the specific circumstances.

1.1 Debt accumulation and its impact on the real economy

In principle, the option of (non-excessive) debt financing via financial intermediation or via the capital markets leads in the long term to faster growth and lower macroeconomic volatility (see for example Levine (2005) for a summary of the empirical literature). One factor here is that debt financing enables economic agents that are budget-constrained to make expenditure which is then financed by resources obtained from other players who have a budget surplus. This means that investment decisions can be taken independently of income flows, and the available capital can be used more efficiently, boosting the economy's growth potential. In addition, debt financing makes it possible to spread the impact of temporary negative (positive) income shocks over time, avoiding an

immediate reduction (increase) in the expenditure of the various institutional sectors. Above all, this reduces the volatility of economic activity and thus enhances welfare because there is less uncertainty. Finally, debt financing enables governments to pursue a counter-cyclical policy, either via the automatic stabilisers or by an active stimulus policy, which should moderate the negative shocks affecting the incomes of the other sectors.

However, there is still the risk that the pro-cyclicality inherent in lending may lead to excessive debt accumulation or leverage. The pro-cyclicality referred to here is linked to the financial accelerator whereby, during a boom, a mutually reinforcing interaction is created between lending and the valuation of (real or financial) assets of the non-financial private sector. During the financial boom, which generally corresponds to relatively strong GDP growth, optimism prevails, and that is reflected in particular in higher asset prices and lower financing costs. Consequently, lending expands, providing further support for the economy. Although this leads to an increase in the debt ratio of the non-financial private sector, since the value of the underlying collateral also increases and economic activity flourishes, the general risk perception remains favourable. That reinforces the widespread optimism, and lending continues to provide support, generating second-round effects.

However, the non-financial private sector debt ratio eventually reaches such a high level that the sector becomes very sensitive to certain shocks, leading to substantial deleveraging. Those shocks may come, for example, from a significant change in market sentiment and in the attitude to risk, a sudden asset price correction, financing problems within the banking sector, or a recession that puts pressure on expected income flows and therefore on the repayment capability of the various sectors. These shocks usually reinforce one another, and the excessive debt ratio which accumulated during the financial boom becomes a forcing variable, necessitating balance sheet repair in the private sector, with potentially serious consequences for the real economy. Such balance sheet recessions are generally deeper and longer than a typical recession (see Koo, 2011).

1.2 Deleveraging and the impact on the real economy

The deleveraging pressure during the financial bust may take various forms. Doubts about the solvency of the non-financial private sector may lead to both falling demand

(1) Kindleberger (1978) and Minsky (1982) describe in detail how the inherent instability of financial intermediation and financial markets may lead to excessive debt accumulation, triggering a financial crisis and drastic debt reduction.

for loans (voluntary balance sheet repair or demand-driven deleveraging) and greater reticence on the part of banks to grant easy credit (supply-driven deleveraging). Such deleveraging driven by supply may also degenerate into an actual credit crunch if the solvency of the financial sector in turn comes under severe strain, in the context of a financial crisis.

The bust phase brings a reversal in market sentiment: owing to the increased debt ratio of the private sector and possible overvaluation of the collateral (assets) covering this debt, credit risks are repriced. The financial accelerator which had fuelled the boom begins to work in the opposite direction. The slowdown in lending and reappraisal of the risks, together with the heightened risk of defaults which may lead to fire sales, depress asset prices, further reinforcing the adverse perception of the non-financial private sector's solvency. In a context of slackening economic activity, there is a real danger that this may lead to further demand-driven deleveraging, as the non-financial private sectors try to compensate for their loss of net wealth by saving more or by repaying their debt faster, and/or to further supply-driven deleveraging as the banks tighten their lending criteria. If such adjustments take place on a sufficiently large scale, they trigger a downward spiral of asset devaluation, tightening of lending criteria, and deleveraging which may lead to a deep recession (see below).

The financial sector's reticence to lend in response to the increased debt ratio of the non-financial private sector may be further reinforced by the problems facing the financial institutions themselves. In so far as the banking sector has engaged in excessive leverage during the boom, that also impairs its perceived solvency and it is therefore likewise confronted by rising financing costs. Since the maturity of financial institutions' liabilities is much shorter than that of their claims (maturity transformation), their interest margin and profitability come under pressure, particularly in the case of institutions with high leverage. That further exacerbates the adverse influence on banks' willingness to grant new loans⁽¹⁾. If the State no longer forms a credible backstop for any problems in the resident banking sector, banks in difficulty will even be unable to raise funding

on the market and will be forced to scale down their activities, either by selling off (financial) assets – which will put further downward pressure on prices – or by cutting back their lending⁽²⁾.

The forms of deleveraging described above not only lead to a vicious circle of slackening lending and falling asset prices, but they also have an adverse impact on economic activity. Empirical studies, such as the one by Jordà *et al.* (2011) based on a sample of 223 business cycles in 14 advanced countries over the period 1870-2008, show that recessions which follow a financial crisis are very different from ordinary recessions. First, they feature more pronounced negative GDP growth and they persist for several years. In addition, the (negative) impact on GDP growth is greater the stronger the increase in lending to the private sector during the preceding expansion phase. In a follow-up study, Taylor (2012) concludes that the severity of a financial recession also depends on the level of the public debt ratio.

1.3 Main transmission channels

The main channels through which deleveraging by the non-financial private sector affects the real economy are presented in chart 1. On the one hand, deleveraging may result from a drop in demand for loans following voluntary balance sheet repair – intended to offset the decline in net wealth – or a rise in borrowing costs. On the other hand, deleveraging may be supply-driven, with the financial sector restricting its supply of loans, possibly in response to a deterioration in its own solvency or that of the government⁽³⁾.

1.3.1 Government⁽⁴⁾

If government solvency comes under strain, investors will demand a higher risk premium for holding public debt securities. Moreover, Ardagna *et al.* (2007) illustrate that the link between the level of the public debt and the CDS premium on the public debt is nonlinear. This increase in the interest rate on government bonds primarily means that governments will have to pay higher interest charges, and that will reduce their scope for other expenditure. Although part of the increased interest charges will be paid to the domestic private sector, possibly underpinning private consumption and investment, there will nevertheless be a net adverse impact on GDP growth in so far as the higher interest charges are paid to other countries or to domestic agents with a lower marginal propensity to consume and/or invest than the government (see also Eggertsson and Krugman, 2012). In addition, the government will likewise

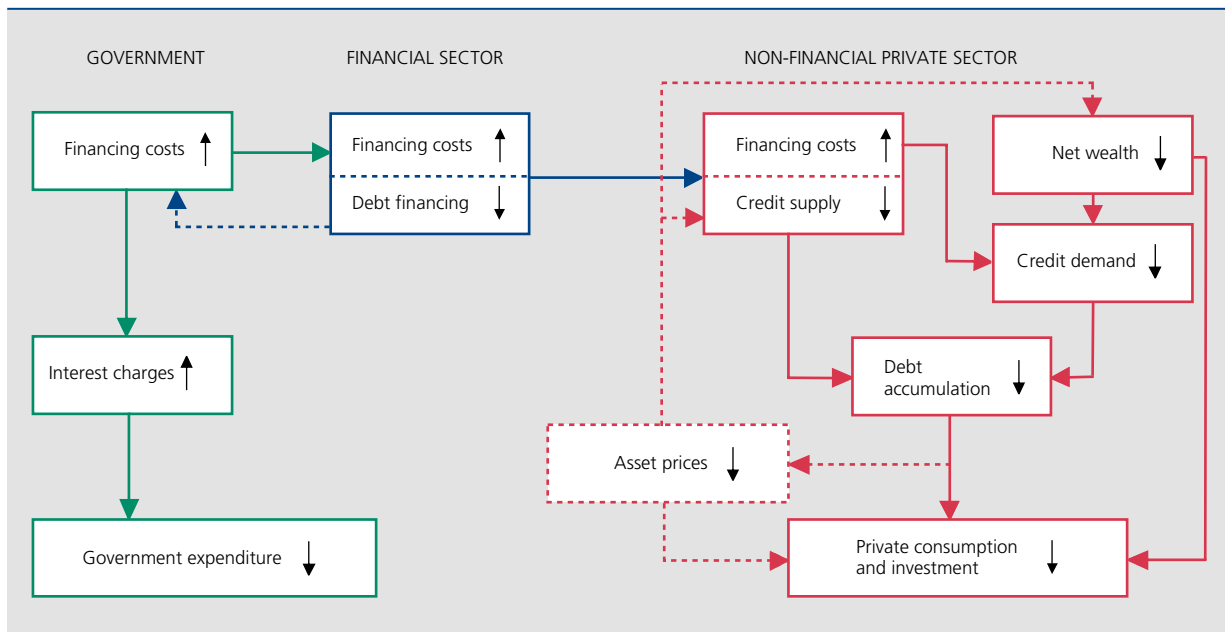
(1) The banks' reticence to lend may also be due to the regulations, e.g. in anticipation of the stricter capital and liquidity requirements under Basel III, or in connection with the restructuring plans that some banks have to implement on account of the aid which they received from the State.

(2) The contagion effects also occur in the opposite direction: governments which had to support their banking sector during the current crisis have seen their debt ratio soar, creating problems for them as well in turn.

(3) The exchange rate channel is disregarded. According to this channel, the slowdown in economic activity would lead to an exchange rate depreciation, increasing the value of the debt contracted in foreign currency and thus adding to the deleveraging pressure.

(4) Although this article concentrates on the non-financial private sector, it does consider the government here. Since the economic effects of the public debt have already been discussed in detail in Nautet and Van Meensel (2011), only the main channels that also affect the private sector will be examined here.

CHART 1 MAIN TRANSMISSION CHANNELS



have less latitude for pursuing a counter-cyclical fiscal policy, and that will heighten the impact of a negative income shock (e.g. a recession) on private sector activity.

An increase in the interest rate on government paper will also drive up financing costs for the other sectors. The government bond rate in fact often serves as the benchmark for the pricing of other contracts, such as bank loans to households and non-financial corporations (see for example Cordemans and de Sola Perea, 2011). Moreover, private sector risk premiums are influenced by the government risk premium (sovereign risk channel). For example, according to Harjes (2011), half of any increase in the sovereign CDS premium in the euro area, on average, is reflected in the CDS premiums of large private enterprises (banks and non-financial corporations). Corsetti *et al.* (2013), confining their analysis to non-financial corporations, show that the CDS premium of such enterprises is much higher in countries where the sovereign CDS premium has also risen steeply since mid-2010, and estimate that this sovereign risk channel reinforces the impact of shocks affecting aggregate demand unless the central bank is able to compensate for that by cutting interest rates.

1.3.2 Households

All other things being equal, heavily indebted households devote a larger proportion of their income to debt repayments. They are therefore more sensitive to a fall in income, a rise in interest rates or a reduction in asset

prices, shocks which are not unusual in a bust phase. The income and interest rate shocks will increase the cost of repayments and will therefore depress private consumption. Similarly, the asset price correction will lead to a fall in household consumption, because households will try to make up for the decline in their net wealth by saving more or by repaying their debt more rapidly (see for example Koo, 2011). Furthermore, it is mainly the less solvent households that will be less likely to apply for a new loan, or will borrow a smaller amount. Overall, households will therefore scale down their consumption or investment plans on account of voluntary balance sheet repair.

When the (perceived) repayment capacity of households declines too sharply, not only will their financing costs increase, but there will also be a volume effect. The banks will not only try to attenuate their risk exposure by increasing their margins, but they will also tighten the other lending conditions, e.g. by cutting the loan-to-value ratio or shortening the maturity of the loan, so that the less solvent households will find it harder to gain access to these loans. According to the Eurosystem's Bank Lending Survey, such supply-driven deleveraging has indeed taken place in the euro area. Between the first quarter of 2008 and the second quarter of 2009, the net percentage of banks tightening their loan criteria on account of an increased risk perception concerning house prices or economic activity in general came to over 14%, and that tightening continued thereafter, though to a lesser extent. In Belgium, that was much less the case.

According to the two channels – demand-driven and supply-driven deleveraging – the scale of the net effect on GDP will depend on the relative differences between the propensity to consume/invest of the borrowers (whose scope for consumption or investment in housing will decline) and of the lenders (whose scope for consumption or investment will increase). As stated by Tobin (1980), “debtors have borrowed for good reasons, most of which indicate a high marginal propensity to spend from wealth or from current income or from any other liquid resources they can command”, which implies that a process of deleveraging will generally have a negative impact on demand (see also Eggertsson and Krugman, 2012).

Overall, deleveraging during a bust phase will therefore depress both private consumption and investment in housing. In its April 2012 World Economic Outlook, the IMF analyses a sample of 99 periods between 1980 and 2011, in 24 OECD countries and Taiwan, in which house prices recorded a marked fall. According to this analysis, the impact of the bust depends very much on the scale of the preceding boom. Where bust phases were preceded by substantial debt accumulation (high-debt busts), they had a particularly negative impact on private consumption, owing to the combination of greater deleveraging and a steeper fall in house prices. Investment in housing also declined more sharply in high-debt busts, but these estimates are less accurate since not all countries publish data on investment in housing.

1.3.3 Non-financial corporations

In the case of non-financial corporations, the channels involved are mostly the same as for households, with a few adjustments. In the case of heavily indebted non-financial corporations, the debt servicing cost absorbs a large part of their free cash flow, so that they have fewer internal resources for funding any investment, in whole or in part. Moreover, these firms are more sensitive to a decline in their cash flow or a rise in credit interest rates. Smaller firms are generally more affected by these shocks and will have fewer alternative sources of funding, so that they are obliged to reduce their debt ratio more and scrap certain investments. In the case of large firms, it is more difficult to ascertain the extent to which demand-driven deleveraging will apply. There are two major theories concerning the optimum capital structure of firms, the trade-off theory and the pecking order theory, but only the first one sees scope for demand-driven deleveraging. According to this trade-off model, firms define their optimum capital structure by weighing up the marginal costs and benefits of extra debt financing against one another. So long as the advantages (e.g. the tax benefits of debt financing) outweigh the cost of distress (e.g. in the form of a higher risk of payment

default) firms continue to fund their viable investment projects with additional borrowings. However, if the economic situation deteriorates and/or the debt ratio threatens to exceed the optimum level (in other words, if the perceived cost of distress exceeds the benefits of higher debt), firms will begin a demand-driven deleveraging process. According to the alternative pecking order theory, however, there is no scope for demand-driven deleveraging because, owing to the problem of asymmetric information, firms have a clear preference in regard to sources of funding, independent of their debt ratio. As far as possible, firms prefer to fund their investment in the first place by using internal resources. After that, they prefer debt financing, and only in the last resort do they issue shares. However, the empirical literature does not offer a convincing answer to the question which of these two theories prevails, and the conclusion is that, even in the case of large non-financial corporations, account must be taken of the possibility of demand-driven deleveraging which will depress business investment.

While supply-driven deleveraging certainly applies to non-financial corporations just as it does to households, the impact on business investment will probably be less. If the debt ratio of non-financial corporations becomes excessive, lenders will react not only by increasing the margins but also by tightening the other lending criteria: for example, they may decide to limit the maturity or size of the loan, or require more collateral from firms, thus causing a decline in lending. This reduction in the credit supply will more particularly depress SME investment, since – like households – SMEs have very little choice regarding sources of finance. Conversely, the impact on the investment of larger and stronger non-financial corporations will probably be less as they can resort to bond or share issuance, especially if the credit contraction is due mainly to a banking crisis, so that the banking sector is the primary cause of the credit crunch.

Finally, the fall in share prices during the bust phase will also have a more direct negative influence on corporate investment since it will then be more advantageous to buy up firms rather than establish new ones (Brainard and Tobin, 1968).

It is harder to find general empirical evidence of the impact of deleveraging on business investment. For the euro area, Buca and Vermeulen (2012) find indirect evidence of a bank credit crunch in 2009. They conclude that it was mainly firms more dependent on bank credit that cut their investment in 2009: on average, the investment ratio of small and medium-sized firms declines by 4.6 percentage points if the bank debt ratio rises by 10 percentage points, given a constant overall debt ratio. For Italy, Gaiotti (2013)

concludes that firms facing a restricted credit supply cut their investment by an average of 10 to 15 %. However, during a recession, that effect is almost twice as great, since firms then have a more limited choice of other funding sources.

2. Development and size of the overall debt

2.1 Debt dynamics in Belgium and in the euro area

2.1.1 Historical overview

On the basis of long-term series, most euro area economies have exhibited a marked accumulation of debt and a significant rise in the debt ratio over the past three decades. Chart 2 illustrates this trend from 1980 for Belgium and from 1999 for the euro area. In the euro area as a whole, the total consolidated debt⁽¹⁾ of the non-financial private sector and public sector increased from 173 % of GDP at the beginning of 1999 to 233 % of GDP at the end of 2012, bringing it to its highest level since the creation of EMU. The gross debt of the non-financial sector as a whole in Belgium (249 % of GDP at the end of 2012) is also at a historically high level.

The strong rise in the aggregate debt in recent decades is not specific to the euro area economies, but is also evident internationally. For a group of 18 advanced economies, Cechetti *et al.* (2011) find that, on average, the total debt ratio has virtually doubled since the beginning of the 1980s. Nevertheless, the exact debt path and the breakdown between the private sector and the public sector vary from one country to another.

In Belgium, there has been a general increase in the debt ratio compared to 1980 for both the public sector and the non-financial private sector. However, the rise in the debt ratio has not been continuous, and periods of increase have alternated with periods in which either the private sector debt ratio stabilised or the public sector debt ratio decreased. In the past decade, the main debt build-up occurred in the private sector. The Belgian non-financial private sector debt ratio increased significantly from 1980 onwards, by around 65 percentage points of GDP, the rise taking place essentially in two phases: an increase of 25 percentage points of GDP in the 1990s and a second phase, mainly in the latter half of the 2000s, when the debt ratio climbed by 40 percentage points of GDP to a peak of 149 % of GDP at the end of 2012. Following a long period of public debt reduction from the peak of

138 % of GDP at the end of 1993 to 84 % of GDP at the end of 2007, the financial crisis caused the public debt to resume an upward trend, to reach 99.8 % of GDP at the end of 2012. The most recent period (since the start of the financial crisis in 2007) has thus brought a rise of both private and public debt.

In the euro area, for which data are available only since 1999, it is evident that – as in Belgium – the debt accumulation has mainly concerned the non-financial private sector in the past decade. That sector's debt ratio has climbed by more than 40 percentage points of GDP since 1999, rising from around 100 % of GDP to a peak of 144 % of GDP in mid-2010. However, unlike in Belgium, there has since been a slight downward trend in the non-financial private sector debt ratio, while the public sector debt ratio has continued to rise. This pattern, with a financial crisis being followed by a process of gradual deleveraging in which the private sector is the first to reduce its debt – often at the expense of public sector debt accumulation – with the public sector only embarking on deleveraging in a second phase, is not unusual (McKinsey Global Institute, 2012). Since the financial crisis, the public debt has risen considerably, just as it has in Belgium, notably because of the effect of the automatic stabilisers, a series of counter-cyclical measures and support for the financial sector during the crisis. The public debt ratio of the euro area thus increased by 26 percentage points of GDP, rising from 66.4 % of GDP at the end of 2007 to 92.7 % at the end of 2012⁽²⁾.

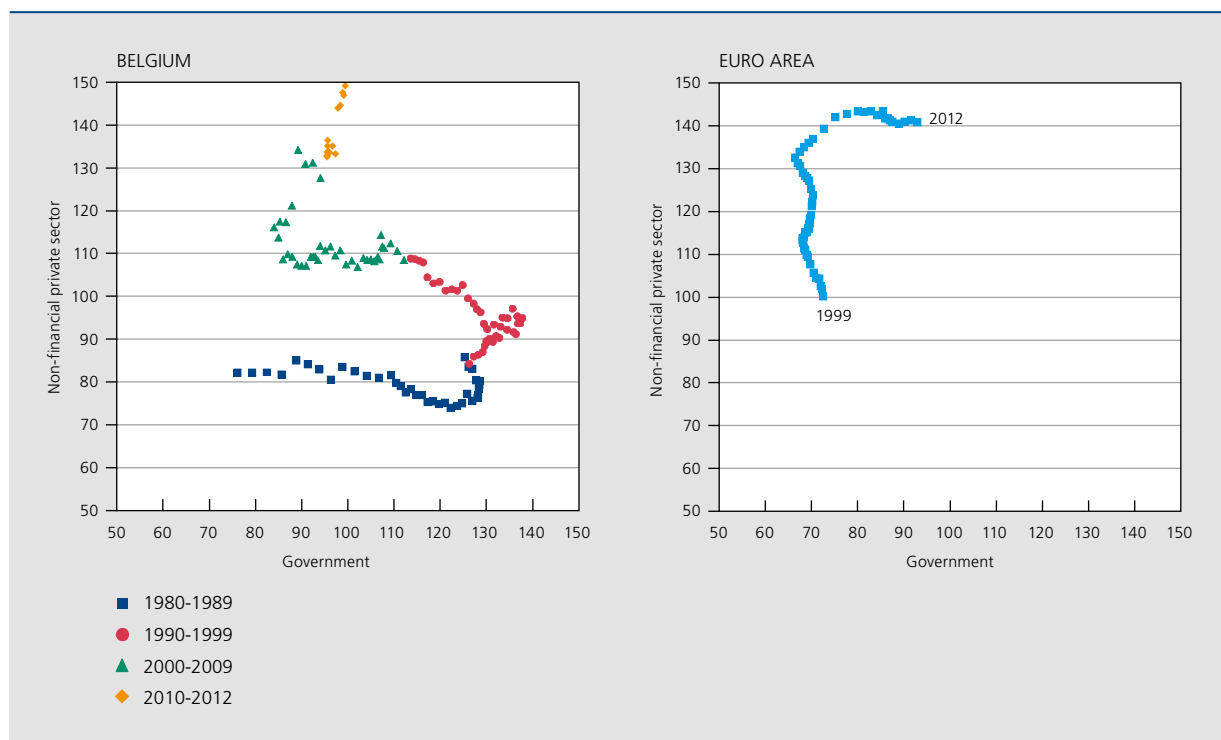
A factor often cited to explain the upward trend in the debt ratio in most economies during recent decades is easy access to credit, stimulated by financial innovations. Moreover, the debt has accumulated against the backdrop of rather low risk premiums and a downward trend in real interest rates, raising the ability to take on new debt. Finally, certain fiscal factors have also played a role, as a more favourable treatment of interest charges was adopted over the years by some governments for both businesses and households, especially in the case of mortgage loans.

(1) Unless otherwise stated, this article uses the consolidated gross debt ratio for each country and for each institutional sector, calculated as the consolidated gross debt expressed as a percentage of annual nominal GDP (for more information, see box 1).

(2) This figure is also influenced by the expansion of lending between the various central governments in the euro area during the financial crisis. Eurostat also publishes a figure for the euro area aggregate from which that financing is deduced (90.6 % of GDP at the end of 2012). In this article, the public debt of the euro area includes financing between Member States in order to ensure comparability with the public debt figures of the Member States and with the debt aggregates of the other institutional sectors of the euro area for which there is equally no consolidation between Member States.

CHART 2 DEBT PATH IN BELGIUM AND IN THE EURO AREA

(consolidated gross debt ratio, in % of GDP)



Sources: EC, ECB, NBB.

2.1.2 Accelerating debt accumulation in the euro area

Although the debt level in Belgium and in the euro area in the past decade has maintained a rising trend which had set in at an earlier stage, the pace of debt accumulation accelerated considerably in the second half of the 2000s, essentially in the non-financial private sector. Nonetheless, the scale of this acceleration varied greatly from one country to another. Chart 3 illustrates the increase in the debt ratio of the public and private sectors during the period from 2005 to mid-2010. After that, debt accumulation diminished for the euro area as a whole, thanks to the private sector, which actually recorded a reduction in its debt ratio, as explained in section 4 of this article.

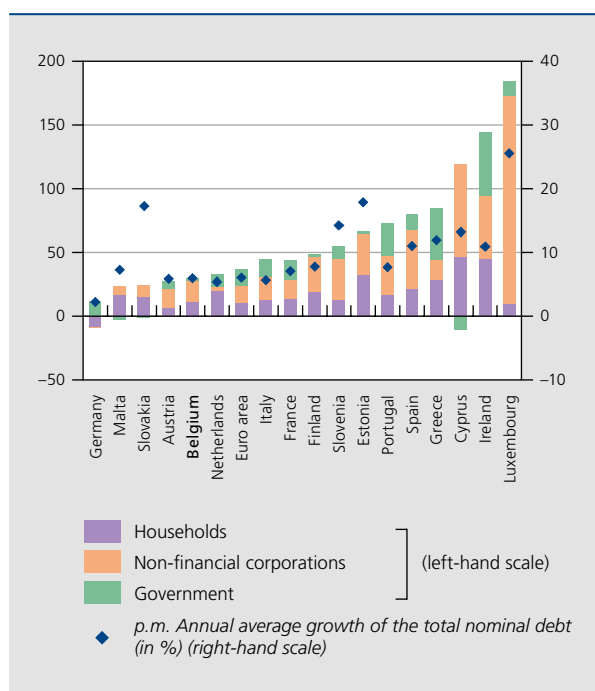
The rapid rise in the debt ratio during the period from 2005 to mid-2010 is attributable to “active” accumulation, i.e. the growth rate of the nominal debt significantly outpaced nominal GDP growth. On average, the total nominal debt increased by 6.1 % per annum in the euro area, compared to nominal GDP growth of 2.5 %. This period therefore represents a strong upward phase in the financial cycle, with most euro area economies recording a substantial rise in the debt ratio. For households and

non-financial firms, the active debt accumulation occurred in a context of attractive lending conditions, financial innovations, and rising house prices accompanied, in some cases, by favourable fiscal and institutional factors.

The debt accumulation was supported, particularly in the run-up to the financial crisis, by strong expansion of bank lending, further promoted in a low interest rate environment by the effect of the financial accelerator (see section 1). Together with other factors, the rise in property prices fuelled lending to households, in terms of both supply and demand. On the demand side, the need to cope with soaring prices caused borrowers to take on ever larger loans. This was facilitated on the supply side by a contraction of margins, relaxation of the loan-to-value ratios, and longer maturities, as is evident from the Bank Lending Survey in the euro area during this period (on the importance of lending criteria for credit growth, see Hempell and Kok Sørensen, 2010). In addition, rising property prices to some extent masked the relative increase in the debt compared to total assets, so that the debt was able to continue accumulating without any strong rise in risk premiums. Lending to companies was influenced by similar factors, and particularly by favourable estimates of economic activity and real collateral.

CHART 3 DEBT ACCUMULATION BETWEEN 2005 AND MID-2010⁽¹⁾

(change in the consolidated gross debt ratio, in percentage points of GDP, unless otherwise stated)



Sources: EC, ECB, NBB.

(1) Countries are ranked according to the change in the total consolidated gross debt ratio of the non-financial sector.

It is generally in the peripheral countries that the biggest debt accumulation was recorded in the period from 2005 to mid-2010, considerably increasing their vulnerability to shocks. In this connection, various empirical studies (e.g. McKinsey Global Institute, 2010) show the importance of the pace of debt accumulation, particularly because a rapid rise in the debt level heightens the risk of acquiring assets of poorer quality and generally coincides with a climate of easy credit (increasing leverage in the financial sector) and/or unstable capital flows.

With the exception of Germany, the increase in the debt in the euro area during this period mainly occurred in the non-financial private sector (+24 percentage points of GDP); in the public sector the rise was smaller (+13 percentage points of GDP) and debt accumulation did not take off until the end of the period. On average for the euro area, the rise in the debt ratio of the non-financial private sector between 2005 and mid-2010 was more or less evenly distributed between households and non-financial corporations. In Belgium, over the same period, non-financial corporations recorded a slightly higher rise in debt levels than households.

Belgium likewise experienced accelerating debt accumulation: for both households and non-financial corporations, the increase was even a little higher than in the euro area. Apart from developments on the property market and lending criteria, a series of specific fiscal and institutional factors also played a role in the rising debt levels in Belgium.

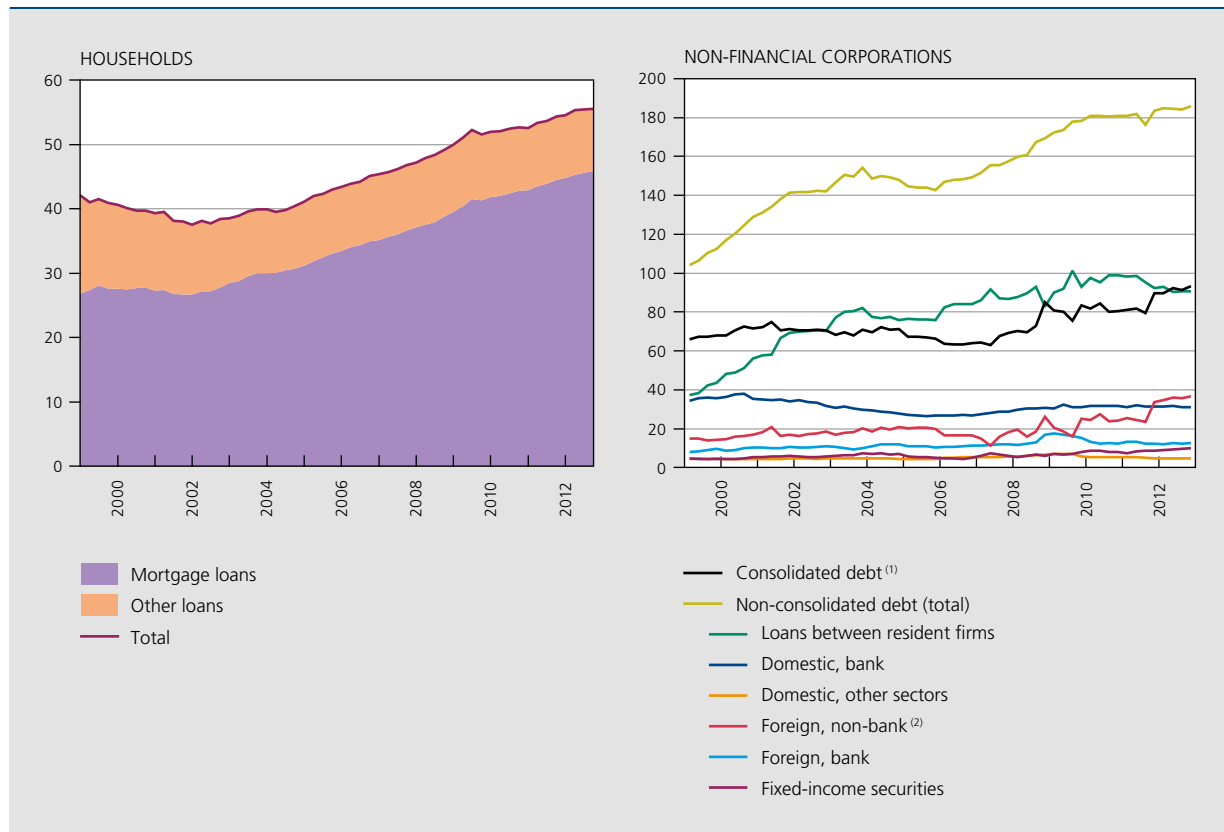
In Belgium as in the euro area, the debt accumulation of households (see chart 4), particularly from 2005, is attributable essentially to the strong rise in mortgage lending and house prices. Moreover, that increase coincided with the introduction of a number of tax reforms (stimuli). A new tax treatment of mortgage loans, introduced in 2005, has since led to a more transparent advantage, the “housing bonus”. Moreover, from 2009, under the “recovery plan”, a number of tax incentives were introduced to encourage energy-saving investments (“green loans”). From 2009 to 2011 inclusive, when these measures largely ended, this led to a notable rise in the number of loans for renovation purposes. However, the household debt ratio continued to increase after this period, as did house prices.

In other countries, too, institutional and fiscal factors to some extent determine the debt accumulation and debt levels. For instance, the considerable rise in Dutch household debt in the run-up to the crisis is attributable partly to advantageous tax rules for owners/borrowers⁽¹⁾.

The debt accumulation of Belgian firms (see chart 4) is also determined partly by various specific factors attributable to the tax environment. For instance, in Belgium there are considerable funding flows between non-financial corporations, on account of the activities of non-financial holding companies and finance companies of multinationals based in Belgium. These companies were previously attracted by the tax concessions available to coordination centres and, since 2006, by the “notional interest” allowance. Although that mainly affects the non-consolidated debt concept (via the effect of financing between resident non-financial corporations, which is included in the concept of non-consolidated debt and was estimated at 93 % of GDP at the end of 2012), it also

(1) In the Netherlands, interest charges on mortgage loans are tax-deductible over a period of up to 30 years. In addition, in 2010, more than half of current mortgage loans in the Netherlands were “interest only” loans (*aflossingsvrije hypotheek*) (DNB, 2011), i.e. during the term of the loan the borrower only pays the interest charges, and does not have to repay the principal until the loan expires. Moreover, the Dutch market offered the option of home equity withdrawal, permitting additional borrowings equivalent to a rise in the value of the home resulting from house price increases. However, some of these schemes have been abolished since the crisis. For instance, in the April 2012 Stability Programme for the Netherlands, it was stipulated that, from 1 January 2013, the interest allowance would be restricted to mortgages repaid in full, at least by an annuity scheme, i.e. mortgages providing for regular fixed repayments, covering both capital and interest.

CHART 4 DEBT OF HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS IN BELGIUM, BY TYPE
(in % of GDP)



Source: NBB.
 (1) Non-consolidated debt minus financing received from resident firms in the form of loans or fixed-income securities.
 (2) Comprises loans granted by foreign firms to Belgian firms.

influences the consolidated concept in so far as the finance is provided by a non-resident firm for a resident firm. Since 2005, the loans granted by related foreign firms to firms based in Belgium have risen by 17 percentage points of GDP to 37 % of GDP at the end of 2012, accounting for much of the rise in the consolidated debt ratio, up by 26 percentage points of GDP during that period.

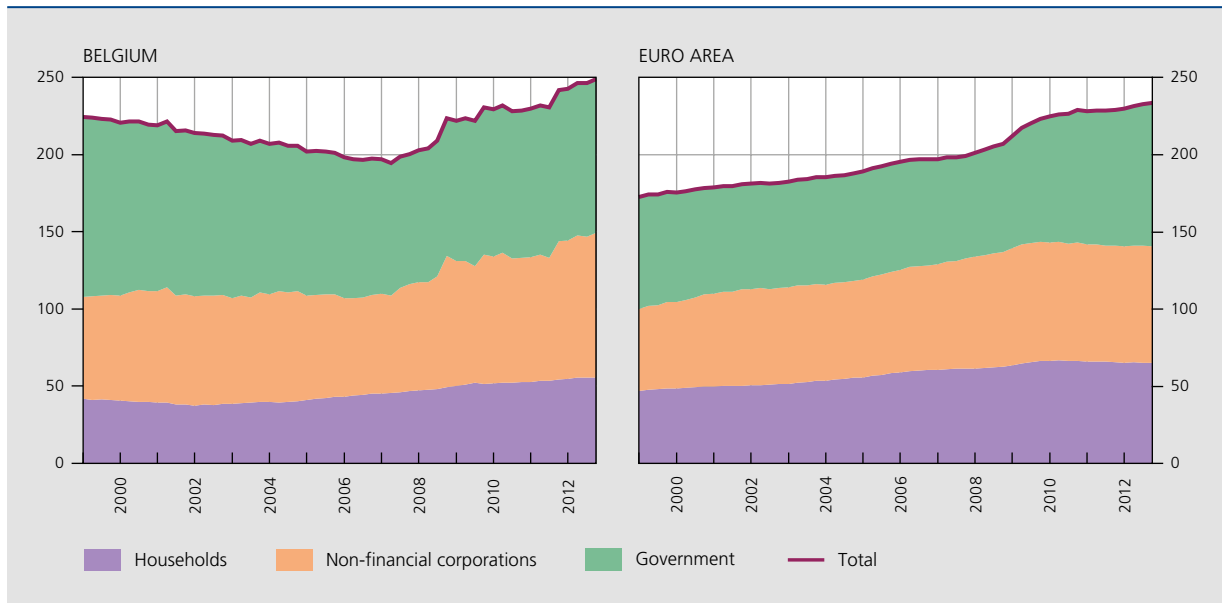
Rather than being due to an actual demand for funding on the part of firms, that debt accumulation therefore originates from financial flows aimed at optimum tax efficiency. It is therefore preferable to estimate the underlying movement in the debt on the basis of a debt concept which is influenced little, if at all, by these specific financing transactions between firms, e.g. on the basis of bank lending. Since 2005, that lending has risen by only 6 percentage points of GDP to 44 % of GDP, while the non-consolidated and consolidated debt ratios of non-financial corporations have risen respectively by 41 and 26 percentage points of GDP, to 186 and 93 % of GDP.

2.2 Debt level and heterogeneity within the euro area

Owing to the increase in debt in the non-financial private sector, and subsequently also in the public sector, the aggregate debt ratio in the euro area and in most of the Member States has reached a historic peak (see chart 5). The overall debt ratio of the non-financial sector climbed from 173 % of GDP at the beginning of 1999 to 233 % at the end of 2012 in the euro area, and from 224 to 249 % of GDP in Belgium. However, as in the case of the debt accumulation, the debt level varies considerably, both between countries and between sectors.

An international comparison shows that the debt ratio of the non-financial private sector exhibits widely varying values (see chart 6). At the end of 2012, the ratio ranged from 73 % of GDP in Slovakia to 311 % in Cyprus. The breakdown of the debt ratio between firms and individuals is also divergent. As in the euro area, the household

CHART 5 CONSOLIDATED GROSS DEBT RATIO OF THE NON-FINANCIAL SECTOR⁽¹⁾: DEVELOPMENT
(in % of GDP)



Sources: EC, ECB, NBB.

(1) Data up to the fourth quarter of 2012. Quarterly data for the non-financial private sector debt ratio. Annual data for the public debt ratio (end of period) interpolated linearly on a quarterly basis.

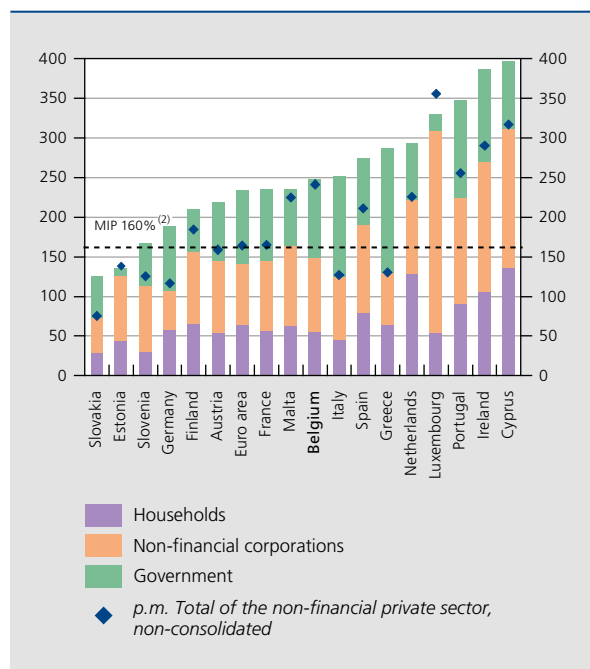
debt ratio is lower than that of non-financial corporations in most countries. However, in the Netherlands and Germany, household debt exceeds corporate debt. In Belgium, the household debt ratio is below the average for the euro area, and that of non-financial corporations slightly exceeds it.

At the end of 2012, the consolidated debt ratio of the non-financial private sector in Belgium (149 % of GDP) was close to the euro area average (141 % of GDP), in an international context.

However, the private sector's debt level depends very much on the definition applied. For instance, Belgium in particular records a significant difference between the non-consolidated (241 % of GDP at the end of 2012) and consolidated debt ratio (149 % of GDP) of the non-financial private sector. That difference is also substantial in the case of Luxembourg. As explained above, the difference essentially reflects the scale of financing between resident firms. Box 1 explains the concept of consolidated debt used in this article, and specifies how it differs from other definitions.

If the government debt level is added to that of the private sector, the conclusion is still that there are wide variations between countries. At the end of 2012, the total debt ratio ranged between 125 % of GDP in Slovakia and 397 % in

CHART 6 CONSOLIDATED GROSS DEBT RATIO OF THE NON-FINANCIAL SECTOR: INTERNATIONAL COMPARISON⁽¹⁾
(in % of GDP, end-2012)



Sources: EC, ECB, NBB.

(1) The countries are ranked according to the total consolidated gross debt ratio of the non-financial sector.

(2) Threshold used by the EC in the MIP to assess the non-consolidated debt level of the non-financial private sector.

Cyprus. Compared to the ranking of countries according to their private debt, several countries – including Belgium – see their relative position deteriorate if their high public debt is taken into account. The countries with a substantial public debt are sufficiently well known. In the euro area, the countries with the highest public debt ratio at the end of 2012 were Greece, Italy, Portugal, Ireland and Belgium. Only 5 of the 17 Member States (Estonia, Luxembourg, Slovakia, Finland and Slovenia) had a public debt ratio below the Maastricht criterion of 60 % of GDP.

The country ranking shows that the countries which proved vulnerable during the financial crisis are generally also among those with the highest aggregate debt ratios. Countries considered stable during the crisis, such as Germany and Finland, have a modest debt ratio. However, the gross debt ratio is not necessarily sufficiently discriminating, as a country's financial vulnerability – and hence the sustainability of its debt – also depends on a range of other factors, as explained in section 3 of this article.

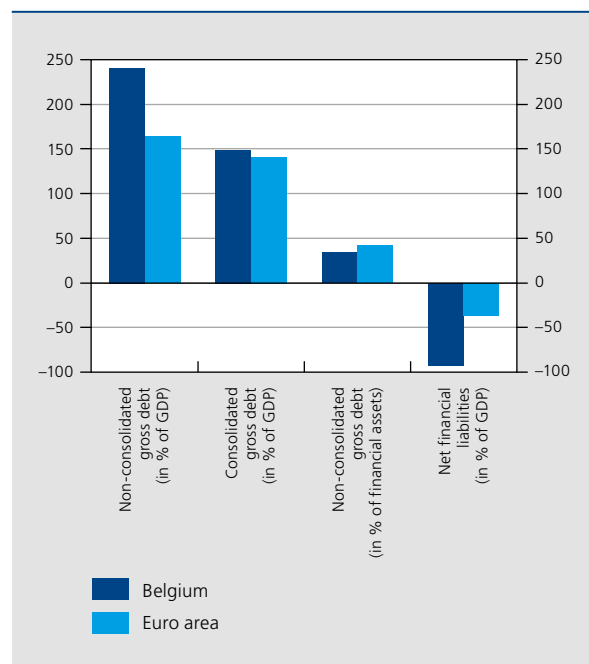
Box 1 – Debt concepts and definitions

The level of the debt ratio depends very much on the definition used. The same applies to a country's relative position, and the associated policy messages, as is shown by a comparison of the debt level of the non-financial private sector between Belgium and the euro area, based on four criteria:

- non-consolidated gross debt, in % of GDP;
- consolidated gross debt, in % of GDP;
- non-consolidated gross debt, in % of financial assets;
- net financial liabilities, in % of GDP.

DEBT LEVEL OF THE NON-FINANCIAL PRIVATE SECTOR⁽¹⁾ ACCORDING TO VARIOUS DEFINITIONS

(end-2012)



Sources: EC, ECB, NBB.

(1) Households and non-financial corporations.



On the basis of the debt indicator most commonly used in international analyses, namely the non-consolidated gross debt in % of GDP, the financial position of the Belgian non-financial private sector appears fragile: the debt ratio came to 241 % of GDP at the end of 2012, compared to 164 % of GDP in the euro area, and is thus well above the threshold of 160 % of GDP, beyond which – according to the MIP – there are signs of a macroeconomic imbalance.

However, on the basis of the consolidated gross debt ratio, the debt of the Belgian non-financial private sector is comparable to that of the euro area (149 and 141 % of GDP respectively). The difference between the non-consolidated debt ratio and the consolidated figure corresponds to financing between entities in the same resident institutional sector (lending between firms). That financing is particularly high in Belgium (93 % of GDP), notably on account of the strong presence of non-financial holding companies and finance companies of multinationals. In the euro area, the difference between the two debt concepts was only 23 % of GDP at the end of 2012. Although the consolidated debt ratio is not shown in the MIP scoreboard of eleven indicators, it acts as an “alternative” indicator that the European Commission uses among other criteria for making its final assessment. In its latest in-depth review of Belgium (EC, 2013), the European Commission therefore does not consider the private sector debt position to be unbalanced.

If the non-consolidated gross debt is expressed as a percentage of the total financial assets, Belgium actually does better than the euro area. The reason is that the volume of private sector financial assets is much greater in Belgium (719 % of GDP) than in the euro area (389 % of GDP). Apart from a structurally bigger savings flow, the size of these non-consolidated assets is largely due to reciprocal claims between resident non-financial corporations (218 % of GDP in Belgium). Once again, it is therefore a question of financial links between firms. An increase in the liabilities (either via debt or via equity) caused by these links inflates the claims of the corporate sector in the redistribution of these flows to other firms or to the parent company (e.g. in the form of loans). This leverage figure therefore applies a sort of consolidation (since part of the financial links between firms appear in both the denominator and the numerator). However, this measurement is generally more volatile than debt ratios expressed as a percentage of GDP, taking account of financial asset price fluctuations.

According to the net debt figure, the financial position of the Belgian private sector is much sounder overall than that of the euro area, in stark contrast to the conclusion based on the non-consolidated gross debt⁽¹⁾. The net debt is calculated here as the difference between the total financial liabilities (including shares; the concept is therefore broader than debt) and the financial assets. This indicator is negative for the private sector, corresponding to positive net financial assets. In Belgium that is attributable to the impressive net financial assets of households, amounting to € 806 billion at the end of 2012, or 214 % of GDP, the highest figure in the euro area.

Apart from the debt position of the non-financial private sector, i.e. households (S14 and S15 according to the national accounts terminology) and non-financial corporations (S11), this article also examines the debt position of the general government (S13). It should be noted that the distinction between the various debt concepts is less relevant here. Taking account of the small scale of reciprocal claims and financial assets held by governments, the differences between the consolidated and non-consolidated debt concepts⁽²⁾ and between gross and net debt levels are less marked than for the private sector.

Finally, it must be said that the total debt of the economy is defined in this article as relating to households, non-financial corporations and general government, and that this aggregate therefore does not include the debt of the financial sector. Since the latter is solely an intermediary, its debt does not in fact result from its own final

(1) On the economic importance of the net debt ratio compared to the gross debt ratio, see Van Nieuwenhuyze (2013).

(2) As in the case of the consolidated debt ratio of the other sectors, the consolidation of the public debt is applied with respect to the national resident sector. In regard to the aggregation at the level of the euro area as a whole, this article does not consolidate the mutual loans between the various Member States. The public debt of the euro area therefore includes financing between the various central governments.



investment but from that of the other sectors. However, as the crisis demonstrated, the balance sheet position of the financial sector is of great importance for macroeconomic developments. On the one hand, governments of many countries proceeded with capital injections to strengthen the balance sheet position of the banks, and that augmented the public debt. Also, the balance sheet position of the financial sector, via its impact on financial intermediation, may have a considerable influence on the debt development of the non-financial sectors, as explained by section 4 of this article concerning deleveraging.

3. Debt sustainability

In view of the rapid rise in the debt ratio and its historically high level, a long and significant deleveraging process has become more likely in the euro area. The financial crisis in fact shows that the sustainability of the accumulated debt has been undermined; as explained in section 1, that may lead to various forms of deleveraging (driven by supply and/or demand). The heterogeneity of the debt positions of the various countries and sectors in the euro area, illustrated in section 2 of this article, reveals that debt sustainability (and hence the likelihood of deleveraging) varies from one country to another and from one sector to another.

This section therefore assesses the sustainability of the current debt position for each country (on the basis of data up to the end of 2012) for the three non-financial sectors, namely households, non-financial corporations and the government, both separately and jointly. That analysis also yields an indication of the countries and sectors most urgently in need of balance sheet repair.

Sustainability is a complex concept and there is no consensus regarding its definition and measurability (see Wyplosz, 2007). In particular, there is no uniform definition of the equilibrium level of the debt ratio, particularly for the private sector. It is therefore advisable to adopt a multidimensional approach to sustainability, using multiple variables⁽¹⁾. The study by McKinsey Global Institute (2010) identifies a number of sub-indicators charting the sustainability of the debt:

- The level of the debt ratio and its components: a high debt ratio compared to similar countries or sectors, or in relation to an absolute threshold, may point to an excessive debt level. For example, for the non-financial private sector the MIP is based on a threshold of 160 %

(1) It should also be noted that the sustainability of the public debt forms the subject of regular analysis (see in particular ECB (2011) and the annual assessments by the EC (2012)), unlike the private sector debt. Balassone *et al.* (2011) review various methods which may be applied to the public debt.

(2) Thus, the non-financial private sector in Belgium and Luxembourg can tolerate a relatively high non-consolidated debt ratio because the consolidated debt ratio is much lower.

of GDP for the non-consolidated debt ratio (this is one of the eleven indicators for identifying macroeconomic imbalances): above that threshold, the debt level is considered excessive. In the case of the government debt ratio, the threshold applied since the Maastricht Treaty is 60 % of GDP. The existence of these – not necessarily identical – thresholds for the debt ratio of the non-financial sectors is also proposed in a number of empirical studies (e.g. Cecchetti *et al.* (2011)). However, as pointed out in box 1 for the specific case of the Belgian private sector, these values must not be over-generalised (see also Egert, 2012). It is preferable to take account of institutional and structural factors as well when comparing the debt ratios of each country to these thresholds⁽²⁾.

- The rise in the debt ratio: particularly strong growth in relation to the historical trend or in comparison with similar countries (e.g. Jordà *et al.*, 2011) may indicate an excessively rapid credit expansion, implying a risk of acquiring poorer quality assets.
- Composition of the debt: the sectors' sensitivity to their debt position also depends on the structure of the debt in terms of maturities (long or short), fixed or variable interest rates, counterparties and currencies. Long maturities are generally considered less risky than a large volume of short-term debt (roll-over risk). The same applies to fixed interest rate contracts, which reduce the sensitivity to interest rate fluctuations in comparison with variable interest rates; it is also true for debt denominated in the country's own currency, limiting the exchange rate risk. Finally, a large proportion of foreign-held debt in a context of volatile, unstable capital flows may be considered a disadvantage (risk of sudden stops).
- The repayment capability of the sectors: repayment capability is measured in relation to disposable income and/or profit. The repayment burden can be analysed on the basis of total capital repayments and interest due (debt service burden) expressed as a percentage of income. In view of the incomplete data on capital repayments, the analysis is often confined to the interest charges (interest rate burden).

- The vulnerability of the sectors and framework conditions: vulnerability can be measured according to changes in income or changes in financing conditions. Sectors with relatively low volatility in their income and/or substantial reserves of liquid assets are less sensitive to recessions or to other general situations involving loss of income. Sectors with considerable financial reserves or large net financial assets are therefore able, in general, to maintain a higher gross debt level.

The heat map presented in table 1 summarises the results of the sustainability analysis. The analysis was conducted for the respective non-financial sectors by means of various key indicators measuring sustainability: the level of and change in the consolidated gross debt ratio, the breakdown of the debt position into short-term debt (up to one year) and long-term debt (over one year), the interest payable compared to disposable income for households, and compared to the gross operating surplus for firms⁽¹⁾ and the net financial assets of institutional sectors. The heat map in table 1 identifies for each sustainability indicator the four countries with the best results (in green) and the four countries with the worst results (in orange), and ranks the countries on the basis of a general assessment according to all the sustainability indicators.

Table 1 shows that the sustainability risks in the household sector usually coincide with those of non-financial corporations. It also emerges that the government sector situation is generally decisive for the overall ranking. Despite the government's high net financial liabilities, Belgium is among the stronger euro area countries, mainly thanks to the relatively favourable financial position of households and firms. The sustainability analysis shows that these sectors do not face any immediate problems and do not need deleveraging. In particular, the household sector achieves a good score⁽²⁾. In the non-financial corporations sector, Belgium's position is relatively unfavourable in terms of the proportion of short-term loans in bank loans to non-financial corporations (and in their total debt). However, that large proportion is to a great extent due to the activities of the cash management companies based in Belgium, which generally operate on the basis of short-term finance.

The general ranking of the euro area countries makes sense at first sight in view of the vulnerability of the various countries during the crisis. Germany and Austria top the ranking, while Portugal, Ireland, Greece and Cyprus come bottom. The weakest countries present sustainability risks in both the non-financial private sector and the public sector. In those countries there is therefore a relatively high probability of general balance sheet repair.

In some cases, the multidimensional analysis reveals risks that would not be apparent from examination of the debt level alone. For instance, a large proportion of Greek household debt consists of short-term debt (15.5% of the total), indicating that, although Greek households have a relatively low debt level, there could be serious liquidity and interest rate risks. Conversely, Dutch households have a relatively high debt ratio but a substantial volume of financial assets, that reduces their insolvency risk.

As in the Netherlands, the sustainability of the non-financial private sector's debt position in Belgium improves considerably if the analysis is based on net financial assets (see also box 1), particularly for households⁽³⁾. The significance of net financial assets as an indicator of sustainability and financial fragility is likewise evident at the level of the economy as a whole. Along with the Netherlands, Germany and Finland, Belgium is among a small group of euro area countries with a net creditor position in relation to the rest of the world, while countries such as Greece, Ireland, Cyprus, Portugal and Spain have substantial net financial liabilities.

However, the sustainability analysis based on the heat map has the drawback of being merely a snapshot view which takes no account of the trend in the underlying indicators. Moreover, it is based on macroeconomic aggregates which may mask fragile segments. For instance, a low household debt ratio for the sector as a whole may be accompanied by a significant number of risky individual debt positions, e.g. if some households obtained loans with a high loan-to-value ratio, or if the loan repayments take up a large proportion of their disposable income. In addition, the heat map identifies potential risks on the basis of a country's situation in relation to other countries, without assessing the general risk level.

In this context, it should be noted that, in contrast to the trend in the debt level in most countries, a number of sustainability indicators have improved since the financial crisis. Almost all the euro area countries have seen an improvement in the financing structure of both households and firms, since they are making greater use of long-term

(1) For governments, the interest burden (ESA definition) is expressed as a percentage of GDP. The proportion of short-term debt is not considered to be an indicator of sustainability for governments since the public debt generally comprises a predominance of long-term debt.

(2) However, this assessment takes no account of factors exogenous to the financial situation, such as housing market developments, which could be detrimental to the financial situation in the case of a turnaround.

(3) However, distribution aspects are key factors here. The more financial assets are concentrated among households with low or zero debt, the less they contribute to the sustainability of the sector's debt ratio. Moreover, it is questionable whether assets can serve as the basis for financing debt, particularly in a period of financial crisis or fire sales (Tirole, 2011), as the latter lead to a marked reduction in asset values. Nonetheless, the assets are a key factor in a sustainability analysis, and it should be noted that the most illiquid assets held by households (property) are disregarded in this analysis, and that a large proportion of the financial assets of Belgian households comprises liquid deposits.

TABLE 1 DEBT SUSTAINABILITY OF THE NON-FINANCIAL SECTOR: HEAT MAP⁽¹⁾

	Households					Non-financial corporations					Government				
	Debt level (in % of GDP, 2012Q4)	Change in the debt level (in percentage points of GDP, 2005Q1- 2012Q4)	Share of short-term debt ⁽²⁾ (in %, 2012Q4)	Interest charges ⁽³⁾ (in %, 2011)	Net financial assets (in % of GDP, 2012Q4)	Debt level (in % of GDP, 2012Q4)	Change in the debt level (in percentage points of GDP, 2005Q1- 2012Q4)	Share of short-term debt ⁽²⁾ (in %, 2012Q4)	Interest charges ⁽³⁾ (in %, 2011)	Net financial assets (in % of GDP, 2012Q4)	Debt level (in % of GDP, 2012Q4)	Change in the debt level (in percentage points of GDP, 2005Q1- 2012Q4)	Interest charges ⁽³⁾ (in % of GDP, 2012)	Net financial assets (in % of GDP, 2012Q4)	
DE	59	-12	4.7	2.8	128	49	-4	16	12	-54	82	15	2.5	-51	
AT	54	3	8.6	1.7	115	92	14	23	11	-77	73	9	2.6	-51	
MT	63	19	8.0	-	173	101	9	21	-	-106	72	3	3.2	-52	
SI	30	13	11.1	1.7	71	83	28	32	21	-120	54	27	2.1	-8	
FR	57	16	3.3	1.9	140	88	21	19	24	-116	90	25	2.6	-70	
BE	56	15	3.2	1.7	214	93	26	36	19	-121	100	6	3.5	-82	
ES	80	14	3.8	2.9	84	111	31	20	17	-129	84	39	3.0	-61	
EE	44	19	2.1	2.1	53	82	19	9	16	-140	10	5	0.2	33	
NL	128	20	2.8	6.5	191	94	3	30	15	-38	71	19	1.8	-42	
SK	29	19	9.0	1.5	38	45	7	37	6	-72	52	12	1.9	-25	
FI	65	21	6.1	1.7	56	93	23	13	21	-104	53	9	1.4	55	
IT	45	14	8.5	0.9	171	80	16	38	8	-110	127	23	5.4	-113	
LU	55	10	4.0	2.4	75	254	180	37	55	-160	21	15	0.4	46	
CY	136	53	9.6	3.5	113	175	85	24	9	-164	86	15	3.2	-54	
EL	64	33	15.5	2.2	63	65	16	40	6	-82	157	58	5.0	-102	
IE	106	31	3.7	3.1	84	163	51	28	13	-97	118	89	3.6	-84	
PT	91	14	3.9	3.0	134	132	33	27	27	-169	124	60	4.4	-78	

Sources: EC, ECB, NBB.

(1) The ranking of the countries in the table is based on a ranking for each variable, each country being given a score ranging from "low risk" (=1) to "high risk" (=17), corresponding to its position in the ranking. The 4 countries with the lowest scores are marked in green, and the 4 countries with the highest scores are marked in orange. Next, the countries were ranked in ascending order on the basis of (i) the number of orange values, and (ii) the average score over the variables available for each country. The table reflects the actual value of the variables and not the score.

(2) This concerns the proportion of short-term liabilities (< 1 year) in the total gross debt of households and in the outstanding loans granted by resident banks to non-financial corporations.

(3) The interest charges concern interest payments over the whole year 2011, the latest figures for all countries, expressed respectively as a percentage of the gross disposable income of households and the gross operating surplus of non-financial corporations for the year in question. In the case of governments the 2012 figures are available, and interest payments (ESA definition) are expressed as a percentage of GDP.

loans. In addition, there has been an improvement in interest charges, particularly for the non-financial private sector. However, that is due mainly to the relaxation of monetary policy since the end of 2008, so that, if the policy were to be tightened, there is a risk that sustainability might weaken again. Moreover, the improvement is not as marked in all countries owing to the current fragmentation in the transmission of monetary policy, and hence in the interest rates applied by the banks.

Greece is a notable exception to this improvement. The household interest burden expressed as a percentage of disposable income displays a steep upward trend. Apart from a less favourable movement in interest rates than in most other euro area countries, that deterioration is due to the absence of economic growth, which has seriously eroded the disposable income of both households and firms.

4. First signs of deleveraging ?

There is little doubt that some euro area countries will need to cut their total debt ratio (further) in the coming years, as is evident, for instance, from the sustainability analysis in section 3. Furthermore, analyses of historical episodes of deleveraging reveal that such processes are often triggered by a financial crisis. These analyses also offer a reference framework for comparing recent developments in the euro area. Thus, McKinsey Global Institute (2010) found that, out of the 32 deleveraging episodes examined which had been preceded by a financial crisis, half could be described as belt-tightening, with the debt rising more slowly than nominal GDP over quite a long period averaging six to seven years⁽¹⁾. During these periods, the annual growth of lending dropped to an average of 2% (compared to 21% in the ten years preceding the start of deleveraging), and the total debt ratio declined, on average, by 40 percentage points of GDP. In particular, the experiences of Sweden and Finland in the 1990s suggest that it is initially only the private sector debt ratio that declines, whereas the public debt continues to grow in the context of very weak GDP growth. However, once growth subsequently picks up, the public debt ratio also declines (McKinsey Global Institute, 2012).

For the euro area as a whole, the first phase of deleveraging seems to have started already in the private sector, in line with the Scandinavian experience. At the end of 2012, the non-financial private sector had a debt ratio which was about 3 percentage points of GDP below the mid-2010 level. However, that contraction is still dwarfed by the 24 percentage points of GDP increase in the debt ratio recorded between the first quarter of 2005 and

the second quarter of 2010. Unlike the debt ratio of the non-financial private sector, the government debt ratio is still rising, partly as a result of the automatic stabilisers, a number of counter-cyclical measures and the support given to the financial sector during the crisis.

To provide a clearer picture of recent developments, the movement in the debt ratio is analysed for each of the three sectors in the individual euro area countries, and the overall change is also broken down between the change in the nominal debt and the change in nominal GDP. The debt ratio falls not only if the outstanding debt is reduced (active deleveraging), but also if the debt rises more slowly than nominal GDP (passive deleveraging). Conversely, the debt ratio may continue to rise even as the nominal debt contracts, if nominal GDP declines faster.

In Ireland, Spain, Portugal, Greece and Estonia, households have already greatly reduced their outstanding debt since mid-2010 (dark bars in chart 7). As a result, if nominal GDP had remained unchanged, their debt ratio would have fallen by 11, 7, 6, 6 and 3 percentage points of GDP respectively. In Ireland, Spain and – above all – Estonia, nominal GDP growth also gave a further boost to the decline in the debt ratio, whereas that did not happen in Greece and Portugal. In Greece, nominal GDP actually fell so sharply that the household debt ratio continued to rise despite the nominal debt reduction. In Cyprus and the Netherlands, where the level of the debt ratio and the share of interest charges in household disposable income according to the heat map discussed in section 3 point to an increased risk, debt reduction has not yet started although the relatively dynamic nominal GDP growth in those countries has curbed the further rise in the debt ratio, and actually prevented it in the Netherlands. Finally, there has been no debt reduction in Belgium either, although the household debt ratio has risen more slowly than in the period from 2005 to mid-2010.

In the case of non-financial corporations, there are fewer signs of active deleveraging. At the end of 2012, only Spanish, Greek and Slovenian firms had considerably lower outstanding debt than in the second quarter of 2010, though the nominal debt also declined slightly in Portugal and Italy. However, in Greece and Portugal, the impact of the active debt reduction was totally negated by a fall in nominal GDP, so that the debt ratio of non-financial corporations remained stable in Greece and rose further in Portugal. In Luxembourg, Cyprus and Ireland, where the heat map indicates relatively high risks concerning the sustainability of the debt position of non-financial

(1) During the other periods, the fall in the debt ratio was due essentially to very high inflation (eight episodes), mass payment defaults (seven episodes), or very strong real growth (one episode).

corporations, the nominal debt continued to outpace the rise in nominal GDP. Belgian non-financial corporations also allowed their debt ratio to rise. As described in section 2, however, this was due mainly to an increase in loans by related foreign non-financial corporations, whereas bank loans remained more or less stable.

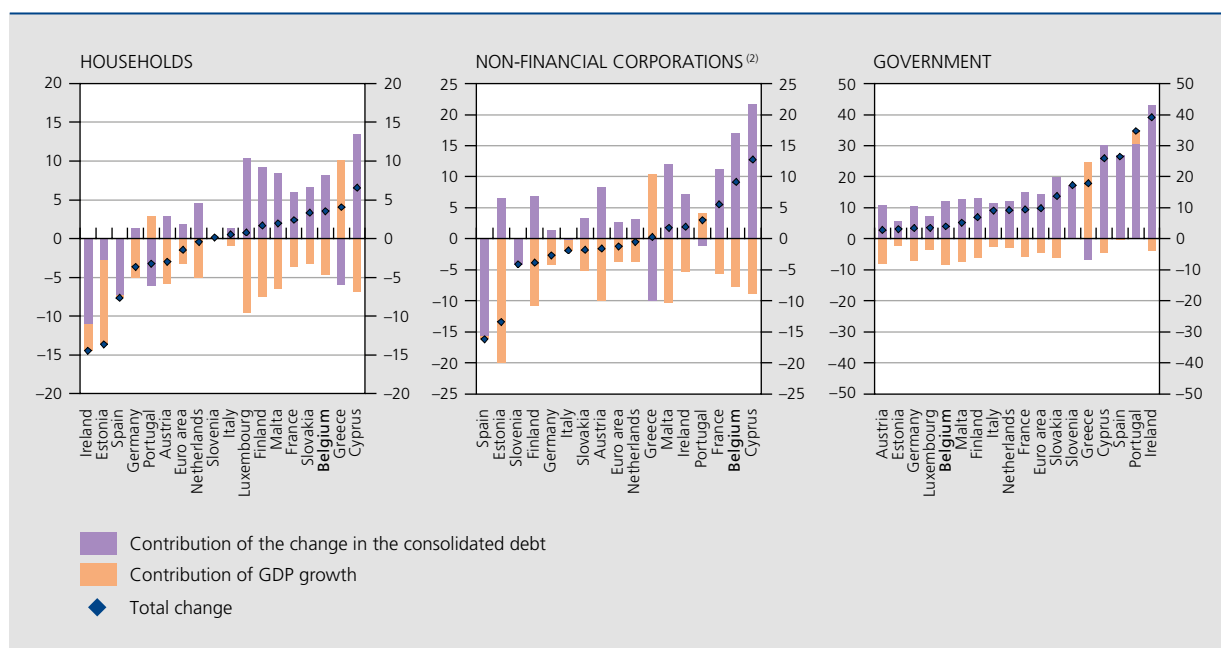
In regard to the government debt ratio, the picture is more uniform. With the exception of Greece, the nominal public debt continued to rise in all the euro area countries. In some countries, nominal GDP growth did counterbalance that to some extent, but in ten countries the rise in the debt ratio still exceeded 9 percentage points of GDP. In Greece, the nominal public debt continued rising in 2010 and 2011, but that growth was more than offset in 2012 by the voluntary bond exchange (private sector involvement – PSI), imputing substantial valuation losses to the private sector, and by the government bond buy-back operation. However, the debt ratio continued to climb throughout the period in question as a result of severely negative GDP growth.

Active debt reduction may originate both from the sector concerned (demand-driven deleveraging), with households and firms themselves wishing to reduce their debt, and from the financial sector (supply-driven deleveraging)

which has a major influence on the movement in the debt of the other sectors via its credit policy. By analogy with Cuerpo *et al.* (2013), this article analyses the relative importance of these two forms of active deleveraging on the basis of a radar chart incorporating a number of key indicators.

This article uses six indicators to compare the degree of demand-driven deleveraging between countries. In the first place, this concerns two variables relating to the business cycle and hence the way in which households and non-financial corporations perceive their repayment capability. The downward pressure on demand for loans will increase as unemployment rises, or as the EC’s harmonised Economic Sentiment Indicator (ESI) shows an erosion of confidence in the economy. In addition, demand-driven deleveraging also frequently results from a decline in the net wealth of the sector concerned. That is why the movement in house prices and the total debt ratio of the non-financial private sector are also examined. Finally, two variables are used which try to obtain a more direct measurement of demand for loans on the part of the non-financial private sectors, namely the net percentage of banks that, in the Eurosystem’s Bank Lending Survey, report a fall in demand for mortgage loans or corporate loans over the past three months.

CHART 7 ACTIVE AND PASSIVE CHANGE IN THE DEBT RATIO OF THE NON-FINANCIAL SECTORS⁽¹⁾
(change during the period 2010Q2-2012Q4, in percentage points of GDP)



Sources: EC, ECB, NBB.

(1) The countries are ranked on the basis of the total change in the consolidated gross debt ratio of the sector in question.

(2) For non-financial corporations, the data for Luxembourg are not included in the chart, because the quarterly data are highly volatile.

Six indicators are also selected in relation to supply-driven deleveraging – via the banking sector’s credit policy. The most direct measure of the banks’ credit policy is the net percentage of banks that, in the Eurosystem’s Bank Lending Survey, state that they have tightened the credit conditions for mortgage loans or business loans over the past three months. Here, too, the total debt ratio of the non-financial private sector is included, but this time as an indicator of the risk perceived by the banks. In addition, the movement in the balance sheet total and the deposit base of the banking sector is also considered, because the probability of supply-driven deleveraging increases as banks see their sources of funding expand more slowly. Finally, the sovereign CDS premium is selected as well; there are two ways in which this premium can influence the reticence of financial institutions to grant credit. First, an increase in the CDS premium points to a higher risk of valuation losses for financial institutions, which traditionally invest heavily in the bonds issued by their government. Second, the CDS premium may rise so high as to create the perception that there is no longer any fiscal backstop, so that financial institutions will find it harder to finance their activities (see also section 1).

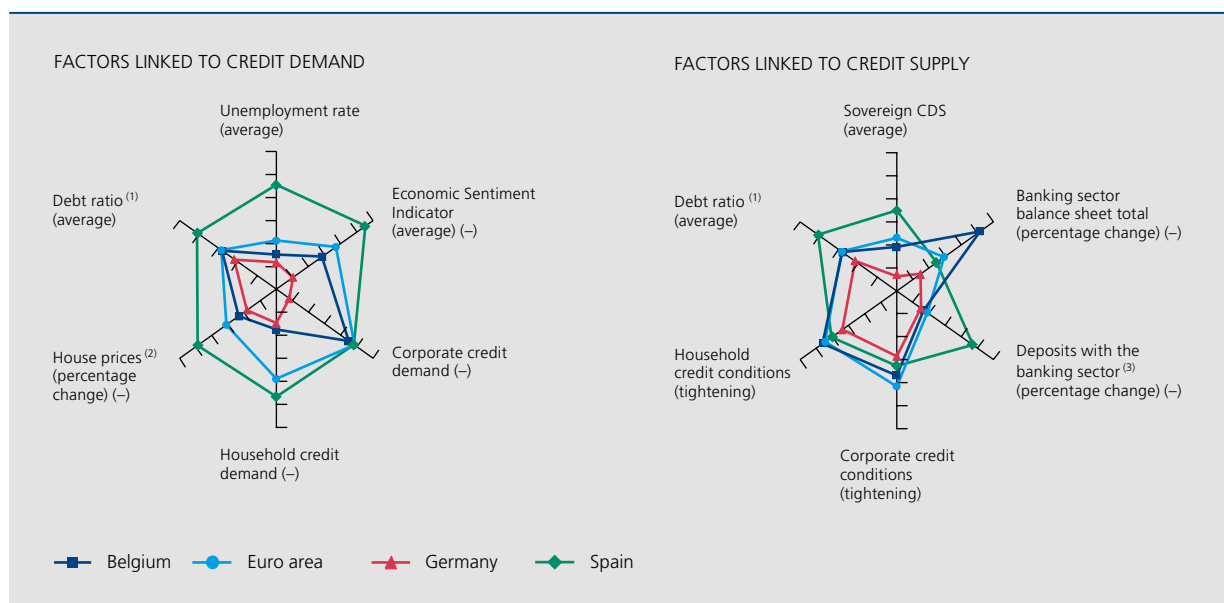
The relative importance of each of these indicators can be compared between countries by means of a radar chart⁽¹⁾. The farther the value of an indicator from the origin, the

more likely it is to trigger deleveraging. For simplicity, chart 8 compares the situation in Belgium with just two large countries, namely Spain, where deleveraging is already in progress, and Germany, where the debt position does not seem excessive so that the pressure should be very slight, and with the euro area as a whole.

This presentation covering the period from mid-2010 to the end of 2012 shows that the factors which may account for demand-driven deleveraging generally had the greatest effect in Spain, followed by the euro area as a whole, Belgium and Germany. It is primarily the variables relating to the business cycle that exert significantly greater pressure in Spain. For Belgium, and especially Germany, most indicators suggest that the pressure to reduce debt positions is less than in the euro area as a whole. For the indicators which specifically refer to household demand for credit, Belgium’s score roughly equals that of Germany, but for firms the pressure is relatively greater according to the indicator used here. According to the latest results of the Eurosystem’s Bank Lending Survey, since the beginning of 2012 demand for loans in Belgium has nevertheless declined more sharply than the euro area

(1) In such a radar chart, the scale on which each variable is represented is determined by the minimum and the maximum of the four countries considered. These scales are therefore not mutually comparable, so this presentation cannot be used to assess the relative size of the different variables within a country.

CHART 8 DEMAND-DRIVEN AND SUPPLY-DRIVEN DELEVERAGING OF THE NON-FINANCIAL PRIVATE SECTORS
(average over the period 2010Q3-2012Q4 or percentage change over the period 2010Q2-2012Q4)



Sources: EC, OECD, ECB, NBB.

(1) Consolidated gross debt ratio of the non-financial private sector (households and non-financial corporations).

(2) For Belgium and the euro area, the latest reading relates to the third quarter of 2012.

(3) Deposits of the non-banking sector excluding those of the central government.

average, indicating that demand-driven deleveraging has increased recently.

For the factors which may account for supply-driven deleveraging, the pattern is less clear than on the demand side. In general, supply-driven deleveraging nevertheless appears to have applied mainly in Spain, followed by Belgium and the euro area, and to a much lesser degree in Germany. On the basis of the movement in the balance sheet total of the banking sector, the pressure on the credit supply was by far the greatest in Belgium; however, that gives a distorted picture of the assessment of lending to the domestic sectors, since the Belgian banks have mainly disposed of foreign assets. The fact that the Belgian banks have a high score for attracting deposits from the non-banking sector also confirms that conclusion, certainly in the current context in which the Spanish banks, for example, have seen part of their funding base disappear. Conversely, during the period in question, a relatively large number of Belgian banks tightened their mortgage lending criteria. That caused the expansion of mortgage lending to slow down, though it remains considerably higher than in the euro area.

Conclusion

An important conclusion to be drawn from the current financial crisis (and from most of its predecessors) is that the inherent pro-cyclicality of lending may give rise to financial cycles. During a financial boom – a self-reinforcing process of rising asset prices, easy credit and growing leverage – such large imbalances build up so that a financial bust ensues in the form of a vicious circle of falling asset prices, stricter lending policy and deleveraging. An excessive debt ratio or debt accumulation will frequently play a crucial role in such a reversal. The turnaround is often accompanied by a financial crisis that not only jeopardises financial stability but also leads to a deep and protracted recession.

Against that background, this article analyses the size and dynamics of the debt ratios in the euro area countries. As a result of the significant debt accumulation by both the private and the public sector in the past decade, the total debt ratio of the non-financial sector in the euro area has reached its highest level since the creation of EMU. However, the debt accumulation – which was driven largely by easy access to cheap finance, rising house prices and booming investment in fixed capital – varies widely

between countries and between sectors. At the end of 2012, households in Belgium still had a lower debt ratio than those in the euro area, though the gap has narrowed in recent years. The consolidated debt ratio of Belgian non-financial corporations has also risen faster than the euro area average, but most of that increase is due to lending by related foreign non-financial firms, a phenomenon that is linked to the strong presence of non-financial holding companies and finance companies belonging to multinationals. Belgium's score in terms of public debt is not so good: though the debt ratio has not risen steeply, it still exceeds the euro area average.

However, the sustainability of the debt depends not only on the level of the debt ratio and the speed of the debt accumulation, but also on many other factors such as the proportion of short-term debt, the scale of the interest charges, and the value of the financial assets held by the sectors in question. Such a multidimensional analysis identifies Portugal, Ireland, Greece and Cyprus as the most vulnerable countries, which need a general balance sheet repair the most. Since mid-2010, there has been some deleveraging by households, and to a lesser extent by non-financial corporations, in some of those countries and in Spain. Although that is in itself a good thing, such balance sheet repair generally has a negative impact on growth in the short term, an impact which may be so severe as to negate the efforts of the various sectors to improve the sustainability of their debt, as is currently the case in Greece and Portugal.

There is little doubt that a number of euro area countries will need to cut their debt ratio (further) in the coming years. In view of the potentially serious implications for economic growth in those countries, and the danger of a financial bust, it is important for this deleveraging process to take place gradually, to restrain the operation of the financial accelerator. In the current context, that is an important point because there is little if any scope for offsetting the negative impact on GDP growth by a more expansionary monetary policy, a strongly counter-cyclical fiscal policy, or more dynamic foreign demand. In view of these limitations, safeguarding and/or boosting the structural growth potential of the economy remains the principal option, as the driving force behind a trend towards controlled, passive deleveraging propelled by higher GDP growth. It is therefore vital for the euro area to endeavour to improve competitiveness, eliminate financial fragmentation (e.g. via the banking union), and restore confidence.

Bibliography

- Arcand J.-L., E. Berkes and U. Panizza (2012), *Too much finance?*, IMF, Working Paper 12/161.
- Ardagna S., F. Caselli and T. Lane (2007), "Fiscal discipline and the cost of public debt service: Some estimates for OECD countries", *The B.E. Journal of Macroeconomics*, 7(1).
- Balassone F., J. Cunha, G. Langenus, B. Manzke, J. Pavot, D. Prammer and P. Tommasino (2011), "Fiscal sustainability and policy implications: A post-crisis analysis for the euro area", *International Journal of Sustainable Economy*, 3(2), 210-234.
- Borgy V., T. Laubach, J.-S. Mésonnier and J.-P. Renne (2012), *Fiscal sustainability, default risk and euro area sovereign bond spreads*, Banque de France, Document de travail 350.
- Borio C. (2012), *The financial cycle and macroeconomics: What have we learnt?*, BIS, Working Paper 395.
- Brainard W. C. and J. Tobin (1968), "Pitfalls in financial model building", *The American Economic Review*, 58(2), 99-122.
- Buca A. and Ph. Vermeulen (2012), *Corporate investment and bank-dependent borrowers during the recent financial crisis*, mimeo.
- Cecchetti S. G., M. S. Mohanty and F. Zampolli (2011), *The real effects of debt*, BIS, Working Paper 352.
- Claessens S., M. A. Kose and M. E. Terrones (2011), *Financial cycles: What? how? when?*, IMF, Working Paper 11/76.
- Cordemans N. and M. de Sola Perea (2011), "Central bank rates, market rates and retail bank rates in the euro area in the context of the recent crisis", *Economic Review*, 27-52, June.
- Corsetti G., K. Kuester, A. Meier and G. J. Mueller (2013), "Sovereign risk, fiscal policy, and macroeconomic stability", *The Economic Journal*, 123(566), F99-F132.
- Cuerpo C., I. Drumond, J. Lendvai, P. Pontuch and R. Raciborski (2013), *Indebtedness, deleveraging dynamics and macroeconomic adjustment*, EC, European Economy Economic Papers 477.
- Dell'Arricia G., D. Igan, L. Laeven and H. Tong (2012), *Policies for macrofinancial stability: How to deal with credit booms*, IMF, Staff Discussion Note 12/06.
- DNB (2011), *Overview of financial stability in the Netherlands*, 13, 17-19.
- Drehmann M., C. Borio and K. Tsatsaronis (2012), *Characterising the financial cycle: Don't lose sight of the medium term!*, BIS, Working Paper 380.
- EC (2012), *Ensuring sound public finances: Fiscal sustainability report 2012*, December.
- EC (2013), *Macroeconomic imbalances. Belgium 2013*, EC, European Economy Occasional Paper 144.
- ECB (2011), "Ensuring fiscal sustainability in the euro area", *Monthly Bulletin*, 61-77, April.
- Egert B. (2012), *Public debt, economic growth and non-linear effects: Myth or reality?*, OECD, Economic Department Working Paper Series 993.
- Eggertsson G. B. and P. Krugman (2012), "Debt, deleveraging, and the liquidity trap: A Fisher-Minsky-Koo approach", *The Quarterly Journal of Economics*, 127(3), 1469-1513.

- Gaiotti E. (2013), "Credit availability and investment: Lessons from the great recession", *European Economic Review*, 59, 212-227.
- Harjes T. (2011), "Financial integration and corporate funding costs in Europe after the financial and sovereign debt crisis", in IMF, *Euro Area Policies: 2011 Article IV Consultation – Selected Issues Paper*, 4-13.
- Hempell H. S. and C. Kok Sørensen (2010), *The impact of supply constraints on bank lending in the euro area: Crisis induced crunching?*, ECB, Working Paper 1262.
- IMF (2009), "From recession to recovery: How soon and how strong?", *World Economic Outlook*, 103-138, April.
- IMF (2012), "Dealing with household debt", *World Economic Outlook*, 89-124, April.
- Jordà O., M. HP. Schularick and A. M. Taylor (2011), *When credit bites back: Leverage, business cycles, and crises*, NBER, Working Paper 17621.
- Karadi P. and M. Gertler (2011), "A model of unconventional monetary policy", *Journal of Monetary Economics*, 58(1), 17-34.
- Kindleberger C. P. (1978), *Manias, panics and crashes: A history of financial crises*, Hoboken, New Jersey, John Wiley & Sons.
- Kiyotaki N. and J. Moore (1997), "Credit cycles", *Journal of Political Economy*, 105, 211-248.
- Koo R. (2011), "The world in balance sheet recession: Causes, cure and politics", *Real-world economics review*, 58, 19-37, 12 December.
- Levine R. (2005), "Finance and growth: Theory and evidence" in Aghion Ph. and S. Durlauf (ed.), *Handbook of economic growth*, Elsevier, 865-934.
- McKinsey Global Institute (2010), *Debt and deleveraging: The global credit bubble and its economic consequences*, January.
- McKinsey Global Institute (2012), *Debt and deleveraging: Uneven progress on the path to growth*, January.
- Minsky H. P. (1982), *Can "it" happen again? Essays on instability and finance*, Armonk, New York, M.E. Sharpe.
- Nautet M. and L. Van Meensel (2011), "Economic impact of the public debt", *Economic Review*, 7-19, September.
- Taylor A. M. (2012), *The great leveraging*, NBER, Working Paper 18290.
- Tirole J. (2011), "Illiquidity and all its friends", *Journal of Economic Literature*, 49(2), 287-325.
- Tobin J. (1980), *Asset accumulation and economic activity: Reflections on contemporaneous macroeconomic theory*, Oxford, Basil Blackwell.
- Van Nieuwenhuyze Ch. (2013), "Debt, assets and imbalances in the euro area: An aggregate view", in Winkler B., A. van Riet and P. Bull (ed.), *A flow of funds perspective on the financial crisis*, Volume II, Palgrave Macmillan (forthcoming).
- Wyplosz C. (2007), *Debt sustainability assessment: The IMF approach and alternatives*, HEI, Working Paper 03/2007.