Financial Stability Review 2013

National Bank OF BELGIUM

Eurosystem

Contents

Foreword

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The improvement in financial and market conditions over the past twelve months has been fostered to no small extent by several strong policy commitments. In the Eurosystem, in particular, the August 2012 announcement of the Outright Monetary Transactions (OMT) programme, through which – under specific conditions – the ECB could purchase, on the secondary market, government bonds issued by member countries, dramatically turned the financial markets around. This important measure has complemented other more structural decisions aiming, on the one hand, to improve the economic and fiscal governance in the EU and, on the other hand, to develop the present European monetary union into a true banking union.

To gain the full benefit of the positive dynamic generated by the new single supervisory mechanism, the ambitious timetable fixed for implementing that mechanism will have to be strictly followed. Moreover, the future supervision structure to be set up by the ECB will have to be backed by common or harmonised frameworks for bank resolution and deposit guarantee schemes.

The fulfilment of these two conditions will go a long way towards strengthening EMU by preventing any further fragmentation of the single market and curbing negative feedback loops between sovereigns and their banks. However, to restore long-term stability on financial markets, remaining macro-economic imbalances and excessive financial leverage still need to be corrected.

Ample liquidity support from the ECB contributes to this objective by easing funding conditions on financial markets and limiting the consequences of the weak EU macro-economic outlook. While low interest rates are an essential macro-financial policy response, over a long period of time they may have some negative side effects. This is especially the case for life insurance companies, which are finding it increasingly difficult to service the relatively high rates of return guaranteed to many policyholders. Even though the covering assets of both life and non-life insurance contracts in Belgium often have a well-laddered maturity profile, with a significant proportion of bonds with coupon rates still reflecting the capital market conditions prevailing several years ago, insurance companies will face increasing reinvestment constraints in the coming years, should the current low interest rate environment persist over the medium term. This calls for careful treatment of the large unrealised capital gains on the insurance companies' bond portfolio, which should not be used to enhance short-term payouts to policyholders or shareholders, but rather be seen as a buffer for the years ahead.

While banks are in a different position, as the duration of their liabilities is much shorter than in the insurance sector and, on average, shorter than the duration of their assets, the present low level of interest rates is exerting pressure on profitability. Most notably, interest income earned on cheap sight deposits has recently been strongly compressed by the decrease in market interest rates.

This difficult operating environment requires banks to carefully consider their business model and, in particular, to keep a close watch on their operating expenses.

At the same time, Belgian banks have to resist the temptation to boost their profits by an excessive search for yield. The danger that they could pursue such an objective by venturing into new risky products seems relatively remote at present. On the contrary, having learned from recent bad experiences, most large Belgian financial institutions have reverted to their traditional business of intermediation with their domestic customers. But this familiar customer base is not risk-free.

On the mortgage market, the low interest rate environment and various fiscal incentives continue to support activities, but lenders have to be aware of the increasing vulnerability of borrowers in a context of mounting unemployment and high property market valuations. In this context, the Bank keeps recommending credit institutions to apply cautious criteria for granting new loans. In the corporate sector, the number of bankruptcies has recently been rising. Faced with deteriorating credit quality, banks could be induced to restructure some of their loans. While a certain degree of forbearance could be good policy, and could help some corporations to overcome temporary problems, it also tends to reduce the transparency of banks' balance sheets.

Moreover, the Belgian financial sector has to cope with growing international pressure to increase harmonisation in the assessment of risks and asset quality by individual institutions. Both the Basel Committee and the European Banking Authority have initiated benchmarking exercises for the calculation of systemic banks' risk-weighted assets. The purpose is to detect to what extent divergences in capital charges for credit risks, as calculated by individual banks, genuinely reflect differences in portfolio quality and risks, or may be driven by heterogeneous parameter calibration and modelling practices. At the same time, in anticipation of the start-up of the single supervisory mechanism, the ECB wants to proceed to an extended assessment of bank balance sheets in order to get a comparative view of the resilience of the main institutions which will be part of the banking union. These large-scale exercises illustrate that the reforms introduced some years ago to standardise prudential regulation are now increasingly complemented by initiatives to reduce divergences in supervision. Such an alignment in the techniques and methodology applied for the supervision of individual credit institutions will represent one of the important benefits of the future single supervisory mechanism.

To better assess the preparedness of the financial sector and the adequacy of the prudential policy in anticipation of the future banking union, the Belgian authorities can refer to the external opinion expressed by the IMF in conclusion of the Financial Sector Assessment Program (FSAP) that it recently conducted in Belgium. This assessment had two main components.

The first reviewed the resilience of Belgian financial institutions on the basis of various indicators and analyses similar to the ones presented in the Financial Stability Overview which introduces this FSR. This examination was backed by stress tests aimed at evaluating the sector's capacity to face up to adverse macroeconomic shocks affecting economic growth, asset prices or interest rate levels, during a period when solvency and liquidity requirements will be progressively raised.

In the banking sector, the stress test results confirmed that the major restructuring efforts recently undertaken by the main Belgian groups allowed them to regain a sound liquidity position and to rebuild their solvency. Nevertheless, there remain significant differences between the various institutions, and the gradual shift to Basel III rules will require a major effort to adapt. The introduction of new capital requirements will be even more challenging for the insurance sector. While the exact calibration of the new Solvency II rules is not yet known, it is evident that, should an – admittedly – very strict version of these rules be applied in the form of a full market-consistent valuation of all balance-sheet items, the capital ratios would be pushed much lower than the comfortable level currently recorded under Solvency I.

The second part of the FSAP consisted in a quality assessment of the procedures applied in Belgium for prudential regulation and supervision, crisis management and the conduct of macroprudential policy, in the light of the prevailing international standards and best practices. The IMF noted the major progress achieved since the previous FSAP, and the very high level of compliance with the Basel Core Principles and the Insurance Core Principles respectively. Nevertheless, among other things, it also recommended making stress testing a routine tool in prudential techniques, speeding up the ongoing business model review of the main Belgian financial institutions, developing a more explicit supervision framework for conglomerates, and requesting recovery and resolution plans for all domestic systemically important firms. These various recommendations are reflected in the Bank's action plan in order to further enhance the stability of the Belgian financial system.

Brussels, May 2013

Executive summary

1. Financial Stability Overview

1.1 Operating environment

Conditions in global financial markets have improved considerably since the previous issue of the Financial Stability Review in June 2012. Yet, the operating environment for the Belgian banking and insurance sector remains quite challenging, against the background of weak economic growth and very low interest rates. This weak macroeconomic environment is a direct offshoot of the global financial crisis that started almost six years ago and contributed to a sharp deterioration in advanced economies' general government fiscal balances and public debt levels.

Faced with a dangerous feedback loop between deteriorating macroeconomic prospects and threats to financial stability, central banks lowered monetary policy rates to rock-bottom levels and provided large amounts of liquidity support to financial institutions and financial markets, contributing to a sharp expansion of their balance sheets. In this context, risk-free interest rates in the major currency areas fell to historically low levels. In the euro area, German 10-year Bund yields dropped again below 1.25 % during April 2013 on the back of investor concerns over the pace of economic growth in the euro area and political uncertainty in Italy, following a period of heightened risk aversion in the wake of the decision to bail-in depositors in the recapitalisation of the Cypriot banking system. In comparison with earlier financial crises in Ireland, Portugal, Greece or Spain, the spill-over of the crisis in Cyprus to other euro area countries was nonetheless contained, not reversing the major reduction in sovereign bond yields of peripheral countries that has been witnessed since the third quarter of 2012.

This reversal of market sentiment towards peripheral euro area countries reflected a number of factors. New parliamentary elections in Greece in June 2012 resulted in the formation of a coalition government that eased fears of the country leaving the single currency, opening the way for the conclusion, five months later, of an adjusted EU/IMF programme and the release of a long overdue tranche of financial support. As the events in Greece in the first half of 2012 had fuelled financial market participants' perceptions of significant tail risks in the euro area and additional capital outflows from peripheral countries, policy measures were taken to address such perceived tail risks. One of these was the commitment by Heads of State at the end of June to complete the monetary union, in particular by creating a banking union through the establishment of a single supervisory mechanism and of harmonised or common frameworks for bank resolution and deposit guarantees. The ECB President's statement in a speech on 26 July that "*within our mandate, the ECB is ready to do whatever it takes to preserve the euro*" was also a major game-changer in the eyes of financial markets. It was followed by a significant decline in peripheral government bond yields that continued after the ECB Governing Council unveiled, in September, the modalities for undertaking Outright Monetary Transactions (OMTs) in secondary markets for sovereign bonds in the euro area. The measures taken by the Spanish government to address the severe problems in its domestic banking sector – as a result of the bursting of a bubble in the residential and commercial real estate markets – eventually also contributed to an easing of investor concerns during the period under review.

The significant decline in the government bond yields of the peripheral euro area countries and the renewed access of the Irish and Portuguese debt agencies to private funding markets in the period under review would not have been possible without the progress that several countries made in tackling the imbalances in their economies and financial sectors. In many countries, this process

of substantial structural adjustments is, however, far from complete and will result in a further running down of debts in the private and financial sector, weighing on economic growth in the coming quarters. The recent period has indeed been characterised by a significant divergence in growth performance between the core euro area countries and the non-core euro area countries.

Notwithstanding the overall weak economic growth in the euro area, share prices and corporate bond prices recovered strongly during the period under review, as the combination of abundant liquidity with very low yields on government bonds contributed to a significant search for yield by investors. This increased appetite for risky assets contributed to a reduction in the cost of funding for corporations using bonds or equity instruments to finance themselves. Rates on bank loans also declined, as a result of monetary policy measures, but they did not do so to the same degree in all countries of the euro area, due to the persistence of a quite strong correlation between banks' funding costs and their home countries' sovereign risk premiums. This also explains partly why several banking systems in the euro area periphery remained very dependent on ECB financing, while others, such as the Belgian banking sector, started repaying substantial amounts of LTRO-financing in the course of 2013.

Throughout the financial crisis, the Belgian banking system continued to play its role of key credit provider to the Belgian private sector, resulting in a further expansion of bank loans to Belgian non-financial corporations and households since 2007. This occurred at a time of a significant decline in the total assets of the Belgian banking system and confirms that Belgian banks have concentrated their deleveraging and restructuring actions on non-core assets and activities, rather than on cutbacks in credit provision in their core markets such as Belgium. Lending to Belgian households, in particular, has grown at a significant pace in recent years, contributing to a further rise in Belgian households' indebtedness. Last year's Financial Stability Review argued in this connection that a sizeable group of borrowers in recent mortgage loan vintages may have stretched their loan maturities, mortgage loan sizes and/or debt service ratios to levels that could entail a higher risk of future credit losses for banks, as compared to earlier vintages. In order to maintain the very high asset quality of the Belgian mortgage loan portfolios, it therefore called for greater vigilance over ongoing market developments and stricter monitoring of whether sufficiently conservative credit standards and adequate risk pricing were being applied to all new mortgage loans. The results of the Belgian bank lending survey and recent interviews with the main mortgage loan providers suggest that a selective tightening of credit standards in mortgage loan origination has taken place in recent quarters, with several banks reportedly tightening the conditions for loans with comparatively long maturities (more than 25 years) and/or high loan-to-value ratios. So far, credit quality indicators for Belgian households show no deterioration in default rates for recent vintages of mortgage loans, in contrast to the observed rise in aggregate default rates on consumer loans, which are more sensitive to the state of the business cycle. Weak economic growth in Belgium has also resulted in a further rise in the number of Belgian corporate bankruptcies.

1.2 Banking sector

This year's Financial Stability Review again includes ample evidence of the major restructuring that the Belgian banking sector has undertaken since the start of the global financial crisis almost six years ago.

In 2012, one-off operations and underlying business developments resulted in a further € 99 billion decline in the total assets of the Belgian banking sector. From almost € 1600 billion six years ago, the balance sheet of the Belgian credit institutions has thus come down to € 1049 billion at the end of last year. In relation to nominal GDP, this amount of total assets is comparable to what was observed in the first half of the 1990s, and is therefore well below the peaks reached before the start of the global financial crisis. As already mentioned in the previous section, this deleveraging took place without Belgian banks forfeiting their role as key credit providers in the Belgian economy. The resulting major geographical rebalancing of the loan portfolio has raised the share of loans consisting of advances to Belgian counterparties. A similar re-concentration on Belgian exposures took place in the portfolio of government bonds, as deliberate reductions in exposures on Greece, Ireland, Portugal, Spain and Italy – in the context of the euro area debt crisis – were offset by increased investments in Belgian government bonds. At the end of 2012, Belgian central government bonds accounted for almost half of the total public sector bonds held by the Belgian banking system.

The rebalancing of the Belgian banks' business models towards more traditional activities was also confirmed by a further rise in the share of retail activities on both the asset and liability side of the balance sheet. On the asset side, the share of retail loans in total loans reached 43 % at the end of last year, up from 28 % at the end of 2007. On the liability side of the balance sheet, this growing importance of retail customers in total banking activities took the form of greater reliance on retail funding sources. In combination with the first issues of covered

bonds under the new Belgian covered bond framework (introduced by the Law of 3 August 2012) and substantial increases in the stock of unencumbered liquid assets on the asset side of the balance sheet, this rising share of retail funding led to a further improvement in the Belgian regulatory liquidity ratios in 2012. Regulatory solvency ratios – as defined under the current Basel 2.5 rules – also improved again last year, on the back of a further decline in risk-weighted assets.

With a return on equity of only 3.0 % in 2012, the Belgian banking sector is nevertheless still facing major challenges in overcoming the negative impact on profitability of the financial crisis and the associated restructuring of activities, in an operating environment characterised by weak economic growth and very low interest rates. In this connection, the accounts for 2012 clearly show the negative impact of the low interest rate environment on banks' net interest income. This pressure on banks' principal and most stable source of income is mainly due to the reduced margin that they can earn on some types of deposits (sight and saving accounts) and the gradual erosion of the average yield of assets, as maturing loans and bonds are reinvested at lower interest rates. In the case of the mortgage loan portfolios, this latter factor has been compounded by the significant amounts of loan refinancing operations that have taken place in the recent period, as mortgage debtors took advantage of the relatively cheap refinancing option available under the mortgage loan regulation. Although the Belgian banks have offset these adverse developments to some extent by taking higher commercial margins on new loans, the overall net interest income of the Belgian banks declined in 2012 by € 0.4 billion to € 13.6 billion.

In contrast to the decline in banks' total operating income in 2012, operating expenses grew for the first time in four years to € 13.9 billion, on the back of higher staff costs and overheads. The resulting marked increase in the cost-to-income ratio – from 67.3 % in 2011 to 73.4 % in 2012 – puts Belgium among the European banking systems with the highest average cost-to-income ratios during the last three years. In response, all major credit institutions have announced cost-saving programmes, and these are likely to be an important element of banks' transition towards new sustainable business models in an environment that is fundamentally different from several years ago. Yet, due to major changes in regulation and the decision by Belgian banks to scale down and refocus on a mature banking market, questions about the adequacy of current cost structures and business models are likely to remain centre-stage in the period ahead, especially if the adverse effects of very low interest rates and weak economic growth were to prove more persistent than currently expected. A return to sufficient profitability will nonetheless be crucial in order to restore banks to a more resilient standalone position, as retained earnings will allow them to boost their common equity and converge towards the Basel III solvency rules, which are more stringent than the current standards.

1.3 Insurance sector

The Belgian insurance sector returned to a high level of profitability in 2012, following several years of low net profits or even losses. The net result of the sector came to € 2.6 billion, while in 2011, a loss of € 0.9 billion was posted. The main reason for this positive development was a significant increase in the net income from financial investments, which— in the life, non-life and non-technical accounts taken together – grew from € 4.0 billion in 2011 to € 11.7 billion in 2012. While impairments on Greek and other peripheral government bonds had a major impact on net investment income in 2011, Belgian insurance companies appear to have booked mainly positive adjustments on the book value of financial assets last year, on the back of increases in government bond prices and recovering equity markets.

Non-life insurance activities confirmed their resilience to the financial crisis in 2012, with premiums up by 3.7 % and the combined ratio stabilising at close to 100 %. This combined ratio relates the total cost of claims plus operating expenses to net premium income, and is an inverted measure of the profitability of the underlying insurance underwriting activities.

Life insurance premiums also increased in 2012, rising by a considerable 10.7 % to € 20.7 billion. This is the highest level since 2007, and follows several years during which life insurance premiums were below € 20 billion per year. The comparatively strong premiums in 2012 seem to be related to growth in mutual fund-like class 23 contracts, but the biggest factor is most likely the anticipation by households of the tax increase (from 1.1 % to 2 %) on premiums paid for class 21 and class 23 contracts as from 1 January 2013. Taking into account this one-off and temporary effect, underlying demand for life insurance products in 2012 may thus not have recovered from the weakness witnessed in recent years, which mainly affected individual (rather than group) life insurance policies. This fall in demand was probably caused to a significant extent by the financial crisis, as households displayed a stronger preference for liquidity in their savings, and bancassurance groups opted to channel household savings into banking products rather than life insurance contracts. Another important factor weighing on the demand for

individual life insurance policies concerned the low yields offered by these medium- to long-term saving contracts as a result of the low interest rate environment. This also seems to be confirmed by the available, albeit partial, information on surrender rates, showing that in recent years, in an increasing percentage of cases, when class 21 life insurance contracts arrive at maturity, policyholders have renewed them only partially, or let them lapse. A persistence of the low interest environment may thus weigh on the new volumes of life insurance products that Belgian insurance companies will be able to sell, and eventually on their profitability, if cost structures are not adapted to the reduced business volume.

The outstanding amount of life insurance policies offering guaranteed rates of return, and the level of these guaranteed rates, are particularly important risk parameters for insurance companies when the interest rates on risk-free investments are at very low levels. The Belgian insurance sector has large amounts of contracts offering high guaranteed rates of return for policyholders. These liabilities are to a significant extent the legacy of contracts concluded a long time ago, in most cases guaranteeing these rates of return on future premiums as well. Analysis of the data broken down by contract for the situation as at the end of 2011 reveals that contracts concluded in the past and still offering a guaranteed return of more than 4.5 % amounted to € 31.7 billion, or around 20 % of the inventory reserves. Most of those contracts (€ 30.5 billion) offered a nominal return of 4.75 %, the legal maximum for that type of contract up to June 1999. With reserves of € 35.3 and € 11.8 billion, contracts offering a guaranteed return of respectively 3.25 % and 3.75 % also account for large amounts of life insurance liabilities with guaranteed rates of return. The liabilities in these two categories include most of the class 21 group insurance contracts, because insurance companies, spurred on by competition, tended to offer in these group insurance policies a guaranteed rate of return that was in line with the minimum rates that companies sponsoring group insurance policies have to guarantee on employer (3.25 %) and employee (3.75 %) contributions according to the law on the supplementary pension system. Most of the recent increases in life insurance reserves concern policies with a lower guaranteed rate of return, including a large number of policies providing only a capital guarantee (while offering a larger range of profit-sharing rates and mechanisms).

The same data can also be analysed by company rather than by contract. It focuses on the average guaranteed rate of return offered by each individual insurance company, taking all its class 21 life insurance contracts together. The results of this analysis confirm that, for some years now, insurance companies have adapted to the lower interest rate environment by offering contracts more in line with market conditions, resulting in a decline in the average guaranteed rates of return. At the end of 2011, around 83 % of the class 21 inventory reserves were held by insurance companies offering an average guaranteed return of 3.25 % or lower, whereas in 2005, no company had an average guaranteed rate of return lower than 3.5 %.

At the end of 2011, the average guaranteed rate of return on class 21 contracts amounted to 3.17 %, down from 3.22 % at the end of 2010 and 4.5 % at the end of 1999. Preliminary figures for the year 2012 indicate an annual return on investments covering these policies of 4.6 %, reversing the negative gap between the return on investments and the average guaranteed rate of return on liabilities that had emerged in 2011, when the return on investments was only 2.8 %. In the period 1999-2011, the average net investment return amounted to 5.1 %. This period included three years during which the annual return on investments was lower than the prevailing average guaranteed rate of return on the outstanding contracts. Yet, even if one disregards these exceptional years, the trend in investment returns is clearly downward, in line with the overall development in Belgian government bond yields. Another article in this Financial Stability Review (see section 2.1) concludes in this connection that in coming years Belgian insurance companies may have to reinvest significant amounts of maturing AAA- and AA-rated bonds at yields that may be lower than the maturing coupon rates if the current low interest rate environment were to persist. Against this background, the Bank calls for a careful treatment of the large unrealised capital gains on the insurance companies' bond portfolio, which should not be used to enhance short-term payouts to policyholders or shareholders, but rather be seen as a (high-coupon) buffer for the years ahead, should the current low interest rate environment persist over the medium term.

1.4 Main results of the Financial Sector Assessment Program for Belgium

At the end of 2012 and the beginning of 2013, Belgium underwent a thorough assessment of its financial system by the IMF, the detailed results of which are available on the IMF website.

The assessment included two main elements.

The first concerns an analysis of the soundness of the financial system as a whole. This covered a review of the main structural factors and risk developments that could

affect financial stability, as well as the conduct of stress tests. The stress tests showed that, on average, the capital position of banks is sound, the sector as a whole managing to maintain its capital above the minimum capital requirements under two adverse macroeconomic scenarios over the period 2013-2017, despite an erosion of the capital base resulting mainly from sovereign haircuts and the impact of forthcoming regulatory changes (Basel III). The stress tests on insurance companies showed that this sector is fairly resistant to various shocks under the current regulatory regime (Solvency I), but that it would be significantly affected by a shift to a more market-consistent valuation of the balance sheet, particularly given the balance sheet structure – dominated by sovereign bonds – and the significant legacy of life insurance contracts with high guaranteed rates.

The second element of the FSAP gauged the quality of the regulation and supervision of banks, insurance companies, market infrastructures and financial markets, starting from the Belgian supervisory authorities' self-assessments of compliance with relevant international standards. The IMF found a high level of compliance and noted major progress in the supervision of banks and insurance companies since the previous FSAP mission, in a context of financial crisis and the introduction of the Twin Peaks supervisory model. The recommendations that were made for further improvement related among other things to supervisory procedures, the supervision of financial conglomerates and the framework for crisis management and bank resolution.

2. Thematic articles

2.1 Review of the Belgian insurance sector's government bond portfolio

A major part of the total assets of Belgian insurance companies is composed of investments in fixed-income instruments issued by public sector entities, which include central and local government authorities, as well as international public institutions. The article reviews the composition and main features of this public sector bond portfolio as at the end of 2012. It is based on an analysis that linked detailed information on the individual financial securities included in the public sector bond portfolio with data on the ratings of the individual bonds and their issuance date, maturity date, coupon rate, currency, etc., as available in the Bloomberg information system.

By mapping the maturity profile and coupon rates of public sector bonds, the article shows that, in coming years, Belgian insurance companies may have to reinvest significant amounts of maturing AAA- and AA-rated bonds at yields lower than the maturing coupon rates if the current low interest rate environment were to persist. Given the stock of life insurance contracts with relatively high guaranteed rates of return, this potential for a significant, albeit gradual, materialisation of reinvestment risks over time in a low interest rate environment could have a major impact on the performance of the Belgian insurance sector in the future. However, a complete assessment of the impact of the low interest rate environment on the Belgian insurance sector was well beyond the scope of this article, as it covered only some elements of the multifaceted challenges which insurance companies face as a result of the low interest rate environment; that makes it difficult to draw general conclusions. The other missing elements include analyses of the assets other than public bonds in the insurance companies' covering assets (in particular corporate bonds), and other essential aspects and nuances of the asset and liability management of insurance companies (e.g. the matching techniques applied). It must also be remembered that the average guaranteed rate on life insurance contracts can change over time, due to new life insurance policies issued at lower guaranteed rates of return and/or increased surrender rates, and that insurance companies may opt for changes in asset allocation due to the low interest rate environment.

2.2 Loans to non-financial corporations: what can we learn from credit condition surveys?

Bank lending is an important determinant of economic growth in Belgium and in Europe. While credit growth generally makes a positive contribution to economic growth, excessive credit growth and the rapid build-up of leverage in the economy may generate systemic risks to financial stability. One question that arises with respect to credit cycles is whether changes in bank lending are driven by supply or demand. Shocks to the supply of and the demand for credit can have different effects on economic activity and therefore require different policy responses.

Information from credit condition surveys may be useful in this regard, as the surveys reflect market participants' views on prevailing credit conditions and standards. In particular, bank lending surveys typically ask banks whether they have recently changed their credit standards and whether they have recently experienced a change in the demand for credit. Similar information on credit conditions may be obtained from surveys targeting the demand side of credit, such as non-financial corporations. Hence, credit condition surveys can provide policymakers

with information on the underlying determinants of credit dynamics and may also serve as a separate (early warning) indicator of the financial cycle.

Using results from a survey addressed to banks (the euro area Bank Lending Survey, BLS), this article considers the relationship between loan growth and survey responses on supply standards and demand for credit in Belgium. In particular, we aim to answer the question whether the BLS indicators are reliable (leading) indicators of the growth rate of loans to non-financial corporations (NFCs) in Belgium. The article also uses information on NFCs' views on credit standards and their future investment decisions from the Bank survey on credit conditions, in order to provide a check on the information content of the BLS answers.

The main findings can be summarised as follows. First, the pattern of both aggregate NFC loan growth and the BLS supply and demand indicators in Belgium is similar to that of their counterparts at the euro area level. Second, concerning the relationship between NFC loan growth and the BLS indicators in Belgium, there is evidence of BLS indicators containing leading information on NFC loan growth. A third finding is the need for caution in drawing strong conclusions from the BLS indicators (e.g., on demand versus supply driving credit growth), as the estimated information content of the BLS indicators crucially depends on the model specification. Finally, preliminary results on the basis of credit condition and credit demand indicators derived from the Bank survey on credit conditions, addressed to Belgian firms, provides additional, tentative support for the potential forward-looking properties of information from credit condition surveys.

2.3 Overview of the NBB's oversight and supervision of financial market infrastructures in 2012

The Bank is in charge of both the oversight of post-trade financial market infrastructures (FMIs) and the prudential supervision of the institutions that operate them, aiming to ensure their soundness and efficiency. The standards applicable to FMIs were reinforced as the CPSS and IOSCO published their Principles for FMIs in April 2012. While FMIs face enhanced risk management requirements, the market environment leads to a repositioning of the various actors, including FMI users. These developments require the attention of the overseer and the prudential supervisor.

As a lead overseer, and together with the Group of Ten central banks, the Bank conducts the oversight of SWIFT, a key messaging provider for securities and payment systems. From 2012 onwards, with the establishment of the SWIFT Oversight Forum, information regarding the SWIFT oversight is also being shared with a wider group of central banks.

The Bank oversees payment service operators. It monitored the Belgian Centre for the Exchange and Clearing and its migration to the French technical platform STET. It oversees the Bancontact-MisterCash debit card scheme and acts as the lead overseer of MasterCard Europe, and it monitored their preparations to become SEPA compliant. Also, the Bank granted authorisation to several payment institutions that started operating in 2012.

The Bank acts as the overseer and the prudential supervisor with respect to three Euroclear group entities. It monitored the reliability of the securities settlement platforms operated by ESA, the Euroclear group's parent company, with attention to its protection against cyber crime. It assessed the ICSD Euroclear Bank against the CPSS-IOSCO Principles for FMIs and paid particular attention to the ICAAP process. It monitored the decision of Euroclear Belgium (CIK) to join the T2S-project and its development of issuer services. As for the NBB-SSS system, operated by the Bank itself, the overseer gave attention to the ongoing implementation of the first phase of its T2S-project. Finally, the Bank oversees and supervises the Bank of New York Mellon Group entities. The group started a new CSD in Belgium, BNY Mellon CSD, that was licensed at the end of 2012. The Bank also supervised the consolidation of the group's European entities into the credit institution Bank of New York Mellon SA/NV.

2.4 Assessment of Euroclear Bank against the CPSS-IOSCO Principles for Financial Market Infrastructures

In 2012, the Bank assessed Euroclear Bank (EB) against the new CPSS-IOSCO Principles for Financial Market Infrastructures (PFMIs). Compared to the previous international standards, the PFMIs – covering all aspects relating to market infrastructures, from general organisation, credit, liquidity and operational risk management and settlement to market links, efficiency and transparency – have introduced new principles and reinforced existing ones.

In general, Euroclear Bank complies with the new Principles, operates its settlement system in a safe and efficient manner, and contributes to financial stability. Notwithstanding EB's risk management arrangements that are – in general – adequate, the Bank identified three weaknesses that should be addressed within a defined

time limit; that resulted in a score of broadly observed for the three relevant Principles. A first weakness was identified in EB's credit risk management, which is in general robust (as EB's credit exposures in the settlement process are fully collateralised as a rule). However, the way EB currently processes most income and redemption payments does not guarantee compliance with the PFMIs. In the meantime, EB has agreed an action plan with the Bank to ensure compliance. A second weakness is the lack of daily reconciliation for all securities balances (for some balances, a daily reconciliation is performed; for others, the reconciliation is performed on a monthly basis). The last issue relates to a new Principle concerning tiered participation arrangements. EB has not yet developed a formal process for analysing the impact of their participants' underlying clients.

Financial Stability Overview

1. Operating environment

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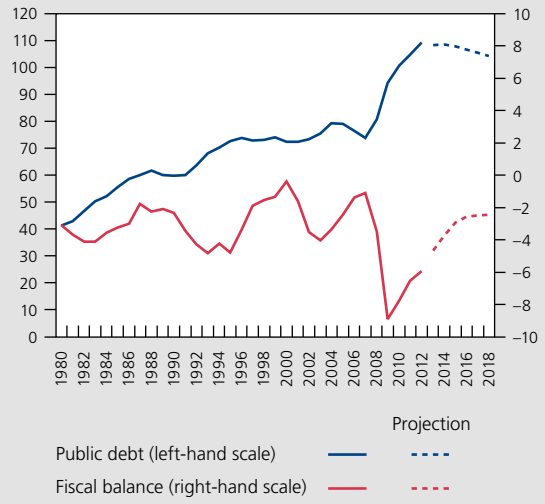
CHART 1 GENERAL GOVERNMENT FISCAL BALANCES AND PUBLIC DEBT IN THE ADVANCED ECONOMIES

(in % of GDP)



Source: IMF World Economic Outlook, April 2013.

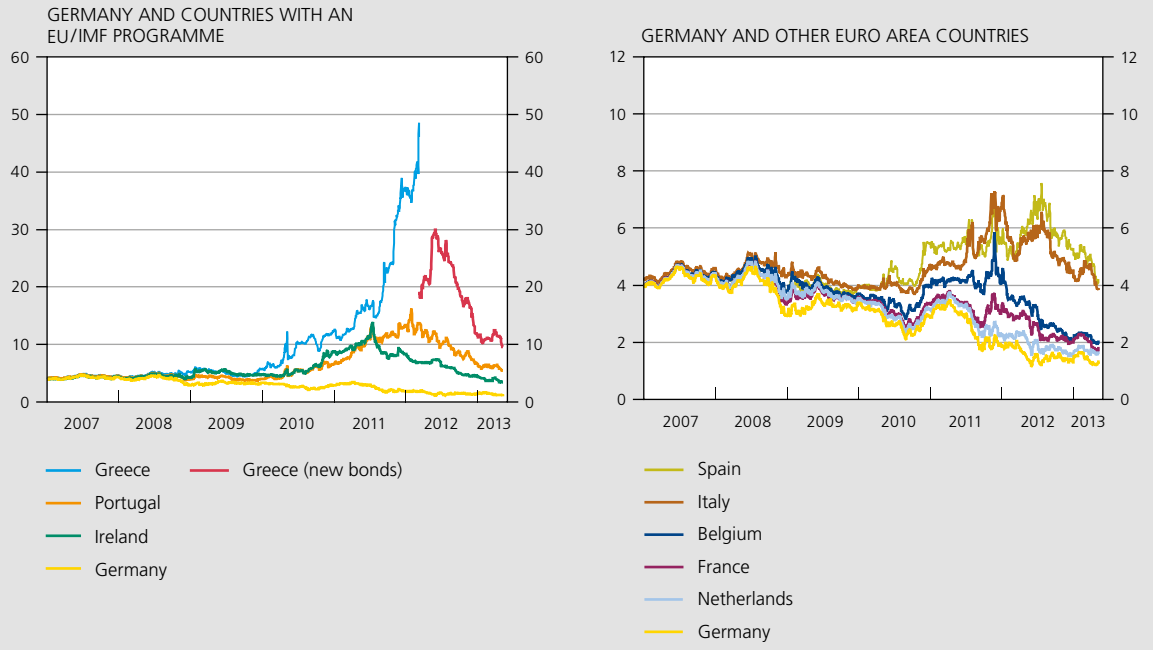
(1) The assumptions underlying this projection are explained in box A1 in the April 2013 edition of the IMF World Economic Outlook (144-147).

Faced with a dangerous feedback loop between deteriorating macroeconomic prospects and threaths to financial stability, central banks lowered monetary policy rates to rock-bottom levels and provided large amounts of liquidity support to financial institutions and financial markets, contributing to a sharp expansion of their balance sheets. In this context, risk-free interest rates in the major currency areas dropped to historically low levels, with US, German and Japanese ten-year government bonds yielding respectively 1.8 %, 1.3 % and 0.6 % at the time when this report was finalised. In April, German 10-year Bund yields had even dropped below 1.25 % on the back of investor concerns over the pace of economic growth in the euro area and major political uncertainty in Italy, following a period of heightened risk aversion in the wake of the decision to bail-in depositors in the recapitalisation of the Cypriot banking system. In comparison with earlier financial crises in Ireland, Portugal, Greece or Spain, the spill-over of the crisis in Cyprus to other euro area countries was nonetheless contained, not reversing the major reduction in sovereign bond yields of peripheral countries that has been witnessed since the third quarter of 2012 (Chart 2). This reversal of market sentiment towards peripheral euro area countries reflected a number of factors.

In June 2012, yields on many peripheral government bonds were still very high as a result of investor anxiety

CHART 2 TEN-YEAR GOVERNMENT BOND YIELDS IN THE EURO AREA

(daily data, in %)



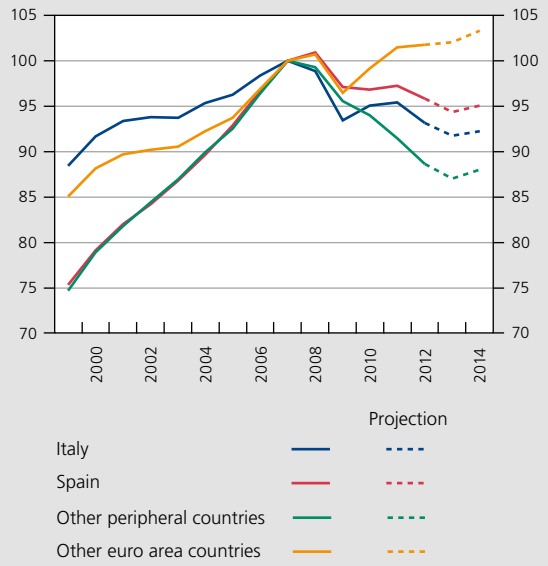
Source : Thomson Reuters Datastream.

over banking and public sector debt problems in Spain, and market speculation over a possible exit of Greece from the euro area. The Greek parliamentary elections in May 2012 had resulted in political deadlock, adding to the delays in the adoption of policy measures needed to address the major imbalances in the Greek economy. The new parliamentary elections in Greece on 17 June resulted in the formation of a coalition government that eased fears of the country leaving the single currency and led to a gradual narrowing of the spread between Greek and German government bonds. Five months later, creditor countries and the new Greek government reached final agreement on an adjusted EU/IMF programme, which included lower and later payments on Greece's official debt, transfer to Athens of profits on the Eurosystem's holdings of Greek government bonds, and plans for a private sector debt buy-back. The conclusion of more than € 10 billion of additional spending cuts by the Greek government then opened the way for the release of a long overdue tranche of financial support which had been put on hold following previous policy slippage.

The events in Greece in the first half of 2012 had fuelled financial market participants' perceptions of significant tail risks in the euro area, leading to additional capital outflows from peripheral countries and declines in peripheral banking systems' deposits. These developments in turn triggered additional policy measures that aimed to address such perceived tail risks. One of these policy responses was the commitment by Heads of State at the end of June to take further steps to complete the monetary union, in particular the decision to create a banking union through the establishment of a single supervisory mechanism and harmonised or common frameworks for bank resolution and deposit guarantees. The ECB President's statement in a speech on 26 July that *"within our mandate, the ECB is ready to do whatever it takes to preserve the euro"* was also a major game-changer in the eyes of financial markets. It was followed by a significant decline in peripheral government bond yields that continued after the ECB Governing Council unveiled, in September, the modalities for undertaking Outright Monetary Transactions (OMTs) in secondary markets for sovereign bonds in the euro area. This new framework was aimed at safeguarding the monetary policy transmission mechanism in all countries of the euro area by enabling the central bank to address severe distortions in government bond markets originating from unfounded fears on the part of investors concerning the reversibility of the euro. The programme involves the possibility for

CHART 3 GDP AT CONSTANT PRICES

(indexes 2007 = 100)



Source: IMF World Economic Outlook, April 2013.

(1) The assumptions underlying this projection are explained in box A1 in the April 2013 edition of the IMF World Economic Outlook (144-147).

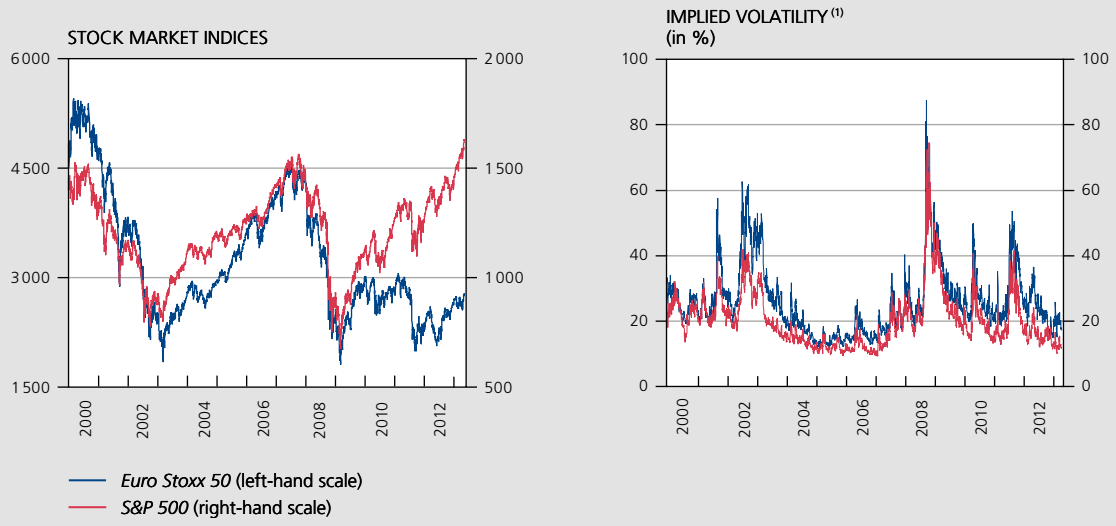
the ECB to undertake discretionary sterilised purchases of short-term sovereign bonds under certain conditions, and is subject to a prior request by the respective country's government for international assistance via the EFSF/ESM.

The measures taken by the Spanish government to address the severe problems in its domestic banking sector – as a result of the bursting of a bubble in the residential and commercial real estate markets – eventually also contributed to an easing of investor concerns during the period under review. These measures included the undertaking of an independent review of the asset quality and recapitalisation needs of Spanish banks, the setting up of a bad bank to take over from banks large amounts of non-performing loans, and the recapitalisation of banks by a state-funded agency. Many of the funds to be used for the recapitalisation for the banks were, however, obtained from the ESM that, in December 2012, disbursed to the Spanish government a loan of € 41 billion in order to help finance the recapitalisation and restructuring of its banking system.

The significant decline in the government bond yields of the peripheral euro area countries and the renewed access of the Irish and Portuguese debt agencies to private funding markets in the period under review would not have been possible without the progress that several countries have made in tackling the imbalances in their economies and financial sectors. However, in many countries, this process of important structural adjustments is far from complete and will result in a further running down of

CHART 4 STOCK MARKETS

(daily data)



Source: Thomson Reuters Datastream.

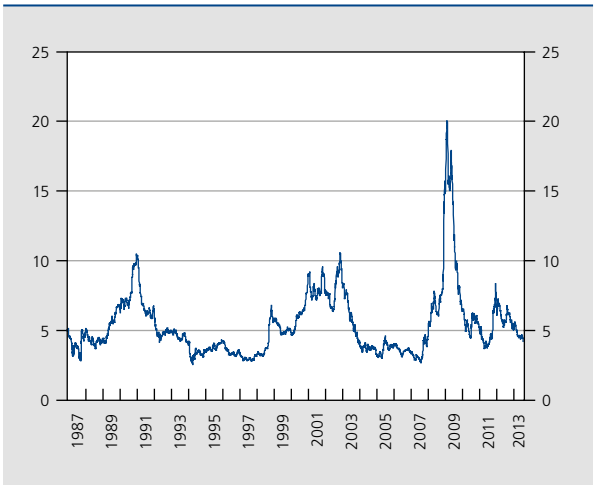
(1) Based on the implied volatility derived from options on the S&P 500 and Euro Stoxx 50 indices.

debts in the private and financial sector, weighing on economic growth in the coming quarters. As shown in Chart 3, the recent period has indeed been characterised by a significant divergence in growth performance between the core and the non-core euro area countries. This tiered growth performance has resulted in generally weak economic growth in the euro area and a relatively weaker performance by European share prices as compared to US stock markets (Chart 4).

In the US, the major stock market indices erased the losses they had sustained during the financial crisis on the back of a continuing, moderate domestic economic recovery. However, stock markets worldwide also benefited from investors' reactions to the prospect of a continuation of highly accommodative monetary policies in the major currency areas, leading to substantial funds being reallocated to stock market investments. The abundant liquidity combined with very low yields on government bonds also contributed to a significant search for yield by fixed-income investors, pushing down the risk premium on US high-yield bonds to the lowest levels since the start of the global financial crisis in 2007 (Chart 5).

The increased appetite for risky assets came in response to what investors perceived to be receding tail risks in the global economy and financial system. Yet, it was also in part one of the intended consequences of the unconventional monetary policies of the central banks, leading to a reduction in the cost of funding for debtors using corporate bonds or equity instruments to finance themselves.

CHART 5 US HIGH-YIELD BOND SPREAD (1)
(in %)



Source: Thomson Reuters Datastream.
(1) Difference between the yield on corporate bonds denominated in US dollar with a rating below BBB/Baa3 and the interest rate on ten-year US Treasury bonds.

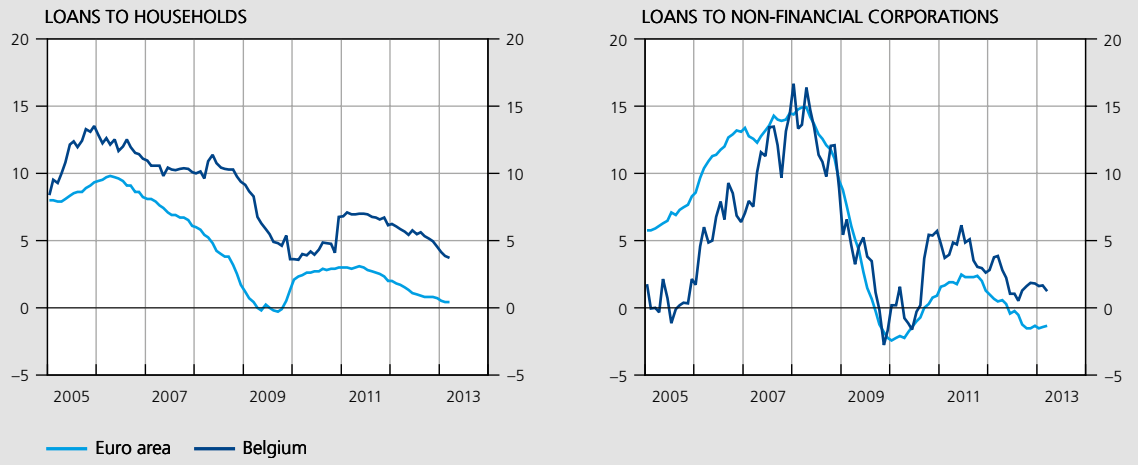
Rates on bank loans also declined as a result of the monetary policy measures, but they did not do so to the same degree in all countries of the euro area. In the euro area countries, there was still a quite strong correlation between various countries' sovereign borrowing costs and the banks' funding costs (in terms of market funding or deposit rates), leading to increased differentiation in national bank loan rates across the monetary union.

The close interaction between the financing costs of governments and financial institutions results in part from the substantial portfolios of government securities on banks' balance sheets, often dominated by exposures to the home country. This exposes the banks to changes in the market value and liquidity of sovereign bonds, and sovereign rating downgrades, affecting the quality and eligibility of large amounts of collateral for use in banks' external funding. Bank financing in the peripheral countries thus became more expensive or even impossible in private markets, as a result of rising sovereign risk premiums. Banks' access to unsecured funding markets was also affected by the declining market value of some government bonds, as potential lenders took account of these unrealised losses when assessing the solvency of their European debtors. In 2011, this contributed to a significant further increase in the average cost of European banks' senior unsecured euro-denominated debt.

The ECB responded to these heightened funding pressures by conducting two long-term refinancing operations (LTRO) with a maturity of 3 years and full allotment (in December 2011 and February 2012). Around the same time, the European Banking Authority's Board of Supervisors adopted a Recommendation on the creation of temporary capital buffers to restore market confidence, calling on national authorities to require 71 banks included in the sample to strengthen, if necessary, their capital buffers by the end of June 2012, by building up an exceptional and temporary capital buffer against sovereign debt exposures to reflect market prices as at the end of September 2011. In addition, banks were required to establish an exceptional and temporary buffer such that the Core Tier 1 capital ratio reached a level of 9 % by the end of June 2012. This EU-wide recapitalisation exercise led to an increase in banks' capital positions of more than € 200 billion, € 116 billion of which was accounted for by the 27 banks with an initial capital shortfall. Together with the decline in sovereign risk premiums, this bank recapitalisation contributed to the significant improvement in bank funding conditions in the past 12 months, allowing many banks to start repaying substantial amounts of LTRO-financing in the course of 2013. However, several banking systems in the euro area periphery remain very dependent on ECB financing.

CHART 6 ANNUAL GROWTH RATE OF BANK LOANS TO HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS (1)

(in %)



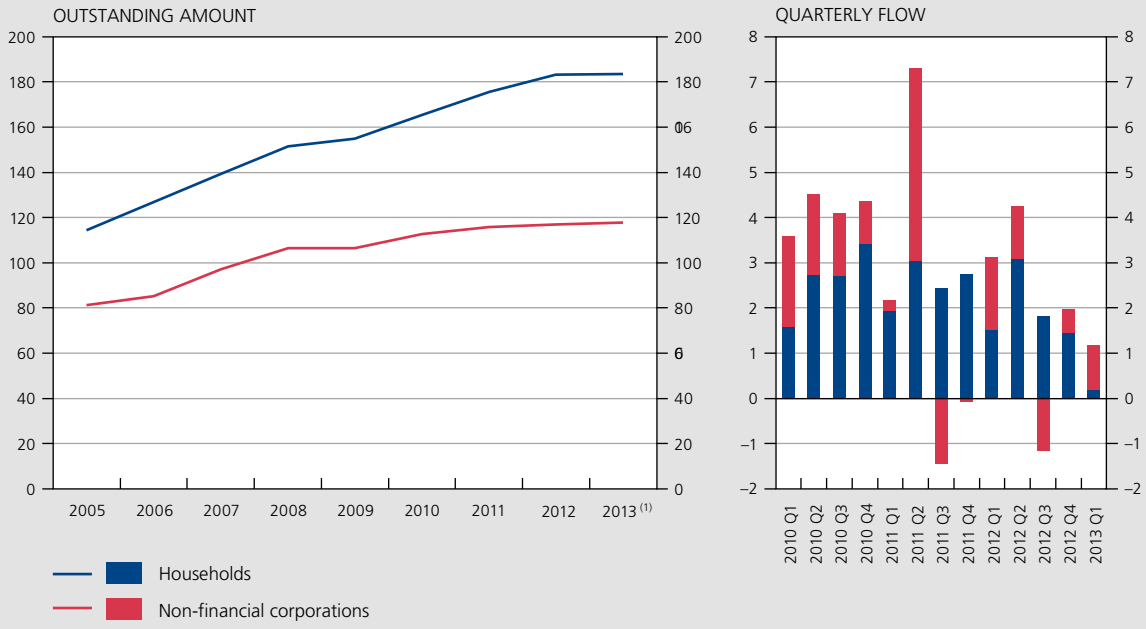
Sources: ECB, NBB.

(1) Data corrected for securitisation operations (from 2010 onwards for the euro area time series).

Throughout the financial crisis, the Belgian banking system continued to play its role of key credit provider to the Belgian private sector, resulting in a further, and almost continuous, expansion of bank loans to Belgian non-financial corporations and households since 2005 (Charts 6 and 7). This occurred at a time of a significant

CHART 7 BELGIAN BANKS' LOANS TO DOMESTIC HOUSEHOLDS AND NON-FINANCIAL CORPORATIONS

(data corrected for securitisation operations, in € billion)



Source: NBB.

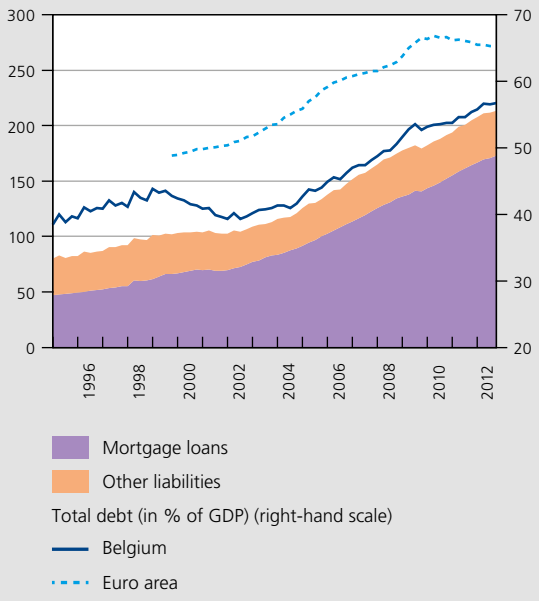
(1) As at the end of March 2013.

decline in the total assets of the Belgian banking system, and confirms that Belgian banks have concentrated their deleveraging actions on non-core assets and activities rather than on cutbacks in credit provision in their core markets such as Belgium (see also section 2 of this article).

Chart 6 illustrates in this connection that, in Belgium, the growth rates of bank loans to households and non-financial corporations have recently been higher than in the euro area as a whole. In the case of loans to non-financial corporations, annual growth rates for the euro area are currently in negative territory, mainly as a result of declines in the amount of bank credit outstanding in the peripheral countries. In Belgium, the growth of loans to non-financial corporations remained positive in the second half of 2012 and the first quarter of 2013, even if the rates of growth have slowed to moderate levels. Yet, as shown in Chart 7, in the first three months of 2013, the quarterly net flow of Belgian bank loans to Belgian non-financial corporations exceeded by far the quarterly net flow of new loans to households, marking a reversal of trend as compared to the previous quarters, when the Belgian banks' loans to Belgian households had shown much higher net quarterly growth volumes than the loans to Belgian non-financial corporations.

CHART 8 DEBT OF BELGIAN HOUSEHOLDS

(in € billion, unless otherwise stated)



Source : NBB.

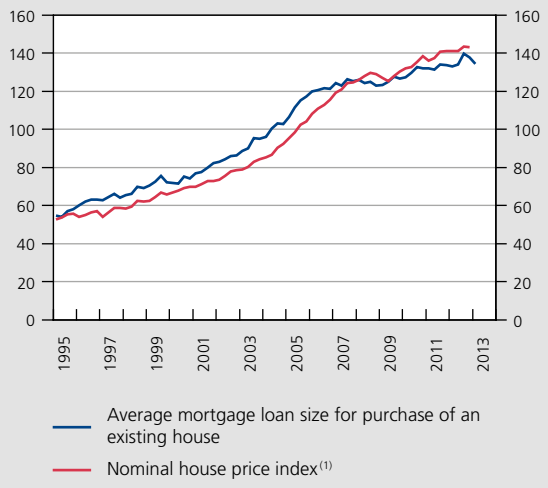
The very dynamic bank lending to Belgian households in the years before 2013 has contributed to a significant rise in Belgian households' indebtedness (Chart 8). While the resulting debt ratio of Belgian households (56.7 % of GDP) remains considerably lower than the euro area average (65.3 % of GDP), the gap between the two has fallen from 15 percentage points in 2005 to less than 10 percentage points in 2012, as Belgian household indebtedness rose more strongly during this period than in the other euro area countries. Between 2000 and 2005, the exact opposite had occurred, as lending booms in several euro area countries pushed up the euro area average, while the Belgian household debt ratio grew only slightly.

Last year's Financial Stability Review included an article with an extensive analysis of developments in the Belgian residential mortgage loan market ("Review of the Belgian residential mortgage loan market"), on the basis of aggregate statistics and information collected through a quantitative survey of 16 Belgian banks' domestic mortgage loan portfolios. It found that a sizeable group of borrowers in recent mortgage loan vintages may have stretched their loan maturities, mortgage loan sizes and/or debt service ratios to levels that could entail a higher risk of future credit losses for banks, as compared to earlier vintages, and therefore called for greater vigilance over ongoing market developments and stricter monitoring of whether sufficiently conservative credit standards and adequate risk pricing were being applied to all new mortgage loans, so as to maintain the very high asset quality of the Belgian mortgage loan portfolios.

The Belgian bank lending survey and recent interviews with the main mortgage loan providers suggest that a selective tightening of credit standards in mortgage loan origination has taken place in recent quarters in many credit institutions. In particular, banks indicated to have tightened the conditions for loans with comparatively long maturities (more than 25 years) and/or comparatively high loan-to-value ratios. The most recent available statistics on developments in the Belgian mortgage loan market seem to confirm some of these changes in credit policy. The statistics in the Central Credit Register for loans to households, for example, indicate that the share of new mortgage loans with an original maturity higher than 25 years has declined significantly in the first four months of 2013, relative to what was observed in the previous five years. Within the total new mortgage loans with an original maturity higher than 15 years, the share of loans with an original maturity higher than 25 years has indeed dropped to 1/4, against 1/3 on average in the period 2008-2012.

CHART 9 DEVELOPMENTS IN BELGIAN HOUSE PRICES AND AVERAGE AMOUNT OF NEW MORTGAGE LOANS

(in € thousand, unless otherwise stated)



Source : NBB.
(1) NBB calculations, on the basis of data from FPS Economy.

The selective tightening of conditions for loans with a higher risk profile also seems to have helped curb the growth of the average amount of new mortgage loans for the purchase of an existing house in the last quarter of 2012 and the first quarter of 2013 (Chart 9). This average size of new mortgage loans for the puchase of an existing house, which had risen from less than € 100 000 in 2004 to peak at almost € 140 000 in the third quarter of 2012, declined to slightly more than € 134 000 in the first three months of this year. Such a development would be consistent with the reported anecdotal evidence indicating a tightening of conditions for debtors' access to loans with the highest loan-to-value ratios.

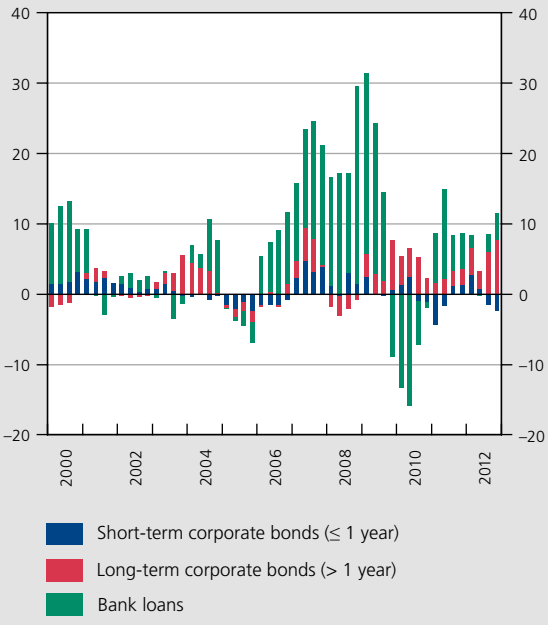
Chart 9 also highlights the development of Belgian house prices since 1995, according to the house price index calculated by the Bank on the basis of data from FPS Economy. This house price index shows that the average house price increase moderated to 2.5 % last year, down from 3.1 % in 2011 and 5.4 % in 2010. The cumulative increases in the house price index over the past 10 and 15 years nevertheless remain quite considerable, at respectively 86 % and 150 %.

Box 1 provides some more information about the difference between two main measures of the gross debt of Belgian non-financial corporations, which includes liabilities in the form of bank loans, corporate bonds and – under its non-consolidated definition – intercompany loans. It shows that the consolidated debt measure is significantly lower than the non-consolidated measure because it excludes the intra-sector debt, that is the credit obtained through loans and securities other than shares from affiliated or other companies inside Belgium.

In recent quarters, a process of substitution between the various external funding sources in the financing of Belgian non-financial corporations has been going on, with firms – essentially the largest ones – turning more towards the issuance of fixed-interest securities and making less use of bank loans and share issues (Chart 10). Whereas firms had generally made little use of the bond market previously, this form of funding has clearly gained in importance over the past four years. From 2000 to 2008, non-financial corporations had issued bonds averaging an annual total of € 1.3 billion, whereas in 2012 they raised € 5.3 billion in funding via this instrument, after having collected € 3 billion in the corresponding period of 2011. That popularity was underpinned by investors' search for better yields than those on sovereign bonds. Moreover, in the post-crisis years, non-financial corporations made an effort to improve their balance sheet, and that may have led to a downward revision of the risks on corporate bonds, making them more attractive. The greater recourse to the financial markets is probably also attributable to

CHART 10 FINANCING SOURCES FOR BELGIAN NON-FINANCIAL CORPORATIONS

(quarterly data, in € billion, 4-quarter moving sum of net transactions)



Source : NBB.

the tightening of bank lending conditions, apart from the interest rates charged.

As bank financing is still the main source of debt financing for small and medium-sized companies, SMEs probably have been impacted relatively more strongly by the tightening of lending criteria by the banks. In this connection, the results of the qualitative surveys polling banks and business leaders provide information that supplements the quantitative data and may explain the factors determining the movement in bank lending to businesses (see also the related article in this Financial Stability Review). The surveys indicate that the deterioration of the economic climate in 2012 and the first quarter of 2013 prompted banks to exercise caution and tighten their lending criteria. At the same time, this rather unfavourable environment also inhibited demand for bank loans, at least among large firms, which turned to other funding sources as described above. The slowdown in Belgian bank lending to non-financial corporations to overall weak rates of growth, as shown in Chart 6, thus probably resulted from both supply and demand factors.

The bank lending survey, conducted by the Eurosystem among banks, supplies qualitative information on movements in lending criteria and demand for bank loans from firms. If the results are regarded cumulatively over the recent quarters, the four large Belgian banks polled by that survey reported a tightening of their lending criteria on both loans to large firms and loans to SMEs. Conditions were tightened in 2012 especially for long-term loans for which the capital market offers an alternative. Since that option is generally less accessible to small firms, the latter are liable to have faced more difficult access to funding than large firms. Generally speaking, risk perception was reported throughout 2012 and the first quarter of 2013 as a dominant factor affecting business lending conditions. More particularly, the banks surveyed cited the prospects specific to firms or branches of activity, and the deterioration in expectations concerning general economic activity, as the main risk factors. In addition, in the case of SMEs, they stressed that the increased risks relating to the collateral required did to some extent influence their decision to tighten the criteria for lending to those firms. Banks' own funding costs and their balance sheet constraints initially also played a role in the banks' behaviour, but the contribution of these factors was reversed somewhat in the most recent quarters in line with the improved bank funding conditions. According to the banks questioned, demand for loans from businesses showed a marked decline throughout 2012 and further weakened in the first months of 2013. The decline in corporate financing needs for gross fixed capital formation was the main factor contributing to the overall reduction in demand for bank loans by non-financial corporations. The contraction in funding needs for mergers, acquisitions and restructuring, and firms' recourse to other funding sources also contributed, to a lesser extent, to the decline in demand for loans.

A second qualitative survey is conducted by the Bank among business managers. Their assessment of general credit conditions worsened during 2012, with the exception of very large firms. Despite the improvement in interest rate conditions throughout the year, business managers cited the high level of collateral demanded by banks and the restrictions on the amounts loaned as the reasons for their negative overall assessment. Broken down by firm size, the survey results reveal that the deterioration in these conditions mainly affected small firms (those with fewer than 50 workers) and medium-sized firms (employing between 50 and 249 workers). In the most recent Survey on the Access to Finance of SMEs in the euro area – conducted on the initiative of the ECB and the EC and specifically questioning SMEs about the borrowing conditions which they are offered –, Belgian SMEs indicated some improvement relative to the previous survey, even if a sizeable share of debtors still judged financing conditions as being very tight.

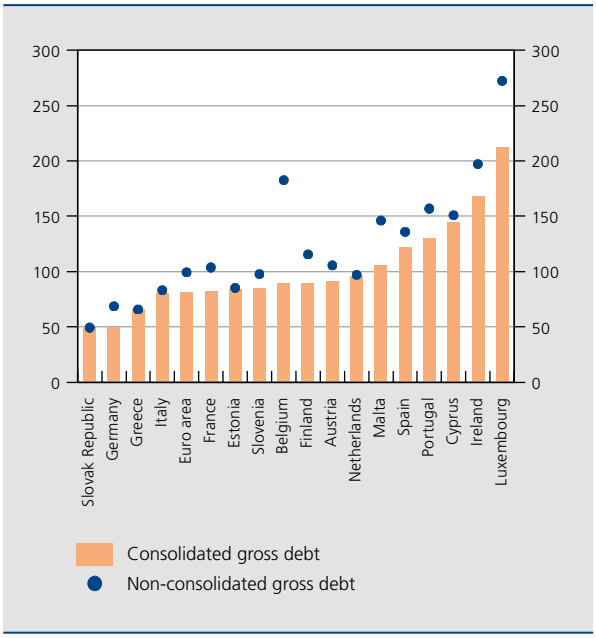
Box 1 – Non-financial corporate debt indicators

In Belgium, there is a sizeable difference between two main measures of the gross debt of non-financial corporations (see Chart). The consolidated debt measure is significantly lower than the non-consolidated measure because it excludes the intra-sector debt, that is the credit obtained through loans and securities other than shares from affiliated or other companies inside Belgium.

According to data of the European Commission, Belgium is the country with the most prominent difference between such a non-consolidated and consolidated measurement of non-financial corporate indebtedness among the group of countries for which both measures are available (see also Box 7 in the Annual Report 2011 of the Bank).

NON-FINANCIAL CORPORATIONS' CONSOLIDATED AND NON-CONSOLIDATED GROSS DEBT

(% of GDP, end 2011)



Source: EC.

In the case of Belgium, the sizeable difference between non-consolidated and consolidated data can be explained by the large amount of credit provision between resident companies, mainly intragroup loans. This in turn mainly reflects the widespread use of financial centres within company groups, which according to the current practices for the national accounts form part of the sector of non-financial corporations. The prevalence of such 'internal banks' in Belgium is due to the advantageous tax regime previously applicable to coordination centres (coordinating the financial and fiscal activities of multinationals) and non-financial holdings (operating as intermediary in the financing of companies). Since 2006, this tax regime has been replaced by the so-called notional interest rate deduction, which enables all companies subject to Belgian corporate income tax to deduct from their taxable income a fictitious interest calculated on the basis of their equity. The main purpose of this measure is to reduce the tax discrimination of equity compared to debt financing, and to safeguard the attractiveness of Belgium for multinationals after the gradual phasing out of the coordination centre regime. This system provides an incentive for a triangular construction, where a company provides capital to a financing vehicle of the same group, which in turn lends this capital to the same or another affiliated company. The associated multiplication in intra-group loans leads to an overall increase in the outstanding corporate debt in non-consolidated terms, but does not affect the consolidated debt level of the sector of non-financial corporations.

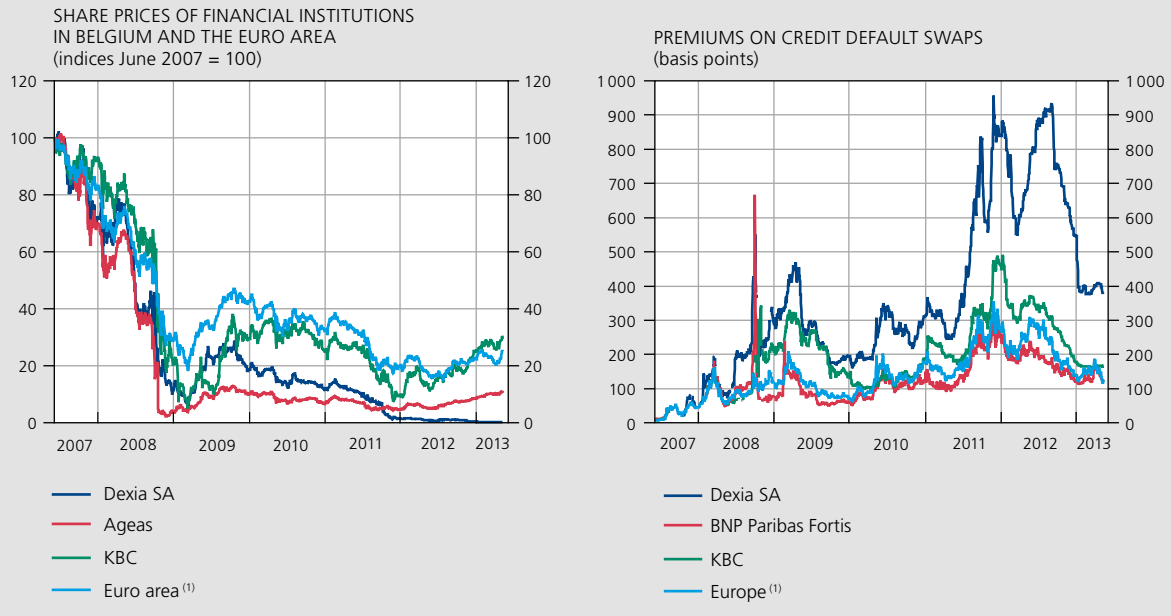
2. Banking sector

Chart 11 shows developments in the Belgian financial institutions' equity prices and CDS premiums. Since the previous issue of the Financial Stability Review, CDS premiums have narrowed for all institutions. This reflects both general market developments and institution-specific factors. In this connection, Table 1 provides an overview of several key financial indicators for the main financial institutions operating in Belgium, together with the corresponding sector aggregates that will be used in the rest of the report.

The very steep decline in Dexia's CDS premium in the second half of 2012 and the first few days of 2013 followed the completion of successive steps in the group's dismantling plan, that had been initiated in the autumn of 2011 following the rapidly worsening risk profile of the institution at that time. The Bank then insisted that Dexia submit a dismantling plan to safeguard the group's strategic entities. In order to restore market confidence in the group's sound entities and avoid the risk of contagion, the Belgian State acquired all shares held by Dexia SA in Dexia Bank Belgium (for a total of € 4 billion), and several other subsidiaries were put up for sale, including Dexia Banque Internationale à Luxembourg, Dexia Asset Management, Denizbank in Turkey, and the group's stake in RBC Dexia Investor Services. The execution of this strategy resulted in a significant reduction in Dexia SA's scope and the size of its balance sheet, which declined from € 566.7 billion at the end of 2010 to € 357.2 at the end of 2012. The second pillar of the dismantling plan was to ensure the conditions for an orderly winding down of the residual assets remaining on Dexia SA's balance sheet. This orderly management of the residual assets in run-off required a funding guarantee of € 85 billion granted by Belgium, France and Luxembourg and a recapitalisation amounting to € 5.5 billion by the Belgian and French States. These measures were finalised and approved by the European Commission in December 2012. In January 2013, another major step in the dismantling plan was completed when Dexia Municipal Agency was sold to the French State, the Caisse des Dépôts and La Banque Postale.

At the end of December 2012, the European Commission also approved Belfius' strategic and financial plan for 2013-2016. This agreement, albeit subjecting the former Dexia Bank Belgium to a number of restrictions on certain types of new business, should enable Belfius to refocus on its core bank-insurance activity and to re-establish

CHART 11 MARKET INDICATORS FOR BELGIAN AND EUROPEAN FINANCIAL INSTITUTIONS
(daily data)



Sources: Bloomberg, Thomson Reuters Datastream.
(1) Stock market index compiled by Thomson Reuters Datastream for the share prices of financial intermediaries, and iTraxx Senior Financials index for 5-year credit default swaps for a sample of 25 European financial institutions.

TABLE 1 KEY INDICATORS FOR THE MAIN FINANCIAL INSTITUTIONS, THE BANKING SECTOR AND THE INSURANCE SECTOR

(consolidated end-of-period data, in € billion, unless otherwise stated)

	Fortis Holding SA / Ageas[1]	BNP Paribas Fortis[1]	Dexia SA[1]	Dexia Bank Belgium / Belfius[1]	KBC[1]	ING Belgium SA[1]	Banking sector[2][3]	Insurance sector[3][4]
Net profit								
2008	–28.02	–20.56	–3.33	–0.57	–2.48	0.91	–21.2	–3.9
2009	1.19	–0.67	1.01	0.42	–2.47	1.24	–1.2	0.9
2010	0.22	1.91	0.72	0.68	1.86	1.05	5.6	1.4
2011	–0.58	0.10	–11.64	–1.37	0.01	0.86	0.4	–0.9
2012	0.74	0.31	–2.89	0.42	0.61	0.77	1.6	2.6[5]
2013 (Q1)	0.29		–0.33		0.52			
Total assets								
2008	92.9	586.8	651.0	263.1	355.3	175.9	1 422.1	223.8
2009	93.2	435.0	577.6	253.8	324.2	153.6	1 190.5	234.4
2010	99.2	348.0	566.7	247.9	320.8	155.6	1 151.1	248.6
2011	90.6	346.2	412.8	232.5	285.4	169.1	1 147.3	256.6
2012	97.1	272.3	357.2	212.9	256.9	168.2	1 048.7	264.8[5]
2013 (Q1)	98.0		265.9		258.6			269.2[5]
Risk-weighted assets (banking)[6]								
2008		203.4	152.8	51.8	141.4	59.9	491.7	
2009		148.0	143.2	49.9	128.3	55.1	407.5	
2010		119.3	140.8	49.6	116.1	51.6	372.5	
2011		118.0	83.4	53.0	110.4	54.7	373.8	
2012		124.1	55.3	50.3	89.5	46.5	352.7	
2013 (Q1)			51.7		86.2			
Tier I ratio banking (in % of RWA)[6]								
2008		10.7	10.6	12.9	9.7	14.7	11.3	
2009		12.3	12.3	13.8	11.0	18.2	13.2	
2010		16.5	13.1	14.6	12.5	19.8	15.5	
2011		16.5	7.6	12.7	11.6	18.7	15.1	
2012		15.3	19.9	13.3	13.8	22.6	15.9	
2013 (Q1)			21.0		15.4			
Insurance solvency margin (in % of required margin)								
2008	202				188			224
2009	231				260			229
2010	227				216			214
2011	206				201			193
2012	204				322			208[5]
2013 (Q1)	203				326			202[5]

Sources: Quarterly, biannual and annual accounts of Fortis group, Ageas, BNP Paribas Fortis, Fortis Bank, Dexia SA, Dexia Bank Belgium / Belfius, KBC group and ING Belgium SA, NBB.

(1) Consolidated data, as published in the annual and quarterly accounts.

(2) Consolidated data, based on the prudential reporting scheme.

(3) The standardised supervisory reporting schemes are related to the legal structure of the financial groups and the home-host supervisory arrangements concluded for the sectoral and supplementary group supervision. As a consequence, these reporting schemes do not include data on all the bancassurance groups' subsidiaries.

(4) Unconsolidated data, based on the prudential reporting scheme.

(5) As reported in the quarterly accounts.

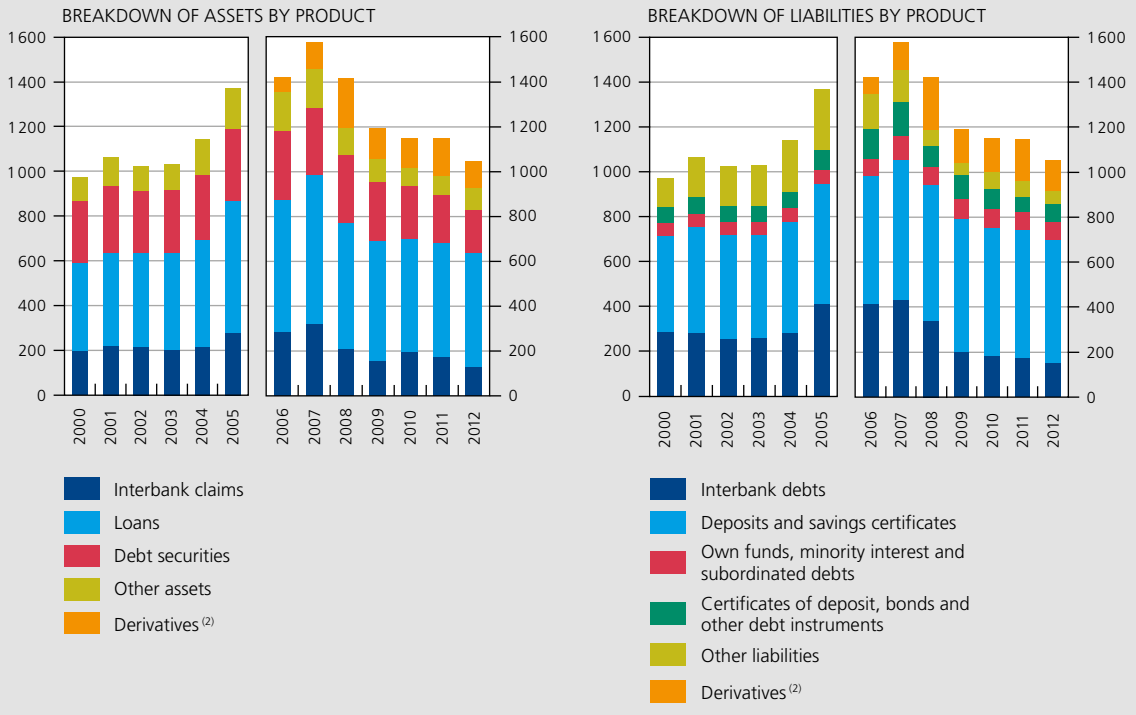
(6) Ratios for the year 2007 are calculated according to Basel I or Basel II, depending on the institutions. As from 2008, all ratios are calculated according to Basel II.

its long-term viability. Profits will be used to strengthen its capital base in order to meet the regulatory reforms associated with Basel III and Solvency II, together with sustained efforts to reduce recurrent costs by the end of 2016. The total assets of Belfius decreased in 2012 as exposures to its former parent company Dexia fell from € 55 billion in October 2011 and € 44 billion at the end of 2011 to € 22 billion at the end of 2012 (and € 15.5 billion at the end of February 2013). The remaining exposure is secured financing. Belfius also reduced its reliance on central bank funding by € 19 billion in 2012 and announced the reimbursement of € 10 billion of LTROs in the first quarter of 2013. This was made possible partly by the launch of Belfius' covered bonds programme, with two first issues in November 2012 and January 2013 for € 1.25 and € 0.5 billion respectively.

With the sale of Fidea, KBL EPB, Warta, Kredyt Bank, Zagiel and NLB, KBC made substantial progress in 2012 in completing its programme of divestments. These were an important element of the restructuring plan that KBC agreed with the European Commission in November 2009 in return for the government support that KBC had received. In December 2012, KBC announced the accelerated full repayment of € 3.0 billion of state aid to the Belgian Federal Government, plus a 15 % premium amounting to € 0.45 billion. The Bank authorised this repayment subject to a substantial increase in KBC's capital. This was achieved by means of an ordinary share issue in December 2012 for a total amount of € 1.25 billion, as well as a placement of $ 1 billion of contingent capital notes in January 2013. KBC intends to also redeem in a reasonable period of time the € 3.5 billion of outstanding core-capital securities issued to the Flemish Regional Government. In December 2012, in the context of the newly established legal framework for Belgian covered bonds, KBC launched its Belgian residential mortgage covered bonds programme in order to enhance funding diversification with a first € 1.25 billion issue in December and a second € 0.75 billion issue in January 2013. KBC also decided to repay, in the first quarter of 2013, the three-year LTRO-financing received from the ECB in December 2011 and February 2012, for an amount totalling € 8.3 billion.

CHART 12 BALANCE SHEET STRUCTURE OF BELGIAN CREDIT INSTITUTIONS (1)

(consolidated end-of-period data, in € billion)



Source: NBB.

(1) Data compiled in accordance with the Belgian accounting rules until 2005 (Belgian GAAP) and IAS/IFRS from 2006.

(2) Derivatives are recorded at their market value including, from 2007, income receivable and expenses payable.

While BNP Paribas Fortis' balance sheet had declined sharply between the end of 2008 and the end of 2010, mainly on the back of de-risking and restructuring measures within the BNP Paribas group, it had then proved stable in 2011. In 2012, certain specific activities were centralised within the consolidation scope of BNP Paribas Fortis (e.g. leasing and specialised finance activities). However, the impact on the balance sheet total of these newly transferred activities was offset by other developments which led in total to a € 74 billion decrease in the total assets. This was primarily due to novation and unwinding operations leading to a strong decrease in the reported amount of derivatives on both sides of the balance sheet. In addition, interbank transactions and repo and reverse repo operations were also reduced. However, this reduction in the balance sheet total was not accompanied by a similar decrease in risk-weighted assets, which even increased by € 6 billion due to the consolidation of leasing activities. At the end of 2012, a guarantee agreement (signed in 2009 with the Belgian State) concerning potential losses from a structured credit portfolio was terminated earlier than initially planned, given the reduced current size of this portfolio.

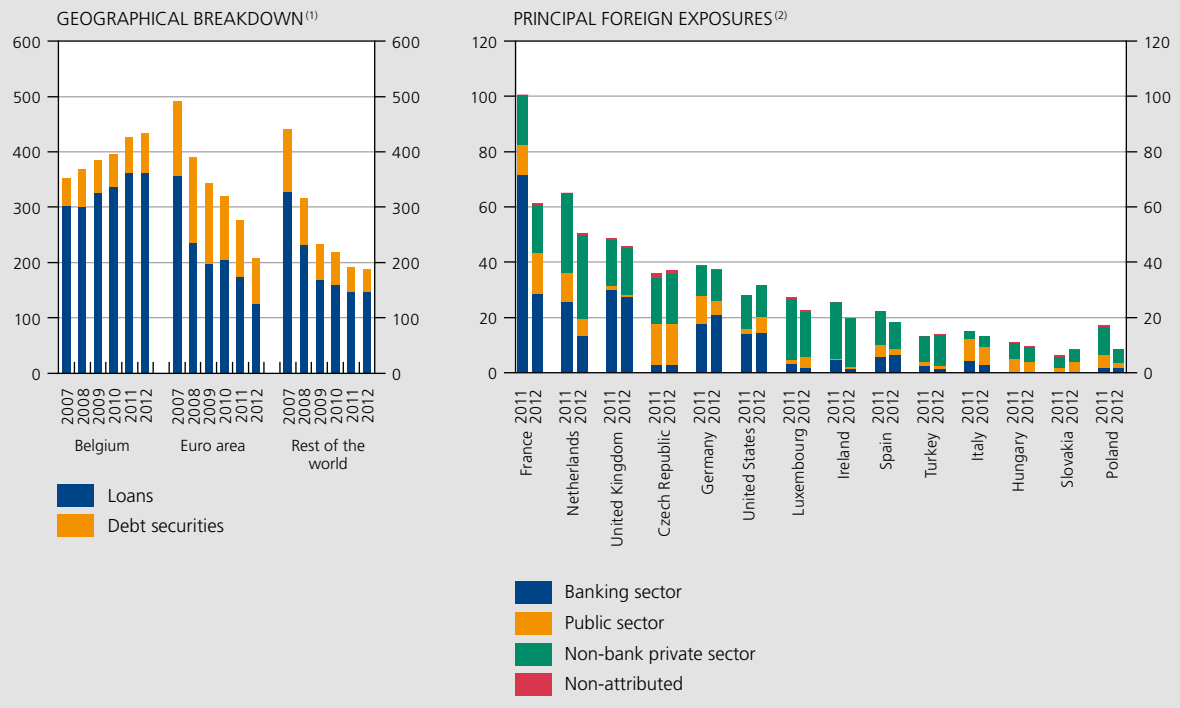
2.1 Deleveraging and asset restructuring

In 2012, one-off operations and underlying business developments resulted in a further € 99 billion decline in the total assets of the Belgian banking sector. From almost € 1 600 billion six years ago, the balance sheet of the Belgian credit institutions has thus come down to € 1 049 billion at the end of the year (Chart 12). The balance sheet reduction was again concentrated in the four largest credit institutions while the assets of the other smaller Belgian banks continued to grow in 2012.

The decline in 2012 was driven to an important extent by the abovementioned downsizing of BNP Paribas Fortis' balance sheet, which contributed to the strong decline in the market value of derivatives (by close to € 50 billion for the sector as a whole). In 2011, large increases

CHART 13 GEOGRAPHICAL BREAKDOWN OF ASSETS HELD BY BELGIAN CREDIT INSTITUTIONS IN THE FORM OF LOANS AND DEBT SECURITIES

(consolidated end-of-period data, in € billion)



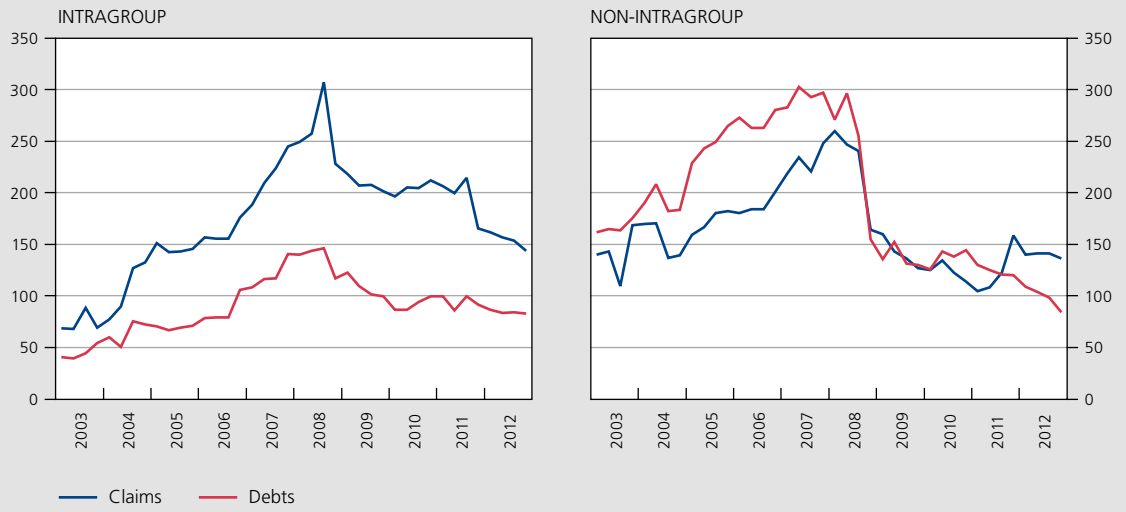
Source: NBB.

(1) Data obtained from the consolidated reporting of Belgian credit institutions. Distribution in accordance with the FINREP prudential reporting.

(2) Data obtained from the consolidated reporting of international banking statistics. Data compiled in accordance with the Belgian accounting standards (Belgian GAAP). The assets are classified according to the ultimate risk, i.e. after risk transfer. Excluding exposures consisting almost entirely of claims on the banking sector.

CHART 14 CROSS-BORDER INTERBANK INTRAGROUP AND NON-INTRAGROUP POSITIONS

(data on a territorial basis, in € billion)



Source : NBB.

in the market value of interest-rate derivatives had taken place following the decline in long-term interest rates. However, the resumed contraction of Belgian banks' balance sheet is not only the result of one-off developments. It also still forms part of a more general process by which exposures to foreign counterparties are being reduced, as banks revert to their core markets and core activities (Chart 13, left panel). Since the end of 2007, exposures to foreign counterparties have been reduced by a cumulative € 538 billion, broken down in € 412 billion in the form of loans and € 126 billion in the form of debt securities. At the same time, claims on Belgian counterparties increased by € 82 billion, totalling, at the end of 2012, 52 % of total exposures in the form of loans and debt securities, up from 27 % at the end of 2007.

Between the end of 2011 and 2012, exposures to the foreign non-bank private sector – in particular to non-financial corporations – were reduced in some countries (Chart 13, right panel). With a share of 45 %, they remain though a significant part of total Belgian banks' foreign exposures. In the case of Poland, the decline in 2012 was mainly due to the deconsolidation of Kredyt Bank by KBC. In Ireland and several Central and Eastern European countries (including Turkey), the majority of these non-bank private sector claims take the form of loans to corporates and retail counterparties granted by local subsidiaries of Belgian banks. For the other claims on the foreign non-bank private sector (e.g. in the Netherlands, France, the UK or Luxembourg), the nature of these exposures is more diverse, including cross-border loans to corporates and holdings of securitised and structured credit instruments backed by private sector assets (such as mortgage loans).

Claims on foreign banking institutions in the form of loans or debt securities were reduced to a larger extent, playing an important part in the total balance sheet decrease, as they were reduced by € 57 billion in 2012. The drop concerns mainly exposures vis-a-vis the French and the Dutch banking sectors, in particular Belfius Bank's claims on Dexia SA and intragroup claims for BNP Paribas Fortis and ING Belgium. Indeed, to a certain extent, consolidated data capture intragroup interbank exposures, for example when Belgian consolidating credit institutions are part of a larger financial group, as in the case of BNP Paribas Fortis or ING Belgium. At the end of last year, Belgian banks' most important exposures to the foreign banking sector were to France (€ 29 billion), the United Kingdom (€ 27 billion) and Germany (€ 21 billion).

Chart 14 looks more closely at the importance of intragroup financing, using data compiled on a territorial basis, whereby intragroup flows between banking entities located in Belgium and those based abroad are distinguished from non-intragroup interbank transactions.

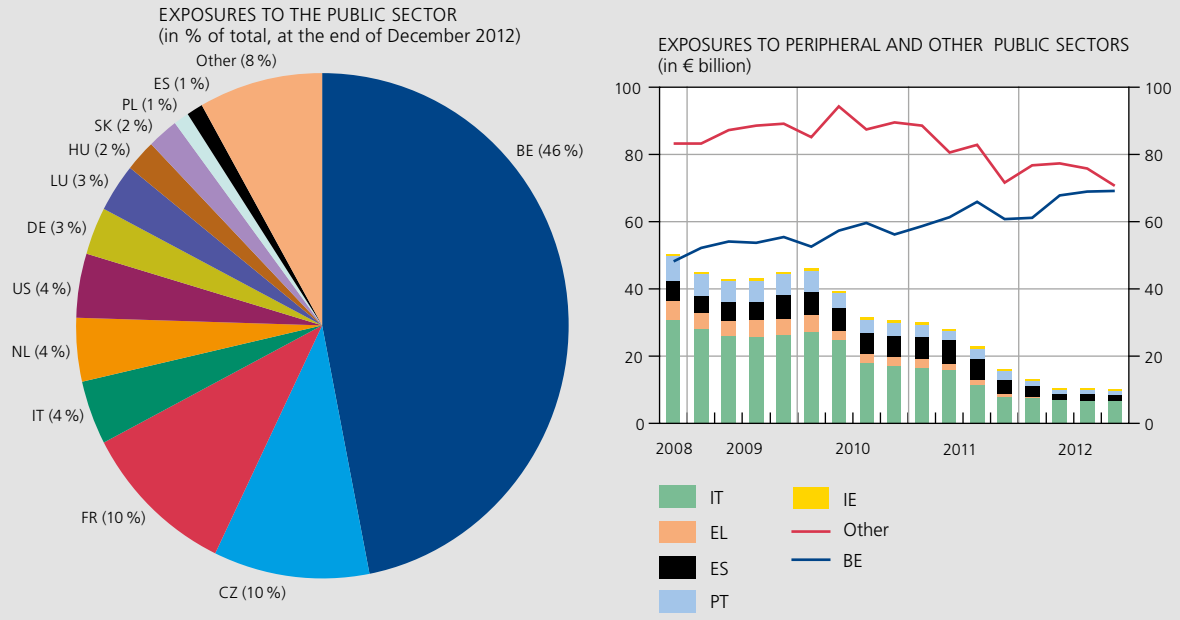
These data reveal that Belgian banking entities are, on aggregate, large net providers of liquidity to other entities of the banking groups to which they belong, as they provide significantly more intragroup financing than they receive. Whereas, in the third quarter of 2008, net intragroup financing by Belgian counterparties amounted to € 161 billion, intragroup financing was then markedly reduced following the exit of Fortis Bank Nederland from the consolidation scope of Fortis Bank and the termination of the associated intragroup flows. After a relative stabilisation at around € 110 billion until the end of the third quarter of 2011, net intragroup interbank claims dropped to € 61 billion at the end of the subsequent quarter, as Belfius Bank, following its take-over by the Belgian State, no longer categorised its exposures to Dexia SA as intragroup financing but recorded them as non-intragroup financing. The fall in cross-border intragroup interbank claims in 2012 is also attributable to the Bank's regulation on the own funds of credit institutions and investment firms; that regulation entered into force on 31 December 2012 and stipulates that unsecured exposures of Belgian subsidiaries in relation to their parent company or subsidiaries of their parent company based abroad may not exceed the amount of their regulatory capital. In 2012, some banks took steps in anticipation of the entry into force of these measures.

Even though gross intragroup interbank claims and debts both decreased in 2012, significant positive net intragroup interbank claims suggest that Belgian banking entities use non-interbank funds, including retail deposits, to finance related banking entities abroad. In fact, many of these entities located in Belgium (including subsidiaries and branches of foreign banking groups) are part of bigger banking groups. There are various models for recycling funding within a group across borders. Liquidity can be recycled via a parent company (e.g. KBC) towards subsidiaries which face a shortage of deposits in comparison to loans. Another model consists in the use of a Belgian subsidiary or branch to fund the parent company's activities (e.g. Deutsche Bank AG).

Faced with the turbulence in the sovereign bond markets during 2011 and 2012, Belgian banks reacted by reconsidering the composition of their sovereign bond portfolios (Chart 15). In 2011, they already significantly reduced their exposures to the public sector of European peripheral countries, as well as to other foreign countries such as the US, Hungary and Poland. At the end of 2012, exposures to European peripheral public sectors had dropped to around € 10 billion, down from € 50 billion at the end of 2008. During 2012, Belgian banks mainly further reduced their exposures to Spain (to € 2 billion)

CHART 15 BELGIAN BANKS' EXPOSURES TO THE PUBLIC SECTOR[1]

(consolidated end-of-period data)



Source: NBB.

(1) Exposures to the public sector in the form of loans and debt instruments, except for Belgium, for which only central government bonds are included.

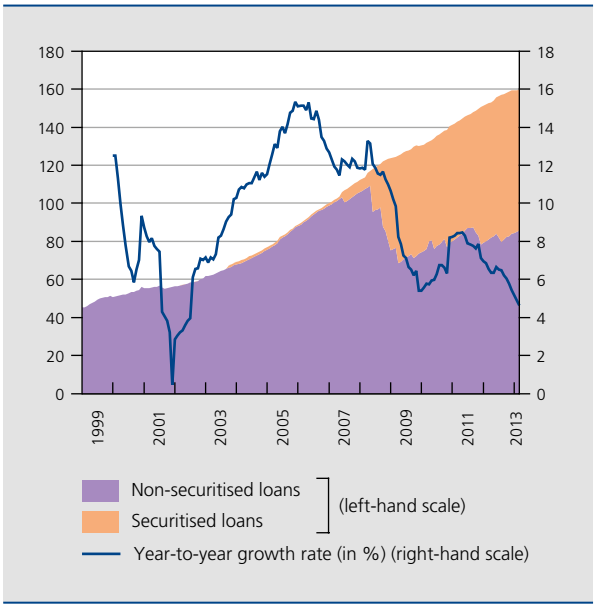
and Portugal (to € 1.7 billion). To a lesser extent, they also reduced their exposures to Italy, which remained close to € 7 billion, and to Greece (to nil), in the context of the Hellenic government bond exchange programme and sales of remaining bonds.

Although some sovereign bonds reaching maturity were replaced by bonds issued by other countries, exposures against the other foreign public sectors remained broadly stable in 2012. In contrast, Belgian credit institutions again stepped up their holdings of Belgian government bonds in 2012, which rose from € 61 billion at the end of 2011 to the record level of € 69 billion at the end of 2012, a jump of 50 % against 2007. They represented 46 % of overall exposures to the public sector, signalling an increasing concentration of Belgian banks' public sector exposures on a single country. Together with Belgian government bonds, claims on central governments and local authorities of the Czech Republic (10 %), France (10 %), Italy (4 %), the Netherlands (4 %), the United States (4 %) and Germany (3 %) represent the largest exposures to public sector debtors.

The reconcentration of Belgian banks on Belgian counterparties can also be seen in the loan portfolio, with total loans and advances to the Belgian non-bank private sector accounting for 71 % of total loans and advances to the non-bank private sector, up from 43 % in 2007.

CHART 16 BELGIAN BANKS' DOMESTIC MORTGAGE LOANS AND RELATED SECURITISATIONS

(data on a territorial basis, in € billion, unless otherwise stated)



Source : NBB.

Overall, exposures to the Belgian non-bank private sector remained stable in 2012, an increase in retail loans offsetting a decline in claims on domestic corporates, partly due to securitisation operations.

Exposures on Belgian retail counterparties (€ 208.2 billion) represent the lion's share of the total retail exposures of the Belgian banking sector even though some banks have non-Belgian subsidiaries with a strong focus on retail banking business. At the end of 2012, retail loans (€ 275.6 billion) represented 43 % of total loans and advances, against 28 % at the end of 2007, showing the rebalancing of the Belgian banks' business models towards more traditional activities. The growth of loans to Belgian households, notably in the form of mortgage credit, played a key role in retail loan expansion. After adjustment for securitisation operations, mortgage loans to Belgian households came to € 159 billion at the end of 2012, or 5 % more than at the end of 2011. As shown in Chart 16 however, this growth rate has been decreasing since mid-2011. In the Eurosystem's bank lending survey, besides demand factors mainly related to the deteriorating macroeconomic environment, Belgian banks reported a tightening of credit standards for this type of loan from the second quarter of 2012. In particular, banks appear to have tightened the conditions for mortgage loans with comparatively long maturities (more than 25 years) and/or comparatively high loan-to-value ratios (see also section 1 in this connection).

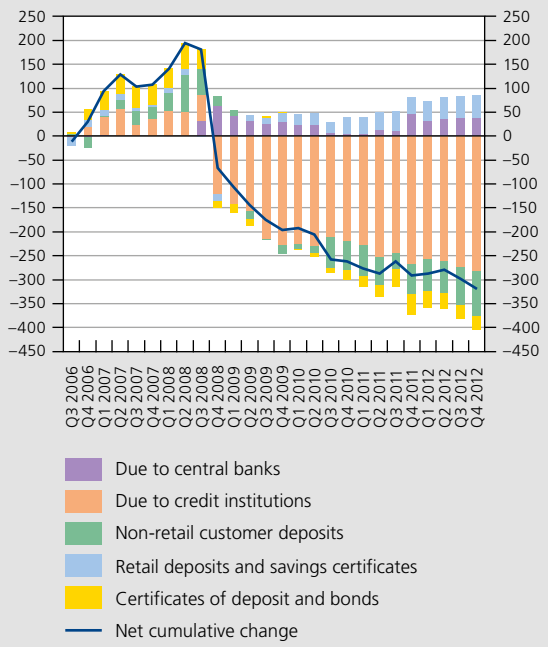
At the end of 2012, about 47 % of the total stock of Belgian residential mortgage loans was securitised following the trend initiated in 2008 for liquidity purposes, as the resulting mortgage-backed securities were included in the pool of central bank eligible assets. The covered bond framework introduced in Belgium in 2012 has further broadened the possibilities for Belgian banks to mobilise their domestic mortgage loans.

2.2 Liabilities and funding structure

Following the introduction of the covered bond regime in Belgium by the Law of 3 August 2012, KBC and Belfius launched their own programmes in the fourth quarter of 2012 and issued their first covered bonds in November/December 2012 and January 2013. On the back of these and other bond issues, but more importantly following issues of certificates of deposit, debt financing rose by € 16 billion in 2012. However, Chart 17 shows that this type of funding remained at a lower level than at the end of June 2006. This is also, and even more, the case for non-retail customer deposits and interbank debts (with the exception of central bank financing),

CHART 17 CUMULATIVE CHANGES IN DEPOSITS COLLECTED AND SECURITIES ISSUED SINCE JUNE 2006

(consolidated data, in € billion)



Source: NBB.

TABLE 2 FUNDING STRUCTURE, LIQUIDITY BUFFER AND REGULATORY LIQUIDITY RATIO

(consolidated end-of-period data, in € billion, unless otherwise mentioned)

	2010	2011	2012
Total assets	1 151	1 147	1 049
of which:			
Unencumbered liquid assets	232	191	248
Total funding (1)	849	816	784
of which:			
Retail deposits	300	304	321
Short-term wholesale funding (2)	362	308	249
Unsecured	222	162	163
Secured	140	146	86
Regulatory liquidity ratio (in %) (3)	78	83	69
Customer loan-to-deposit ratio (in %) (4)	90	90	92

Source: NBB.

(1) Defined as the sum of total deposits and total debt certificates issued (including bonds).

(2) Financing maturing within one year of the reporting date. This wholesale financing includes funding received from various counterparties, ranging from banks and institutional investors to public sector entities and larger corporates.

(3) Regulatory stress test ratio for the one-month horizon. It is a ratio between net cash outflows in a liquidity stress test scenario – simulated i.a. by applying stressed run-off rates to various sources of funding – and the available unencumbered liquidity buffer. The ratio should be 100 % or lower.

(4) Ratio between customer loans and customer deposits.

which together with debt financing form Belgian banks' wholesale funding.

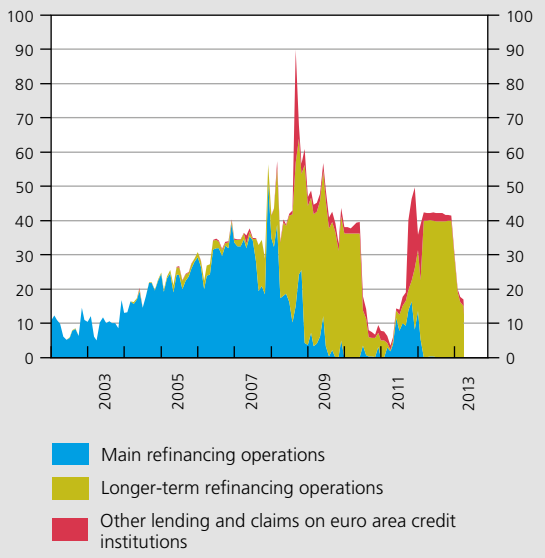
Belgian banks started to reduce their reliance on (non central bank) wholesale funding in the fourth quarter of 2008, when severe disruption in funding markets put serious pressure on the liquidity position of Dexia and Fortis. In 2012, global recourse to wholesale funding was further reduced from € 405 billion to € 349 billion. This reorientation of the funding structure of Belgian banks towards more retail funding has gone hand in hand with banks' business model restructuring programmes and their refocusing on domestic funding sources. Indeed, if central bank funding is excluded, the share of funding sourced in Belgium jumped from 42.7 % to 57.4 % of total funding between the end of 2008 and the end of 2012.

Table 2 provides some additional data about the Belgian banking sector's funding structure and indicates that it is mainly short-term wholesale financing that was reduced. At the end of 2012, wholesale funding maturing within one year amounted to € 249 billion. This short-term wholesale financing consists of unsecured and secured wholesale financing. While short-term unsecured wholesale funding remained stable, short-term secured wholesale funding, which includes the financing obtained from central banks maturing within one year, shrank from € 146 billion at the end of 2011 to € 86 billion at the end of the year 2012. The fall is due to the Belgian banks' recourse to long-term Eurosystem financing and to a reduction in short-term (interbank and corporate) deposits (including repo transactions).

Chart 18 shows the loans provided by the Bank to euro area credit institutions. At the end of February 2012, large-scale participation in the Eurosystem's second three-year refinancing operation (Longer-Term Refinancing Operation or LTRO) significantly bolstered the Belgian banks' long-term borrowings from central banks, which increased from € 18 billion at the end of 2011 to € 40 billion at the end of 2012. However, at the end of April 2013, those borrowings had dropped back to € 15 billion as a result of significant LTRO repayments, inter alia by KBC and Belfius. Indeed, while the funding received for a period of three years through the LTROs eased potential short-term refinancing pressures and gave banks additional time to adjust their business models to the major changes in the funding environment that have occurred

CHART 18 NATIONAL BANK OF BELGIUM'S CLAIMS ON EURO AREA CREDIT INSTITUTIONS

(in € billion)



Source : NBB.

since 2007, some banks decided to repay part of it earlier as they were able to raise funds at a cheaper price on the market. Short-term borrowings, which include in particular the Main Refinancing Operations (MROs) and the Emergency Liquidity Assistance (ELA), declined from € 32 billion at the end of 2011 to € 2 billion at the end of April 2013. The gross financing obtained from the Eurosystem totalled € 17 billion at the end of April 2013. On a net basis however, i.e. after taking account of the Belgian banks' assets with the Eurosystem, it came to only € 0.6 billion. This marked difference between the gross and net figures underlines the prudence of some institutions, seeking to maintain medium-term funding in a situation where that source remains difficult to access, particularly at reasonable cost.

While decreasing their recourse to wholesale financing, Belgian banks strengthened their reliance on retail funding sources. On a consolidated basis, taking into account deposits collected through foreign subsidiaries, retail deposits of banks governed by Belgian law increased from € 304 billion at the end of 2011 to € 321 billion at the end of 2012. Including savings certificates (sold to retail clients), retail funding sources totalled € 351 billion. The share of retail funding in total funding rose from 28 % at the end of 2008 to 45 % at the end of 2012.

The rise in retail funding mainly results from an increase in the Belgian regulated savings deposits, which are exempt from the Belgian withholding tax for a first sizeable tranche of interest payments (equal to € 1 830 for interest income received in 2012). Belgian banks recorded a further expansion in this type of deposits, which – for all credit institutions (including Belgian branches of foreign banks) on a company basis – reached a record € 242 billion at the end of March 2013 (Chart 19), an increase of € 24 billion when compared to the end of 2011. Among customer deposits, these savings deposits have risen sharply since 2007 at the expense of term deposits, due mainly to the changes in interest rate differentials between the two types of deposits. In addition, on 1 January 2012, the tax rate on income from many investment instruments was raised from 15 to 21 %. This applied also to sight and term deposits, and to savings notes and bonds. The second tax change concerned the introduction of a supplementary 4 % tax on income from movable property in excess of € 20 020 (threshold applicable to income in 2012). For the purpose of implementing this measure, income from movable property – with the notable exception of exempt interest on regulated savings accounts – will have to be reported in 2013 tax returns if the total exceeds € 20 020. However, the 15 % withholding tax continues to apply to interest on regulated savings deposits beyond the exemption threshold of € 1 830.

On a consolidated basis, the ratio of loans to customers as a percentage of deposits collected from those same counterparties (the customer loan-to-deposit ratio) was steady at around 90 %, as has been the case since 2009.

Together with data on the Belgian banking sector's funding structure, Table 2 also provides information on the pool of unencumbered liquid assets and the regulatory stress test ratio. To assess the liquidity of credit institutions, the Bank uses a regulatory ratio called the stress test ratio, which has been binding since 1 January 2011 and requires banks to hold sufficient high-quality liquid assets – assets which can be mobilised in repo transactions on private markets or with central banks – in order to cope with a crisis which may hamper the refinancing options of those institutions for one month. The ratio's denominator shows the liquidity available to an institution in such exceptional circumstances compared to the liquidity required in one month, indicated in the numerator. Since the required liquidity is calculated on the assumption that withdrawals from retail customer deposits will be less than withdrawals from other short-term funding sources, the reduction in short-term wholesale financing and greater recourse to retail deposits helped to bring down the level of the required liquidity as simulated by the ratio. Recently, issues

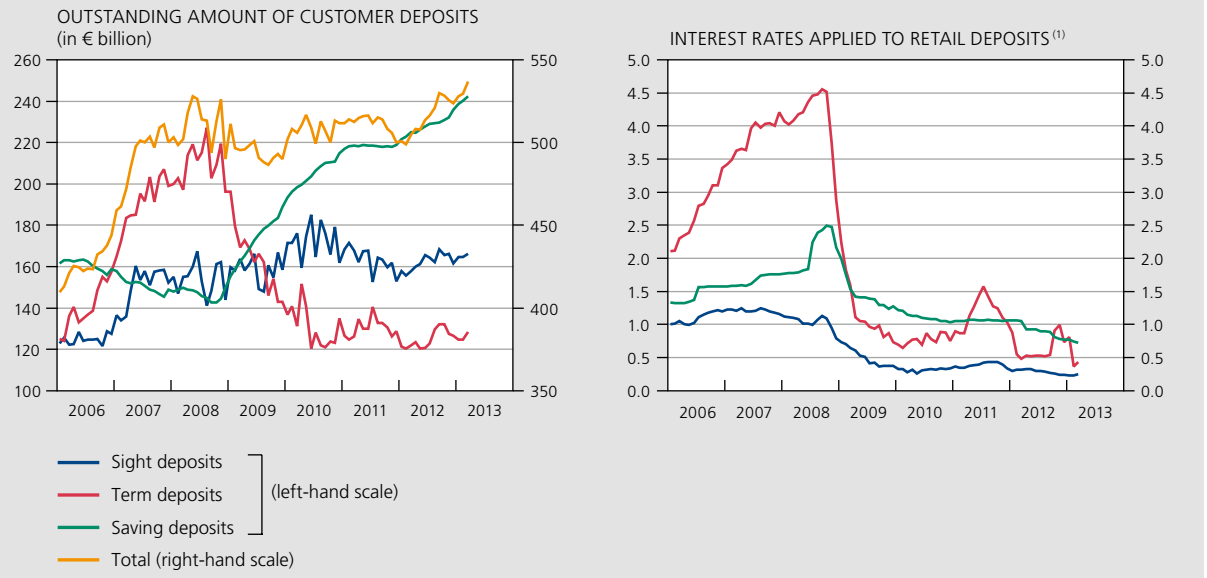
of long-term paper for the retail public and of covered bonds have also reduced the required short-term liquidity, as they give banks scope to exploit new sources of long-term (and therefore more stable) funding.

At the same time, the buffer of unencumbered liquid assets available to the Belgian banks expanded during the year 2012 from € 191 to € 248 billion. That growth mainly reflects the inclusion of government-backed securities acquired by Belfius Bank in exchange for funding granted to Dexia Crédit Local, the expansion of the portfolio of securities eligible as collateral with the Eurosystem by means of new mortgage loan securitisations, sales of loan portfolios, or reduction in the use of liquidity for non-strategic activities. The coming EU Directive on European Market Infrastructure Regulation (EMIR) could have an opposite impact on the liquidity position of Belgian credit institutions. The EMIR is designed to reduce the counterparty risk of OTC derivative markets and to increase transparency within the markets by obliging credit institutions to use central counterparties (CCPs) to clear their derivative transactions. The collateral requirements for these derivatives to protect against credit risk could be more extensive than those currently applicable to credit institutions, and could affect the buffer of unencumbered liquid assets. The left-hand panel of Chart 20 shows the development in the stock of unencumbered liquid assets as a percentage of total assets since the end of 2009, on a company basis. After dropping to 16 % of total assets at the end of 2011, the ratio rose sharply again in the course of 2012 and 2013, reaching 29 % at the end of February 2013.

The combination of a fall in the numerator and a rise in the denominator led to an improvement in the regulatory liquidity ratio set by the Bank. The liquidity stress test ratio, as shown on the right-hand panel of Chart 20 and in Table 2, fell from 83 % at the end of 2011 to 69 % at the end of 2012 and 63 % at the end of February 2013 on a consolidated basis, though that does mask variations between individual institutions. To meet the regulatory requirements, the ratio must be equal to 100 % or less. On a company basis, the chart also shows that the liquidity stress test ratio improved during 2012 for both the sector and the group of four large credit institutions, even if it slightly deteriorated in the first quarter of 2013. These indicators suggest, however, that the short-term liquidity ratios of the other Belgian credit institutions remain lower than that of the group of four large credit institutions, due to the fact that the smaller institutions rely to a greater extent on retail-based funding and are thus less sensitive to the Bank's liquidity stress scenarios.

CHART 19 CUSTOMER DEPOSITS: OUTSTANDING AMOUNTS AND INTEREST RATES APPLIED

(unconsolidated data)



Source: NBB.

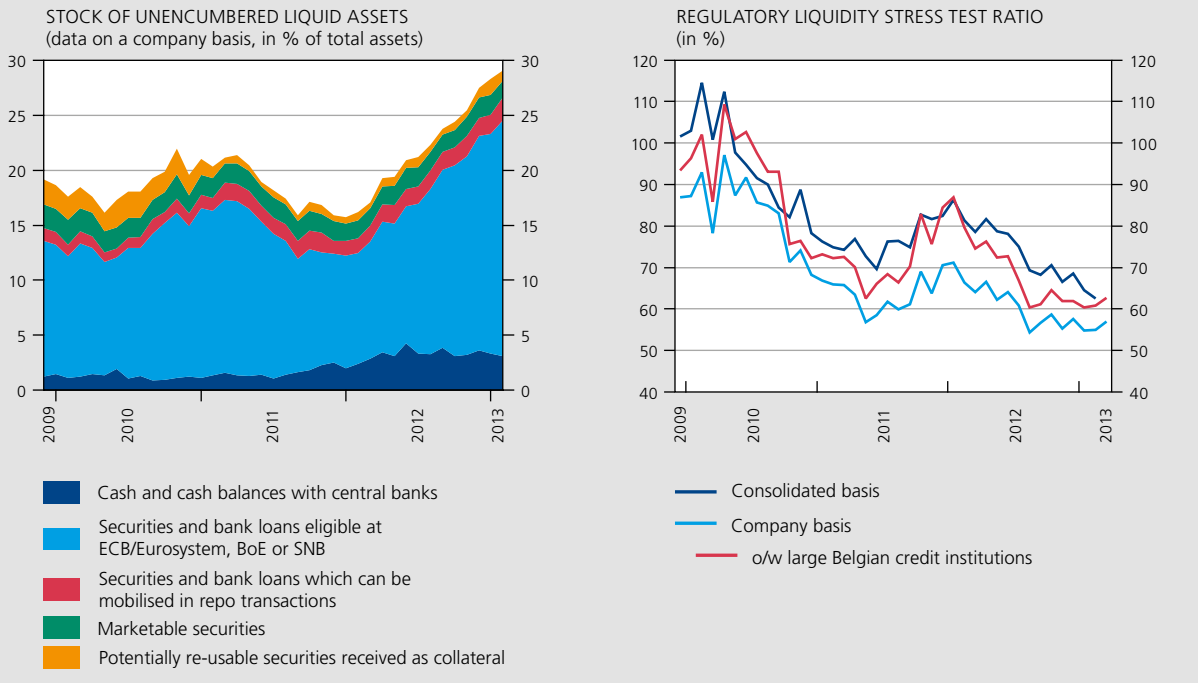
(1) Data from the monthly MIR survey in the case of new deposits. Deposits for a term of up to one year in the case of term deposits.

The application of the Bank's liquidity ratio anticipates the future implementation of the two ratios introduced by the new Basel III rules. The liquidity coverage ratio (LCR), which was finalised at the beginning of 2013 and aims to attenuate short-term liquidity risks, will be phased in from 2015, while the net stable funding ratio (NSFR), intended to improve the banks' structural liquidity position, is to enter into force in 2018. In methodological terms, the LCR is comparable to the Bank's regulatory ratio though it is based on different parameters, definitions and assumptions for the simulated liquidity crisis scenario. The liquidity buffers formed in the context of the Belgian regulatory liquidity ratio – which became binding on 1 January 2011, as mentioned before – should enable the institutions concerned to meet the full 100 % LCR quickly, obviating the need for them to make use of the phasing-in period foreseen by the Basel Committee for the LCR.

Chart 21 provides a historical perspective (1950-2012) on some of the recent developments in the banking sector's balance sheet. The break in the time series at the beginning of the 1990s is related to a change in the availability of consistent time series over long periods as, prior to 1992, some categories of credit institutions – such as savings banks and public sector banks – were subject to different reporting requirements, compared to commercial banks.

The left panel shows that there were three main periods of expansion in total banking sector assets as a percentage of GDP. The first, and the longest, expansion took place between the end of the 1950s and the beginning of the 1970s, when a brief period of consolidation set in. Banking assets then expanded again strongly in the years between 1976 and 1983, after which a period of flat or moderate growth set in. The third main period of growth started in 2004, when banking sector assets increased from 323 % of GDP at the end of 2003 to 419 % of GDP in 2007. Financial deepening in the economy (as households' and corporations' financial needs became more substantial and sophisticated) as well as general market trends (such as financial globalisation, the growing importance of interbank positions on both sides of banks' balance sheets, and financial innovation) contributed to this development in the sector's total assets, as indeed they did in many, if not most, other advanced economies. The Belgian banks' strategy of international expansion, which accelerated in the late 1990s, undoubtedly also led to higher assets during this last period of expansion, an increasing proportion of which then in fact concerned

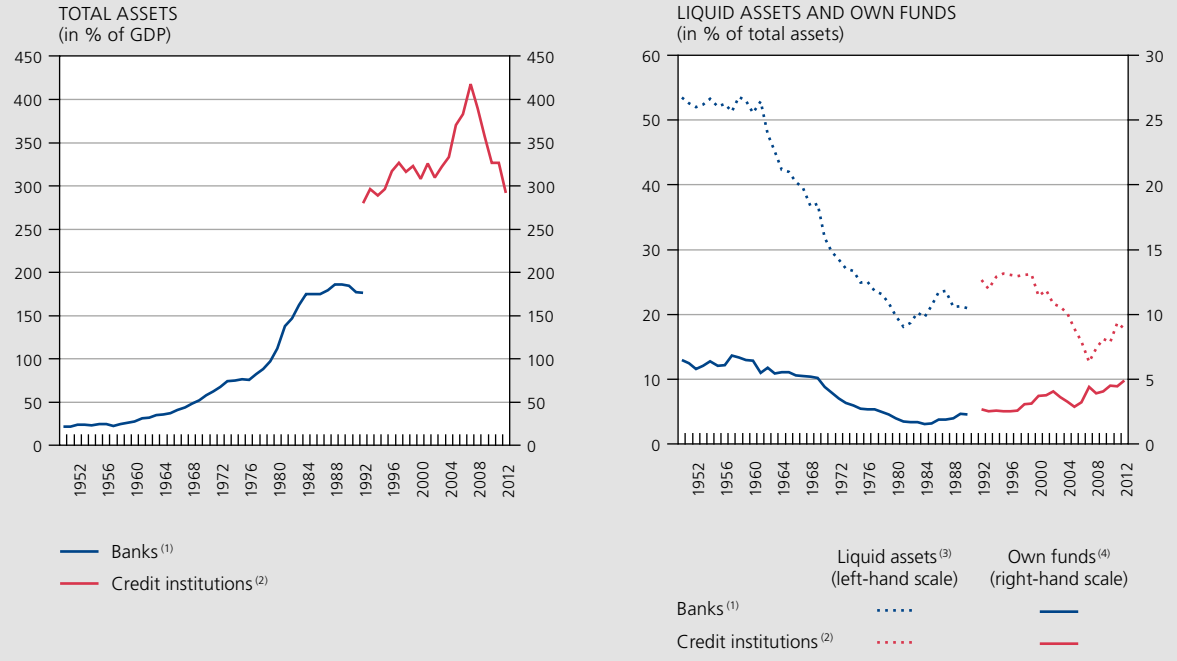
CHART 20 STOCK OF UNENCUMBERED LIQUID ASSETS AND REGULATORY LIQUIDITY STRESS TEST RATIO (1)



Source : NBB.

(1) Regulatory liquidity stress test ratio for the one-month horizon. It is a ratio between net cash outflows in a liquidity stress test scenario – simulated inter alia by applying stressed run-off rates to various sources of funding – and the available unencumbered liquidity buffer. The ratio should be 100 % or lower.

CHART 21 HISTORICAL TIME SERIES



Sources: CBF, NBB.

(1) Bank assets, as reported in the Annual Reports of the Commission Bancaire et Financière.

(2) Including savings banks and public credit institutions, not covered in the time series concerning the banks for the period 1950-1992.

(3) For the series relating to banks in the period 1950-1992, liquid assets include the outstanding amounts of the following assets: cash and cash equivalents, short-term claims, government securities eligible for refinancing at the central bank and other government securities. For the series relating to credit institutions in the period 1992-2009, liquid assets include the outstanding amounts of the following assets: cash, cash equivalents and interbank sight deposits, government securities and other short-term negotiable instruments.

(4) Total own funds, including reserves.

exposures on non-Belgian residents. From the peak reached in 2007, Belgian banking sector assets then declined, and dropped again to levels last seen in the mid-1990s, below 300 % of GDP, in the course of last year. Recent structural changes applied to Belgian banks' business models, including the reduction of many legacy portfolios, have led to this decrease in total assets. In particular, the share of assets relating to Belgian counterparties, which decreased from 66 % in 1994 to a low 28 % at the end of 2007, rose back to 50 % at the end of 2012.

The right panel of Chart 21 shows the changes, over time, in the amount of own funds and liquid assets as a percentage of total assets. The shares of own funds and liquid assets, which accounted for respectively more than 5 % and 30 % of the balance sheet in the 1950s and 1960s, both declined significantly over the next 15 years, bottoming out in the 1980s and subsequently recovering until around the year 2000. Afterwards, the time series of both indicators declined sharply in the decade preceding the recent financial crisis. Since then, both indicators have recovered again, as capital and liquidity buffers and associated regulatory frameworks were profoundly re-evaluated on the basis of the lessons learned during the crisis.

This long-term perspective, as well as the most recent developments in Belgian banks' balance sheets reviewed earlier, provide ample evidence of the major restructuring that the Belgian banking sector has undertaken since the start of the global financial crisis almost six years ago. This process has also resulted in a rebalancing of the Belgian banks' business models towards more traditional activities and markets, bringing the Belgian banking sector back to a situation that is reminiscent in various aspects to the one observed at the end of 1990s, before the last expansion phase gathered momentum. Yet, in many regards, the current economic and financial environment – characterised by weak economic growth and very low interest rates – is now quite different from the one that prevailed then, resulting in a quite challenging operating environment (see section 1).

2.3 Profitability

This challenging operating environment also explains why the Belgian banking sector – with a return on equity of only 3.0 % in 2012 – still seems to face major challenges in overcoming the negative impact on profitability of the financial crisis and the associated restructuring of activities. While the low return on equity in 2012 is partly the reflection of higher equity levels (the denominator), it mainly results from a persistently weak net bottom-line result (€ 1.6 billion) in the income statement (Table 3). This net profit of € 1.6 billion in 2012 was however an improvement on the even lower € 0.4 billion in 2011, when high impairments (including on Greek government bonds) weighed on the net result. In 2012, the net amount of impairments was € 2.4 billion lower than in 2011, accounting for the lion share of the improvement in the bottom-line result. Looking at the more recurrent income and costs, such as net interest income, fee and commission income or net operating expenses, the situation in 2012 was in fact somewhat weaker than in 2011.

Belgian banks' net interest income was in recent years their major stable source of income. It benefited from a steepening of the yield curve, which is favourable to banks' traditional maturity transformation activities. Indeed, banks fulfil an important role in the intermediation between depositors and borrowers, by offering short-term savings products to retail customers on their liability side while extending long-term sources of finance to

TABLE 3 MAIN COMPONENTS OF THE INCOME STATEMENT
(consolidated data)

	In € billion					In % of operating income
	2008	2009	2010	2011	2012	
Net interest income	**14.48**	**14.89**	**13.77**	**13.99**	**13.57**	**71.6**
Non-interest income	**4.80**	**3.93**	**6.39**	**5.61**	**5.38**	**28.4**
Net fee and commission income (excluding commissions paid to bank agents)	6.76	5.66	5.15	5.24	5.37	28.3
(Un)realised gains or losses on financial instruments (1)	–3.83	–2.74	–0.04	–0.80	0.04	
Other non-interest income	1.86	1.01	1.28	1.17	–0.03	
Total operating income (bank product)	**19.28**	**18.82**	**20.15**	**19.60**	**18.94**	**100.0**
Total operating expenses (–)	**16.59**	**14.61**	**13.29**	**13.18**	**13.90**	**73.4** (2)
Staff expenses (including commissions paid to bank agents)	9.20	7.94	7.40	7.43	7.75	
General and administrative expenses (including depreciation)	7.39	6.67	5.90	5.75	6.15	
Total impairment and provisions (–)	**13.31**	**7.36**	**1.83**	**5.02**	**2.61**	
Impairments on loans and receivables	2.84	5.59	1.76	3.05	1.98	
Impairments on other financial assets	7.46	0.29	–0.09	1.37	–0.84	
Other impairments and provisions	3.01	2.06	0.16	0.60	1.46	
Other components of net operating income (3)	**–0.81**	**0.11**	**0.45**	**–0.37**	**0.25**	
Net operating income (4)	**–11.43**	**–3.04**	**5.48**	**1.02**	**2.68**	
Total profit or loss on discontinued operations	**–9.04**	**0.00**	**0.97**	**–0.31**	**0.00**	
p.m. Net profit or loss (bottom-line result) (5)	*–21.21*	*–1.22*	*5.56*	*0.36*	*1.59*	

Source : NBB.

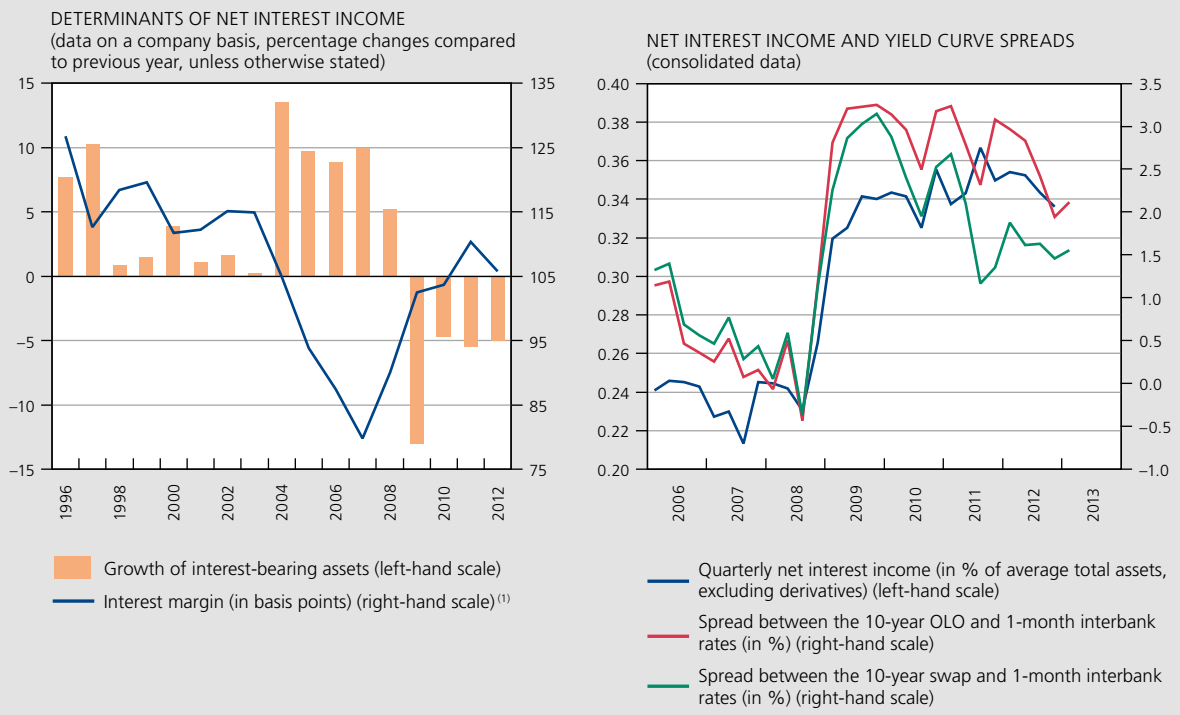
(1) This item includes the net realised gains (losses) on financial assets and liabilities not measured at fair value through profit or loss, the net gains (losses) on financial assets and liabilities held for trading and designated at fair value through profit or loss, and the net gains (losses) from hedge accounting.

(2) This figure is the cost-to-income ratio of the Belgian banking sector.

(3) Other components of net operating income comprise the share in profit or loss of associates and joint ventures accounted through the equity method, and the profit or loss from non-current assets, disposal groups classified as held for sale, not qualifying as discontinued operations and the negative goodwill recognised immediately in profit or loss.

(4) The amounts of taxes and minority interests, which are items explaining the difference between net operating income and the net bottom-line result, are not broken down in this table, but can be found in Table 10 of the Statistical Annex.

CHART 22 DETERMINANTS OF NET INTEREST INCOME



Source : NBB.

(1) The interest margin corresponds to the difference between the average implicit interest rate received and paid respectively on banks' average stock of interest-bearing assets and liabilities. The averages are calculated over a one-year period.

borrowers on the asset side. The associated interest rate maturity mismatches between major categories of assets and liabilities are an important – and traditional – source of banking income, provided that the associated potential sources of unexpected losses due to unfavourable interest rate developments are managed prudently (see also section 2.6 in this connection).

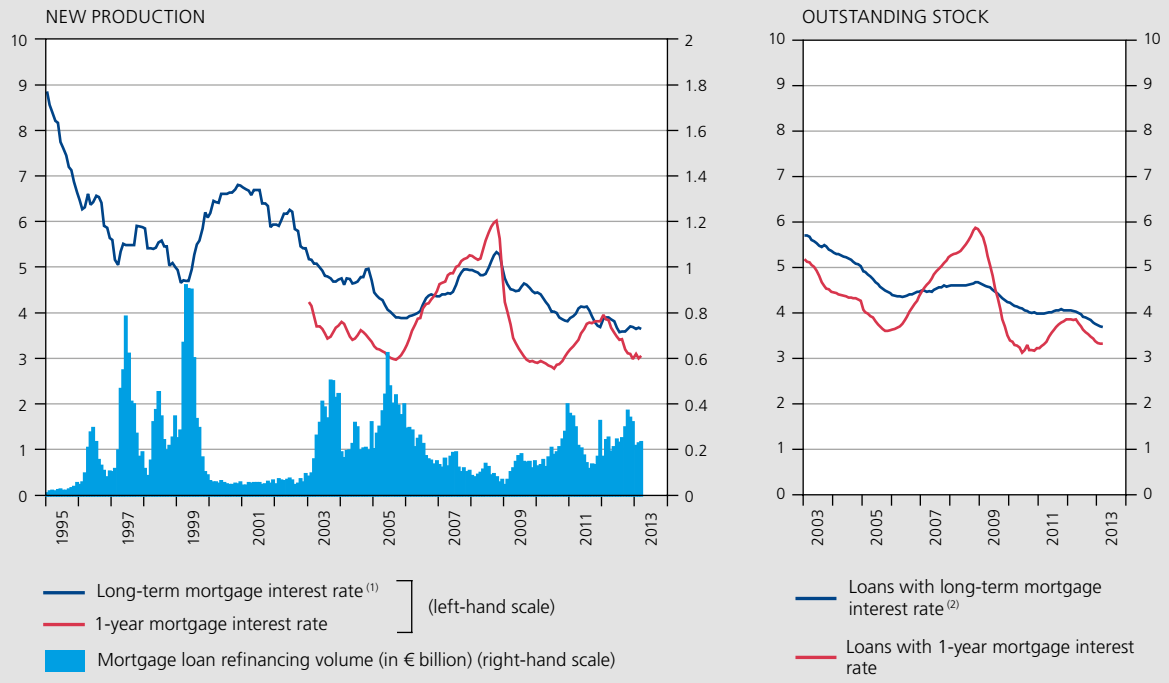
Net interest income decreased from € 14.0 billion in 2011 to a still quite high € 13.6 billion in 2012. For the first time since 2007, the interest margin (on an unconsolidated basis) of Belgian banks decreased slightly, compounding the negative impact of the decline in the total interest-bearing assets (see left panel of Chart 22). Similarly, ratios comparing quarterly net interest income to average total assets (excluding derivatives) also decreased in 2012, in line with reduced spreads between long-term rates (swap and OLO) and short-term (interbank) rates (see right panel of Chart 22). However, until the end of 2012, this rate structure still remained favourable to maturity transformation activities, so that banks were able to partly offset the negative impact of the low interest rate environment on their net interest income.

This negative impact of the low interest rate environment mainly works through two channels. First, low interest rates depress the structural margins that banks traditionally earn on cheap deposits, such as sight deposits and, to a lesser extent, savings deposits. Second, in a low interest rate context, loans and securities arriving at maturity have to be reinvested at yields that are probably lower than the maturing contractual interest rates. This reinvestment risk in a low interest rate environment is likely to materialise in both the bond and loan portfolios of the Belgian banks. In the case of government bonds, for example, high-yield securities that recently reached maturity or were sold to reduce risk exposures to peripheral States are likely to have been replaced with securities offering a lower yield, such as Belgian government bonds. In the case of loans to customers, the reinvestment risks are also likely to be material, even if banks may compensate this somewhat through higher commercial margins.

Chart 23 illustrates in this connection recent developments in the average short- and long-term mortgage loan rates of newly granted mortgage loans to Belgian

CHART 23 MORTGAGE LOAN INTEREST RATES

(in %, unless otherwise stated)



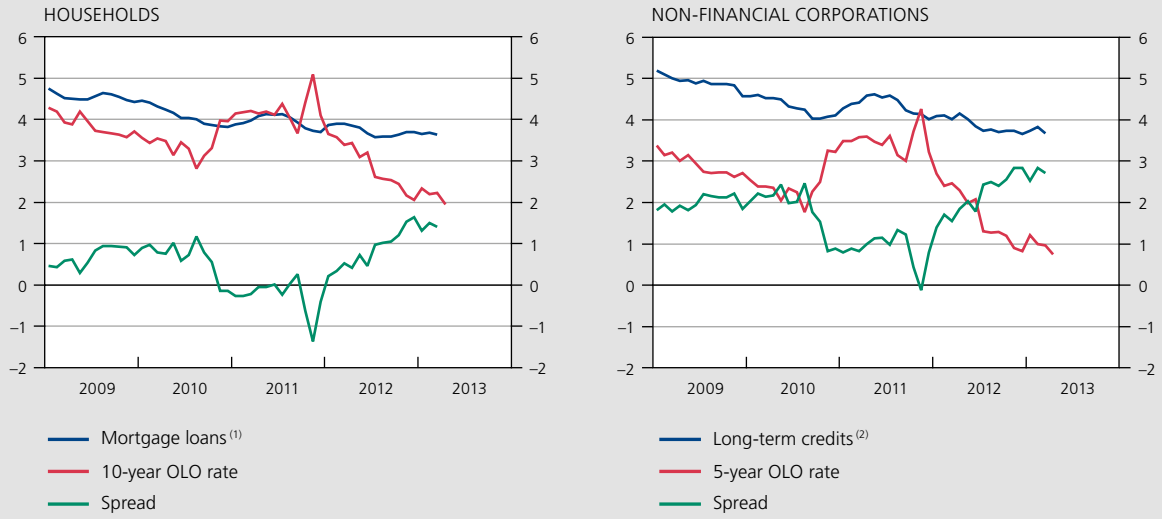
Source : NBB.
(1) Initial rate fixed for at least ten years.
(2) Rate fixed for more than five years.

households by Belgian banks. In the right panel, the chart also provides information on the average yield of the outstanding stock, distinguishing between loans with a 1-year variable mortgage loan rate and loans with a long-term fixed interest rate. The time series show that both long-term and 1-year rates applied to new business and to the outstanding stock of Belgian mortgage loans decreased markedly in 2012. This is the consequence, on the one hand, of automatic repricing (for loans with shorter fixed-rate periods), and, on the other hand, of substantial amounts of refinancing (with greater incentives for loans with fixed interest rates, which account for around 60 % of the outstanding stock). In this connection, it must be remembered that the Belgian mortgage loan regulations stipulate that the maximum financial penalty for early redemption by borrowers is three months' interest due on the remaining capital outstanding. This quite cheap early redemption option is regularly used for the purpose of refinancing loans at lower interest rates when rates on new mortgage loans fall below the yield on historical contracts. As shown in the left panel of Chart 23, monthly volumes of mortgage refinancings are therefore very sensitive to the level of interest rates on new mortgage loans. As these refinancings depress the profitability of the mortgage loan portfolio, they constitute an option-type source of interest rate risk for the Belgian banks. These interest rate risks and related hedging costs, together with an appropriate funding cost for an asset portfolio with sometimes very long-term assets, have to be included by the banks in the commercial margins taken on mortgage loans.

Chart 24 provides information on recent developments in Belgian banks' commercial interest rate margins on new lending. The chart shows, for long-term assets, the difference between the interest rates on long-term loans and the cost of funding them. In 2012, the Belgian banks raised their commercial margin on long-term transactions. The difference between, on the one hand, the interest rate on mortgage loans with an initial fixed-interest period of more than ten years or long-term loans to non-financial corporations and, on the other hand, the ten-year and five-year OLO yields widened considerably in 2012. However, it is worth noting that the OLO yields give only a general indication of the fluctuations in banks' funding costs, as those costs do not automatically

CHART 24 COMMERCIAL MARGIN ON BELGIAN NON-BANK PRIVATE SECTOR LOANS

(territorial data, in %)



Sources: Thomson Reuters Datastream, NBB.

(1) Interest rate on mortgage loans with an initial fixed-interest period of more than ten years.

(2) Interest rate on loans of less than € 1 million with an initial fixed-interest period of more than five years.

mirror movements in the yield on Belgian government bonds. The commercial margin which Belgian credit institutions make on their long-term transactions therefore need not coincide with the spread between the debit interest rates and OLO yields, particularly when the latter are highly volatile, as was the case at the end of 2011, owing to the intensification of the sovereign debt crisis, exacerbated by the political uncertainty in Belgium, or during the second half of 2012 when, under the influence of a more favourable outlook, the quest for high-quality assets drove down the interest rate on Belgian government bonds.

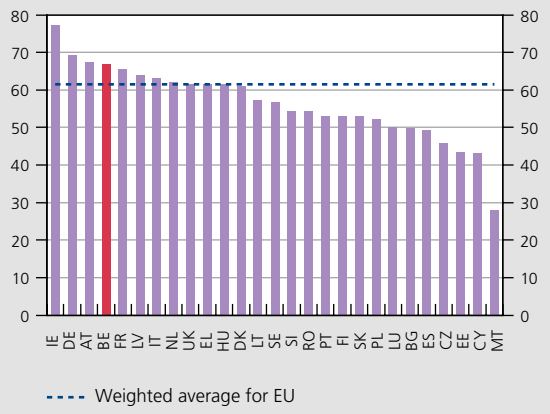
While recent developments in Belgian banks' net interest income were thus the result of various factors driving the interest rate revenues and costs of banks' assets and liabilities, the overall result was a negative contribution to the total change in operating income between 2011 and 2012.

Total operating income decreased from € 19.6 billion in 2011 to € 18.9 billion in 2012, as non-interest income also declined somewhat. Within this non-interest income, a major development was the realisation of losses on Greek government bonds, following the execution of the Greek government bond exchange programme in the first quarter of 2012. These Greek losses negatively affected the overall (un)realised gains or losses on financial instruments, which reached a low of € 0.04 billion last year. That result still compares favourably to the previous year's figure when sales of portfolios and mark-to-market losses on bond portfolios – following spread widening – and on equity portfolios led to a negative trading result of € 0.80 billion. While fee and commission income was once again fairly stable in 2012, other non-interest income sources decreased markedly to close to nil. In 2011, large gains had been recorded as a result of exchange differences. In total, non-interest income reached € 5.4 billion in 2012, a slight drop on 2011. It accounted for 28.4 % of total operating income, whereas this figure had been around 50 % in 2006 and 2007, reflecting the persistent impact of the change in Belgian banks' profitability drivers over time, and the transition towards a business model characterised by a return to more traditional activities.

At the same time as the decline in operating income, operating expenses increased for the first time in four years to € 13.9 billion from € 13.2 billion in 2011. Both staff expenses and general expenses went up, the former being related to changes in the consolidation scope of a major player and the latter partly reflecting restructuring costs and higher marketing expenses. The combination of higher operating expenses and lower operating incomes led to a marked increase in the cost-to-income ratio

CHART 25 COST-TO-INCOME RATIO OF EUROPEAN BANKING SYSTEMS

(consolidated data; average for 2010, 2011 and H1 2012)



Source: ECB Consolidated Banking Data.

which compares the two indicators: it went up to 73.4 % in 2012 from 67.3 % in 2011. When compared to their European peers, Belgian banks have shown a relatively higher average cost-to-income during the last three years (Chart 25).

With the exception of fee and commission income, non interest income has proved volatile and very low, if not negative, in recent years, often due to exceptional losses wich could be more limited in the coming years. At the same time, more recurrent income sources have been under pressure, especially net interest income in a persistent low rate environment.

Looking ahead, this raises questions about the adequacy of current cost structures and business models in an operating environment characterised by reduced asset bases, strategic refocusing on a domestic, but mature, banking market, very low interest rates and weak economic growth. Until the end of 2012, the restructuring of Belgian banks' balance sheets largely took the form of a response to the financial crisis rather than profound changes in business models. Yet, sufficient profitability will be crucial in order to return banks to a more resilient standalone position, as retained earnings will allow them to boost their common equity and converge towards the Basel III solvency standards, which are more stringent than the current standards.

To this end, in the second half of 2012 and in the first quarter of 2013, almost all major players announced cost-cutting measures aimed at reducing the workforce over the coming years through natural attrition, by not replacing people reaching retirement age, and hence cutting staff expenses, as well as reducing the number of branches and associated general expenses, e.g. by focusing further on e-banking.

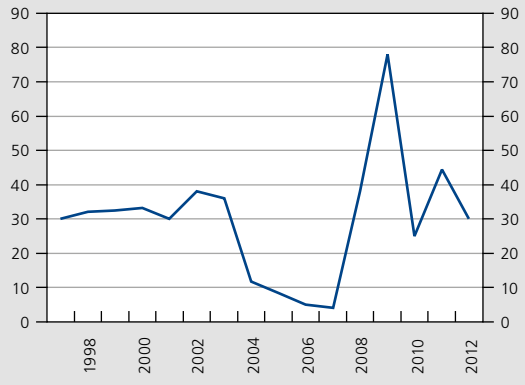
The rather favourable trend in the bottom-line result of the Belgian banks' income statement in 2012 was mainly the result of a decrease in impairments and provisions from € 5.0 billion in 2011 to € 2.6 billion, as the reduction in impairments on loans and other financial assets more than offset the increase in other impairments and provisions.

Large impairments were recorded by KBC on entities to be divested, and by BNP Paribas Fortis on participations. Hence, impairments on non-financial assets increased from € 0.60 billion at the end of 2011 to € 1.46 at the end of 2012. Impairments on financial assets other than those classified in the loans and receivables portfolio were negative in 2012 (€ –0.84 billion), as large amounts of provisions initially booked in 2011 on Greek government bonds were reversed. However, the impact of these withdrawals on the sector's bottom line was marginal, as they were offset by a similar amount of losses recorded in the non-interest income (see above).

The decrease in the amount of impairments on assets classified as loans and receivables was the result of a combination of various factors. First, substantial provisions were taken in 2011 on specific portfolios or files, such as the Hungarian portfolio of KBC Bank or the claims of

CHART 26 LOAN LOSS RATIO[1]

(consolidated data, in basis points)



Source: NBB.

(1) The loan loss ratio is the net flow of new impairments for credit losses, expressed as a percentage of the stock of total loans (one basis point is one hundredth of one percent). From 2006 onwards, the figures are the loan loss ratio for the IAS/IFRS category Loans and receivables.

TABLE 4 CREDIT QUALITY INDICATORS
(consolidated end-of-period data)

	Percentage of impaired claims[1]						Coverage ratio[2]					
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
Credit institutions	0.0	0.4	0.8	0.4	0.3	0.3	59.0	68.2	47.7	55.5	60.2	53.8
Corporate[3]	2.3	2.3	4.3	4.9	5.9	7.0	37.2	47.1	46.0	43.2	42.7	42.7
Retail[4]	2.8	3.3	3.5	3.5	4.1	4.1	27.6	33.6	39.0	41.2	39.7	39.7
Non-credit institutions[5]	0.3	1.3	0.3	0.9	0.6	0.3	31.9	19.9	17.9	45.4	29.2	31.1
Total[6]	**1.5**	**2.0**	**2.9**	**2.8**	**3.3**	**3.8**	**32.3**	**41.1**	**43.0**	**42.8**	**41.5**	**41.4**

Source : NBB.
(1) Impaired claims (according to IAS 39 definition) as a percentage of total loans.
(2) Percentage of impaired claims covered by specific or general provisions.
(3) Exposures on non-financial corporations, plus some non-bank financial corporations.
(4) Including self-employed persons and some SMEs.
(5) Exposures on certain non-bank financial institutions and local authorities.
(6) Including the small amounts of loans to central governments.

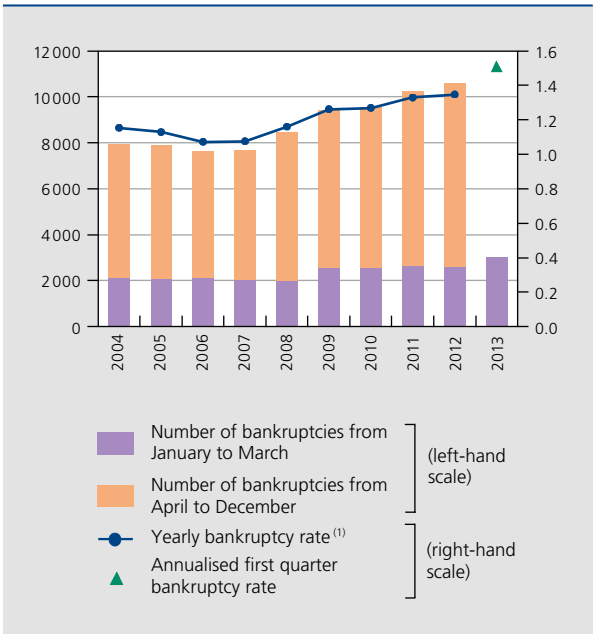
Belfius Bank on Holding Communal. Second, provisions were also booked in 2011 on some Greek government bonds reclassified as loans and receivables. The absence of such adverse factors in the 2012 income statement masks a more broadly-based increase in impairments (e.g. on corporate counterparties) as a result of a deteriorating economic environment, including in Belgium. These impairments were additional to continuing significant provisions on foreign portfolios, such as in Ireland. The loan loss ratio, comparing impairments on loans and receivables to total loans, declined from 44 basis points in 2011 to 30 basis points in 2012, a level higher than those reached in 2010 and in the pre-crisis period (2004-2007), but in line with the historical average of this indicator (Chart 26). Looking ahead, a period of persistent subdued growth is likely to lead to a further increase in provisions on loans and receivables.

2.4 Asset quality

Even though the loan loss ratio did not exceed previous peaks, the percentage of impaired claims rose again in 2012 to 3.8 %, up from 3.3 % at the end of 2011 (and 1.5 % at the end of 2007) (Table 4). This development is in line with the one observed in many European countries, as weak economic conditions affect the quality of assets. Against this background, European supervisory authorities are increasing their monitoring of European banks' asset quality.

In the Belgian banks, loans to corporates showed a strong increase in the ratio of impaired claims, rising to 7.0 % from 5.9 % at the end of 2011. No such development was observed in 2012 for the other types of counterparties. While claims on foreign counterparties (such as in Ireland and Hungary) had represented the majority of the defaults in previous years, exposures to Belgian counterparties were also affected in 2012, indicating that the decline in the

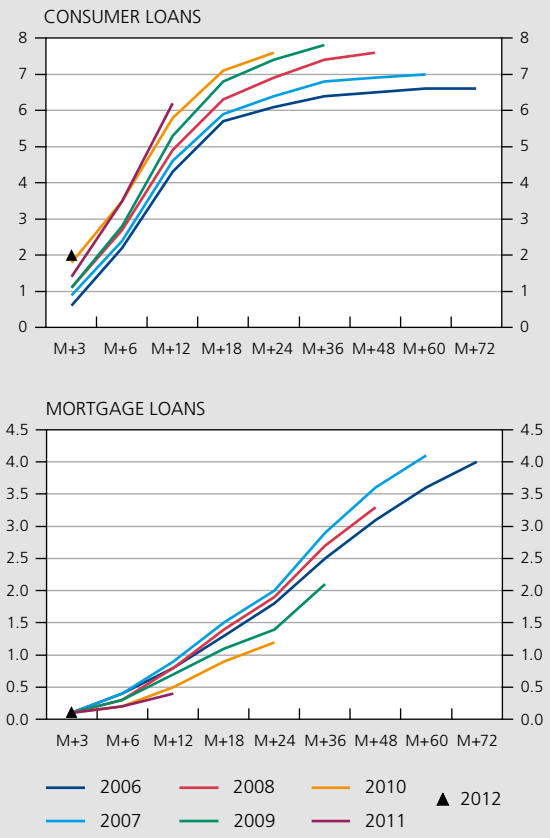
CHART 27 BELGIAN CORPORATIONS' BANKRUPTCIES



Source : FPS Economy.
(1) Ratio between the number of bankruptcies in a period and the number of corporations subject to VAT at the beginning of that period.

CHART 28 PROPORTION OF LOANS TO BELGIAN HOUSEHOLDS WITH PAYMENT DEFAULTS [1], BY VINTAGE [2]

(in %)



Source : NBB.

(1) A default is recorded when three instalments are not (fully) paid or when an instalment has not been (fully) paid after a period of three months.

(2) Vintages group together loans granted during the same year. The curves show, for each vintage, the number of defaulted loans as a percentage of total original loans after a certain number of months since the loans were granted. Possible loan regularisations are not taken into account.

quality of the loan portfolios is more general than in the past. The coverage ratio of impaired loans remained stable in 2012 at around 41 %.

In an economic environment characterised by weak growth prospects in several countries in the euro area and elsewhere, it is not excluded that a further deterioration in the quality of the Belgian banks' loan portfolio will take place. In Belgium, too, further increases in the percentage of impaired claims on corporate and other counterparties could occur. The number of Belgian corporate bankruptcies has been increasing constantly since 2007 and has outpaced the increase in the total number of Belgian corporates, as shown by the increase in the ratio comparing the number of bankruptcies during a year to the total number of existing corporates at the end of the previous year (Chart 27). The figures for the first three months of 2013 show a further increase in the number of Belgian corporate bankruptcies and in the annualised abovementioned ratio.

The credit quality indicators for Belgian households show some deterioration in default rates during the recent vintages for consumer loans, but not for mortgage loans (Chart 28). For the 2011 vintage of consumer loans, for example, the cumulative default rate after 12 months was 6.2 %, while the comparable figures for the 2010, 2009, 2008, 2007 and 2006 vintages after one year had been respectively 5.8 %, 5.3 %, 4.9 %, 4.6 % and 4.3 %. Data relating to the 2012 vintage indicate a default rate after 3 months higher than in any of the six previous vintages. The vintage statistics for mortgage loans show no clear deviation from historical default rates, as cumulative default rates broadly follow the same trajectory. However, in this connection it should be remembered that the low trajectory of the most recent vintages – 2009, 2010 and, in particular, 2011 – reflects to some extent the high number of so-called green mortgage loans originated during those years, creating an upward bias in the denominator of the ratio. As customers tend to give priority to repayment of their mortgage loan, the observed deterioration in consumer loan defaults could nevertheless also be a sign of increasing repayment difficulties for Belgian retail clients, even though banks' credit losses on Belgian retail clients have remained very low up till now.

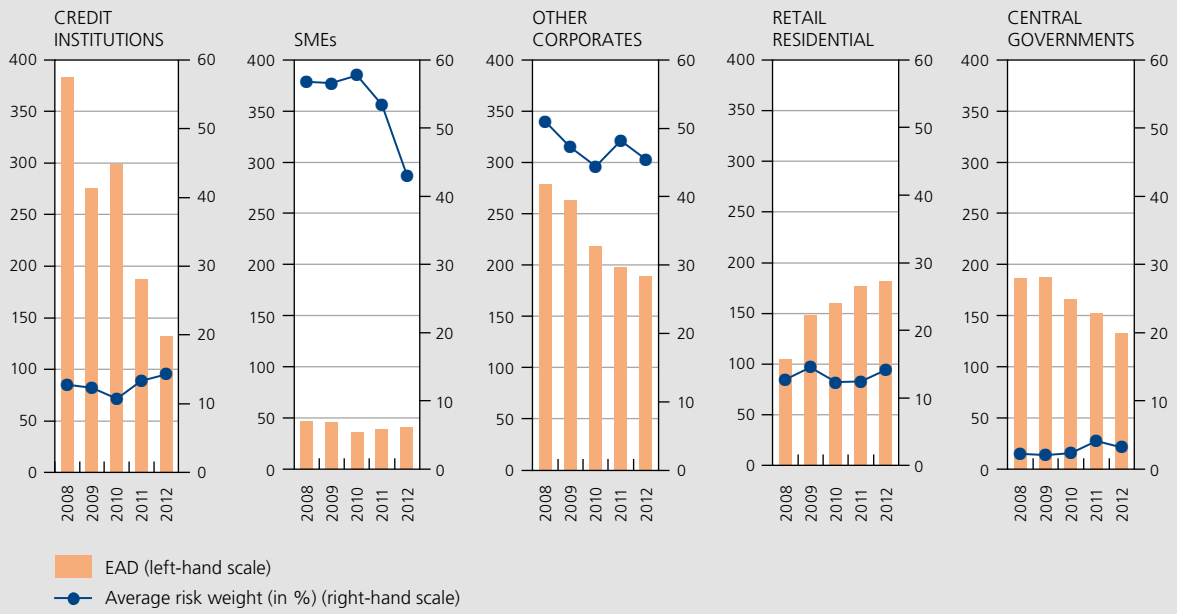
2.5 Solvency

While most credit risks in the Belgian banking sector stem from exposures on the balance sheet, off-balance-sheet exposures in the form of undrawn portions of credit lines, or guarantees extended to third parties, may also be a source of sometimes significant credit risk. To calculate the Basel II capital requirements for credit risk, the on- and off-balance-sheet exposures are combined and converted to exposure at default (EAD) via a process which is explained in more detail in the Financial Stability Review 2009 (pp. 44-49). In turn, this EAD is risk-weighted and translated into capital requirements, serving as buffers against unexpected credit losses. These calculations differ significantly between the standardised (SA) and internal ratings-based (IRB) approaches.

Under the SA approach, pre-defined risk weights vary according to the type of counterparty and, if available, its external rating, while risk weighting relies on internal models under the IRB approach. EAD covered by the

CHART 29 EXPOSURES AT DEFAULT AND AVERAGE RISK WEIGHT FOR SOME ASSET CLASSES FALLING WITHIN THE IRB APPROACHES OF THE PILLAR I CAPITAL REQUIREMENTS FOR CREDIT RISK

(consolidated end-of-period data, in € billion, unless otherwise stated)



Source: NBB.

SA approach increased from € 235 billion at the end of 2011 to € 264 billion at the end of 2012, and mainly followed from the transfer of BNP Paribas leasing activities to BNP Paribas Fortis.

In the case of the IRB portfolios, which covered EAD for an amount of € 771 billion at the end of 2012, down from € 849 billion at the end of 2011, the resulting average risk weight can be computed by dividing the risk-weighted assets relating to a certain counterparty by the associated exposure at default. The ratio varies significantly from one asset class to another, owing notably to differences in assessed probability of default (PD) or loss given default (LGD), which are two important variables in the computation of risk weights.

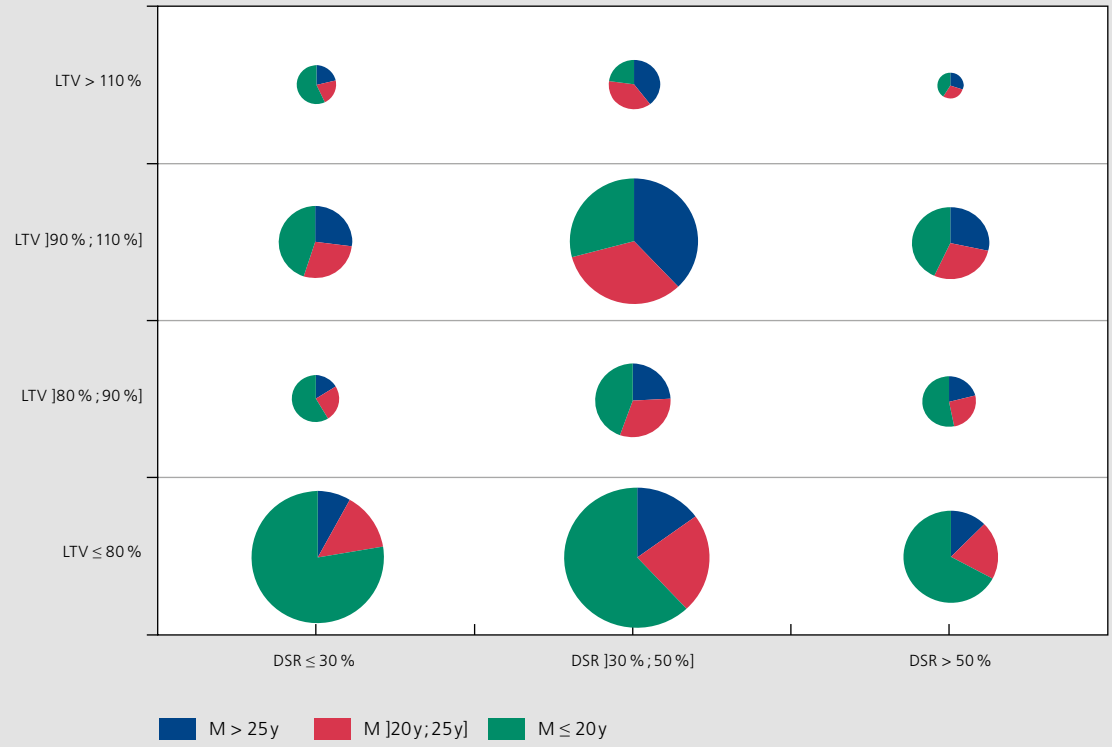
The resulting risk weight for SMEs and other corporates is the highest of all asset classes, even though it declined in 2012, mainly as a result of an idiosyncratic switch by one of the major banks to an Advanced IRB model for most of its portfolios (Chart 29). The average risk weight of Belgian banks' sovereign bond portfolios also declined slightly, as (mostly peripheral) bonds attracting higher risk weights were further divested in 2012. The average risk weight increased for exposures to credit institutions, as a result of a composition effect given the marked decrease in total EAD vis-à-vis these counterparties.

The average risk weight for exposures secured by residential real estate increased as well, to a still relatively low level of 14 %, the increase in 2012 being due mainly to the direct inclusion in risk parameters (PD, LGD) of a capital charge booked previously as a separate add-on at one bank. The lower risk-weight applied to these loans reflects low PD levels and the lower LGD than for other asset classes (real estate being used as collateral) even though a regulatory floor of 10 % for LGD is applied when calculating minimum regulatory capital requirements.

On 26 February 2013, the EBA released the interim results of its investigation on risk-weighted assets (RWA) in the banking book, as part of a wider analysis on the consistency of RWA, whose objective is to better understand the differences in the calculation of RWA and, if required, to formulate the necessary policy solutions to enhance convergence between banks and to improve disclosure. The EBA report suggests that 50 % of the observed differences (A-type differences) are related to the risk-weighting approaches applied, differences in balance sheet structures among banks as well as divergences in

CHART 30 BREAKDOWN OF THE BELGIAN MORTGAGE LOAN PORTFOLIOS OF IRB-BANKS, ACCORDING TO LOAN-TO-VALUE (LTV), DEBT SERVICE RATIO (DSR) AND MATURITY (M) AT ORIGINATION (1) (2)

(unconsolidated data at the end of 2011)



Source : NBB.

(1) All three indicators are computed at the moment of the origination of the loans.

(2) The relative sizes of the areas in the chart reflect the relative sizes of the portfolios combining levels of loan-to-value (LTV) and debt service (DSR) ratios at origination that fall in the specified intervals. In addition, each subportfolio is broken down according to the initial maturity (M) of the loans (expressed in years).

national regulations. The other 50 % (B-type differences) stem from the specificities of the banks' portfolios as well as from their risk management practices. They could also be caused by differences in the interpretation and the application of the regulation. These B-type differences will be analysed more extensively in the next steps of this EBA work.

Even though Belgian mortgage loan portfolios have not been characterised by high losses in recent times, they are composed of very different sub-portfolios. Chart 30 shows, for the situation at the end of 2011, a breakdown of the outstanding amount of Belgian mortgage loans included in the IRB-portfolios on the basis of a combination of three risk factors at origination. These data are based on an ad hoc fact-finding of the Bank conducted in the course of the second half of 2012. The areas in the chart are proportional to the relative sizes of the portfolios combining levels of loan-to-value (LTV) and debt service (DSR) ratios at origination that fall in the specified intervals. In addition, each subportfolio is broken down according to the initial maturity (M) of the loans. The chart shows significant differences between various sub-segments that combine different levels of the three risk factors. In this connection, it can be noted, for example that mortgage loans combining a loan-to-value (LTV) ratio at origination of maximum 80 %, a debt service ratio (DSR) at origination of maximum 30 % and an initial maturity of maximum 20 years represented only 15 % of the total portfolio as at the end of 2011. As banks seem to have tightened their lending standards for certain sub-segments in the second half of 2012 and the first quarter of 2013 (see section 1), the importance of the various sub-segments in new production is likely to be different from the one shown in the chart.

Turning to developments in Belgian banks' total risk-weighted assets (RWA), Chart 31 and Table 5 show that total RWA decreased by more than € 20 billion in 2012 to € 353 billion, as a result of considerable

variations in the subcomponents of these RWA and divergences between large credit institutions and others. The main drivers of the decline in RWA were, on the one hand, the deconsolidation of entities and/or the reduction of certain activities and, on the other hand, the switch by one of the major banks to an Advanced IRB-model for most of its portfolios in 2012.

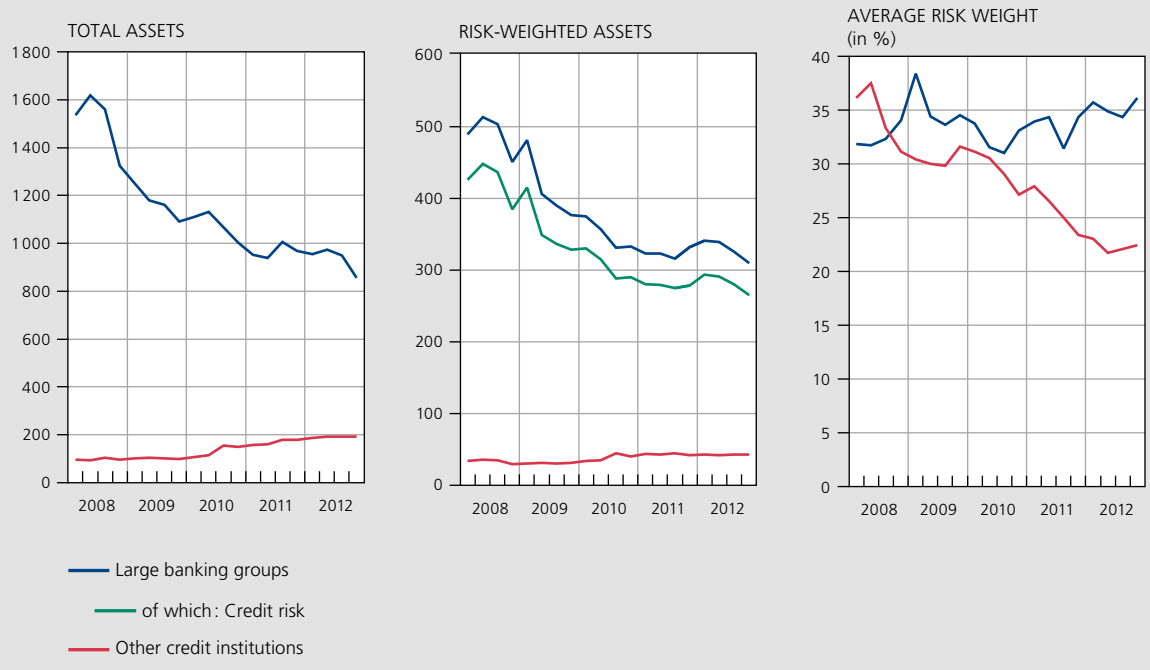
For the four largest credit institutions taken together, RWA covering credit risk declined by € 13 billion. As shown in Chart 31, the large banks have significantly reduced their RWA for credit risk and other risks since 2008. This was due mainly to lower EAD, rather than lower risk weights, as the latter remained fairly stable at around 35 % over this period. The rise at the end of 2012 is the consequence of a composition effect, as mostly exposures with a low associated risk weight were reduced in the fourth quarter, inter alia exposures vis-à-vis credit institutions, including through derivative contracts. The experience of the smaller banks has been quite different. In particular, balance sheets of Bank of New York and Euroclear Bank increased as these institutions witnessed important inflows of deposits in their accounts in 2012. As these institutions kept these funds in cash or used them to grant loans to bank counterparties, activities carrying a low risk-weight, the rising asset total only contributed to a slight increase in RWA, leading to a further decline in the average risk weight for the "other" banks in Chart 31.

As shown in Table 5, the Belgian banking sector's aggregate risk-weighted assets decreased again in 2012, reaching € 352.7 billion. While credit risk-related RWA account for the bulk of this total, some € 17 billion worth of RWA stem from market risks. In 2011, these RWA relating to market risk had more than doubled following the implementation of the Capital Requirements Directive III (CRD III or Basel 2.5) during the last quarter of that year. These new rules focus mainly on increasing requirements related to the banks' trading book, including higher requirements for (re-)securitisation positions, specific risk of financial instruments as well as the use of a stressed VaR in internal model calculations. Market risk-related RWA decreased by more than € 5 billion in 2012, mainly following the exit from certain activities by some banks. RWA relating to other risks also declined following the abovementioned direct inclusion in risk parameters (PD, LGD) of a capital charge booked previously as a separate add-on.

The Tier I ratio increased from 15.1 % at the end of 2011 to 15.9 % at the end of 2012, close to the record high

CHART 31 TOTAL ASSETS, RISK-WEIGHTED ASSETS AND AVERAGE RISK WEIGHT

(consolidated data, in € billion, unless otherwise stated)



Source : NBB.

TABLE 5 BREAKDOWN OF TIER I CAPITAL AND RISK-WEIGHTED ASSETS

(consolidated end-of-period data, in € billion, unless otherwise stated)

	2010	2011	2012
Tier I capital[1]	57.8	56.5	55.9
composed of:			
Core Tier I[2]	50.9	49.8	51.4
Hybrid capital	6.9	6.6	4.5
Risk-weighted assets	372.5	373.8	352.7
composed of:			
Credit risk	322.8	312.9	301.0
Market risk	10.7	21.9	16.6
Operational risk	35.1	35.2	35.0
Other	3.9	3.8	0.1
Tier I capital ratio (in %)	15.5	15.1	15.9
Core Tier I capital ratio (in %)	13.7	13.3	14.6

Source: NBB.

(1) Includes paid-up capital and share premiums, eligible reserves and income from the current year, revaluation reserves and associated prudential filters, hybrid capital instruments, third-party interests and deductions (e.g. intangible assets, participations).

(2) Defined as Tier I capital net of Tier I hybrid capital.

reached at the end of June 2011 (16.3 %). The substantial decline in RWA more than offset the slight reduction in Tier I capital, down from € 56.5 billion at the end of 2011 to € 55.9 billion at the end of 2012.

The Tier I capital and risk-weighted assets in Table 5 are calculated according to the current Basel 2.5 rules. In this connection, it must be recalled that a floor is imposed on risk-weighted assets calculated according to internal models in such a way that RWA cannot be lower than 80 % of the requirements obtained if these exposures had been risk-weighted according to the former Basel I framework. If this regulatory floor is taken into account, the sector's Tier I ratio falls to 14.2 %. The new directive CRD IV will extend this floor until the end of 2017.

In the future, the new Basel III rules will make the solvency requirements considerably tougher, since they will have a simultaneous impact on the two components of the capital ratio by tightening up the definition and raising the thresholds of the regulatory capital, and increasing the risk weights applied to various asset categories. This new regulatory framework will be implemented on 1 January 2014 if the regulation is finally approved before 30 June 2013 (otherwise, it will be applicable from 1 July 2014), but it will not be fully operational before 1 January 2019, due to the phased implementation of the new requirements and the gradual phasing-out of various grandfathering rules, in order to allow banks to make a smooth transition to the new regime and to minimise the spillover effects for other sectors of the economy.

To meet these new regulatory targets, Belgian banks' strategy relies mainly on retained earnings as a way of bolstering common equity levels. The Belgian banks therefore face a major challenge in having to sustain sufficiently high levels of income generation in a difficult environment, on top of the need – in the case of those institutions which received capital support from the public sector during the financial crisis – to free up capital resources so that they can repay the remaining capital injected by the public authorities.

In order to improve the quality of regulatory capital, Basel III will impose a much stricter definition so that common equity Tier I capital will consist predominantly of ordinary shares and retained earnings. The capital will have to be adjusted to take account of the deduction of new elements, such as assets in the form of deferred tax assets and the available-for-sale reserve. Under the current Belgian solvency rules, banks can apply a prudential filter when calculating their regulatory own funds, eliminating the impact of positive or negative changes in the available-for-sale revaluation reserve. That reserve – which corresponds to the unrealised gains or losses on assets available for sale – is thus only recorded under the accounting equity. At the end of December 2012, it represented a negative amount of € 0.5 billion, down from a negative amount of € 5.9 billion at the end of 2011. This marked improvement was mainly the consequence of lower risk-free interest rates and reduced spreads on some bond portfolios (including Belgian bonds).

The minimum required regulatory capital ratios will also be significantly different under Basel III than under the current Basel 2.5 rules. The most striking change concerns the raising of the minimum requirements for common equity Tier I capital, from 2 to 4.5 % of the risk-weighted assets, while the minimum level for Tier I capital will be raised from 4 to 6 % of the risk-weighted assets. To this will be added requirements in terms of the so-called capital conservation buffer, representing a fixed 2.5 % of the risk-weighted assets, and a countercyclical buffer, ranging between 0 and 2.5 % of the risk-weighted assets depending on the state of the credit cycle(s) in the different geographic markets to which the bank is exposed. Both these supplementary buffers must also be covered exclusively by common equity Tier I capital.

In the future, the Basel III rules will also impose an increase in the risk weights to be applied to certain exposures,

notably interbank positions and credit risks incurred in connection with derivatives business. These measures will affect the movement in risk-weighted assets; in recent years, their gradual decline has been the main reason for the increase in the solvency ratio according to Basel II.

The introduction of a harmonised leverage ratio, relating Tier I capital to the bank's total unweighted assets while taking account of off-balance-sheet exposures, will be analysed during an observation period and is intended to form an absolute minimum for the risk-weighted capital requirements.

2.6 Interest rate risk

As intermediaries between depositors and borrowers, banks offer short-term savings products to retail customers on their liability side while extending long-term sources of finance to borrowers on the asset side. The associated interest rate maturity mismatches between major categories of assets and liabilities are potential sources of unexpected losses if the exposures are not managed prudently. Banks can, however, mitigate and actively manage their interest rate risk by using a large range of different financial instruments, the most important being derivatives, primarily interest rate swaps and options.

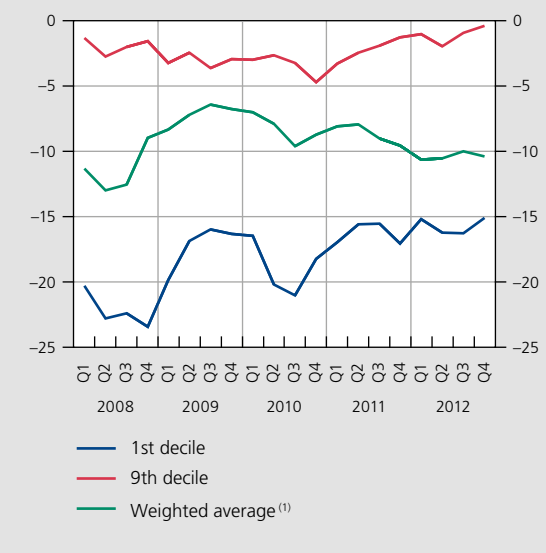
In general, there are four different drivers of interest rate risk: parallel shifts in the yield curve, changes in the slope of the yield curve, basis risk which arises from imperfect correlations between rates earned and paid on instruments with similar maturities and re-pricing characteristics, and optionality, implying that behavioural maturities can differ from contractual ones. Two examples of such optionality are the pre-payment options in mortgage contracts and the withdrawal options in sight and savings deposits. These withdrawal options in the case of sight and savings deposits lead to important differences between the contractual and behavioural maturities of non-maturity deposits, which constitute a key element in the management of the Belgian banks' interest rate risk. These drivers can affect the profitability and solvency of financial institutions through different channels.

The regulatory environment makes a distinction between interest rate risks in the banking book and those in the trading book. Whereas interest rate risks in the trading book are treated under Pillar I of the Basel II capital accord, explicitly requiring capital to be held to cover them, interest rate risks on banking book assets are treated as a Pillar II risk. An evaluation of these Pillar II risks is a prominent part of the annual Supervisory Review and Evaluation Process (SREP) of banks' overall capital adequacy, which can give rise to the decision to apply, if required, additional regulatory capital requirements. The SREP is an instrument in the prudential surveillance process that embodies, on the one hand, the financial institution's obligation to devise an internal capital assessment process and to set capital targets commensurate with its own risk profile and the quality of its internal controls (Internal Capital Adequacy Assessment Process – ICAAP), and, on the other hand, the SREP itself, which is the obligation of the supervisory body concerned to assess the adequacy and quality of financial institutions' capital in the light of their risk profile, and to intervene where necessary by using the various prudential measures at its disposal.

A main Pillar II risk measure for interest rate risk is defined in terms of the impact of a parallel shift in the yield curve on the economic value of the banking book – namely the difference in net present value of assets and liabilities not belonging to the trading book. Belgian banks report, on a quarterly basis, stress test results concerning their exposure to interest rate risk in the banking book. Reported data include the calculated economic value of the banking book at the reporting date under six uniform assumptions regarding the size of shifts in the yield curve (immediate

CHART 32 IMPACT OF A 200-BASIS-POINT PARALLEL UPWARD SHIFT IN THE YIELD CURVE ON THE ECONOMIC VALUE OF THE BANKING BOOK

(consolidated data, in % of regulatory own funds)



Source: NBB.

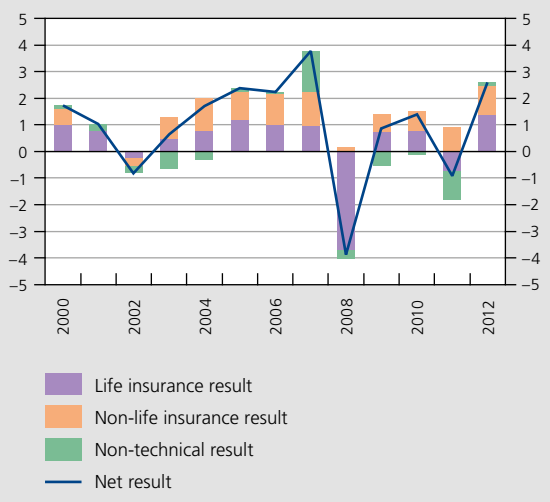
(1) The 1st decile gives the impact on economic value for the institution that ranks on the 10 % percentile. The 9th decile gives the impact on economic value for the institution that ranks on the 90 % percentile. The weighted average divides the impact on the economic value of the sector as a whole by the regulatory funds of the sector as a whole.

parallel shifts in the yield curve, up and down, of 100, 200 and 300 basis points). Although credit institutions have to use their own internal calculation methodologies, comparability of data among institutions is enhanced through the compulsory use – for prudential reporting purposes only – of uniform assumptions imposed by the regulator regarding re-pricing dates of savings deposits and sight deposits.

Chart 32 shows the development over time of the sensitivity of the economic value of the banking book to a scenario of a 200 basis point parallel rise in the yield curve. The weighted average of the Belgian banking sector suggests that interest rate risk in the banking book had been rather stable in 2012, increasing somewhat when compared to 2011, yet it remains below the 20 % threshold that is destined to trigger heightened supervisory attention for individual banks, as suggested in the Pillar II guidelines regarding the supervisory review process. However, sensitivity to interest rate risk differs widely among institutions, as emphasised by the first and ninth deciles. Yet, at the end of 2012, none of the 16 credit institutions reporting consolidated figures exceeded this threshold. It should moreover be recalled that this measure only captures one of the four different drivers of interest rate risk, i.e. a parallel yield curve shift, under a specific set of assumptions. It therefore does not reflect the impact of potential changes in the slope of the yield curve, basis risks, or interest rate risks stemming from changes in behavioural maturities and other optionalities.

CHART 33 NET RESULTS OF BELGIAN INSURANCE COMPANIES

(unconsolidated data, in € billion)



Source : NBB.

Risks stemming from changes in credit spreads on fixed-income instruments are not captured either.

3. Insurance sector

The Belgian insurance sector returned to a high level of profitability in 2012, following several years of low net profits or even losses. The net result of the sector came to € 2.6 billion, while in 2011, a loss of € 0.9 billion was posted (Chart 33). The main reason for this positive development was a significant increase in the net income from financial investments, which – in the life, non-life and non-technical accounts taken together – grew from € 4.0 billion in 2011 to € 11.7 billion in 2012. This amount includes various types of income from financial investments, including interest payments on interest-bearing assets, dividends on equities, or capital gains or losses on financial assets due to the sale of these instruments or changes in their book value (impairments or re-valuations). While impairments on Greek and other peripheral government bonds had a major impact on net investment income in 2011, the Belgian insurance companies appear last year to have booked mainly positive adjustments on the book value of financial assets, on the back of increases in government bond prices and recovering equity markets.

Table 6 provides more details about the net profit and loss of the insurance sector, broken down into its three main components, namely the life insurance technical result, the non-life insurance technical result and the non-technical result. The sharpest improvement was recorded in the net result of life insurance operations (to € 1.4 billion), driven by a strong increase in net investment income (from € 4.1 billion in 2011 to € 9.6 billion last year). In this connection, it must be recalled that the life insurance technical result traditionally combines a negative result on pure insurance activities counterbalanced by a positive result on investment activities. That second element comes from investing the collected premiums in order to generate financial income. The sharp improvement in net investment in 2012 was thus offset to some extent by an accompanying decline in the result of life insurance activities (€ –8.2 billion versus –4.8 billion in 2011), as a substantial part of these financial results are added to the premiums collected during the year to build the technical reserves necessary to cover the liabilities resulting from life insurance activities.

Non-life insurance also benefited from a significant increase in net investment income – rising from € 0.8 billion in 2011 to € 1.2 billion in 2012 –, lifting the overall technical result of non-life insurance to its highest level since

TABLE 6 MAIN COMPONENTS OF THE PROFIT AND LOSS ACCOUNT OF BELGIAN INSURANCE COMPANIES

(unconsolidated data, in € billion)

	2009	2010	2011	2012
Life insurance technical result	0.7	0.8	–0.7	1.4
Result of insurance activities	–8.0	–7.1	–4.8	–8.2
Net investment income	8.8	7.8	4.1	9.6
Non-life insurance technical result	0.7	0.7	0.9	1.1
Result of insurance activities	–0.4	–0.4	0.1	–0.1
Net investment income	1.0	1.2	0.8	1.2
Non-technical result[1]	–0.5	–0.1	–1.1	0.1
Net investment income	–0.7	0.2	–0.9	0.9
Other results	0.2	–0.3	–0.2	–0.7
Net result for the financial year	**0.9**	**1.4**	**–0.9**	**2.6**

Source: NBB.

(1) The non-technical result includes investment income not imputed to life and non-life insurance activities, and exceptional results and taxes.

2007. With positive net results in all the years since 2007, non-life insurance activities proved quite resilient during the crisis years. This was due not least to the strong performance in underlying insurance activities on the back of rising premium income and good underwriting results.

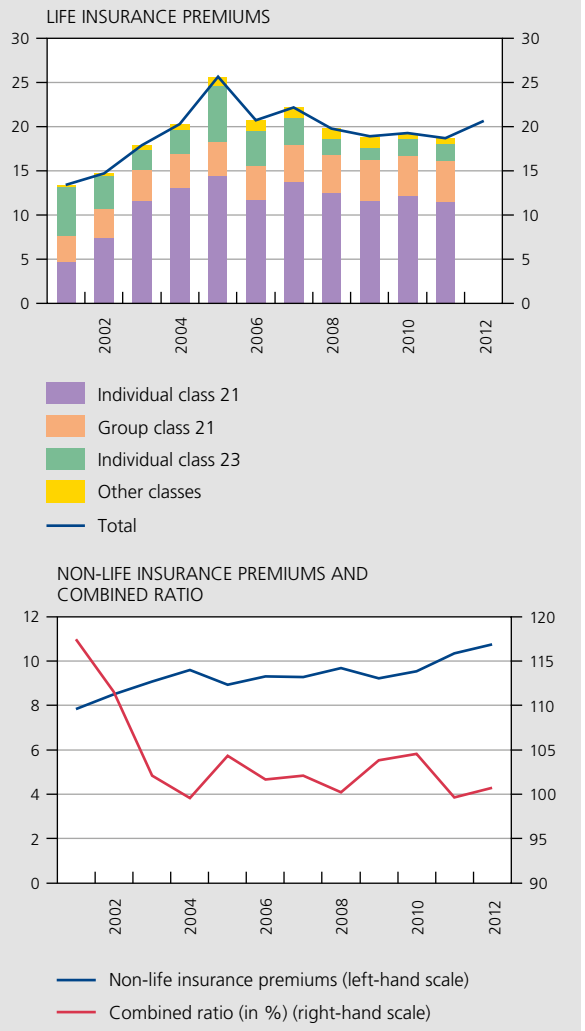
Non-life insurance premiums net of reinsurance premiums rose by 3.7 % in 2012 relative to 2011 and the combined ratio – which relates the total cost of claims plus operating expenses to net premium income – remained close to 100 % (Chart 34). In 2000-2002, this inverted measure of the underlying profitability of non-life insurance operations had exceeded 110 %, following which insurance companies restored a better balance between insurance costs and premium income by raising the level of premiums, improving cost control, and imposing stricter underwriting terms for certain loss-making insurance products and classes. A similar response could be observed after the new increase in the combined ratio in 2009 and 2010, contributing to the upward revision of premiums in many non-life insurance classes in 2011 and 2012.

Life insurance premiums also increased in 2012, rising by a considerable 10.7 % to € 20.7 billion. This is the highest level since 2007 and follows several years during which life insurance premiums were below € 20 billion per year. In 2011, they had reached their lowest level since 2003. The increase in total premium income for individual and group insurance contracts in 2012 seems to be related to some renewed growth in mutual fund-like class 23 contracts, but most of all it is likely to have stemmed from the anticipation by households of the tax increase on premiums paid for class 21 and class 23 contracts as from 1 January 2013 (tax increased from 1.1 % to 2 %). In this regard, it should be remembered that the particularly large amount of premiums collected in 2005 was related to the introduction on 1 January 2006 of the 1.1 % tax on premiums to be paid on individual life insurance contracts. Since households had anticipated this tax by paying additional premiums in the final months of 2005, and then reduced their payments in 2006, the net results for 2005 and 2006 were first artificially driven up and then depressed, compared to the picture which would have been expected in the absence of this tax measure. A similar shift in premium payments may have occurred between 2012 and 2013.

Notwithstanding the recovery in premiums in 2012, demand for life insurance products appears to have weakened in recent years, mainly in the case of individual (rather than group) life insurance policies. This fall in demand was probably caused to a significant extent by the financial crisis, as households displayed a stronger preference for liquidity in their savings. The shift in demand away from insurance products may have been compounded by the predominance of the bancassurance business model in Belgium, as banks needing substantial liquidity may have channelled household savings into banking products rather than life insurance contracts. Another important factor weighing on demand for individual life insurance policies concerned the low yields offered by these medium- to long-term saving contracts as a result of the low interest rate environment. This also seems to be confirmed by the available, albeit partial,

CHART 34 PREMIUM INCOME AND COMBINED RATIO (1)

(unconsolidated data, in € billion unless otherwise stated)

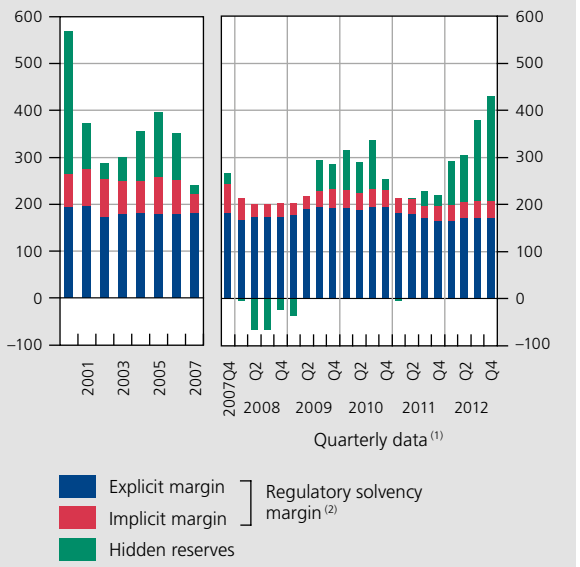


Source : NBB.

(1) The combined ratio is the ratio relating the sum of the cost of claims plus operating expenses to net premium income.

CHART 35 SOLVENCY MARGIN OF BELGIAN INSURANCE COMPANIES

(unconsolidated data, in % of the minimum required margin)



Source : NBB.

(1) The figures reported quarterly are not entirely comparable with the final figures reported annually. In particular, they take no account of any redistribution of profits to shareholders and policyholders.

(2) This margin is composed of an explicit margin – including the own funds, subordinated debts and certain other balance sheet items – and an implicit margin which, subject to the approval of the Bank, comprises certain other specific elements, the principal one being a part of the unrealised gains on investment portfolios.

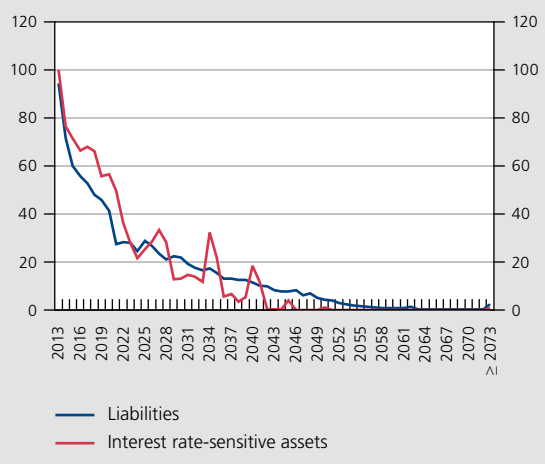
information on surrender rates, showing that in recent years there has been an increasing percentage of class 21 life insurance contracts that policyholders have renewed only partially, if at all, when the policy matures. A persistence of the low interest environment may thus weigh on the new volumes of life insurance products that Belgian insurance companies will be able to sell, and eventually on their profitability if cost structures are not adapted to the reduced business volume. A sufficiently high profitability will, however, be necessary to rebuild the insurance sector's core capital position, which was eroded somewhat during the financial crisis, as highlighted by the decline in the explicit solvency margin (Chart 35).

The solvency margin of insurance companies consists of an explicit margin which includes own funds, subordinated debts and certain other balance sheet items, and an implicit margin which, subject to the approval of the Bank, essentially comprises part of the gross unrealised gains on investment portfolios. The explicit margin was strengthened in 2008 and in the first half of 2009 by the capital increases carried out by a number of insurers in order to offset the investment losses incurred in 2008. Those increases, combined with the reserving of profits in 2009 and 2010, enabled the sector to maintain an explicit solvency margin at least equal to 165 % of the required minimum for each quarter since the end of 2009. While a level of more than 190 % had been reached in the last three quarters of 2009 and in the year 2010, this explicit solvency margin dropped back again to close to 165 % in the course of 2011, due to the net loss in the income statement, and remained close to this level in 2012. The total solvency margin, comprising both explicit and implicit elements, has remained above 195 % of the minimum required in each quarter since the end of 2007, and reached 208 % at the end of December 2012.

When account is taken of all unrealised gains or losses on the investment portfolio, including those not included in the implicit margin, an adjusted solvency can be calculated. This hidden reserve (or deficit) has been very volatile in recent years and reached a record € 20.2 billion at the end of 2012. This is mainly the result of higher unrealised capital gains on bonds in the investment portfolio, due to the sharp drop in secondary market yields for Belgian and other core euro area government bonds and for other bonds in the portfolio of the Belgian insurance companies. However, the improved solvency position shown in Chart 35 as a result of the decline in interest rates should be interpreted cautiously, as it does not take into account the adverse impact of lower interest rates on the economic value of the liabilities. Indeed, in accordance with the Solvency I prudential framework, the effect of lower interest rates on the discounted value of the insurance companies' liabilities towards policyholders is currently not taken into account in the calculation of the regulatory solvency margin. Under the future prudential framework, Solvency II, this will be different, as both assets and liabilities will be measured on a market-consistent valuation basis. In the case of long-term insurance contracts, such as life insurance or disability insurance, interest rate changes may then have a major impact on the economic value of the balance sheet, since the potential long-term liabilities do not have the same maturity as the associated financial investments. By adopting a more comprehensive approach, centred on the economic value, for assessing the adequacy of the capital of insurance companies, the Solvency II framework will try to better reflect the challenges relating to the valuation of the assets and liabilities, and the potential effects on the volatility of the own funds. In the meantime, by taking partial account of unrealised capital gains on financial investments, but not adjusting the valuation of the liabilities at current interest rates, the current Solvency I regulations may thus not accurately reflect the challenges which a low interest rate environment presents for insurance companies.

CHART 36 CASH-FLOW PATTERNS OF LIABILITIES AND OF INTEREST RATE-SENSITIVE ASSETS(1)

(Indexes, interest rate-sensitive asset cash flow for 2013 = 100)



Sources: NBB and individual company reports.
(1) Stylised presentation, based on data collected from 6 large Belgian insurance companies.

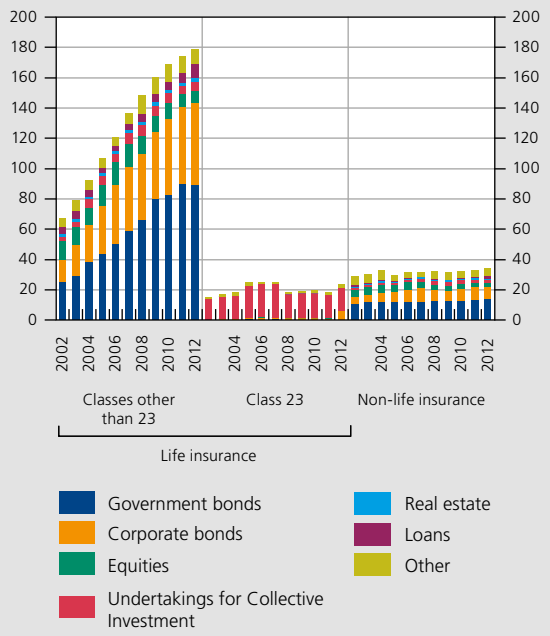
Chart 36 provides some more information about the match between the cash-flow profiles of the insurance companies' liabilities and interest-rate sensitive assets, based on the available information for a sub-sample of Belgian insurance companies. The aggregate data for these companies show that large cash flows occur in the short-term, for both the liabilities and assets, with a slightly higher amount of cash flows on the asset side than on the liability side. By contrast, in the longer-term, the cash flows relating to liabilities tend to be somewhat higher than the cash flows from the assets. This combination of a net asset position in the short term and a net liability position in the long term is consistent with the general view that the duration of liabilities in insurance companies tends to be somewhat longer than the duration of the assets. Due to the sometimes very long-term nature of some of their liabilities, insurance companies do indeed have difficulty in finding enough corresponding assets with the same long maturities, even if the bulk of asset and liability cash-flow profiles are well-matched. The remaining mismatches and the above-mentioned difference in duration between assets and liabilities make insurance companies' net economic value and profitability sensitive to a low interest rate environment, as some of the maturing assets have to be rolled over in new financial investments to match the cash-flow profile of all outstanding liabilities. This reinvestment risk is particularly relevant for the life insurance activities, where some of the liabilities can be far in the future.

This long-term character of many life insurance products can also be seen in the fact that life insurance premiums are generally collected under long-term contracts, unlike most non-life insurance premiums which are collected under contracts renewed annually. The investment of the life insurance premiums collected during the contract period explains why the investment portfolios built up to cover those future liabilities are much larger in the case of life insurance than in non-life insurance (Chart 37).

The great majority of life insurance premiums – for both individual and group policies – are collected on contracts under which the insurer bears at least part of the risks

CHART 37 COMPOSITION OF THE COVERING ASSETS PER INSURANCE ACTIVITY

(unconsolidated data, in € billion)



Source : NBB.

relating to financial market developments. This is why the financial assets covering class 23 insurance policies, in which the policyholder assumes the financial risks on the investments, are much smaller than the financial assets held on behalf of policyholders in other classes. In terms of outstanding amounts, class 23 policies represent only around 12 % of the total assets covering the life insurance liabilities shown in Chart 37. In 2012, the structure of the financial assets covering class 23 contracts changed somewhat, as the proportion of corporate bonds increased from 4 % in 2011 to 26 % in 2012.

In their asset and liability management, insurers must choose an asset mix that is the most appropriate for both the structure and the characteristics of the associated liabilities, while establishing a balance between the risks on the investment portfolio and the expected rates of return. In the case of life insurance policies for which the insurer bears the investment risk, the resulting covering assets are made up mainly of government and corporate bonds, which represented 50 % and 30 % respectively of the investment portfolio at the end of December 2012. In comparison with the figures for preceding years, insurance companies seem to have increased the share of corporate bonds. In a similar vein, although the share of mortgage loans in total covering assets remained low at € 8.5 billion, it increased from 2 % to 4 % between year-end 2011 and 2012. These changes in asset allocation may result in a higher average yield on investments, but may present greater credit and liquidity risks for the companies.

The covering assets relating to non-life insurance activities are a little less dominated by government bonds (41 %) and corporate bonds (25 %), in favour of a slightly larger proportion of equities and other types of assets, particularly short-term instruments and bank deposits.

The percentage of the investment portfolio of the various insurance activities composed of equities, including shares in associated or non-associated companies, declined from 8 % of the total covering assets at the end of 2008 to less than 5 % at the end of 2012.

The reason for the substantial presence of government bonds in the investment portfolios held by life and non-life insurance companies is that, in the past, these bonds were regarded as risk-free assets owing to the very low probability of counterparty default. They were usually considered to be the highest quality bonds in the market. In addition, government bonds are available in a wide range of maturity dates (from 1 year to 30 years and longer), increasing the scope for matching the typically long-term liabilities in the life insurance business. Furthermore, as an exception, the prudential regulations regarding investment and concentration limits in covering assets do not apply to the government bond asset class. These bonds often also meet the insurance companies' preference for steady and regular sources of investment income.

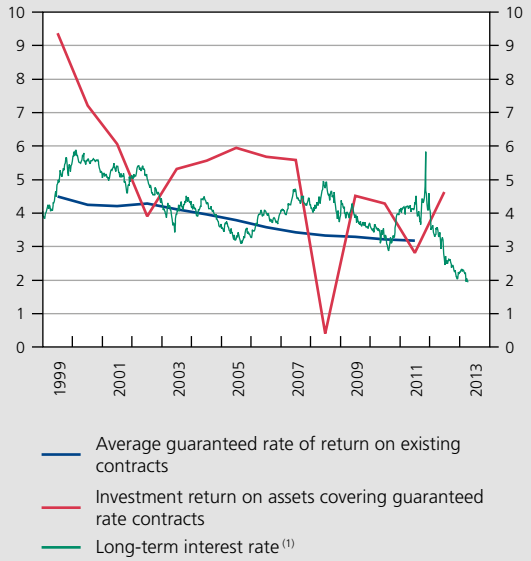
Another article in this Financial Stability Review analyses in more detail the composition and main features, as at the end of 2012, of Belgian insurance companies' investments in fixed-income instruments issued by public sector entities, which include central and local government authorities, as well as international public institutions. The analysis is based on detailed information on the individual financial securities included in the public sector bond portfolio combined with data on the ratings of the individual bonds and their issuance date, maturity date, coupon rate, currency, etc., as available in the Bloomberg information system.

The breakdown of the public sector bonds according to the country of issuance, shows in this regard that the Belgian insurance sector further increased its investments in Belgian government bonds, mainly at the expense of a lower exposure to public sector bonds from peripheral euro area countries. By the end of December 2012, the exposure to the public sector of Spain, Ireland and

Portugal had been reduced to respectively € 1.7 billion, 1.1 billion, and 0.5 billion, with the exposure on Greece having fallen to a negligible amount. At the end of last year, the Belgian government bonds in the insurers' covering assets amounted to € 59.5 billion or almost 57 % of the total public sector bonds in these covering assets (up from 34 % in 2009).

By mapping the maturity profile and coupon rates of public sector bonds, the article also shows that, in coming years, Belgian insurance companies may have to reinvest significant amounts of maturing AAA- and AA-rated bonds at yields lower than the maturing coupon rates if the current low interest rate environment were to persist. The data show in this regard that the public sector bonds in the covering assets of both life and non-life insurance had average coupon rates of respectively 4.4 % and 4.1 % as at the end of 2012, and a well-laddered maturity profile beyond that date, indicating the potential for a significant, albeit gradual, materialisation of reinvestment risks over time. In this connection, it should be noted that these average coupon rates for the principal asset class in Belgian insurance companies' covering assets are not necessarily a reliable indicator of the effective yield to maturity of the public sector bonds, as that yield also depends on the price at which the public sector bonds were acquired.

CHART 38 GUARANTEED RATE OF RETURN ON CLASS 21 CONTRACTS



Sources: Thomson Reuters Datastream, NBB.
(1) Yield on the secondary market in ten-year Belgian government loans (OLOs).

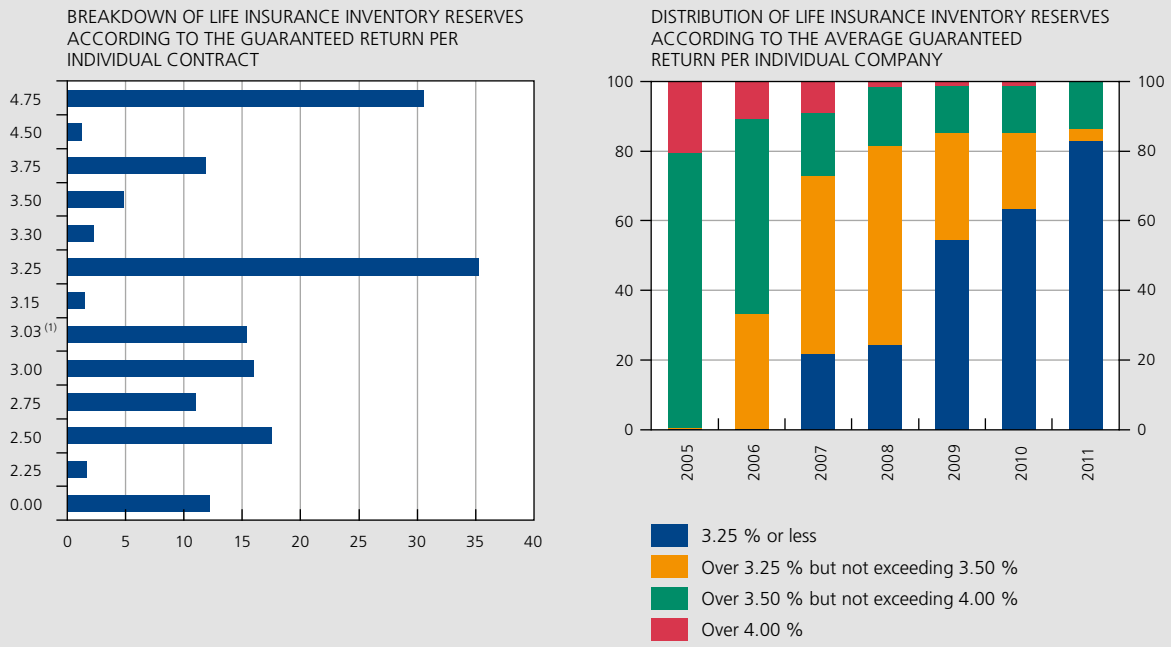
The outstanding amount of life insurance policies offering guaranteed rates of return and the level of these guaranteed rates of return are particularly important risk parameters for insurance companies when the interest rates on risk-free investments fall to very low levels, as happened in the recent period. In the 1990s, insurance companies had tended to offer their customers a guaranteed rate of return of 4.75 %, which was the statutory ceiling in force up to the end of June 1999. In July 1999, this ceiling was reduced to 3.75 %. In the case of an exit from a supplementary pension plan, the current legislation requires companies to guarantee a minimum return of 3.25 % on employers' contributions and 3.75 % on personal contributions.

While the profitability of insurance contracts guaranteeing such returns was eroded when long-term interest rates began to drop below those levels, the sector has gradually modified that adverse structure by marketing contracts offering guaranteed rates of return which are more in line with risk-free interest rates, and containing clauses which provide for revision on the basis of changing market conditions. Moreover, some contracts specify that the guarantee is limited in time, and that, at the end of that period, the contract reserve (i.e. the amount of savings built up) is technically regarded as a new premium with a new guaranteed interest rate in line with prevailing market conditions. All these measures contributed to a reduction in the average guaranteed rate of return on class 21 contracts from 4.5 % at the end of 1999 to 3.22 % at the end of 2010 and 3.17 % at the end 2011 (Chart 38).

The chart also compares the average guaranteed rate of return on class 21 contracts with the effective annual return on investments covering these policies. Preliminary figures for the year 2012 show a significant improvement in the investment return (to 4.6 %), but from a very low level in 2011, when the return on investments was only 2.8 %. In the period 1999-2011, the average net investment return amounted to 5.1 %. This period included three years during which the annual return on investments was lower than the prevailing average guaranteed rate of return on the outstanding contracts. This occurred during years of severe financial market downturns in 2002 (equity markets), 2008 (Lehman Brothers) and 2011 (euro area debt crisis). Yet, even if one disregards these exceptional years, the trend in investment returns is clearly downward, in line with the overall trend in Belgian government bond yields. As already mentioned, the other article in this Financial Stability Review concludes in this connection that, in future years, Belgian insurance companies may have to reinvest significant amounts of maturing AAA- and AA-rated bonds at lower yields than the maturing coupon rates if the current low interest rate

CHART 39 DISTRIBUTION OF CLASS 21 LIABILITIES WITH GUARANTEED RATES OF RETURN

(unconsolidated data at the end of 2011, in € billion, unless otherwise stated)



Source: NBB.

(1) Outstanding amount of life insurance reserves guaranteeing a return different from the others shown in the chart; the guaranteed return for all these contracts averaged 3.03 % at the end of December 2011.

environment were to persist. Against this background, the Bank calls for a careful treatment of the large unrealised capital gains on the insurance companies' bond portfolio, which should not be used to enhance short-term payouts to policyholders or shareholders, but rather be seen as a (high-coupon) buffer for the years ahead, should the current low interest rate environment persist over the medium term.

As shown in Chart 39 for the situation at the end of 2011, the Belgian insurance sector has large amounts of contracts offering high guaranteed rates of return for policyholders. These liabilities are to a significant extent the legacy of contracts concluded a long time ago, in most cases guaranteeing these rates of return on future premiums as well. Analysis of the data broken down by contract in the left panel of the chart reveals that contracts concluded in the past and still offering a guaranteed return of more than 4.5 % amounted to € 31.7 billion, or around 20 % of the inventory reserves, at the end of 2011. Most of those contracts (€ 30.5 billion) offered a nominal return of 4.75 %, the legal maximum for that type of contract up to June 1999. With reserves of € 35.3 and € 11.8 billion, contracts offering a guaranteed return of respectively 3.25 % and 3.75 % also account for large amounts of life insurance liabilities with guaranteed rates of return. The liabilities in these two categories include most of the class 21 group insurance contracts, because insurance companies, spurred on by competition, tended to offer in these group insurance policies a guaranteed rate of return that was in line with the minimum rates that companies sponsoring group insurance policies have to guarantee on employer and employee contributions according to the law on the supplementary pension system (second pillar). As already mentioned, for employers' contributions paid under the supplementary pension system the law requires the sponsoring companies to guarantee a minimum rate of return of 3.25 %, and 3.75 % for employees' contributions. Taking account of the downward trend in yields on government bonds – the main instrument in insurers' investment portfolios – it became difficult for insurers to maintain the link between the guaranteed returns that they offer on group insurance and the statutory minimum returns on supplementary pensions. Insurance companies have therefore recently increasingly offered rates lower than those stipulated by the Law on Supplementary Pensions (see Box 2).

Box 2 – Guaranteed group insurance yields in the context of low returns on risk-free financial assets

In view of the long duration of life insurance contracts and the significance of the associated interest rate risks, there are prudential regulations in Belgium governing the yield guaranteed by insurers. There is a statutory maximum return which takes account of changing market conditions and, in particular, the movement in government bond yields; thus, since 1999, the guaranteed return must not exceed 3.75 %. Since interest rates have fallen, many insurers nowadays only guarantee yields significantly below this maximum. Nevertheless, that is not a general trend, particularly for group insurance, owing to the rules on minimum yields to be guaranteed for supplementary pensions.

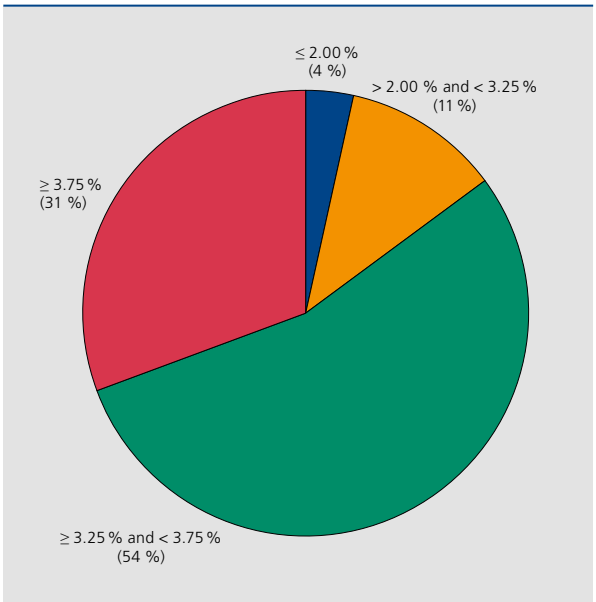
To protect scheme members, the Belgian Law on Supplementary Pensions stipulates an annual minimum return of 3.75 % on members' contributions and 3.25 % on those paid by employers. These statutory minimums no longer correspond to the reality of market interest rates. However, employers are putting pressure on insurers to guarantee them because they want to protect themselves against their legal obligation to make up the difference in relation to the minimum returns on group insurance contracts providing supplementary pensions.

The amounts involved are not trivial since, at the end of 2011, 27 % of the inventory reserves relating to class 21 concerned group insurance, worth € 44 billion, of which € 38 billion related to contracts offering a guaranteed return of 3.25 % or more.

Taking account of the downward trend in yields on government bonds – the main instrument in insurers' investment portfolios – it will be difficult, if not impossible, for insurers to maintain the link between the guaranteed returns that they offer on group insurance and the statutory minimum returns on supplementary pensions. Apart from

BREAKDOWN OF INVENTORY RESERVES ACCORDING TO THE RETURN ON CLASS 21 GROUP INSURANCE CONTRACTS

(situation at the end of 2011)



Source : NBB.

purely management considerations, there are also legal constraints since, under the forthcoming European rules on solvency, known as Solvency II, the minimum level of insurance companies' capital will be determined according to the risks incurred.

In these circumstances, the Bank proposed lowering the reference rate for long-term life insurance transactions to 2 % from 1 January 2013. Since that proposal was not implemented, the Bank reminds insurance companies that the regulations set a general principle of prudence by stipulating that the premiums must be sufficient to cover the benefits and costs, taking account of the income from the covering assets. It will therefore ensure, via its prudential policy, that every insurer applies an interest rate compatible with its risks and costs.

In the current environment of low returns on low-risk assets, insurance companies will therefore be increasingly obliged to offer rates lower than those stipulated by the Law on Supplementary Pensions. However, it should be noted that, in this case, the obligation on employers to make up the difference will mean a significant increase in labour costs.

Most of the recent increases in life insurance reserves concern policies offering a lower guaranteed rate of return, including a large number of policies providing only a capital guarantee but offering a larger range of profit-sharing rates and mechanisms. However, the biggest reduction in the interest rate risk for insurance companies resulted from the introduction of greater flexibility in the determination of the guaranteed rate of return. Whereas, in the 1990s, the guaranteed rate of return prevailing at the time of conclusion of the contract generally also applied to all future premiums, most of the contracts concluded during the past decade have only guaranteed the rate of return prevailing at the time of collection of the premium, so that the guaranteed rate of return can be adjusted according to changing market conditions. However, some of these contracts also offer policyholders more flexibility, allowing them to terminate their policies more easily or to reduce them without incurring heavy penalties. That means that some insurance companies are exposed to a greater risk of surrender or cancellation, especially if interest rates rise strongly. In those circumstances, they would face a choice between increasing the rate of return on their contracts or accepting a reduction in their volume of business. In both cases, that would impair the profitability of class 21 life insurance policies.

The right panel of Chart 39 analyses the same data, but broken down by company rather than by contract. It focuses on the average guaranteed rate of return offered by each individual insurance company, taking all life insurance contracts of class 21 together, over the period 2005-2011. The chart confirms that, for some years now, insurance companies have adapted to the lower interest rate environment by offering contracts more in line with market conditions, resulting in a decline in the average guaranteed rates of return. At the end of 2011, around 83 % of the class 21 inventory reserves were held by insurance companies offering an average guaranteed return of 3.25 % or lower, whereas in 2005, no company had an average guaranteed rate of return lower than 3.5 %.

In order to protect themselves against the effects of low interest rates on the profitability of guaranteed rate of return contracts, insurance companies have to form an additional provision for contracts offering a guaranteed rate of return 10 basis points higher than the so-called flashing light rate, defined as 80 % of the average yield on ten-year government bonds on the secondary market over the past five years. Insurance companies can spread the amounts to be allocated to this provision over a maximum of ten years. The flashing light rate for this additional provision, which is calculated once per year by the supervisor, was 3.06 % at the end of 2012. At the end of 2011, the cumulative additional provisions that the Belgian insurance companies had constituted in this framework amounted to € 2.5 billion. Some insurance companies are dispensed of this obligation to form additional provisions on the basis of the annual exemptions foreseen in the Circular of September 2006 which specifies the conditions under which insurance companies can prove to the supervisor the quality of the related risk management and risk models and the ability to meet the future liabilities.

4. Main results of the Financial Sector Assessment Program for Belgium

At the end of 2012 and the beginning of 2013, Belgium underwent a thorough assessment of its financial system by the International Monetary Fund (IMF). Since 1999, the IMF has conducted Financial Sector Assessment Programs (FSAPs) aimed at the full, in-depth analysis of a country's financial sector. The objective of these assessments is to detect the main vulnerabilities which could trigger financial crises. They concern both supervision and regulation and the risk profile of the whole financial system.

Financial crises can have disastrous consequences for the real economy, as highlighted by the recent financial crisis. In that context, the IMF decided to incorporate the FSAP in bilateral surveillance or in the Article IV consultations. It was also decided that, from now on, the 25 jurisdictions with a large or "systemic" financial sector will undergo this assessment every five years. In view of the size of its financial sector and the importance of the cross-border groups, Belgium is now on that list of the 25 leading financial centres.

The assessment includes two main elements.

The first concerns analysis of the soundness of the financial system as a whole. This covers a review of the main structural factors and risk developments that could affect financial stability, on the basis of indicators and analysis similar to the ones presented in the Bank's annual Financial Stability Review, and also includes the conduct of stress tests. The purpose of these tests is to assess the vulnerability of financial institutions to various macroeconomic shocks – such as a prolonged period of very weak economic growth, a fall in financial asset prices or property prices, or significant changes in interest rates – also taking into account the more stringent capital and liquidity requirements that will be introduced by the upcoming regulatory reforms. The IMF also assesses the authorities' ability to react rapidly and effectively in the event of a financial crisis.

The second element gauges the quality of the regulation and supervision of banks, insurance companies, market infrastructures and financial markets. For the purpose of this exercise, the supervisory authorities have to assess their own legal arsenal in the light of international standards, such as the Basel Core Principles for banks and Core Principles for insurance undertakings. Those principles encompass the preconditions for effective supervision; the rules on licensing, regulation and the prudential requirements relating, for example, to credit risk, market risk or interest rate risk; the oversight and supervision methodology; disclosure requirements; and the prudential authorities' powers in the event of failure by institutions to respect the regulations. The authorities must also demonstrate to the IMF teams the extent to which these standards are actually applied in practice.

This assessment has taken place in a challenging and evolving environment, as the financial crisis has had a significant impact in Belgium. Indeed, major institutions asked for substantial state support as they had lost access to the wholesale funding market and their capital positions were significantly eroded by heavy losses on structured financial products, large write-offs and provisions. As a result, the impact of the financial crisis on Belgium's real economy and on Belgian public finances was quite substantial, as it was in many other countries. This has triggered major transformations both in the Belgian financial sector, with the main financial institutions refocusing on their core activities and their domestic markets, and in the supervisory framework, with the introduction of the Twin Peaks model aimed at increasing synergies between macro-prudential and micro-prudential supervision.

Stress tests have been performed for the major banks and insurance companies, with close collaboration between the IMF teams and staff of the Bank. The main objective is to identify emerging vulnerabilities under extreme but plausible stress scenarios and to assess the solvency and funding stability of the Belgian financial sector under these scenarios.

For the banking sector, two adverse macroeconomic scenarios have been developed over a five-year forecast horizon, which both deviate from the IMF-projected baseline scenario (Table 7). The first one refers to a prolonged period of very low economic growth, while the second reflects a double-dip recession, with a severe output contraction in the first two years and a positive adjustment during the subsequent three years. The solvency stress tests were based on mid-2012 figures and assessed in accordance with the new Basel III standards.

Moreover, two types of stress testing were performed covering more than 90 % of the domestic banking sector. First, a bottom-up stress test was conducted by the six largest banks based on consolidated data. This was done in collaboration with the staff of the Bank and based on IMF guidelines. This type of stress testing exercises includes very granular data. Second, top-down stress tests were performed by the IMF as a cross-checking tool. This analysis was based on unconsolidated data and performed for 42 banks split into 4 groups on the basis of reporting data, which tend to be less granular.

TABLE 7 ECONOMIC ACTIVITY UNDER DIFFERENT SCENARIOS

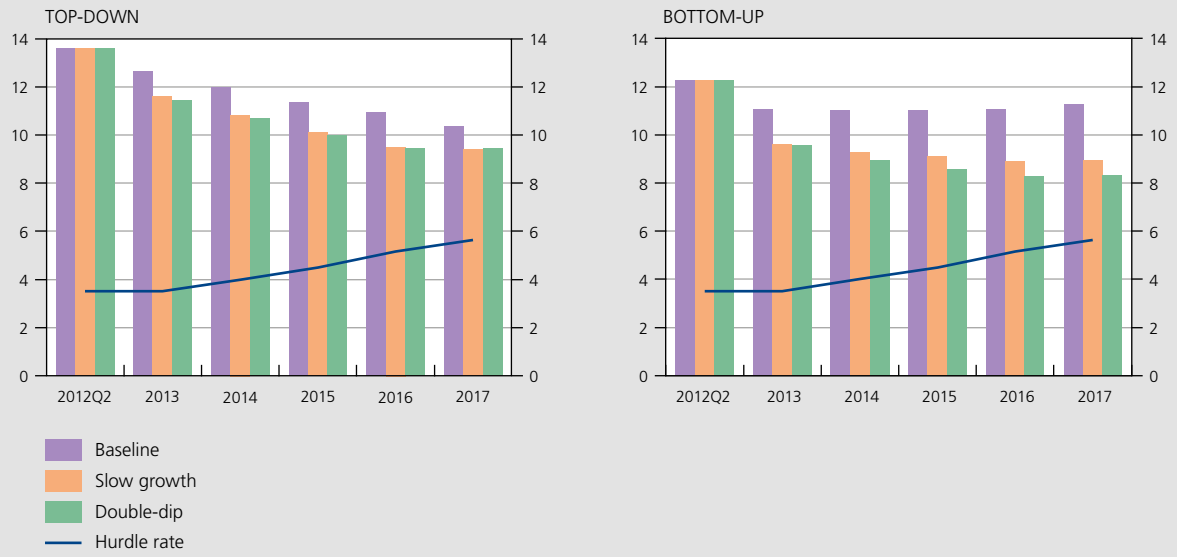
(percentage changes compared to previous year, unless otherwise stated)

	2013	2014	2015	2016	2017
	Baseline scenario				
Real GDP	0.3	1.0	1.3	1.4	1.4
Labor market					
Unemployment rate (in % of labor force)	7.8	7.6	7.5	7.3	7.4
Total employment	0.3	0.8	0.8	0.9	0.9
Price and cost developments					
Consumption prices	1.9	1.4	1.2	1.2	1.2
House prices	0.0	0.5	1.6	2.2	2.5
Commercial real estate prices	0.0	0.5	1.6	2.2	2.5
Equity market index	2.0	2.5	2.6	2.7	2.7
Interest rates					
Short-term interest rate (in %)	0.4	0.4	0.4	0.4	0.4
10-year sovereign bond yield (in %)	3.1	3.4	3.6	3.8	3.8
	Severe double-dip scenario				
Real GDP	–1.6	–0.4	0.6	1.0	1.1
Labor market					
Unemployment rate (in % of labor force)	8.0	8.6	9.3	9.7	10.3
Total employment	0.1	–0.1	–0.1	0.2	0.3
Price and cost developments					
Consumption prices	3.8	2.6	2.0	1.7	1.4
House prices	–2.0	–0.7	0.8	1.2	1.5
Commercial real estate prices	–2.0	–0.7	0.8	1.2	1.5
Equity market index	–20.9	1.2	0.1	1.0	1.4
Interest rates					
Short-term interest rate (in %)	1.0	1.0	0.9	0.9	0.8
10-year sovereign bond yield (in %)	3.3	3.6	3.8	3.9	3.9
	Slow growth scenario				
Real GDP	–0.6	0.1	0.4	0.5	0.5
Labor market					
Unemployment rate (in % of labor force)	7.9	8.1	8.5	8.9	9.6
Total employment	0.2	0.3	0.2	0.2	0.2
Price and cost developments					
Consumption prices	2.6	2.4	2.3	2.2	2.0
House prices	–0.7	–0.3	0.9	1.5	1.7
Commercial real estate prices	–0.7	–0.3	0.9	1.5	1.7
Equity market index	–7.7	–1.8	–1.5	–1.8	–0.5
Interest rates					
Short-term interest rate (in %)	0.4	0.4	0.4	0.3	0.3
10-year sovereign bond yield (in %)	3.0	3.3	3.5	3.8	3.8

Sources: IMF, NBB.

CHART 40 STRESS TEST RESULTS FOR THE BANKS[1]

(core equity Tier I in % of RWA)



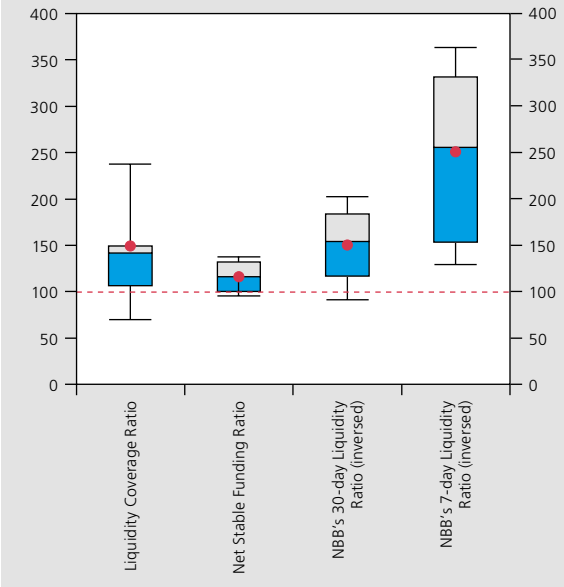
Sources: IMF, NBB.

(1) The bottom-up exercise covered the six largest banks on a consolidated basis and the top-down exercise 42 banks on a company basis.

The results of the stress tests showed that, on average, the capital position of banks is sound and compares favourably to other major international banking sectors under the current regulatory regime (Chart 40). The results indicate that the sector as a whole is managing to maintain its capital above the upcoming minimum capital requirements under the two adverse macroeconomic scenarios over the period 2013-2017, despite an erosion of the capital base resulting mainly from haircuts on sovereign bonds and the impact of forthcoming regulatory changes (Basel III). More specifically, the decline in the average capital ratio – measured by the changes in the core equity Tier I ratio – oscillated within a range of 3.5 to 4.2 percentage points, depending on the scenarios over the forecast period. Some mitigating factors were excluded from the analysis, including on-going de-risking of balance sheets and strategic changes to business models or other actions which financial institutions would probably take if one of these macroeconomic environments were to materialise. The IMF pointed out vulnerabilities and challenges for the Belgian banking sector in the coming years. In particular, in a weak economic environment, the structurally high costs and increasing competitive pressures – as banks refocus on their domestic markets – could significantly affect profit generation in the coming years, and could cast doubt on the viability of some business models. Given the high proportion of Belgian government bonds in banks' portfolios, the IMF also

CHART 41 LIQUIDITY STRESS TEST RESULTS FOR LARGE BANKS[1]

(in % of required amount)



Sources: IMF, NBB.

(1) Box plots include the mean (dot), the 25th and 75th percentiles (box, with the change of colour indicating the median), and the 10th and 90th percentiles (whiskers). The red dotted line represents the minimum regulatory requirement.

highlighted the potential vulnerability of these banks to a sudden increase in Belgian sovereign spreads in a context of increasing links between sovereigns and banks and renewed political instability.

The bank liquidity stress tests, which focused on sudden withdrawals of funding and large reductions in asset values, confirmed the relatively strong liquidity position of Belgian banks on aggregate (Chart 41). In particular, as a result of the introduction, by the supervisory authority, of quantitative and qualitative liquidity requirements in 2011, Belgian banks have significantly improved their liquidity position and their liquidity risk management. Liquidity stress tests were based both on the NBB liquidity ratio and on the upcoming Basel III standard measures of liquidity risks. The results show that Belgian banks have sufficient liquidity buffers under various scenarios of severe stress, and that the great majority of the banking sector complies with the new international standards.

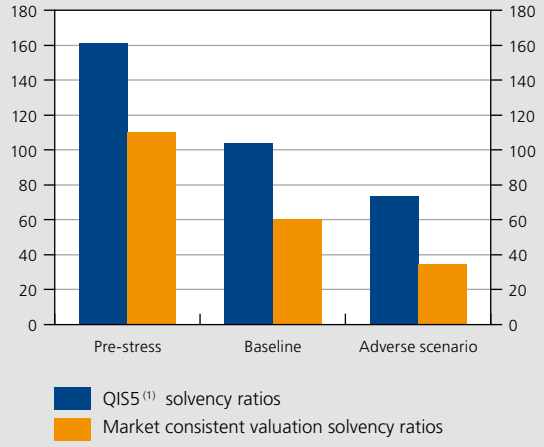
Insurance companies underwent similar stress tests in order to determine the resilience of the sector to different types of shocks: low interest rates, decline in equity prices, increases in corporate and sovereign bond spreads and, where applicable, two specific shocks respectively concerning life and non-life underwriting risks (Chart 42). These stress tests were performed by the six largest insurers (about 70 % of the insurance sector) in collaboration with the Bank and FSAP staff and were conducted under various solvency standards and scenarios: two in-house exercises, one based on the current regime (Solvency I) and one based on a QIS5-type methodology, and one exercise performed by the companies themselves based on a full market-consistent valuation basis. The last two solvency standards are based on a valuation of the assets at market prices, while liabilities are discounted at the current market risk-free interest rates. In the case of the market-consistent valuation, all types of potential dampening factors were also excluded, such as a countercyclical premium or illiquidity premium. Conversely, the latter was still included in the QIS5 methodology.

While the sector is fairly resistant to various shocks under the current regulatory regime (Solvency I), it would be significantly affected by a shift to a more market-consistent valuation, particularly given the balance sheet structure – dominated by sovereign bonds – and the significant legacy of life insurance contracts with high guaranteed rates. In this context, the IMF recommends the Bank to remain vigilant and to start implementing some aspects of the Solvency II regime (Own Risk and Solvency Assessment,..) straightaway.

The IMF also recommends further development of the stress test as a routine tool within the micro- and macro-prudential framework, and completion of the ongoing business analysis for banks and insurance companies in order to facilitate and enhance the detection of vulnerabilities and risk drivers in the Belgian financial sector. In addition, the IMF recommends improving the macro-prudential framework by making the NBB the competent authority, and strengthening cooperation and coordination with the other relevant authorities in this matter.

CHART 42 STRESS TEST RESULTS FOR THE INSURANCE COMPANIES

(overall solvency ratio, average for the six largest insurance companies)



Sources: IMF, NBB.

(1) Quantitative Impact Study 5. The QIS5 assessed the impact of the new framework for asset and liability valuations and capital setting under Solvency II for insurance undertakings. Various studies have been performed; the results are based on the specifications of the 5th version of the QIS.

Regarding the reforms of the supervisory architecture, the IMF indicated that major progress has been achieved in a challenging environment since the previous FSAP mission, in a context of financial crisis and the introduction of the Twin Peaks supervisory model in Belgium. The IMF highlighted good risk-based practices used by the Bank in the daily supervision of banks and insurance companies, and a high level of compliance with the Basel Core Principles for Effective Banking Supervision and with the Insurance Core Principles. In particular, the introduction of the management cycle and its components constitutes an important building block of supervision, helping to improve analytical processes and substance (for more details, see the Bank's 2012 Annual Report). Good supervision is an ongoing process, and in this context the IMF has pointed out some room for improvement as well. In particular, systematic procedures for the baseline supervision of smaller financial institutions should be further enhanced. In this context, the Bank has already taken some decisions to

improve the discrimination of institutions' risks profiles by developing a clustering approach. Furthermore, the IMF recommends a more formal approach, involving systematic, regular high-level meetings with the boards of banks and insurance companies, to challenge – among other things – their assessment of their institution's risk profile.

Conglomerate supervision has also been assessed, but in a more informal manner. While the IMF recognises that there are important shortcomings in the current European framework – which is currently under review –, they also acknowledge that the Belgian authorities have been prudent and pragmatic in their supervisory approach to financial conglomerates. Nonetheless, the IMF team pointed out some weaknesses. In particular, they recommend the Bank to develop a more comprehensive and consistent approach to conglomerate supervision, which would enable the supervisory authorities to detect multiple leveraging of capital, to closely monitor intra-group transactions and exposures, and group-wide concentration.

Finally, the IMF made some recommendations on the Belgian crisis management and bank resolution framework, which has been improved in the aftermath of the financial crisis. The main recommendations relate to the recovery and resolution of financial institutions. Indeed, the IMF proposes that recovery and resolution plans be extended to all institutions of systemic importance. This recommendation will be implemented in the coming months. Furthermore, the IMF asks the authorities to formalise the institutional arrangements for resolution, and in particular, to designate a resolution authority. Finally, the IMF urges the redesign of the Deposit Guarantee Scheme (DGS) by creating a segregated fund, financed ex ante by industry contributions, with a minimum target size. The authorities should also consider the introduction of depositor preference which would better protect the DGS and therefore the State in the event of a payout to depositors.

The detailed results of this assessment are available on the IMF website.

Statistical annex

List of tables

Tables relating to Belgian credit institutions

Tables relating to Belgian insurance companies

Tables relating to stockbroking firms

TABLE 1 NUMBER OF CREDIT INSTITUTIONS

	2005	2006	2007	2008	2009	2010	2011	2012
Credit institutions governed by Belgian law with Belgian majority shareholding	26	26	25	23	21	21	20	16
Credit institutions governed by Belgian law with foreign majority shareholding	28	25	27	28	27	27	27	26
EU Member States	23	20	21	21	19	20	20	19
Other States	5	5	6	7	8	7	7	7
Belgian branches of foreign credit institutions	50	54	58	56	56	59	61	62
EU Member States	41	46	49	47	47	50	52	53
Other States	9	8	9	9	9	9	9	9
Total	**104**	**105**	**110**	**107**	**104**	**107**	**108**	**104**

Source: NBB.

TABLE 2 KEY FIGURES

(consolidated end-of-period data)

	2001	2002	2003	2004	2005	2006[1]	2007[1]	2008[1]	2009[1]	2010[1]	2011[1]	2012[1]
A. Large banking groups												
Balance sheet total (in € billion)	940.7	907.5	913.2	1 010.7	1 229.2	1 348.0	1 488.8	1 326.8	1 092.0	1 003.2	967.8	857.1
Customers' holdings (in € billion)	477.0	465.4	453.9	482.1	532.0	667.4	700.9	612.8	622.5	559.8	518.4	518.2
Loans and advances to customers (in € billion)	374.8	381.2	384.9	433.2	535.1	553.8	619.0	505.0	481.7	450.7	441.4	432.8
Risk asset ratio (in %)	12.7	12.8	12.4	12.6	11.1	11.2	10.8	16.2	17.0	19.2	18.2	17.9
Net after tax results (in € billion)	3.4	2.9	3.6	4.6	5.7	9.2	6.2	–20.9	–1.5	5.0	–0.1	1.2
Return on average assets (in %)	0.4	0.4	0.4	0.5	0.5	0.7	0.4	–1.4	–0.1	0.5	–0.0	0.1
Return on average equity (in %)	15.0	12.6	14.2	17.3	19.9	23.1	13.7	–40.8	–3.8	11.1	–0.1	2.7
Cost-income ratio (in %)	72.9	73.2	72.8	70.6	72.3	55.5	60.6	86.3	77.7	65.5	66.5	72.6
B. Total of Belgian credit institutions												
Balance sheet total (in € billion)	1 063.7	1 024.6	1 033.0	1 143.2	1 369.3	1 422.0	1 578.4	1 422.1	1 190.5	1 151.1	1 147.3	1 048.7
Customers' holdings (in € billion)	545.0	535.3	531.9	570.1	622.1	715.7	761.6	681.8	691.9	636.7	615.2	620.4
Loans and advances to customers (in € billion)	416.3	421.3	428.8	482.9	591.3	591.0	666.2	555.6	536.5	506.6	509.4	504.7
Risk asset ratio (in %)[2]	12.9	13.1	12.8	13.0	11.5	11.9	11.2	16.2	17.3	19.3	18.5	18.2
Net after tax results (in € billion)	3.8	3.2	4.0	5.2	6.6	9.7	6.7	–20.6	–1.2	5.6	0.4	1.6
Return on average assets (in %)	0.4	0.4	0.4	0.5	0.5	0.7	0.4	–1.3	–0.1	0.5	0.0	0.1
Return on average equity (in %)[2]	13.7	11.8	13.6	15.8	18.5	22.4	13.2	–36.5	–2.6	10.5	0.7	3.0
Cost-income ratio (in %)	74.1	74.7	73.9	72.0	72.6	55.7	61.1	85.0	77.5	65.9	67.3	73.3

Source: NBB.

(1) Since 2006, the data are based on the new IAS/IFRS prudential reporting scheme. This has led to a methodological break in the time series shown in this table, affecting in particular the level of the cost-income ratio (due to a reclassification of commission expenses), the average yield on assets, the average cost of funding and the interest margin.

(2) Only for credit institutions governed by Belgian law.

TABLE 3 MAIN BALANCE SHEET ITEMS BY ACCOUNTING CATEGORY/PORTFOLIO

(consolidated end-of-period data, in € billion)

	2007	2008	2009	2010	2011	2012
Assets						
Financial assets held for trading	254.2	281.4	164.6	174.4	197.9	130.9
Financial assets designated at fair value through profit and loss	46.7	28.4	29.7	24.5	12.8	8.8
Available-for-sale financial assets	215.8	214.7	176.8	159.7	150.1	120.2
Loans and receivables (including finance leases)	925.3	772.3	718.3	698.9	687.3	658.0
Held-to-maturity investments	14.5	13.1	12.8	14.1	13.5	25.9
Derivatives used for hedging	5.6	4.4	4.6	5.5	8.5	11.2
Tangible assets	8.1	8.4	8.2	6.8	7.1	7.7
Goodwill and other intangible assets	3.9	4.7	4.1	2.9	2.9	2.6
Investments in associates, subsidiaries and joint ventures	29.8	1.6	2.5	6.4	5.4	5.3
Miscellaneous	74.5	93.2	69.0	58.1	62.0	78.1
Liabilities						
Financial liabilities held for trading	193.7	240.1	147.6	169.2	196.1	117.1
Financial liabilities designated at fair value through profit and loss	61.5	60.9	47.1	49.0	42.9	28.2
Financial liabilities measured at amortised cost	1 183.2	955.1	863.1	818.8	748.6	735.1
Financial liabilities associated to transferred assets	21.6	7.4	8.0	9.7	19.1	14.4
Derivatives used for hedging	4.1	10.1	11.1	12.5	19.8	24.7
Provisions	2.5	3.1	2.9	5.4	5.3	5.2
Miscellaneous	44.5	96.3	57.0	29.3	62.8	63.5
Total equity and minority interest	67.3	49.1	53.7	57.2	52.8	60.4
Balance sheet total	**1 578.4**	**1 422.1**	**1 190.5**	**1 151.1**	**1 147.3**	**1 048.7**

Source: NBB.

TABLE 4 MAIN BALANCE SHEET ITEMS BY PRODUCT

(consolidated end-of-period data, in € billion)

	2007	2008	2009	2010	2011	2012
Assets						
Loans to credit institutions	320.8	213.2	156.1	195.8	174.3	130.4
Loans and advances to other than credit institutions	666.2	555.6	536.5	506.6	509.4	504.7
Debt instruments	296.2	298.8	264.7	231.9	212.0	193.3
Equity instruments	52.8	15.9	8.8	5.8	4.7	6.3
Derivatives[1]	120.5	223.1	135.1	133.2	167.0	120.3
Other assets	122.0	115.6	89.3	77.7	79.8	93.7
Liabilities						
Debts to credit institutions	431.7	276.2	167.6	177.2	128.5	115.0
Customers' holdings	761.6	681.8	691.9	636.7	615.2	620.4
Deposits[2]	582.4	557.4	541.8	511.4	513.9	508.9
Bank bonds and other debt securities	179.1	124.4	150.0	125.3	101.3	111.5
Derivatives[1] and short positions	186.3	247.6	157.0	151.6	187.1	133.2
Subordinated liabilities	36.0	37.0	30.2	29.4	26.4	20.3
Other liabilities	95.5	130.4	90.2	98.9	137.5	99.4
Total equity and minority interest	67.3	49.1	53.7	57.2	52.8	60.4
Balance sheet total	**1 578.4**	**1 422.1**	**1 190.5**	**1 151.1**	**1 147.3**	**1 048.7**

Source: NBB.

(1) Including accrued income and expenses.

(2) Deposits booked at amortised cost.

TABLE 5 LOANS AND ADVANCES TO CUSTOMERS[1]

(consolidated end-of-period data, in € billion)

	2007	2008	2009	2010	2011	2012
Term loans	266.7	265.7	235.8	214.4	203.9	198.5
Mortgage loans	208.3	132.2	158.3	178.5	183.9	188.3
Current accounts	28.8	24.0	17.9	26.5	23.7	24.3
Consumer credit	17.1	16.9	16.9	23.7	23.2	23.9
Finance leases	21.4	21.7	19.1	8.0	11.2	23.7
Bills & own acceptances	2.9	1.7	0.8	0.2	0.3	0.2
Securitised loans (for capital and not accounting purposes)	4.0	19.1	30.1	20.3	23.5	22.5
Other	88.2	62.7	44.2	6.4	18.9	12.7
Total	**637.3**	**544.0**	**523.4**	**478.0**	**488.6**	**494.0**

Source : NBB.

(1) Loans included in the accounting portfolio "Loans and receivables" only.

TABLE 6 SECURITIES BY TYPE AND PORTFOLIO

(consolidated end-of-period data, in € billion)

	2007	2008	2009	2010	2011	2012
Total long positions	**378.7**	**316.2**	**276.0**	**244.1**	**222.2**	**204.9**
Debt instruments	**296.2**	**298.8**	**264.7**	**231.9**	**212.0**	**193.3**
Held for trading	57.6	37.0	25.7	14.5	13.9	7.9
Designated at fair value through profit and loss	15.5	15.8	14.9	12.2	5.7	2.7
Available-for-sale	206.9	208.5	170.5	156.5	146.7	117.1
Loans & receivables	1.9	24.6	41.1	34.9	32.5	39.8
Held-to-maturity	14.2	12.8	12.5	13.8	13.2	25.9
p.m. Debt instruments involved in repo transactions excluding re-used debt instruments	*146.5*	*109.0*	*99.7*	*60.8*	*76.7*	*24.9*
Equity instruments	**52.8**	**15.9**	**8.8**	**5.8**	**4.7**	**6.3**
Quoted equity	36.5	9.4	4.8	3.0	1.5	3.7
Held for trading	28.9	7.3	2.2	1.8	0.6	2.2
Designated at fair value through profit and loss	2.6	0.2	0.9	0.3	0.2	0.1
Available-for-sale	4.9	1.9	1.7	0.9	0.7	1.4
Unquoted equity	16.3	6.5	4.0	2.8	3.2	2.5
Held for trading	12.9	4.3	1.7	1.2	0.8	0.2
Designated at fair value through profit and loss	0.9	0.8	0.1	0.6	0.6	0.6
Available-for-sale	2.5	1.3	2.2	1.1	1.8	1.7
p.m. Equity involved in repo transactions excluding re-used equity	*0.2*	*5.6*	*0.0*	*0.0*	*0.0*	*0.2*
Investments in associates, subsidiaries and joint ventures (non-consolidated entities)	**29.8**	**1.6**	**2.5**	**6.4**	**5.4**	**5.3**
Total short positions	**64.1**	**14.9**	**9.2**	**3.1**	**2.7**	**1.3**
Debt instruments	**14.1**	**14.3**	**8.6**	**2.9**	**2.0**	**1.3**
Equity instruments	**50.0**	**0.6**	**0.6**	**0.2**	**0.7**	**0.0**

Source : NBB.

TABLE 7 LIABILITIES TOWARDS CUSTOMERS

(consolidated end-of-period data, in € billion)

	2007	2008	2009	2010	2011	2012
Retail deposits	280.9	259.1	283.3	299.7	304.2	321.4
of which :						
Sight deposits [1]	62.1	52.8	62.6	56.6	61.0	61.1
Savings deposits [1]	131.1	129.2	163.5	186.4	183.7	198.0
Term deposits [1]	64.1	60.0	32.8	28.1	34.1	33.6
Customer savings certificates	27.2	29.9	38.9	36.5	34.5	29.2
Deposits of corporates	257.7	256.8	202.3	164.7	149.4	135.3
Deposits of non-credit institutions	32.1	34.9	33.1	38.1	43.8	40.9
Other customer deposits	11.8	6.6	23.2	8.8	16.4	11.3
Certificates of deposits	81.2	37.7	53.6	25.9	10.0	16.3
Bonds and other debt certificates	70.7	56.8	57.5	62.9	56.6	66.0
Total	**761.6**	**681.8**	**691.9**	**636.7**	**615.1**	**620.4**

Source : NBB.

(1) Deposits booked at amortised cost only.

TABLE 8 DERIVATIVES AND OFF-BALANCE-SHEET COMMITMENTS

(consolidated end-of-period data, in € billion)

	Assets and liabilities					
	2007	2008	2009	2010	2011	2012
Derivatives (notional amounts)						
Held for trading	8 763.9	1 0913.0	8 573.2	7 621.9	6 729.7	4 947.3
Interest rate derivatives	6 749.7	9 198.5	7 332.3	6 662.4	5 795.2	4 175.6
Equity derivatives	340.8	214.8	151.9	132.5	156.8	129.4
Currency derivatives	1 265.5	1 085.4	737.9	710.1	682.4	562.5
Credit derivatives	365.7	311.5	300.3	94.9	75.9	61.6
Commodity derivatives	40.6	101.0	50.1	21.7	19.2	18.0
Other derivatives	1.6	1.8	0.6	0.3	0.3	0.1
Hedging derivatives	375.1	347.9	350.7	319.6	363.6	390.1
Micro-hedging	116.4	123.8	91.6	104.0	119.4	120.2
Portfolio-hedging	258.6	224.2	259.2	215.6	244.2	269.9
Total derivatives	**9 138.9**	**11 261.0**	**8 923.9**	**7 941.5**	**7 093.3**	**5 337.4**
Off-balance-sheet commitments						
Given						
Loan commitments	451.7	315.8	268.0	163.7	140.9	123.6
Guarantees	265.8	281.0	215.2	60.9	81.4	73.7
Other commitments	311.2	365.3	281.8	187.9	233.2	214.4
Received						
Loan commitments	23.8	33.9	31.0	63.0	5.3	16.0
Guarantees	1,107,3	581.5	564.5	385.5	295.7	283.4
Other commitments	313.4	229.2	213.1	181.9	201.9	266.9

Source: NBB.

TABLE 9 OWN FUNDS COMPONENTS OF CREDIT INSTITUTIONS GOVERNED BY BELGIAN LAW

(consolidated end-of-period data, in € billion, unless otherwise stated)

	2007	2008	2009	2010	2011	2012
Own funds sensu stricto ("tier 1 capital")[1]	67.5	55.7	53.9	57.8	56.5	55.9
of which hybrid instruments	7.8	7.8	6.8	6.9	6.6	4.5
Additional items of own funds for credit and market risks ("tier 2 capital")	22.6	24.6	17.3	15.2	13.5	12.1
of which upper tier 2[2]	5.9	9.3	3.4	3.2	3.6	2.5
of which lower tier 2[3]	16.7	16.6	15.8	15.0	12.8	9.6
Deduction of participations	–26.6	–1.0	–1.0	–1.3	–0.8	–0.9
Total	*63.6*	*79.5*	*70.3*	*71.9*	*69.3*	*64.2*
Additional items of own funds for market risks only ("tier 3 capital")[4]	0.0	0.1	0.2	0.0	0.0	0.0
Risk asset ratio (in %)	**11.2**	**16.2**	**17.3**	**19.3**	**18.5**	**18.2**

Source: NBB.

(1) Includes i.a. paid-up capital, reserves, the fund for general banking risks and third-party interests. Positive consolidation differences have to be deducted.

(2) Includes the revaluation reserves, the internal security fund, the perpetuals and other instruments with a subordinated nature and for which the principal or interest payments may be suspended in case of losses.

(3) Includes long-term subordinated debts (minimum initial maturity of 5 years).

(4) Includes the trading portfolio's net result and short-term subordinated debts, after application of the regulatory limitations.

TABLE 10 INCOME AND EXPENSES

(consolidated data, in € billion)

	2011	2012
Interest income	71.5	49.5
Interest expenses (–)	57.5	35.9
Net interest income	14.0	13.6
Dividend income	0.1	0.1
Net fee income	5.2	5.4
Fees received	*7.2*	*7.3*
Fees paid (excluding the commissions paid to bank agents) (–)	*1.9*	*1.9*
Realised capital gains or losses (on financial assets and liabilities other than measured at fair value through profit and loss)	–0.3	–0.2
Trading income (gains or losses on financial assets held for trading)	–1.6	0.8
Other fair value accounting gains and losses	1.1	–0.6
Gains and losses on financial assets and liabilities designated at fair value through profit and loss	*1.0*	*–0.5*
Fair value adjustments in hedge accounting	*0.1*	*–0.1*
Other net operating income	1.1	–0.1
Non-interest income	5.6	5.4
Gross operating income (banking product)	19.6	18.9
Staff expenses (–)	6.6	6.9
Commissions paid to bank agents (–)	0.9	0.9
General and administrative expenses (–)	5.1	5.4
Depreciation (–)	0.7	0.7
Operating expenses (excluding impairment losses and provisions) (–)	13.2	13.9
Impairment losses on financial assets (–)	4.4	1.1
Impairment on property, investment properties, intangible assets, investments and associates and joint ventures accounted for using the equity method (–)	0.3	1.7
Provisions (–)	0.3	–0.3
Impairment losses and provisions (–)	5.0	2.6
Share of the profit or loss of associates, and joint ventures accounted for using the equity method	–0.4	0.2
Negative goodwill immediately recognised in profit and loss	0.0	0.0
Total profit or loss from non-current assets and disposal groups classified as held for sale not qualifying as discontinued operations	0.0	0.0
Net operating income	**1.0**	2.7
Total profit or loss after tax from discontinued operations	–0.3	0.0
Total profit or loss before tax and minority interest	**0.7**	**2.7**
Tax expenses related to profit or loss from continuing operations (–)	0.0	0.7
Total profit or loss after tax and before minority interest	**0.7**	**1.9**
Minority interest (–)	0.3	0.4
Net profit or loss	**0.4**	**1.6**

Source : NBB.

TABLE 11 MAIN COMPONENTS OF THE INCOME STATEMENT OF CREDIT INSTITUTIONS GOVERNED BY BELGIAN LAW[1]

(consolidated data, in € billion)

	2005	2006	2007	2008	2009	2010	2011	2012
Net interest income	12.7	12.8	13.3	14.5	14.9	13.8	14.0	13.6
Non-interest income	12.8	13.9	13.0	4.8	3.9	6.4	5.6	5.4
Net fee income	7.9	6.7	7.4	6.8	5.7	5.2	5.2	5.4
(Non-)realised capital gains or losses on financial assets and liabilities	2.2	3.6	3.8	–3.8	–2.7	0.0	–0.8	0.0
Other non-interest income	2.7	3.6	1.9	1.9	1.0	1.3	1.2	0.0
Gross operating income (banking product)	25.5	26.6	26.3	19.3	18.8	20.2	19.6	18.9
Expenses	–18.5	–14.8	–16.1	–16.6	–14.6	–13.3	–13.2	–13.9
Staff expenses	–7.9	–9.0	–9.2	–9.2	–7.9	–7.4	–6.6	–6.9
Impairment losses and provisions	0.4	–0.4	–3.2	–13.3	–7.4	–1.8	–5.0	–2.6
Tax expenses (-income) and other income	–0.8	–1.7	–0.4	–10.6	1.9	0.5	–1.0	–0.8
Net profit or loss	6.6	9.7	6.7	–21.2	–1.2	5.6	0.4	1.6

Source: NBB.

(1) Data based on Belgian accounting principles (Belgian GAAP) until 2005 and on IAS/IFRS-standards from 2006 onwards.

TABLE 12 NUMBER OF INSURANCE COMPANIES

	2005	2006	2007	2008	2009	2010	2011	2012
A. By the location of their registered office								
Belgium[1]	110	107	106	100	97	97	95	88
European Economic Area[2]	56	54	50	51	50	48	47	45
Rest of the world[3]	3	0	0	0	0	0	0	0
Total	**169**	**161**	**156**	**151**	**147**	**145**	**142**	**133**
Free service provision[4]	740	762	791	878	885	910	927	949
B. By specialisation[5]								
Life insurance	30	29	30	30	29	28	26	25
Non-life insurance	114	109	103	99	94	92	90	83
Life and non-life insurance	25	23	23	22	24	25	26	25
Total	**169**	**161**	**156**	**151**	**147**	**145**	**142**	**133**

Source: NBB.
(1) Companies with their registered office in Belgium comprise the Belgian subsidiaries of foreign companies.
(2) Belgian branches of companies with their registered office in another E.E.A. country.
(3) Belgian branches of companies with their registered office outside the E.E.A.
(4) Provision of insurance services without an establishment in Belgium.
(5) Including the Belgian branches of foreign insurance companies.

TABLE 13 MAIN COMPONENTS OF INSURANCE COMPANIES' ASSETS

(data on a company basis, in € billion)

	2005	2006	2007	2008	2009	2010	2011	2012
Investments	166.5	183.7	201.7	202.7	214.9	229.5	233.8	242.0
All activities with the exception of class 23	141.7	158.3	177.2	184.6	195.8	210.0	215.2	218.3
Shares[1]	17.9	18.8	19.8	13.4	11.4	12.0	9.6	9.3
Debt securities	101.2	115.2	130.0	136.6	151.5	165.9	172.0	173.3
Land and buildings	2.6	2.5	2.6	3.1	3.1	3.0	3.2	3.3
Mortgage loans	5.5	5.5	5.4	5.4	5.3	5.2	5.8	9.4
Investments in affiliated undertakings	9.2	11	14.2	15.7	16.9	16.8	15.5	15.6
Others	5.3	5.2	5.2	10.5	7.7	7.1	9.1	7.4
Class 23	24.8	25.5	24.6	18.1	19.1	19.5	18.6	23.7
Shares[1]	19.5	21.2	19.5	13.6	14.9	15.2	14.6	
Debt securities	4.1	3.8	4.6	4.2	3.9	4.1	3.6	
Others	1.3	0.4	0.5	0.3	0.3	0.2	0.4	
Reinsured part of technical provisions	5.2	4.9	4.8	7.0	6.6	6.8	7.2	7.4
Claims and other assets	13.3	13.2	13.8	14.1	12.9	12.2	15.6	15.4
Total	**185**	**201.9**	**220.4**	**223.8**	**234.4**	**248.5**	**256.6**	**264.8**

Source: NBB.

(1) Including shares in UCITS.

TABLE 14 MAIN COMPONENTS OF INSURANCE COMPANIES' LIABILITIES

(data on a company basis, in € billion)

	2005	2006	2007	2008	2009	2010	2011	2012
Own funds	10.2	10.7	11.9	14.2	14.5	14.6	13.7	15.4
Technical provisions	156.5	169.9	185.5	188.0	198.5	211.0	218.3	226.4
Life insurance (with the exception of class 23)	103.7	115.2	130.6	139.4	149.2	160.4	167.7	170.8
Class 23	25.0	25.7	24.7	18.2	19.2	19.6	18.7	23.7
Non-life insurance	22.7	23.3	24.0	24.8	24.2	24.9	25.9	25.3
Others	5.1	5.7	6.2	5.5	5.9	6.1	6.0	6.6
Reinsurance companies' deposits	2.7	2.6	2.7	4.8	4.7	4.9	5.1	5.2
Creditors' claims	13.5	16.5	17.6	14.5	14.3	15.5	16.7	15.2
Other liabilities	2.0	2.2	2.6	2.3	2.5	2.6	2.8	2.6
Total	**185**	**201.9**	**220.4**	**223.8**	**234.4**	**248.5**	**256.6**	**264.8**

Source: NBB.

TABLE 15 COMPONENTS OF THE INCOME STATEMENT OF INSURANCE COMPANIES

(data on a company basis, in € billion, unless otherwise stated)

	2005	2006	2007	2008	2009	2010	2011	2012
A. Technical account in life insurance								
Net premiums written	25.2	20.4	21.9	19.5	18.6	19.0	18.4	20.7
Claims paid (–)	10.2	13.0	13.0	15.3	13.5	12.7	15.5	18.3
Change in the provisions for claims (–)	20.5	12.4	13.3	2.9	11.5	11.7	6.1	8.9
Premiums after insurance costs	**–5.4**	**–5.0**	**–4.4**	**1.3**	**–6.5**	**–5.5**	**–3.2**	**–6.5**
Net operating expenses (–)	1.3	1.4	1.6	1.6	1.6	1.6	1.6	1.7
Result before investment income	**–6.8**	**–6.4**	**–6.0**	**–0.3**	**–8.0**	**–7.1**	**–4.8**	**–8.2**
Net investment income	8.0	7.4	6.9	–3.4	8.8	7.8	4.0	9.5
Technical result life insurance	**1.2**	**1.0**	**1.0**	**–3.7**	**0.7**	**0.8**	**–0.7**	**1.3**
B. Technical account in non-life insurance								
Net premiums written	8.9	9.3	9.3	9.7	9.2	9.5	10.4	10.7
Claims paid (–)	5.6	5.9	6.3	6.5	6.6	6.8	7.2	7.2
Change in the provisions for claims (–)	1.1	0.8	0.5	0.4	0.4	0.4	0.1	0.5
Premiums after insurance costs	**2.3**	**2.6**	**2.5**	**2.8**	**2.2**	**2.3**	**3.1**	**3.0**
Net operating expenses (–)	2.7	2.8	2.7	2.8	2.6	2.7	3.0	3.1
Result before investment income	**–0.4**	**–0.2**	**–0.2**	**0.0**	**–0.4**	**–0.4**	**0.1**	**–0.1**
Net investment income	1.5	1.3	1.5	0.2	1.0	1.2	0.9	1.2
Technical result non-life insurance	**1.1**	**1.2**	**1.3**	**0.2**	**0.7**	**0.7**	**0.9**	**1.1**
C. Non-technical account								
Total technical result life and non-life insurance	2.3	2.2	2.2	–3.5	1.4	1.5	0.2	2.4
Residual net investment income	0.7	0.5	1.7	0.3	–0.7	0.2	–0.9	0.9
Other and exceptional results and taxes	–0.6	–0.5	–0.1	–0.7	0.2	–0.3	–0.2	–0.7
Net result	**2.4**	**2.2**	**3.8**	**–3.9**	**0.9**	**1.4**	**–0.9**	**2.6**
p.m. Return on equity (in %)	*23.3*	*20.8*	*31.7*	*–27.3*	*6.3*	*9.7*	*–6.7*	*16.9*

Source: NBB.

TABLE 16 LEVEL AND COMPOSITION OF INSURANCE COMPANIES' AVAILABLE SOLVENCY MARGIN

(data on a company basis, in € million, unless otherwise stated)

	2005	2006	2007	2008	2009	2010	2011	2012
Explicit margin	11 728	12 768	14 199	16 834	17 393	17 323	16 495	16 558
In % of required margin	*180*	*179*	*182*	*206*	*205*	*193*	*174*	*171*
Implicit margin	5 148	5 279	3 144	1 407	1 999	1 886	1 771	3 596
Future profits of life insurance activities	749	655	484	360	288	226	213	1 620
Unrealised capital gains	4 399	4 624	2 660	1 047	1 711	1 660	1 558	1 976
In % of required margin	*79*	*74*	*40*	*17*	*24*	*21*	*19*	*37*
Total margin	**16 876**	**18 047**	**17 343**	**18 241**	**19 392**	**19 209**	**18 266**	**20 154**
In % of required margin	***259***	***253***	***222***	***223***	***229***	***214***	***193***	***208***

Source: NBB.

TABLE 17 COMPOSITION OF INSURANCE COMPANIES' COVERING ASSETS FOR ALL TYPES OF ACTIVITIES

(data on a company basis, in % of total covering assets, unless otherwise stated)

	2005	2006	2007	2008	2009	2010	2011	2012
Bonds	57.4	59.5	64.1	66.2	69.0	70.4	73.0	72.8
Equities	13.9	14.1	10.1	7.7	6.6	6.1	4.8	4.2
Real estate	2.2	2.1	1.4	1.6	1.7	1.7	1.7	1.7
Loans	2.7	2.3	2.3	2.8	2.6	2.7	3.3	4.7
UCITS	16.2	16.5	16.1	12.5	12.1	11.3	9.9	9.6
Others	7.6	5.5	5.9	9.2	8.0	7.8	7.3	7.0
Total (in € billion)	**168.8**	**182.7**	**193.1**	**196.5**	**210.8**	**221.3**	**225.5**	**236.8**

Source: NBB.

TABLE 18 KEY FIGURES OF STOCKBROKING FIRMS

(data on a company basis)

	2004	2005	2006	2007	2008	2009	2010	2011 (4)
Number of companies	36	31	27	26	23	23	23	22
Securities portfolio for own account (in € billion) (1) (2)	1.89	0.25	0.14	0.23	0.39	0.39	0.09	0.10
Balance sheet total (in € billion) (2)	3.11	2.37	2.30	3.06	2.70	2.28	2.38	2.05
Securities in trust (in € billion)	28.4	41.1	46.6	73.2	54.8	69.6	79.0	69.6
Regulatory own funds (in € billion)	0.26	0.29	0.22	0.43	0.73	0.74	0.72	0.38
Risk asset ratio (in %)	36.0	58.2	46.5	35.9	39.1	44.3	53.0	33.9
Income (in € billion) (2)	0.19	0.27	0.32	0.36	0.28	0.29	0.28	0.27
Operating expenses (in € billion) (2)	0.18	0.18	0.21	0.25	0.28	0.30	0.26	0.26
Net after tax results (in € billion) (2)	0.05	0.10	0.13	0.17	0.06	0.06	–0.01	0.04
Return on average equity (in %) (3)	11.9	28.0	36.5	37.8	8.0	7.8	–0.9	11.2

Source : NBB.

(1) The securities portfolio consists of the long positions (financial instruments held by stockbroking firms for their own account, with the exclusion of participations) and the short positions (uncovered sales of financial instruments).

(2) Figures from the quarterly financial statements in which positions are marked to market.

(3) Ratio of the net result after taxes to the accounting own funds. The latter have been established on the basis of the quarterly financial statements and are composed of the capital, share premiums, capital gains, reserves, results brought forward, and subordinated debt.

(4) Since 1 January 2011, a new decree (CBFA_2010_10_1, 14 April 2010) was introduced which modified the prudential reporting schemes of investment companies and undertakings for collective investment.

Thematic Articles

Review of the Belgian insurance sector's government bond portfolio

At the end of 2012, the Belgian insurance sector had a total balance sheet of € 265 billion. On the assets' side, a major part of the total assets is composed of investments in fixed income instruments issued by public sector entities (€ 114 billion), which include central and local government authorities, as well as international public institutions. This article will review the composition and main features of this public sector bond portfolio as at the end of 2012. It is based on an analysis that linked detailed information on the individual financial securities included in the public sector bond portfolio with data on the ratings of the individual bonds and their issuance date, maturity date, coupon rate, currency, etc., as available in the Bloomberg information system. In so doing, the article provides some additional insights into the risk profile of the Belgian insurance sector. In particular, by mapping the maturity profile and coupon rates of public sector bonds currently in the portfolio, it shows the amounts that insurance companies may have to reinvest in coming years at yields that may be lower than the maturing coupon rates if the current low interest rate environment were to persist.

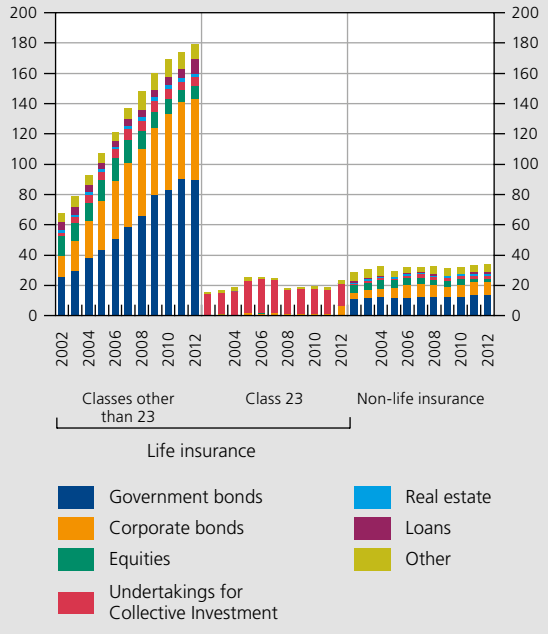
Before presenting the main results of this analysis for the life insurance (section 2) and non-life insurance (section 3) activities of the Belgian insurance sector, a first section will provide more information about the scope of the analysis and its relevance for the analysis of developments in the Belgian insurance sector.

1. Scope of the analysis

Belgian insurance companies have to report detailed information each quarter about the composition of their investments in financial assets. This information includes, for each individual asset, an indication about the type of instrument (equity, bond, ...), the security identifier (ISIN-code), the book value of the investment, and whether the investment is or is not part of the so-called covering assets for life or non-life insurance. These covering assets are the assets that insurance companies hold on their balance sheet in order to honour future liabilities towards

CHART 1 COMPOSITION OF THE COVERING ASSETS PER INSURANCE ACTIVITY

(unconsolidated end-of-period data, in € billion)



Source : NBB.

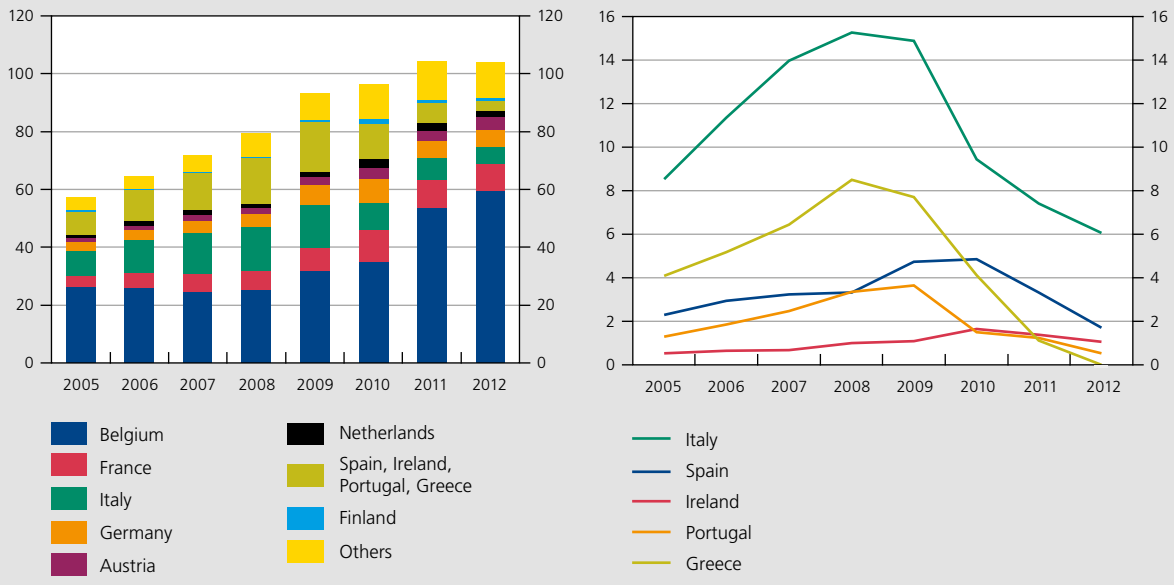
life and non-life insurance policyholders, as represented by the technical reserves on the liabilities' side of insurance companies' balance sheets. Hence, in their asset and liability management, insurers must choose an asset mix that is the most appropriate for both the structure and the characteristics of the associated liabilities, while establishing a balance between the risks on the investment portfolio and the expected rates of return. Chart 1 provides an overview of the composition of these covering assets in the Belgian insurance sector, distinguishing between life insurance and non-life insurance activities, and, within the former, between two classes of life insurance (class 23 and other classes).

While most non-life insurance premiums are collected under contracts renewed annually, life insurance premiums are generally collected under long-term contracts. In their case, the potential benefits payable to policyholders are situated far in the future. The investment of the premiums collected during that period explains why the investment portfolios built up to cover those future liabilities are much larger in the case of life insurance than in non-life insurance. The financial assets covering class 23 insurance policies are much smaller than the financial assets held on behalf of policyholders in other classes, and – in terms of outstanding amounts – represent only around 12 % of the total assets covering the life insurance liabilities. In terms of risks, it is important to distinguish between these two types of contracts in life insurance. Life insurance policies with variable capital, better known as class 23 products, are comparable to mutual investment funds, since the policyholders/investors bear all the investment risks. The breakdown of the assets covering class 23 contracts confirms that these are invested mainly in Undertakings for Collective Investment (UCIs). Most other life insurance contracts – predominantly class 21 policies – entail a market risk for the companies, as they offer policyholders a guaranteed rate of return, even if this is just a guarantee on the capital invested (i.e. when the minimum guaranteed rate of return is 0 %). To meet these guarantees the Belgian life insurance companies invest mainly in government and corporate bonds, accounting for respectively 50 % and 30 % of the total covering assets for the other classes of life insurance shown in Chart 1, as at the end of 2012.

In this article, the characteristics of the public sector bonds that were part of the Belgian insurance companies' covering assets as at the end of December 2012 are analysed in more detail. On that date, the entire government bond portfolio of the Belgian insurance sector totalled € 114 billion, of which € 104 billion was assigned as covering assets. The difference between the total government bond portfolio and the bonds considered

CHART 2 GEOGRAPHICAL BREAKDOWN OF THE PUBLIC SECTOR BONDS IN THE COVERING ASSETS

(unconsolidated end-of-period data, at book value, in € billion)



Source : NBB.

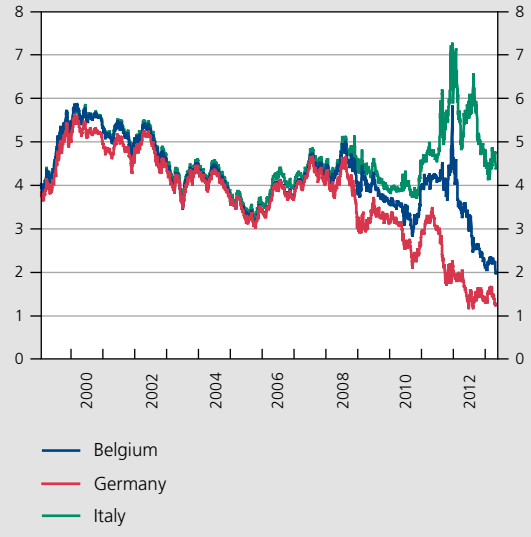
as covering assets is due to the free assets (€ 1 billion) and to specific lending/repurchase operations involving a temporary transfer of the ownership of the securities (€ 9 billion). These repo operations – of which 75 % concern Belgium government bonds – cannot be considered as covering assets for the duration of the repo transaction. As shown in Chart 1, public sector bonds represented a significant and growing amount of the total covering assets in the period 2002-2012. In absolute terms, they rose by almost € 67 billion between the end of 2002 and the end of 2011, before stabilising at around € 104 billion. In relative terms, the share of government bonds in the total covering assets increased as a result from 33 % in 2002 to 44 % at the end of 2012.

The reason for the predominance of government bonds in the investment portfolios held by life and non-life insurance companies is that, in the past, these bonds were regarded as risk-free assets owing to the very low probability of counterparty default. They were usually considered to be the highest quality bonds in the market. In addition, government bonds are available in a wide range of maturity dates (from 1 year to 30 years and longer), increasing the possibilities to match the typically long-term liabilities in the life insurance business. Furthermore, as an exception, the prudential regulations regarding investment and concentration limits in covering assets do not apply to the asset class of the government bonds. The latter often also meet the preference of insurance companies for steady and regular sources of investment income. In line with this view of government bond investments as long-term investments, the accounting rules for the covering assets specify valuation at historical cost in the case of government bond holdings, as opposed to all the other financial assets in the covering assets, which have to be recorded at market value on the reporting date. This is also the reason why the analysis below uses book values (rather than market values) for public sector bonds.

Chart 2 shows a breakdown of the public sector bonds in the covering assets, according to the country of issuance. Insurance companies' public sector bonds used to consist almost entirely of paper issued by public sector entities located in euro area member states, but the geographical composition has changed significantly over the last 3 years. Until 2009, insurance companies invested in bonds issued by countries like Spain, Greece, Portugal and Ireland, with the exposure to these four countries reaching a peak of € 16.8 billion at the end of June 2009. Due to the euro area public debt crisis, the insurance companies reduced their exposures to these peripheral countries after June 2009, by realising part of their portfolio or writing down the book value of the securities. By December 2012, the exposure to the four peripheral countries had therefore declined to € 3.3 billion, with exposures on the public sector of Spain, Ireland and Portugal representing respectively € 1.7 billion, 1.1 billion, and 0.5 billion of this total (the exposure on Greece having fallen to a negligible amount). The proceeds from those sales were reinvested mainly in Belgian government bonds, resulting in a quite concentrated exposure on the domestic market. Between the end of 2010 and the end of 2011, the investments in Belgian government bonds rose by around € 21 billion, of which € 19 billion constituted covering assets. This major reallocation of exposures towards Belgium in 2011 echoed developments in other countries, as insurance companies in many euro area countries showed an increased home bias as a result of the intensification of the euro area debt crisis. In the case of Belgium, this development occurred at a time of relatively high yields on Belgian government bonds (OLOs). Indeed, during that year, the ten-year OLO yield reached an average of 4.2 % (versus 3.4 % in 2010), even peaking at levels above 5 % in November (see Chart 3). While that restructuring may reduce the credit risk, it could increase the risk of concentration and depress profitability, since some of the bonds realised offered yields in excess of those on Belgian government bonds. In December 2012, the Belgian government bonds in the insurers' covering assets amounted to € 59.5 billion or almost 57 % of the total public sector bonds in these covering assets (up from 34 % in 2009).

CHART 3 TEN-YEAR GOVERNMENT BOND YIELDS IN THE EURO AREA

(daily data, %)



Source : Thomson Reuters Datastream.

At the end of December 2012, less than 1 % of the public sector bonds in the covering assets was denominated in foreign currency (primarily GBP, JPY and USD), in line with prudential congruence rules requiring a currency match between assets and liabilities.

The analysis continues in section 2 and 3, where life and non-life insurance are treated separately. Within life insurance, the covering assets for class 23 are not included in the analysis. The analysis in section 2, focusing on life insurance, covers a total amount in book value of € 89.1 billion, while the scope of the analysis in section 3, focusing on non-life insurance, is based on a total of € 13.8 billion in covering assets.

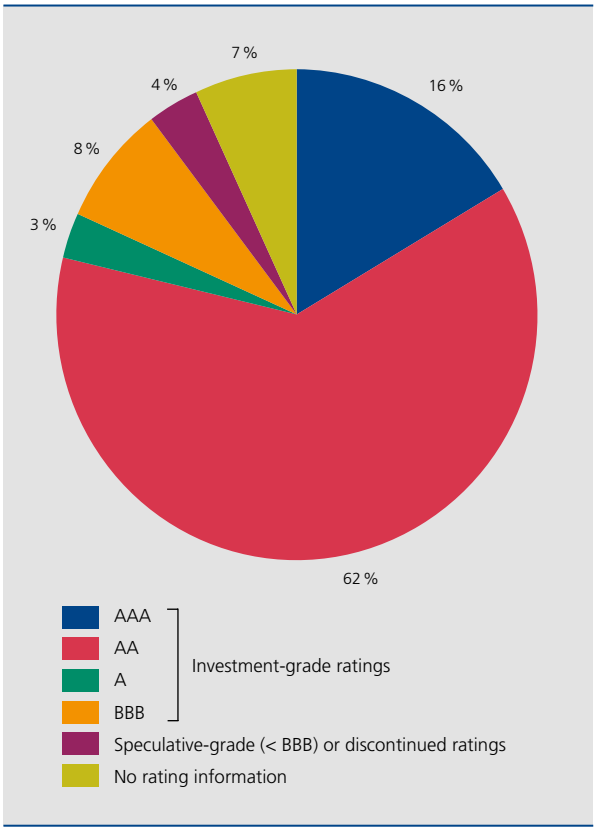
2. Life insurance (excluding class 23 contracts)

Chart 4 shows the breakdown of the public sector bonds in the covering assets of life insurance (excluding class 23 contracts) according to the rating of the individual public sector bonds, as reported in Bloomberg for the associated ISIN-code (situation on 15 March 2013). At first sight, the public sector bond portfolio appears to be strong, with investment-grade ratings accounting for approximately 90 % of the total book value (€ 89.1 billion). Public sector bonds with a AAA-rating amount to € 14.6 billion or 16 % of the total. This amount is largely the reflection of holdings of public sector bonds issued by Austria, Germany, the Netherlands and Finland, with a residual category including various types of AAA-rated instruments, including issues by international financial institutions. Bonds with a AA-rating represent the largest category of the total public sector bonds in covering assets, accounting for € 55.5 billion or 62 % of total book value. This exposure is mainly the counterpart of the € 47.2 billion invested in Belgian AA-rated public sector bonds for the life insurance covering assets, but it also includes € 6.3 billion of AA-rated bonds issued by French public sector entities. Within the remaining investment-grade ratings of A and BBB, the main issuers behind the BBB-rated public sector bonds are Italy (€ 4.6 billion) and Spain (€ 1.3 billion). On the basis of the ratings on 15 March 2013, the share of public sector bonds with a speculative-grade or discontinued rating was only 3.5 % of total book value. This figure does not take into account the possibility that some speculative-grade issuers are included in the total public sector bonds for which no rating information was available (€ 6.1 billion or 6.9 % of total book value).

While the predominance of public sector bonds with a AAA or AA rating has limited the spill-overs of the euro area's sovereign debt crisis on the Belgian insurance sector – even leading to the emergence of very substantial unrealised capital gains on bonds, due to the sharp decline in sovereign bond yields in AAA and AA rated countries (see the related discussion in the Overview article in this FSR) –, continuation of such an asset allocation may expose the insurance companies to significant profitability pressures if maturing AAA and AA public sector bonds are rolled over in similar investments at the current historically low primary or secondary market yields on these public sector bonds. Owing to their balance sheet structure, life insurance companies are in fact particularly sensitive to interest rate conditions. Although in 2012 they were able to take advantage of the decline in interest rates by realising gains on certain bond portfolios, a long period of low interest rates such as that seen from the start of the millennium up to the intensification of the sovereign debt crisis in Europe, and then again in 2012, is a challenge in terms of the profitability outlook. The reinvestment of coupons

CHART 4 CREDIT RATING BREAKDOWN OF THE PUBLIC SECTOR BONDS IN LIFE INSURANCE COVERING ASSETS (1)

(unconsolidated data at the end of 2012, book values, excluding class 23 contracts)



Sources: Bloomberg, NBB.

(1) On the basis of Moody's ratings, except for those where no Moody's rating was available (in which case an alternative available rating was used). All appended modifiers (1,2,3,+,–) were regrouped under the main rating classification.

is less lucrative, and maturing bonds are replaced with bonds offering a smaller yield. Since the new investment opportunities are less profitable, the effective return on the assets may become insufficient to cover the rates guaranteed on outstanding life insurance policies. In the 1990s, insurance companies had tended to offer their customers a guaranteed rate of return of 4.75 %, which was the statutory ceiling in force up to the end of June 1999. In July 1999, this ceiling was reduced to 3.75 %. In the case of an exit from a supplementary pension plan, the current legislation still requires companies to guarantee a minimum return of 3.25 % on employers' contributions and 3.75 % on personal contributions. The profitability of insurance contracts guaranteeing such returns was eroded when long-term interest rates began to drop below those levels. The sector has gradually modified that adverse structure by marketing contracts offering guaranteed rates of return which are more in line with risk-free interest rates and containing clauses which provide for revision on the basis of changing market conditions. Moreover, some contracts specify that the guarantee is limited in time, and that, at the end of that period, the contract reserve (i.e. the amount of savings built up) is technically regarded as a new premium with a new guaranteed interest rate in line with prevailing market conditions. All these measures contributed to a reduction in the average guaranteed rate of return. In the case of class 21 contracts, for example, the average guaranteed rate of return on the outstanding stock declined from 4.5 % at the end of 1999 to 3.17 % at the end of 2011.

As shown in Chart 5, for the situation at the end of 2011, the Belgian insurance sector has large amounts of contracts offering high guaranteed rates of return for policyholders. These liabilities are to a significant extent the legacy of policies granted in the past. Analysis of the data broken down by contract in the left-hand chart reveals that contracts concluded in the past and still offering a guaranteed return of more than 4.5 % amounted to € 31.7 billion, or around 20 % of the inventory reserves, at the end of 2011. Most of those contracts (€ 30.5 billion) offered a nominal return of 4.75 %, the legal maximum for that type of contract up to June 1999. With reserves of € 35.3 and € 11.8 billion, contracts offering a guaranteed return of respectively 3.25 % and 3.75 % also account for large amounts of life insurance liabilities with guaranteed rates of return. The liabilities in these two categories include most of the class 21 group insurance

CHART 5 DISTRIBUTION OF CLASS 21 LIABILITIES WITH GUARANTEED RATES OF RETURN

(unconsolidated data at the end of 2011, in € billion, unless otherwise stated)

Source : NBB.

(1) Outstanding amount of life insurance reserves guaranteeing a return different from the others shown in the chart ; the guaranteed return for these contracts averaged 3.03 % at the end of December 2011.

contracts, because insurance companies, spurred on by competition, tended to offer in these group insurance policies a guaranteed rate of return that was in line with the minimum rates that companies sponsoring group insurance policies have to guarantee on employer and employee contributions according to the law on the supplementary pension system (second pillar). As mentioned before, for employers' contributions paid under the supplementary pension system, the law requires the sponsoring companies to guarantee a minimum rate of return of 3.25 %, and 3.75 % for employees' contributions. Taking account of the downward trend in yields on government bonds – the main instrument in insurers' investment portfolios – it became difficult for insurers to maintain the link between the guaranteed returns that they offer on group insurance and the statutory minimum returns on supplementary pensions. Insurance companies have therefore recently increasingly offered rates lower than those stipulated by the Law on Supplementary Pensions.

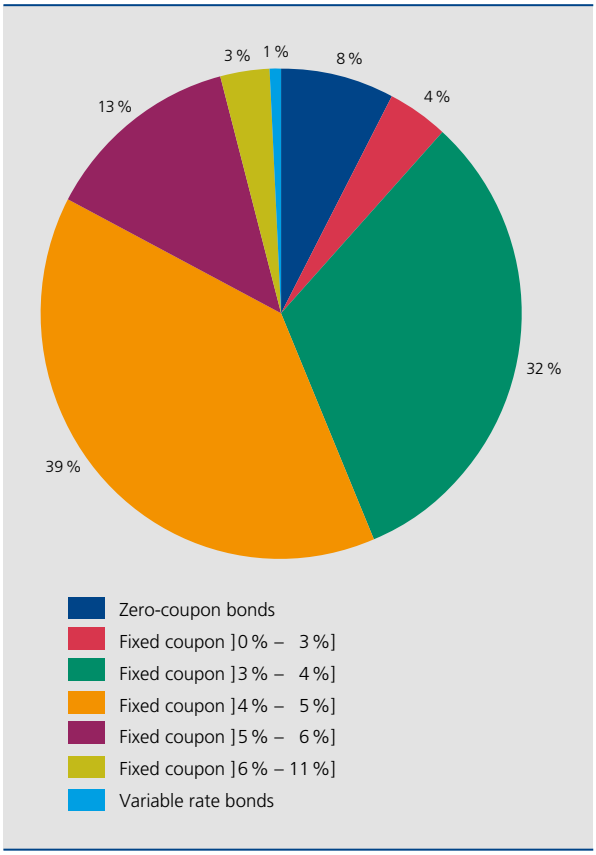
The right-hand chart of Chart 5 analyses the same data, but broken down by company rather than by contract. It focuses on the average guaranteed rate of return by each individual insurance company, taking all life insurance contracts of class 21 together, over the period 2005-2011. The chart shows that, for some years now, the insurance companies have adapted to the lower interest rate environment by offering contracts more in line with market conditions. This has resulted in a decline in the average guaranteed rates of return so that, at the end of 2011, around 83 % of the class 21 inventory reserves were held by insurance companies offering an average guaranteed return of 3.25 % or lower, whereas in 2005, no company had an average guaranteed rate of return lower than 3.5 %.

In order to meet the guaranteed rates of return on life insurance liabilities, insurance companies have to generate sufficient income from their portfolio investments. The Bloomberg data collected for the public sector bonds in the covering assets includes information on the coupon rates of the individual securities in the portfolio. However, these coupon rates are not necessarily a reliable indicator of the effective yield to maturity of these public sector bonds in the covering assets of Belgian insurance companies, as this yield to maturity depends not only on the coupon rate but also on the price at which the bond was acquired. The following analysis and associated comments can thus only be considered as presenting orders of magnitude, rather than precise estimates, of the current investment yields and associated reinvestment risks – in a low interest rate environment – for the Belgian insurance sector. The information nevertheless sheds some new light on the potential challenges related to the relatively high guaranteed rates of return on some life insurance contracts and the current low yields available on AAA- and AA-rated public sector bonds. However, a more complete assessment of this issue is well beyond the scope of this article, as this analysis does not cover bonds other than public sector bonds, and more fundamentally, it disregards all the other aspects of the asset and liability management of insurance companies, including hedging policies, that would have to be considered in order to arrive at well-informed conclusions.

Chart 6 shows the breakdown of the public sector bonds in the covering assets of life insurance on the basis of the level of the nominal coupon of the individual securities. Almost 8 % of the total book value of the public sector bonds comprises zero-coupon bonds. As variable or floating rate coupon bonds represent negligible amounts, the bulk of the non-zero-coupon bonds are thus public sector bonds with interest rates fixed for the whole maturity of the bond.

CHART 6 COUPON BREAKDOWN OF THE PUBLIC SECTOR BONDS IN LIFE INSURANCE COVERING ASSETS

(unconsolidated data at the end of 2012, book values, excluding class 23 contracts)



Sources : Bloomberg, NBB.

TABLE 1 COUPON AND MATURITY BREAKDOWNS OF THE PUBLIC SECTOR BONDS IN LIFE INSURANCE COVERING ASSETS

(unconsolidated data at the end of 2012, book values, in € billion, excluding class 23 contracts)

Coupon	Amount outstanding (1)	Average age (1)	Average remaining time to maturity (1)	Average maturity
Zero-coupon bonds	6.8	12.1	15.1	27.2
Variable rate bonds	0.7	6.0	10.3	16.3
Fixed coupon]0 % – 3 %]	3.6	2.6	10.3	12.9
Fixed coupon]3 % – 4 %]	28.5	4.5	8.8	13.3
Fixed coupon]4 % – 5 %]	34.8	5.5	13.8	19.3
Fixed coupon]5 % – 6 %]	11.8	13.1	14.0	27.1
Fixed coupon]6 % – 11 %]	2.9	16.6	9.8	26.4
Total	**89.1**	**6.9**	**12.1**	**19.0**

Sources: Bloomberg, NBB.
(1) As at 31 December 2012.

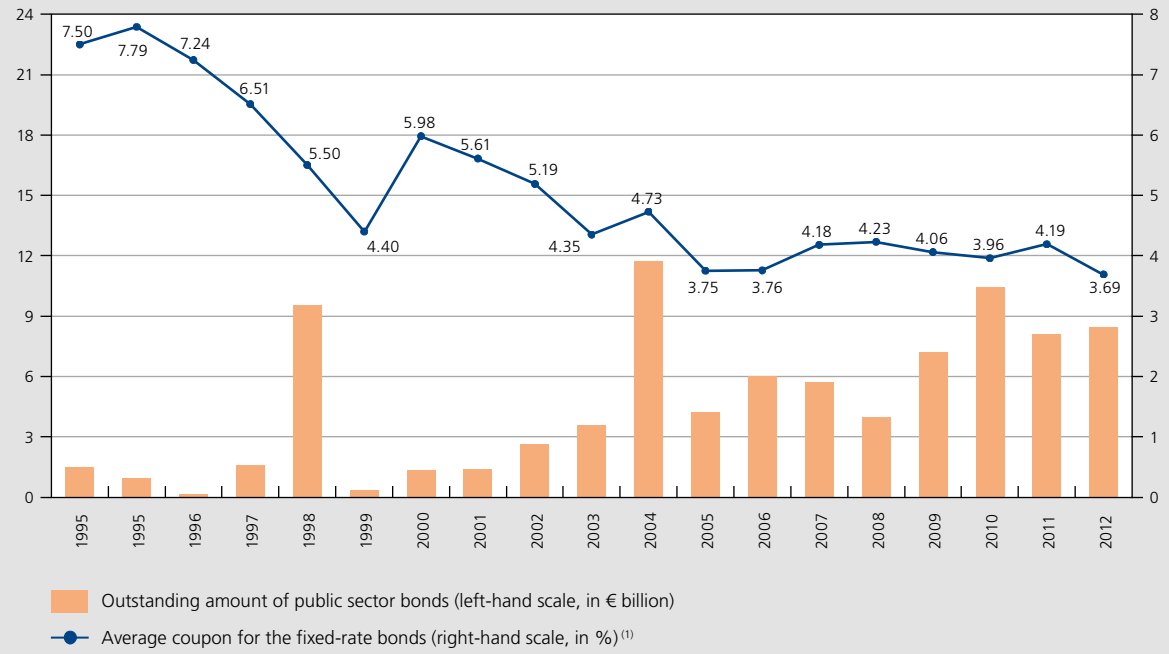
Looking at the distribution of the fixed-rate coupon bonds, according to the level of the nominal coupon rate, the share of public sector bonds with a nominal coupon between 0 % and 3 % was still quite small at the end of 2012. If the current interest rate environment were to persist, the share of this segment of public sector bonds could rise, however, as AAA- and AA-rated public sector entities currently issue new bonds with coupons in that range. Looking at the public sector bonds with a nominal coupon between 0 % and 3 %, the average age of the bonds was below 3 years at the end of 2012, confirming that this portfolio segment is indeed quite young (see Table 1). The overall maturity of the bonds with a nominal coupon between 0 % and 3 % is close to 13 years, meaning that the remaining time to maturity is about 10 years on average.

Looking at Chart 6 and Table 1, it appears that the bulk of the book value of the public sector bonds (almost 85 % of the total book value covered) in the covering assets of life insurance at the end of 2012 was still concentrated in the segments where nominal coupon rates are between 3 % and 6 %. This largely reflects the presence of public sector bonds issued before the advent of the current low interest rate environment. Indeed, for these segments, the average age of the public sector bonds is more than 6 years, but there are significant differences between the three sub-segments. In the segment with coupon rates between 5 % and 6 %, the average age of the public sector bonds is more than 13 years, while for the segments 3 % – 4 % and 4 % – 5 %, the average is close to 5 years. The difference in coupon rates for these last two sub-segments is mainly related to the average maturity of the bonds, which is much longer in the segment 4 % – 5 % (19 years) than in the segment 3 % – 4 % (13 years). As shown in Table 1, the smaller segments with coupon rates higher than 5 % are dominated by bonds that had very long initial maturities (higher than 25 years on average) but were issued, on average, before the advent of the euro area in 1999.

Chart 7 shows more details about the age or year of issuance of the public sector bonds in the covering assets for life insurance. It shows that the large majority (74 %) of the bonds were issued after 2003. The Chart also shows that the average level of the coupon rates is higher for the older bonds than for the most recent ones, even though the range of average coupon rates was centred around 4 % in recent years. Looking at all the public sector bonds together, the book value weighted average coupon rate of the government bond portfolio used as covering assets for the life business was 4.42 % at the end of December 2012. The calculation of these average coupon rates disregarded zero-coupon bonds and the negligible amounts of variable rate bonds. While this average coupon rate of 4.42 % has to be interpreted with caution due to the above-mentioned caveats related to yield to maturity and hedging, it nevertheless provides an indication of the level of investment income from public sector bonds as at the end of 2012. How this average coupon rate will move in the coming years will depend on a number of factors, including the significance of the amounts of public sector bonds that arrive at their maturity in successive years and the then prevailing yields on new investments. In this connection, Chart 8 shows more details about the year in which the public sector bonds in the covering assets

CHART 7 BREAKDOWN OF THE PUBLIC SECTOR BONDS BY YEAR OF ISSUANCE IN LIFE INSURANCE

(unconsolidated data at the end of 2012, book values, excluding class 23 contracts)



Sources : Bloomberg, NBB.

(1) The calculation of these average coupons disregarded zero-coupon bonds and the negligible amounts of variable rate bonds.

for life insurance at the end of 2012 were set to mature, if insurance companies were to hold these bonds until maturity. Within the first five years, around € 21 billion of public sector bonds will come to maturity, which represents 23 % of the total amount of public sector bonds in the coverings assets. This € 21 billion includes € 17 billion of AAA- and AA-rated bonds, which are likely to be the most sensitive to downward repricing risks if the current low interest rate environment were to persist for a long time. The chart also shows the average coupon rate of the public sector bonds that mature in the time periods. Here, too, this calculation of the average coupon rates has disregarded zero-coupon bonds and the negligible amounts of variable rate bonds. Overall, the chart confirms that Belgian insurance companies' public sector bond portiolio seems well laddered in terms of maturities. It is only at the end of 2022 that half of the portfolio will have come to maturity, suggesting that the entire public sector bond portfolio of the life business is repriced, on average, every 20 years. In this connection, it can also be mentioned that at the end of December 2012 less than 1 % of the public sector bonds concerned callable bonds, which can be called by the issuer before maturity. Accordingly, the reinvestment risk caused by bond redemption, or the early redemption risk, did not seem to be significant for the Belgian insurance sector.

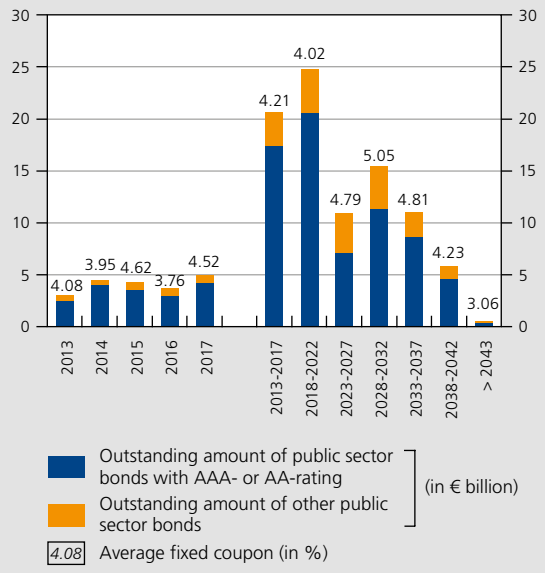
3. Non-life insurance

This section focuses on the characteristics of the public sector bonds in the covering assets of the non-life insurance activities of the Belgian insurance companies (€ 13.8 billion). It uses the same type of illustrations as reviewed in section 2.

Chart 9 shows the breakdown of the public sector bonds in the covering assets of non-life insurance according to the rating of the individual public sector bonds, as reported in Bloomberg for the associated ISIN-code (situation on 15 March 2013). The overall breakdown is quite comparable to that observed for life insurance, with investment-grade ratings accounting for approximately 91 % of the total book value. As in the case of life insurance, the public sector bonds with a AAA- and AA-rating are dominated by bonds issued by public sector entities from AAA-rated Austria, Germany, the Netherlands, Finland and AA-rated Belgium and France. As the exposure to Belgium is by far

CHART 8 BREAKDOWN OF THE PUBLIC SECTOR BONDS BY YEAR OF MATURITY AND AVERAGE FIXED COUPON RATE IN LIFE INSURANCE

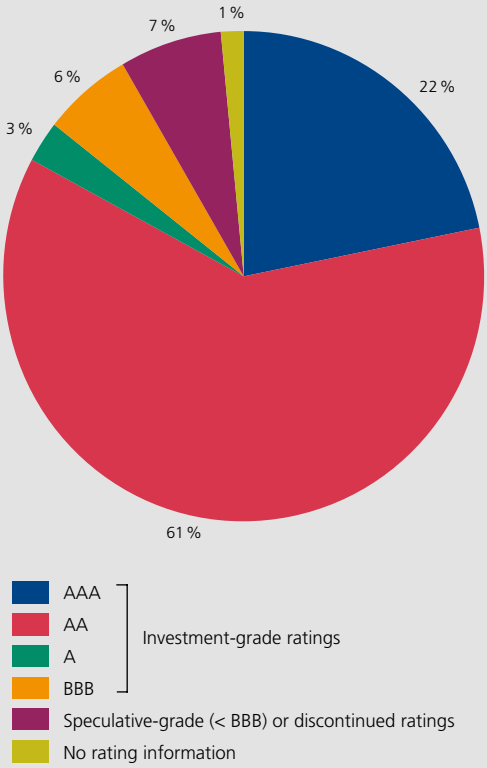
(unconsolidated data at the end of 2012, book values, excluding class 23 contracts)



Sources : Bloomberg, NBB.

CHART 9 CREDIT RATING BREAKDOWN OF THE PUBLIC SECTOR BONDS IN NON-LIFE INSURANCE COVERING ASSETS (1)

(unconsolidated data at the end of 2012, book values)



Sources : Bloomberg, NBB.

(1) On the basis of Moody's ratings, except for those where no Moody's rating was available (in which case an alternative available rating was used). All appended modifiers (1,2,3,+,–) were regrouped under the main rating classification.

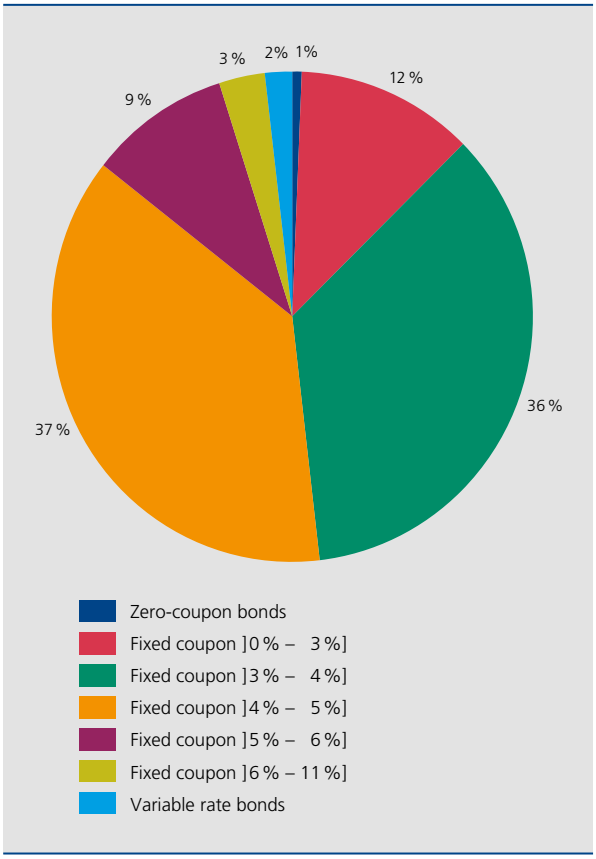
the largest single exposure, the AA-rated public sector bonds dominate the covering assets (61 % of total).

Chart 10 shows the breakdown of the public sector bonds in the covering assets of non-life insurance on the basis of the level of the nominal coupon of the individual securities. In contrast to life insurance, the non-life insurance public sector bond portfolio does not include a significant amount of zero-coupon bonds. The distribution of the other bonds is quite comparable to that seen in the case of life insurance. Looking at Chart 10 and Table 2, it appears that the bulk of the book value of the public sector bonds (almost 83 % of the total book value covered) in the covering assets of non-life insurance was still concentrated in the segments covering the nominal coupon rates between 3 % and 6 %, at the end of 2012. This largely reflects the presence of public sector bonds that were issued before the advent of the current low interest rate environment. Indeed, for these segments, the average age of the public sector bonds is more than 6 years, but there are significant differences between the three sub-segments. In the segment with coupon rates between 5 % and 6 %, the average age of the public sector bonds is more than 13 years, while for the segments 3 % – 4 % and 4 % – 5 %, the average is close to 5 years. The difference in coupon rates for these last two sub-segments is mainly related to the average maturity of the bonds, which is longer in the segment 4 % – 5 % (17 years) than in the segment 3 % – 4 % (13 years). A comparison of the total figures in Table 1 and Table 2 suggests that the main difference compared to life insurance is in the average maturity of the bonds, which is somewhat shorter in non-life (15.9 years) than in life insurance (19.0 years), as could be expected.

The weighted average coupon rate of public sector bonds used as covering assets for the non-life business was 4.12 % as at the end of December 2012. Here, too, this calculation of the average coupon rates disregards zero-coupon bonds and the negligible amounts of variable rate bonds. While the figure has to be interpreted with caution due to above-mentioned caveats related to yield to maturity and hedging, it nevertheless provides an

CHART 10 COUPON BREAKDOWN OF THE PUBLIC SECTOR BONDS IN NON-LIFE INSURANCE COVERING ASSETS

(unconsolidated data at the end of 2012, book values)



Sources : Bloomberg, NBB.

indication of the level of investment income from public sector bonds as at the end of 2012. How this average coupon rate will move in the coming years will depend on a number of factors, including the significance of the amounts of public sector bonds that arrive at their maturity in successive years and the then prevailing yields on new investments. In this connection, Chart 11 shows more details about the year in which the public sector bonds in the covering assets for non-life insurance at the end of 2012 were set to mature, if insurance companies were to hold these bonds until maturity. Within the first five years, around € 4.3 billion of public sector bonds will come to maturity, which represents 31 % of the total amount of public sector bonds in the coverings assets. This € 4.3 billion includes € 3.6 billion of AAA- and AA-rated bonds, which are likely to be the most sensitive to downward repricing risks if the current low interest rate environment were to persist for a long time. The chart also shows the average coupon rate of the public sector bonds that mature in the time periods. Here, too, this calculation of the average coupon rates disregards zero-coupon bonds and the negligible amounts of variable rate bonds. Overall, the chart confirms that Belgian insurance companies' public sector bond portiolio in non-life insurance seems well laddered in terms of maturities. It is only at the end of 2020 that half of the portfolio will have come to maturity, suggesting that the entire public sector bond portfolio of the non-life business is repriced, on average, every 16 years.

TABLE 2 COUPON AND MATURITY BREAKDOWNS OF THE PUBLIC SECTOR BONDS IN NON-LIFE INSURANCE COVERING ASSETS

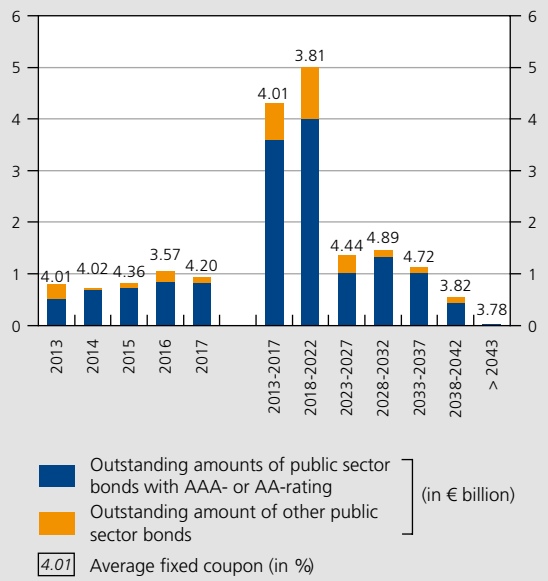
(unconsolidated data at the end of 2012, book values, in € billion)

Coupon	Amount outstanding[1]	Average age[1]	Average remaining time to maturity[1]	Average maturity
Zero-coupon bonds	0.1	14.2	11.4	25.6
Variable rate bonds	0.3	6.0	7.6	13.6
Fixed coupon]0 % – 3 %]	1.6	4.1	8.4	12.5
Fixed coupon]3 % – 4 %]	4.9	4.9	7.7	12.6
Fixed coupon]4 % – 5 %]	5.2	5.5	11.2	16.7
Fixed coupon]5 % – 6 %]	1.3	13.5	13.1	26.6
Fixed coupon]6 % – 11 %]	0.4	16.9	7.4	24.3
Total	**13.8**	**6.3**	**9.6**	**15.9**

Sources: Bloomberg, NBB.
(1) As at 31 December 2012.

CHART 11 BREAKDOWN OF THE PUBLIC SECTOR BONDS BY YEAR OF MATURITY IN NON-LIFE INSURANCE

(unconsolidated data at the end of 2012, book values)



Sources : Bloomberg, NBB.

Conclusion

This article has reviewed the composition and main features of the public sector bonds that are included in the covering assets of the Belgian insurance sector as at the end of 2012. It is based on an analysis that linked detailed information on the individual financial securities included in the public sector bond portfolio with corresponding data on their ratings, issuance date, maturity date, coupon rate, currency, etc..., from the Bloomberg information system. In so doing, the article has provided some additional insights into the risk profile of the Belgian insurance sector. In particular, by mapping the maturity profile and coupon rates of public sector bonds, it has shown that Belgian insurance companies may have to reinvest in coming years significant amounts of maturing AAA- and AA-rated bonds at yields that may be lower than the maturing coupon rates if the current low interest rate environment were to persist.

Given the stock of life insurance contracts with relatively high guaranteed rates of return, this reinvestment risk in a low interest rate environment could have a major impact on the performance of the Belgian insurance sector in the future. The data reviewed in this article show in this regard that the public sector bonds in the covering assets of both life and non-life insurance had average coupon rates of respectively 4.4 % and 4.1 % as at the end of 2012 and a well-laddered maturity profile beyond that date, indicating the potential for an important, yet gradual, materialisation of reinvestment risks over time. In this connection, it must be recalled that these average coupon rates for the principal asset class in Belgian insurance companies' covering assets are not necessarily a reliable indicator of the effective yield to maturity of the public sector bonds, as the latter also depends on the price at which the public sector bonds were acquired. Another important caveat is that the analysis in this article has covered only some elements of the multi-faceted challenges insurance companies are confronted with due to the low interest rate environment, making it difficult to draw general conclusions in the absence of all the other elements. These other elements include analyses of the assets other than public bonds in the insurance companies' covering assets (in particular corporate bonds) and other essential aspects and nuances of the asset and liability management of the insurance companies (e.g. the matching techniques applied). It must also be reminded that the average guaranteed rate on life insurance contracts can change over time due to new production of life insurance policies at lower guaranteed rates of return and/or increased surrender rates, and that insurance companies may opt for changes in asset allocation due to the low interest rate environment (privileging for example alternative asset classes with a higher yield but with greater credit and/or liquidity risks). A complete assessment of the impact of the low interest rate environment on the Belgian insurance sector was thus well beyond the scope of this article. Some of the missing aspects are illustrated in more detail in section 3 of the Overview-article of this Financial Stability Review, underlying the potentially significant profitability challenges for the Belgian insurance companies in the medium term if the current low interest rate environment were to persist. Against this background, the Overview-article calls for a careful treatment of the large unrealised capital gains on the insurance companies' bond portfolio, which should not be used to enhance short-term payouts to policy- or shareholders, but rather be seen as a (high-coupon) buffer for the years ahead, should the current low interest rate environment persist over the medium term.

Loans to non-financial corporations : what can we learn from credit condition surveys ?

Stijn Ferrari
Glenn Schepens
Patrick Van Roy

Introduction

Bank lending is an important determinant of economic growth in Europe. While credit growth generally makes a positive contribution to economic growth, excessive credit growth and the rapid build-up of leverage in the economy may generate systemic risks to financial stability. Indeed, financial crises are often preceded by long periods of credit growth and followed by a contraction in credit. This was also evident from the recent financial crisis, where many countries experienced strong credit growth before 2007-2008 and a sharp slowdown in bank lending between 2008 and 2009.

One question that arises with respect to credit cycles is whether changes in bank lending are supply or demand driven. Shocks to the supply of and the demand for credit can have different effects on economic activity and therefore require different policy responses. This reasoning applies not only to policy actions in the downturn, but also to macroprudential policies in the upswing. Furthermore, one may argue in the latter case that when excessive credit growth stems from underlying supply effects, with banks considerably easing their credit standards, the turning of the financial cycle may potentially be more costly.

Information from credit condition surveys may be useful in this regard, as they reflect market participants' views on prevailing credit conditions and standards. In particular, bank lending surveys typically ask banks whether they have recently changed their credit standards and whether they have recently experienced a change in the demand for credit. Similar information on credit conditions may be obtained from surveys targeted at the demand side of credit, such as non-financial corporations.

Hence, credit condition surveys can provide policymakers with information on the underlying determinants of credit dynamics. To the extent that changes in lending criteria and credit demand provide early information on credit growth dynamics, they may also serve as a separate (early warning) indicator of the financial cycle. For this reason, BCBS (2010) suggests credit condition surveys as one of the potential additional indicators for guiding decisions on the countercyclical capital buffer rate.

It is therefore useful to analyse what can be learned from credit condition surveys. Using results from a survey addressed to banks (the euro area bank lending survey, BLS), this article considers the relationship between loan growth and survey responses on supply standards and demand for credit in Belgium. In particular, we aim at answering the question whether the BLS indicators are reliable (leading) indicators of the growth rate of loans to non-financial corporations (NFCs) in Belgium. BLS indicators have been shown to be informative leading indicators in studies of the full sample of euro area countries (de Bondt et al., 2010) as well as a number of individual euro area countries (e.g., Del Giovane et al., 2011 for Italy and Blaes, 2011 for Germany). From a macroprudential perspective, however, it is important to determine whether this is also true for Belgium.

The article also uses information on NFCs' views on credit standards and their future investment decisions obtained through the NBB survey on credit conditions, in order to provide a check on the information content of the BLS answers. To the best of our knowledge, this article is one of the first to compare the informational content of banks' and firms' answers to credit condition surveys.

Our main findings can be summarised as follows. First, the pattern of both aggregate NFC loan growth and the BLS supply and demand indicators in Belgium is similar to that of their counterparts at the euro area level. Second, concerning the relationship between NFC loan growth and the BLS indicators in Belgium, there is evidence of BLS indicators containing useful information on NFC loan growth. In particular, while changes in demand conditions tend to affect credit growth relatively quickly, changes in supply conditions are reflected in credit growth only with a lag of about 3-6 quarters. From a policy perspective, this evidence suggests that BLS indicators may provide useful information on the credit cycle, with the BLS supply indicator signaling persistent "medium-term" dynamics in credit growth and the BLS demand indicator providing information on more short-lived, "short-term" fluctuations in credit growth. A third finding is the need for caution in drawing strong conclusions from the BLS indicators (e.g., on demand versus supply driving credit growth), as we find that the estimated information content of the BLS indicators crucially depends on the specification of the model used for the estimation. In contrast to many of the existing studies, we report the findings of several model specifications and of robustness checks. Finally, preliminary results on the basis of credit condition and credit demand indicators derived from the NBB survey, administered to Belgian firms, on credit conditions provides additional, tentative support for the potential forward-looking properties of information from credit condition surveys. The data from the NBB survey to firms on credit conditions are a useful addition to the data included in the BLS survey, and their relevance will likely further increase when more data become available.

The remainder of the article is organised as follows. Section 1 compares the growth rate of bank lending to NFCs and the pattern of the BLS indicators in Belgium to their equivalents at the euro area level. In Section 2, we analyse the relation between BLS supply and demand indicators and NFC loan growth in Belgium. Section 3 considers preliminary evidence on the robustness of the findings using indicators derived from the NBB survey to firms on credit conditions. Finally, Section 4 concludes.

1. Loan growth and BLS indicators: Belgium versus the euro area

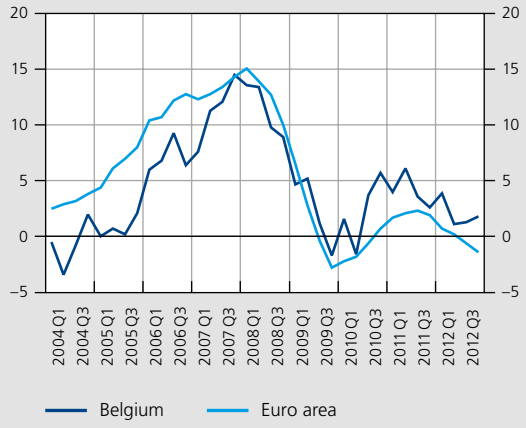
In this section we place the Belgian situation in a broader context by comparing the pattern of Belgian loan growth and BLS indicators with the picture at the European level.

1.1 Loan growth

As of year-end 2012, loans to NFCs accounted for about 40 % of loans by financial institutions in the euro area and in Belgium. These loans are important for euro area and Belgian firms, as they represent approximately 80 % of their total borrowing. In order to gain a better insight into loan developments, Chart 1 compares the profile of y-o-y loan growth to NFCs in Belgium and in the euro area over the period 2004Q1-2012Q4.

Chart 1 clearly shows that the growth of loans to NFCs displays a similar picture at the Belgian and euro area level over the period under consideration. [1] Looking more closely at the details, the growth rate of loans to NFCs strengthened continuously both in Belgium and in the euro area between early 2004 and early 2008, owing to the low interest rate and sustained economic growth environment, which led to an increase in both credit demand and credit supply. Loan growth in Belgium peaked

CHART 1 GROWTH OF LOANS TO NFCs IN BELGIUM AND IN THE EURO AREA



Sources : ECB MFI statistics, NBB.

(1) This is confirmed by basic statistics: loan growth in the euro area and in Belgium have a correlation coefficient equal to 0.80, with standard deviations equal to 0.05 and 0.06 respectively.

at 14.5 % in 2007Q4 (compared to 15.1 % in the euro area in 2008Q1), a level well in excess of GDP growth and now widely perceived as exemplifying pre-crisis excesses.

The financial crisis, which started in mid-2007 and intensified with the collapse of Lehman Brothers in 2008Q3, led the Eurosystem to put in place a series of non-conventional measures aimed at supporting the banking system and the availability of credit for the private sector.[1] Although these measures did not prevent a severe decrease in loan growth to NFCs, which collapsed to –1.7 % in Belgium and –2.8 % in the euro area (2009Q4), they probably avoided a far worse situation, given banks' asset-side losses, the prevailing funding strains and their potential to further adversely impact on real economic conditions. In the period December 2009-April 2010, the Eurosystem gradually began phasing out its non-conventional measures, a move that was soon interrupted by the sovereign crisis, which peaked for the first time in the spring of 2010. The contagion which then spread from Greece to Ireland, Portugal, Italy and Spain led the sovereign bond markets to become dysfunctional in a number of euro area countries, thereby weakening the monetary policy transmission channel and broader financing conditions in the economy. Indeed, the NFC loan growth rate remained subdued over the first two quarters of 2010, averaging 0.0 % in Belgium and –2.0 % in the euro area. In May 2010, in order to address these problems, the Eurosystem launched the Securities Market Programme (SMP), under which it conducted outright purchases of euro area debt securities in the secondary market. Over the following quarters, NFC loan growth started to increase, averaging 4.3 % in Belgium and 1.4 % in the euro area over the period 2010Q2-2011Q4. SMP measures were complemented in December 2011 and January 2012 by two three-year long-term refinancing operations aimed at further relaxing banks' funding constraints. However, these measures have failed to stabilise loan growth, as bank lending to NFCs has decelerated since then, averaging 2.0 % in Belgium and -0.3 % in the euro area in 2012. These last developments were interpreted as reflecting both a decline in the financing needs of firms and a tightening of credit standards following new regulation and capital requirements (ECB, 2013).

In the context of the recent episode of loan contraction, there has been much debate about whether financial market and macroeconomic developments (and the associated authorities' responses) have primarily impacted the demand for or the supply of loans to NFCs, i.e., on whether or not there was (and is) a credit crunch. As mentioned in the introduction, answering this question is important, as supply-induced changes in loan growth may warrant different policy responses from changes induced by demand. However, this is a difficult question, not least because the answer is likely to be time-specific, but also because changes in credit standards are often accompanied by changes in credit demand. One way to circumvent the latter problem might be to use credit condition surveys which measure banks' (or firms') perception about changes in credit standards and loan demand, to see which is the predominant factor affecting loans. Interestingly, even if credit condition surveys were to fail to give a clear-cut answer as to whether loan developments are driven mainly by supply or demand, they may nevertheless be useful as (early warning) indicators for assessing the state of the financial cycle in the context of macroprudential policy decisions (especially if survey answers exhibit a significant, potentially forward-looking, relation to loan developments).

The next section gives more details about the credit condition survey used in the first part of this article, namely the euro area bank lending survey (BLS).

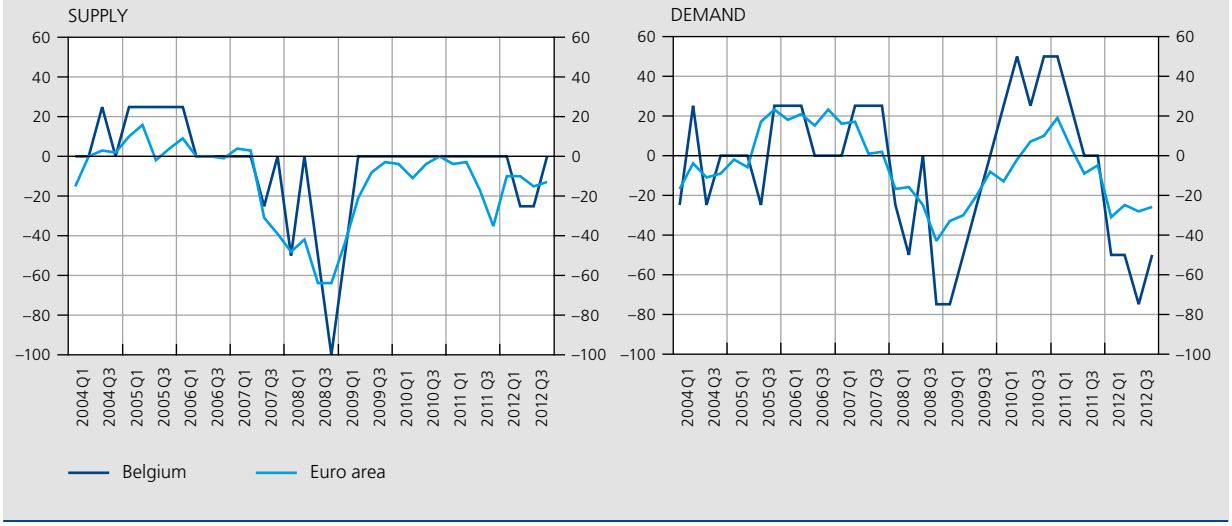
1.2 BLS indicators

The euro area bank lending survey is a survey developed by the Eurosystem, which is addressed to senior loan officers of a representative sample of euro area banks and has been conducted four times a year since 2003. The sample group participating in the survey comprises 131 banks from all euro area countries (including the 4 largest credit institutions in Belgium) as of January 2013. The survey addresses issues such as credit standards for approving loans as well as credit terms and conditions applied to enterprises and households. It also asks for an assessment of the conditions affecting credit demand.

In this article, we make use of banks' responses to questions related to credit standards. Every quarter, banks are asked whether their credit standards applied to the approval of loans or credit lines have "tightened considerably", "tightened somewhat", "eased somewhat" or "eased considerably". Likewise, banks are asked whether the demand from firms for their loans or credit lines has "increased considerably", "increased somewhat", "decreased somewhat" or "decreased considerably". We construct aggregate indicators measuring supply and demand conditions in Belgium and in the euro area. Basically, and in much the same way as de Bondt et al. (2010) for example, we focus on the difference between the share of banks reporting that credit standards have been eased and the share of banks reporting that they

(1) The non-conventional measures put in place during the banking / financial crisis included refinancing operations conducted with full allotment at fixed rated, long-term refinancing operations (LTRO) for 1 year (up from the normal 3 months), provision of liquidity in third country currencies (e.g., dollar), purchase of covered bonds in euro and broadening of the collateral framework.

CHART 2 BLS INDICATORS FOR BELGIUM AND THE EURO AREA [1]



Sources: ECB, NBB.

(1) A positive (negative) value of the supply indicator means that credit standards have eased (tightened). A positive (negative) value of the demand indicator means that credit demand has increased (decreased).

have been tightened ("BLS supply indicator"). A positive supply indicator therefore indicates that a larger proportion of banks have eased credit standards, whereas a negative net percentage indicates that a larger proportion of banks have tightened credit standards. Likewise, we compute the difference between the share of banks reporting an increase in loan demand and the share of banks reporting a decline ("BLS demand indicator"). The BLS demand indicator will therefore be positive if a larger proportion of banks have reported an increase in loan demand, whereas a negative BLS demand indicator means that a larger proportion of banks have reported a decline in loan demand.

Chart 2 compares the Belgian BLS supply and demand indicators respectively, to their equivalents at the euro area level.

Like Chart 1, which showed similarities between loan developments at the Belgian and euro area levels, Chart 2 reveals that BLS indicators display parallel patterns for Belgium and the euro area. This is confirmed by examining simple correlations: the correlation coefficient between the Belgian and the euro area BLS supply indicators shown in the left-hand panel of Chart 2 is 0.80, while the correlation coefficient between the Belgian and the euro area BLS demand indicator shown in the right-hand panel of Chart 2 is 0.76. [1] Broadly speaking, credit conditions eased and demand for NFC credit increased in the run-up to the crisis. Since the financial crisis, both credit demand and supply have decreased. While demand experienced a period of recovery in 2010-2011 (but decreased again afterwards), supply conditions have basically remained unchanged since the tightening during the crisis.

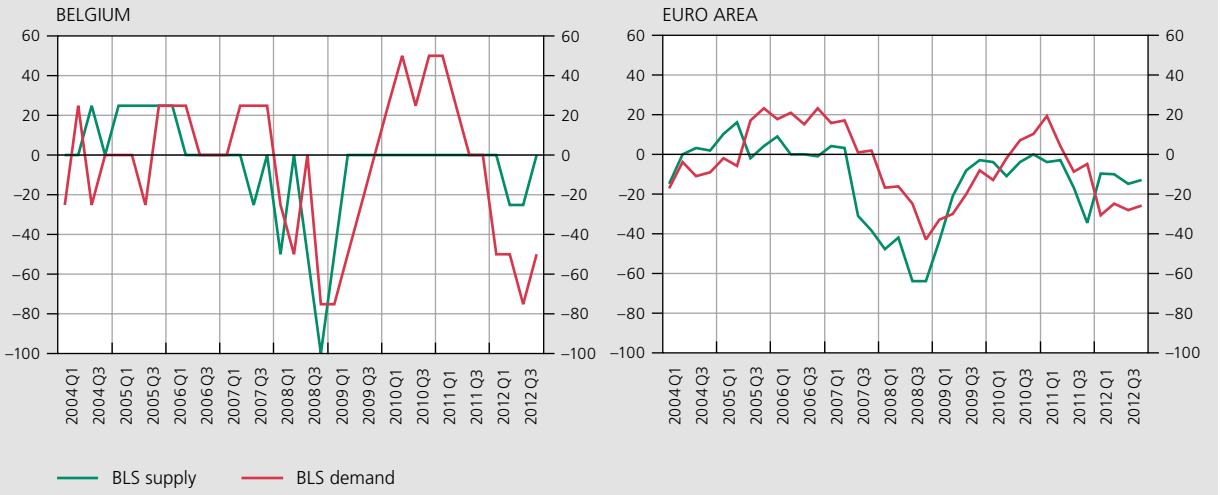
Before proceeding to a formal analysis of the relationship between NFC loan growth and BLS indicators, we compare the pattern of the BLS demand and supply indicators for Belgium and the euro area in Chart 3.

The left-hand panel of Chart 3 shows that there is a moderate co-movement between the BLS supply and demand indicators for Belgium. This is confirmed by the correlation between these series: the correlation between the supply and the demand BLS indicator for Belgium is 0.44 over the period 2004Q1-2012Q4. The right-hand panel of Chart 3 shows similar results for the euro area: there is a moderate to high correlation between the BLS demand indicator for the euro area and the BLS supply indicator for the euro area, namely 0.58.

While it would not be illogical for both demand and supply conditions to record a positive change under benign economic conditions and a negative change during a

(1) Given that the Belgian BLS indicators are based on only 4 individual answers, they exhibit a higher volatility than their euro area counterparts, which are constructed from 131 individual answers.

CHART 3 COMPARISON OF BLS DEMAND AND SUPPLY INDICATORS (1)



Sources: ECB, NBB.

(1) A positive (negative) value of the supply indicator means that credit standards have eased (tightened). A positive (negative) value of the demand indicator means that credit demand has increased (decreased).

crisis, it could be tempting to infer from these results that Belgian and euro area banks are frequently synchronising their demand and supply answers, i.e., reporting changes in both demand and supply conditions at a given point in time. However, analysis at bank level for Belgium reveals this conclusion to be spurious and due to the aggregation of data. Indeed, the correlation coefficient between the four individual BLS supply and demand answers ranges between –0.01 and 0.47, with only this last coefficient being significant at the 5 % level.

This last result illustrates one of the caveats which apply to the use and interpretation of aggregate BLS indicators, as frequently used by the ECB and national central banks (see Box 1 for a more detailed discussion).

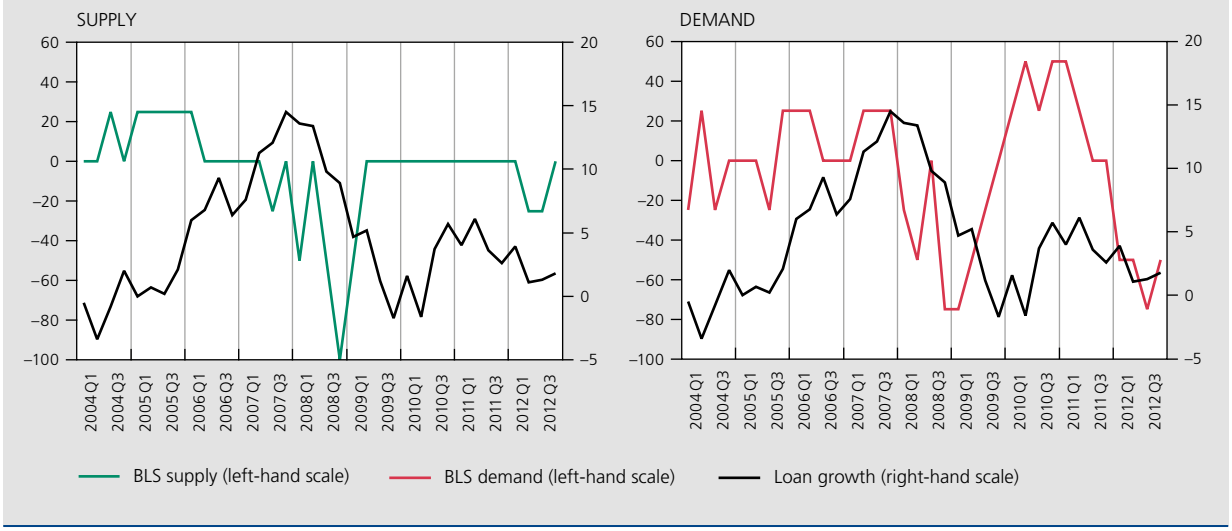
2. The relation between BLS indicators and loan growth in Belgium

In order to assess the information content of credit condition surveys for Belgium, we relate BLS demand and supply indicators for Belgium to the growth in bank lending to NFCs in Belgium. Using a similar approach, several studies have shown that BLS supply and demand indicators make a significant contribution to explaining, often in a leading manner, observed credit growth dynamics (see for example de Bondt et al., 2010 for a panel of euro area countries; Del Giovane et al., 2011, for Italy; and Blaes, 2011 for Germany). Establishing this link at the Belgian level is important when considering the usage of these indicators for guiding (macroprudential) policy decisions in Belgium.

The discussion in the previous section on the pattern of bank lending to NFCs and BLS demand and supply indicators in Belgium reveals that such a link between the information obtained from credit condition surveys and credit growth may also be present in Belgium. To further illustrate this point, Chart 4 plots the growth in bank lending to NFCs in Belgium together with the BLS supply and indicators respectively.

The chart shows that the strong increase in credit growth experienced between 2005Q3 and 2007Q4 coincides with the easing of credit standards during the period 2004-2006 and an increased demand for NFC credit over the period 2006-2007. In addition, the tightening of both credit supply and demand in the early stages of the financial crisis seemingly leads the decline in credit growth during the crisis. Furthermore, a recovery of demand for NFC credit in the year 2010 seems to have coincided with a recovery of credit growth. Finally, markedly lower credit growth rates are observed after a tightening of both credit supply and demand in 2012.

CHART 4 COMPARISON OF NFC LOAN GROWTH AND BLS INDICATORS IN BELGIUM[1]



Sources: ECB, NBB.

(1) A positive (negative) value of the supply indicator means that credit standards have eased (tightened). A positive (negative) value of the demand indicator means that credit demand has increased (decreased).

We next analyse this potential link between the BLS credit condition indicators and NFC loan growth for Belgium by studying both simple correlations between the BLS indicators and loan growth and a time-series regression at the aggregate level. In contrast to previous studies, we consider y-o-y credit growth rather than q-o-q credit growth, since – in the context of monitoring the financial cycle and early warning indicators for guiding (macroprudential) policy decisions – smooth and sustained annual trends are considered more informative than more volatile quarterly changes.

TABLE 1 CORRELATIONS BETWEEN BLS INDICATORS AND LOAN GROWTH IN BELGIUM[1]

	BLS Supply (t)	BLS Demand (t)
Loan growth (t)	–0.27*	0.12
Loan growth (t+1)	–0.18	0.31*
Loan growth (t+2)	–0.02	0.41***
Loan growth (t+3)	0.13	0.45***
Loan growth (t+4)	0.30*	0.42**
Loan growth (t+5)	0.38**	0.38**
Loan growth (t+6)	0.49***	0.33*

Sources: ECB, NBB and own calculations.

(1) ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

Table 1 shows the correlations between aggregate y-o-y loan growth and aggregate (quarterly lagged) BLS supply and demand respectively. For the BLS supply indicator a marginally significantly negative contemporaneous correlation with NFC loan growth in Belgium is observed. A potential explanation for this counter-intuitive observation could be that BLS indicators may signal the turning point of the credit cycle. When credit levels have been increasing for a sustained period of time, they may still be relatively high even if credit growth is slowing down immediately after a tightening of lending criteria. Therefore, annual credit growth may still be relatively high, resulting in a negative correlation with the BLS supply indicator. This effect may be amplified if changes in BLS supply or demand indicators are only reflected in credit growth with a lag. For example, if many banks signal a tightening of credit standards, but credit growth continues to be strong for a few quarters before decreasing, this could further reduce the contemporaneous correlation between the BLS supply indicator and credit growth. The correlation between BLS supply and NFC loan growth becomes significantly positive with a lag of 5-6 quarters. For the BLS demand indicator, Table 1 shows a positive correlation for all lags considered. These correlations are significant for lags of 2-5 quarters.

These lagged relationships between the respective BLS indicators and y-o-y loan growth are confirmed by unreported correlations between the BLS demand and supply indicators and q-o-q loan growth, indicating that this

finding is not simply a corollary of using annual rather than quarterly credit growth, but rather is due to the effect of changes in BLS supply or demand indicators only being reflected in credit growth with a lag. [1] This provides a first indication that the BLS indicators contain forward looking information on the growth of bank lending to NFCs in Belgium.

While correlations provide insight into the unconditional relationship between NFC loan growth and BLS demand and supply respectively, they do not account for the fact that demand and supply effects may simultaneously be at work. We therefore also perform regression analyses, where we relate aggregate y-o-y growth of bank lending to NFCs to both (lagged) BLS demand and supply indicators.

Given that BLS demand and supply indicators are qualitative variables that do not provide information on the exact size of changes in demand or supply, and in addition, that a one-shot change in the BLS demand or supply indicator may have persistent effects on credit growth (e.g., a ceteris paribus tightening of credit standards in a given quarter may result in lower credit growth in future quarters, even though the BLS supply indicator will be zero in these future quarters) [2], a lot of the cyclical variation in credit growth may not be captured by the BLS indicators. In order to deal with the resulting econometric issues of autocorrelation, we model this unobserved cyclical variation by including lagged credit growth in the estimating equation and specifying the error term as an autoregressive process of order one (see results in Table 2). [3]

The first column of Table 2 shows the coefficients and standard errors (in parentheses) of the BLS supply and demand indicators when both are included in the regression with one lag (the same for both) at a time. The results confirm the finding that BLS supply and demand lead NFC credit growth in the correlations: BLS supply seems to be leading NFC credit growth by 3-6 quarters. [4] For example, one additional bank reporting in a given quarter that credit conditions have been eased (instead of having remained unchanged) results in a ceteris paribus increase in annual NFC credit growth by 1.2 percentage points four quarters later. [5] BLS demand effects seem to be reflected in credit growth faster, with a significant contemporaneous impact and providing leading information only one quarter in advance. For example, one additional bank stating that demand for NFC credit has increased (instead of having remained unchanged) in a given quarter is followed by a ceteris paribus increase in

TABLE 2 REGRESSIONS OF AGGREGATE LOAN GROWTH [1]

	Each lag included separately	All six lags included simultaneously
Supply (t)	1.29	–0.87
	(1.73)	(2.99)
Supply (t–1)	0.79	–0.81
	(1.72)	(3.03)
Supply (t–2)	2.38	–1.40
	(1.66)	(3.00)
Supply (t–3)	4.17**	–0.10
	(1.57)	(3.29)
Supply (t–4)	4.85***	3.55
	(1.49)	(3.22)
Supply (t–5)	3.46**	–0.33
	(1.62)	(3.34)
Supply (t–6)	3.78**	4.08
	(1.78)	(2.89)
Demand (t)	2.35**	1.23
	(0.99)	(1.97)
Demand (t–1)	2.63**	2.97
	(1.08)	(3.14)
Demand (t–2)	1.48	1.12
	(1.21)	(2.99)
Demand (t–3)	–0.35	–2.38
	(1.27)	(2.48)
Demand (t–4)	–1.49	–0.91
	(1.28)	(2.51)
Demand (t–5)	–1.67	–1.54
	(1.33)	(2.73)
Demand (t–6)	–1.30	1.58
	(1.45)	(2.10)
Adjusted R^2	0.72 to 0.80	0.72
Number of observations	33 to 38	33

Sources: ECB, NBB and own calculations.

(1) The table shows the regression results at the aggregate level. The dependent variable is the y-o-y growth of loans to NFCs. The first column shows the coefficients for different regressions each using only one of the lags as an independent variable (e.g., supply(t–1) and demand(t–1), or supply(t–3) and demand(t–3)). The second column shows the results for one regression where we take up all (t up to t–6) lags at once. Each regression includes a lagged term for loan growth and an AR(1) specification of the error term. Standard errors are in parentheses; ***, ** and * denote statistical significance at the 1%, 5% and 10% levels respectively.

(1) Additional evidence of this statement is that the correlations between the BLS indicators and q-o-q credit growth are small and not significant both contemporaneously and for the first few lags. If changes in credit conditions were reflected immediately in credit growth, a significant positive contemporaneous correlation should be observed between the BLS indicators and q-o-q credit growth, as the "turning point argument" does not hold for q-o-q credit growth.

(2) This is the reason why some authors have also considered cumulated levels of the BLS indicators. Del Giovane et al. (2011) find, however, that the fit of their estimated equations is worse and the significance of BLS indicators is lower when using cumulated levels of the BLS indicators.

(3) We find that ignoring the serial correlation issue in the data results in strong but counter-intuitive contemporaneous effects of the BLS supply indicator, as the periods in our sample when credit conditions are tightened the most coincide with those periods where credit growth is at its largest.

(4) Neither demand nor supply effects are significant after six lags.

(5) The effect is calculated as 4.85 x 0.25 = 1.21 and only represents the immediate short-run effect after four quarters. The effect of the supply change would also persist in the next quarters through the lagged credit growth term in the estimating equation.

annual NFC credit growth by about 0.7 percentage points in the next quarter.[1]

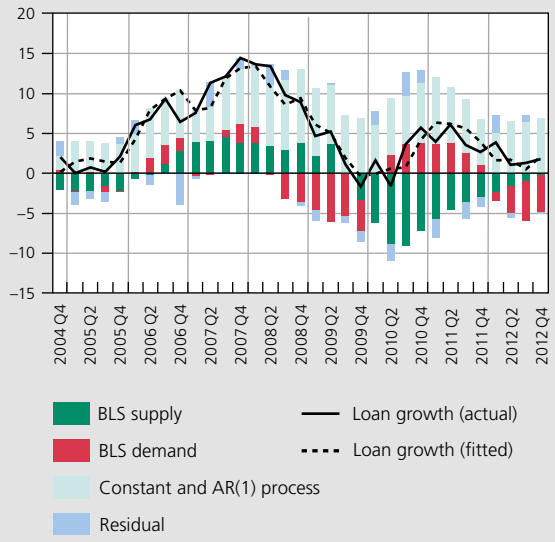
As is evident from Chart 3, banks may report a change in credit demand and/or supply conditions during several consecutive periods. In order to control for potential cumulative and/or offsetting effects of multiple events within our lag window of up to 6 quarters, the second column of Table 2 shows the results of a regression in which all six lags of both the BLS supply and demand indicator are included at the same time.[2] None of the individual BLS demand and supply coefficients is individually significant, which is not surprising given the limited number of degrees of freedom in the regression. However, the signs of the variables nevertheless partially confirm the conclusions of the regressions with each lag of the two BLS indicators included separately; changes in the BLS supply indicator tend to be followed by changes in NFC loan growth after 4-6 quarters, and changes in BLS demand seem to be reflected in NFC loan growth already in the first few quarters following the reported change. This result seems intuitive, as changes in demand, when observed by the banks, have already materialized and should therefore be reflected in credit growth faster than claimed changes in supply, as contractual obligations, such as past loan offers and committed credit lines, may hamper a prompt transmission of changed credit standards into credit growth.

Chart 5 shows actual loan growth and that part of loan growth explained by the regression in the second column of Table 2 (i.e., fitted loan growth). The chart also shows the contribution of BLS demand and supply to the fitted loan growth. The latter allows us to assess the explanatory power of changes in BLS demand and supply indicators in relation to NFC loan growth. In doing so, we do not only consider immediate and lagged direct effects of changes in the BLS indicators, but also account for persistence effects of the BLS indicators that affect credit growth through the lagged credit growth term in the estimating equation.

A first observation from Chart 5 is that our regression model fits actual credit growth dynamics very well (the black dotted line quite closely tracks the black line).

Second, Chart 5 shows that, despite their qualitative and one-shot nature, BLS demand and supply indicators nevertheless seem to explain a substantial amount (on average about 40-45 %) of the cyclical variation in NFC loan growth.[3] More specifically, the BLS indicators partly explain the increase in credit growth between 2005Q3 and 2007Q4, the decrease in credit growth from 2008Q3 to 2010Q2 and the relative but short recovery after 2010Q2.

CHART 5 DYNAMIC EFFECTS AND EXPLANATORY POWER OF CHANGES IN BLS DEMAND AND SUPPLY INDICATORS IN RELATION TO NFC LOAN GROWTH IN BELGIUM[1]



Sources: ECB, NBB and own calculations.

(1) Fitted values, residuals and contributions to fitted values are based on the regression in the second column of Table 2. The purple bars (residual) reflect the difference between the black line (actual loan growth) and the black dotted line (fitted loan growth). The green bars (BLS supply) reflect the contribution of current and past values of the BLS supply indicator, including persistence effects of the BLS supply indicator that affect credit growth through the lagged credit growth term in the estimating equation. The red bars (BLS demand) reflect the contribution of current and past values of the BLS demand indicator, including persistence effects of the BLS demand indicator that affect credit growth through the lagged credit growth term in the estimating equation. The light green bars (constant term and AR(1) process) reflect the part of fitted loan growth that is not explained by the BLS supply and demand indicators and includes effects of the constant term and the autoregressive process in the error term.

In the run-up to the crisis, the easing of credit standards in 2004Q3 and over the period 2005Q1-2006Q1 (see Chart 3) resulted in (lagged) positive contributions of the BLS supply indicator to NFC loan growth from 2006Q3 onwards. These effects were strengthened by increased demand for NFC credit in 2005Q4-2006Q2 and 2007Q2-2007Q4 (see Chart 3).

Interestingly, the BLS indicators also help to explain the decrease in loan growth between 2008Q2 and 2010Q2; several reductions in the demand for NFC loans over the period 2008Q2-2009Q3 (see Chart 3) resulted in strongly negative demand contributions to the growth rate of bank lending to NFCs over this period. While credit standards have been tightened in 2007Q3, 2008Q1 and particularly

(1) The effect is calculated as 2.63×0.25=0.66 and again only represents the immediate short-run effect in the quarter considered.

(2) Most of the existing studies only include a single lag for the BLS demand and supply indicators respectively.

(3) The remaining unexplained part includes the effects of the constant term and, to a lesser extent, the autoregressive process in the error term and the estimation residual.

over the period 2008Q3-2009Q1 (see Chart 3), BLS supply contributions to NFC loan growth remain positive until 2009Q2, mainly due to persistence effects of the past relaxations of credit conditions. The effects of the more stringent supply conditions from 2007-2008 onwards are only reflected in credit growth from 2009Q4 onwards, when credit growth, although briefly, actually falls to negative levels, and persist (though gradually dying out) until early 2012.

From 2010Q2 onwards, a short relative recovery took place, seemingly driven by persistent increases in demand for NFC credit over the period 2010Q1-2011Q2 (see Chart 3). This relative recovery soon came to a halt, however, as demand for NFC credit decreased again over the period 2012Q1-2012Q3. In addition, banks claim that credit standards have been tightened further in 2012Q2 and 2012Q3. While BLS demand increased again in 2012Q4, it is not unlikely that credit growth will remain subdued in 2013 if the effects of these tighter credit standards feed into credit growth.

To summarize, Chart 5 suggests that both BLS demand and supply have explanatory power for the growth of bank lending to NFCs; while changes in demand conditions feed into credit growth relatively quickly, changes in supply conditions are reflected in credit growth only with a lag of about 3-6 quarters. The relative explanatory power (as captured by the relative size of the bars) of the BLS supply indicator is larger than that of the BLS demand indicator over the periods 2006Q4-2008Q2 and 2010Q1-2012Q1. The explanatory power of the BLS demand indicator is relatively larger over the period 2009Q1-2009Q3 and after 2012Q1.

From a policy perspective, this evidence suggests that BLS indicators may provide useful information on the credit cycle, with the BLS supply indicator signaling persistent "medium-term" dynamics in credit growth and the BLS demand indicator providing information on more short-lived, "short-term" fluctuations in credit growth.

It should be noted, however, that both the absolute and relative explanatory power of BLS demand and supply may depend on the specification of the estimating equation (e.g., with respect to the number of lags of the BLS indicators included). More generally, the results in this section are based on a time series of relatively limited length (2003Q1-2012Q4). Several robustness checks indicate that the magnitude and significance of the effects of BLS indicators on NFC loan growth crucially depend on the specification of the estimating equation. For example, adding lagged macroeconomic variables (y-o-y GDP growth rate and 3-month Euribor) generally reduces the significance of the impact of the BLS indicators. In itself, this is not surprising, since macroeconomic variables would be expected to affect loan growth through shifts in demand and/or supply.[1] Box 1 provides an additional check of our results in a panel data setting (bank-level loan growth and BLS indicators), which can help to alleviate the consequences of estimating the models on the basis of a low number of observations.

The overall message we derive from these robustness checks is one of caution in drawing strong conclusions from the BLS indicators (e.g., on demand versus supply driving credit growth), as we find that the information content of the BLS indicators crucially depends on the specification of the model used for the estimation.

(1) Adding control variables changes the interpretation of the effects of the BLS indicators into those demand and/or supply effects that are not already controlled for by the control variables.

Box 1 – Bank-level links between BLS indicators and NFC credit growth

Several European studies have found a significant link between BLS indicators and credit growth. While the analysis of de Bondt et al. (2010) builds on a panel of euro area countries, Del Giovane et al. (2011) and Blaes (2011) use Italian and German banks' individual responses to the BLS and bank-level credit growth for estimating the relationship between BLS indicators and credit growth. The main reasons given by these authors for using bank-level data are that exploiting the panel dimension of the data enlarges the number of observations, thus circumventing the limits caused by the shortness of the BLS sample period, and avoiding potential mismatch errors and inaccurate interpretations of the results which could arise if the BLS responses are matched to aggregate data on lending. The aggregate level of BLS indicators may be the result of several underlying scenarios, which may blur the relationship between loan growth and the BLS indicators (e.g., when tightening and easing credit conditions result in asymmetric effects on loan growth). For example, for an aggregate BLS supply indicator, defined as the

difference between the fraction of banks that have eased credit standards and the fraction of banks that have tightened credit standards, a value of 0 could either be the result of all banks reporting that credit standards have remained unchanged or half of the banks reporting that the credit conditions have been eased and the other half reporting that credit conditions have been tightened. Although these two scenarios produce the same value of the aggregate BLS indicator, they may result in different credit growth dynamics.

TABLE 3 REGRESSIONS OF BANK-LEVEL LOAN GROWTH (1)

	Each lag included separately – AR(1)	Each lag included separately – LSDV
Supply (t)	–0.81	–0.21
	(1.06)	(2.43)
Supply (t–1)	0.06	0.93
	(1.05)	(1.11)
Supply (t–2)	–0.97	1.30
	(1.05)	(1.05)
Supply (t–3)	3.31***	3.06***
	(0.99)	(0.94)
Supply (t–4)	0.28	0.73
	(1.01)	(1.16)
Supply (t–5)	1.06	0.99
	(0.97)	(1.01)
Supply (t–6)	0.78	0.24
	(0.96)	(0.91)
Demand (t)	0.67	1.35*
	(0.65)	(0.75)
Demand (t–1)	–0.01	0.60
	(0.63)	(0.71)
Demand (t–2)	0.22	0.93
	(0.64)	(0.75)
Demand (t–3)	1.01*	0.70
	(0.58)	(0.63)
Demand (t–4)	–0.77	–0.26
	(0.60)	(0.70)
Demand (t–5)	1.16*	0.74
	(0.61)	(0.76)
Demand (t–6)	–1.08*	–0.62
	(0.61)	(0.76)
Adjusted R^2	0.02 to 0.08	0.50 to 0.54
Number of observations	128	128

Sources: ECB, NBB and own calculations.

(1) The table shows the regression results at bank level. The dependent variable is the y-o-y growth of loans to NFCs. The first column shows the coefficients when estimating a panel including fixed effects while allowing for an AR(1) process in the error terms. The second column shows the results for a corrected LSDV model with a lagged term for loan growth. In each column, the coefficients are taken from separate regressions using only one of the lags as an independent variable (e.g., supply(t–1) and demand(t–1), or supply(t–3) and demand(t–3)). The results are robust to including all lags at the same time and to including macro variables to the regressions. Standard errors are in parentheses; ***, ** and * denote statistical significance at the 1 %, 5 % and 10 % levels respectively.

Concerning the BLS indicators for Belgium, we have individual answers available for 4 Belgian banks for 32 quarters. Bank-level loan growth is calculated on the basis of data from the Belgian credit register.[1] For the analysis at the aggregate level, we included a lag of the dependent variable (loan growth) in the regressions and we allowed for an AR(1) process in the error terms. Including the lagged dependent variable in a panel context, however, is not straightforward. If there are unobservable bank fixed effects that are of importance for loan growth, the lagged dependent variable will be correlated with these fixed effects, leading to biased estimates of both the coefficient on the lagged dependent variable and the coefficients for other explanatory variables.[2] A well-known solution to this problem involves using the Arellano and Bond (1991) or Blundell and Bond (1998) GMM estimator. However, these estimators are only applicable when the number of cross-sections is large, making it impossible to use them in our context as we only have individual data available for 4 banks. A number of studies show, however, that a corrected least squares dummy variable (LSDV) estimator performs well when the number of cross-sections is small.[3] Thus, we choose to apply this corrected LSDV estimator when including the lagged loan growth as an explanatory variable. Furthermore, we also run separate fixed effects regressions where we allow for an AR (1) process in the error terms. The results for the corrected AR(1) regressions are presented in the first column of Table 3, while the results for the LSDV estimator are shown in the second column.

The results reported in Table 3 for the regressions using bank-level information are overall less significant than those reported in the first column of Table 2 for regressions based on aggregated data. The bank-level results nevertheless confirm the potential of the BLS supply indicator as a forward-looking indicator for loan growth, predicting credit growth dynamics 3 quarters ahead (compared to 3-6 quarters ahead when looking at the aggregate level). The impact of the BLS demand indicator turns out to be much less significant than in the equivalent specifications at the aggregated level. While potentially stemming from the use of different loan growth series, these results again highlight the need for caution when drawing strong conclusions on the basis of the effects of the BLS indicators on credit growth, as these crucially depend on the specification of the model used for the estimation.

(1) The correlation between the aggregate loan growth based on the credit register and the loan growth reported in the MFI statistics equals 0.77.
(2) In the literature, this is referred to as the Nickell bias, see Nickell (1981).
(3) See for example Kiviet (1995), Judson and Owen (1999) and Bruno (2005).

3. Indicators from the NBB survey on credit conditions

The identification of demand and supply conditions on the basis of the BLS rests on the assumption that banks correctly identify and report those conditions. As a first assessment of whether or not this is the case, we assess the robustness of our previous results on the basis of firms' instead of banks' views on credit conditions.

To this end, we use information from the NBB survey on credit conditions (SCC), which is part of its quarterly business survey. The questionnaire asks Belgian firms about how they perceive credit conditions. In particular, a group of Belgian firms are asked to answer questions on changes in credit conditions for bank loans and (as of the second quarter of 2009) on the firms' expected investments. The goal of the survey is to gather additional information on credit conditions; as the BLS is aimed at credit institutions, and thus reflects how supply side entities are experiencing credit conditions, the SCC should provide additional insights on credit developments in Belgium by analysing how the demand side perceives credit conditions, in this case the experience of Belgian non-financial firms.

Furthermore, the responses to the SCC may be used as a cross-check of the BLS answers. For the purpose of this article, we make use of firms' answers to the questions on how they feel about general credit conditions on bank loans over the previous period ("credit conditions were favourable", "neutral", or "credit conditions tightened") and whether their investments during the current year will either increase, stay the same or decrease. While the credit conditions question will result in an SCC supply indicator similar to the BLS supply indicator, the investment question allows us to derive an SCC indicator that is a (rough) proxy for credit demand. As the number of observations for both the yearly and quarterly SCC indicator series is

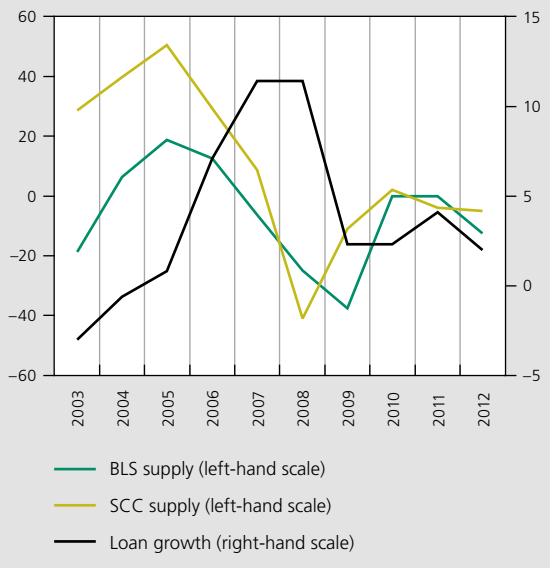
rather limited[1], we refrain from doing a regression-based analysis of the SCC data.

3.1 Annual data (supply only)

As we do not have quarterly data available for the survey on credit conditions for the full period 2004-2012, we construct an aggregated yearly SCC supply indicator. First, we aggregate the three different answers ("credit conditions were favourable", "neutral", or "credit conditions tightened") at the year level by calculating the percentage of answers in each category relative to the total number of answers. Next, we define our indicator as the difference between the percentage of firms that experienced favourable credit conditions and the percentage of firms that felt constrained. To be able to compare the SCC answers with the BLS answers, we construct a similar BLS indicator at the yearly level, which is calculated as the percentage of bank answers indicating that credit conditions were eased minus the percentage of bank answers indicating that credit was more constrained.

Chart 6 shows both series between 2003 and 2012, together with loan growth in Belgium over the same period. The chart indicates a fairly strong co-movement between the BLS and the SCC supply indicators. This is confirmed when looking at the actual correlation between the two series, which equals 0.71.[2]

CHART 6 COMPARISON OF NFC LOAN GROWTH AND BLS AND SCC SUPPLY INDICATORS IN BELGIUM (YEARLY DATA)[1]



Sources: ECB, NBB.

(1) A positive (negative) value of the supply indicator means that credit standards have eased (tightened).

Focusing on the relationship between the two supply indicators and loan growth, the chart does not indicate any contemporaneous co-movement between these series. However, there does seem to be some leading information in the supply indicators. The actual correlations between the supply series and loan growth offer some partial support for this observation. While there is no significant contemporaneous correlation between both supply indicators and loan growth, there is a significant positive correlation of 0.46 between the BLS supply indicator and the one-year-ahead loan growth. The relation between the SCC supply indicator and one-year-ahead loan growth is also positive (0.21), but not significant. Therefore, based on annual data, the finding that the BLS supply indicator leads NFC loan growth can only be partially replicated .

3.2 Quarterly data (supply and demand)

From the second quarter of 2009 onwards, we do have quarterly data available for both the SCC supply indicator and for the answers to the investment question in the SCC survey, which we use as a proxy for the trend in firm demand. Chart 7 illustrates the profile of the quarterly BLS and SCC indicators and loan growth between 2009Q2 and 2012Q4.

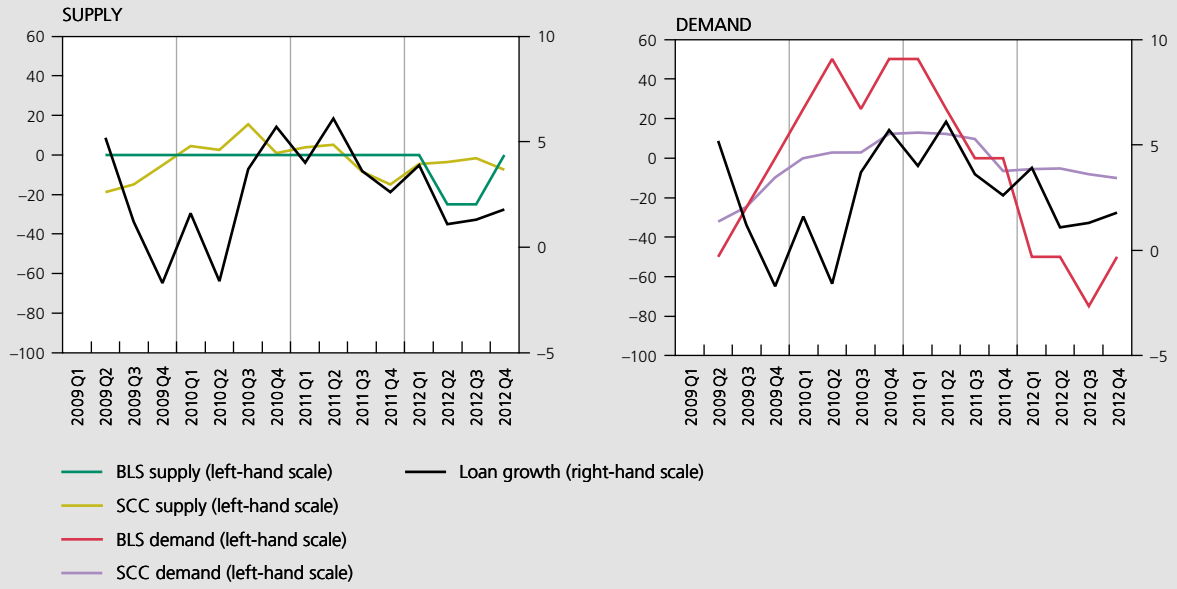
As the BLS supply indicator hardly moves during this period, it is difficult to analyze the relation between the BLS and the SCC supply indicators. Focusing on the relationship between the SCC supply indicator and loan growth in the left-hand panel of Chart 7, there appears to be some forward-looking information in the SCC supply indicator. There is a positive and significant correlation (0.45) between the SCC supply indicator and the loan growth four quarters ahead, which is similar to the result found for the BLS indicator in the previous section.

Concentrating on the demand indicators in the right-hand panel of Chart 7, we notice a strong correlation between the SCC demand indicator and the BLS demand indicator; the correlation between the two series equals 0.69. Furthermore, as with the supply indicator, there also appears to be a leading relation between the SCC demand

(1) We have 10 yearly observations (2003-2012) and 15 quarterly observations (2009Q2-2012Q4).

(2) The correlation between BLS and SCC supply indicators ranges between 0.20 and 0.78 at the bank level. In the case of the SCC, we construct bank-specific indicators by identifying the firms borrowing from a given bank from the credit register.

CHART 7 COMPARISON OF NFC LOAN GROWTH AND BLS AND SCC INDICATORS IN BELGIUM (QUARTERLY DATA)(1)



Sources: ECB, NBB.

(1) A positive (negative) value of the supply indicator means that credit standards have eased (tightened). A positive (negative) value of the demand indicator means that credit demand has increased (decreased).

indicator and actual loan growth. For example, the correlation between the SCC demand indicator and loan growth three (four) quarters ahead equals 0.50 (0.26), although only significant for the three quarters ahead. The corresponding values for the BLS demand indicator amount to 0.58 (0.56). These findings are consistent with our earlier results based on BLS data in Section 2.

Overall, while based on only a relatively short time period, the results of the SCC indicators are consistent with our findings with the BLS indicators regarding the potential leading properties of information from credit condition surveys. While these tentative results will need to be statistically confirmed once a longer time series is available for the SCC indicators, the SCC data appear to represent a useful addition to the data included in the BLS survey. Their relevance will likely further increase when more data become available.

Conclusion

Using the euro area bank lending survey (BLS), this article finds some evidence that BLS indicators contain useful information on NFC loan growth in Belgium, with the BLS supply indicator signaling persistent "medium-term" dynamics in credit growth and the BLS demand indicator providing information on more short-lived, "short-term" fluctuations in credit growth. We also find, however, that the estimated information content of the BLS indicators crucially depends on the specification of the model used for the estimation, suggesting the need for caution in drawing strong conclusions from the BLS indicators (e.g., related to demand versus supply factors driving credit growth).

We also examine the information content of the NBB survey on credit conditions (SCC). The SCC indicators appear correlated with BLS indicators and offer information that is consistent with the results from the BLS data. In the future, once a sufficiently long data series is available, it will nevertheless be necessary to test more thoroughly whether SCC and BLS indicators convey similar or different information and which is most closely correlated with loan growth.

Overall, the evidence presented in this article suggests that credit condition survey indicators may potentially be useful for macroprudential policymakers. In particular, in a framework for dealing with cyclical systemic risks, these indicators may help to identify persistent credit growth dynamics and turning points in the financial cycle, and for example, to guide the release phase of macroprudential policies. In this context, it may be useful to explore further

the information in the euro area bank lending survey, for example, with respect to the underlying causes of easing or tightening of bank lending criteria. In addition, the analysis should be extended to household credit. Future analysis may also consider the information content of credit condition survey indicators for alternative measures of the credit cycle (e.g., the deviation of credit-to-GDP from its long-term trend). Finally, an issue that may also be interesting to investigate is whether indicators from credit condition surveys can add any early warning information relative to other variables, such as the deviation of credit-to-GDP from its long-term trend, for predicting financial distress.

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Overview of the NBB's oversight and supervision of financial market infrastructures in 2012

The Bank is responsible not only for the oversight but also for the prudential supervision of post-trade financial market infrastructures. The central bank's oversight promotes the safety and efficiency of the payment and settlement infrastructures, and ultimately of the financial system as a whole. The prudential supervision ensures the robustness of the market infrastructures' operator at micro-level, thus helping to maintain the confidence of the institution's counterparties. Within the Bank, the two functions are performed by the same entity.

The standards applicable to financial market infrastructures were amended during the year under review. In April, the Committee on Payment and Settlement Systems (CPSS) and the International Organisation of Securities Commissions (IOSCO) published their Principles for Financial Market Infrastructures, which group together and reinforce the standards applicable worldwide to post-trade market infrastructures. As the Bank stated in its circular dated 20 July 2012, the CPSS-IOSCO Principles for financial market infrastructures form the reference framework for its prudential supervision and oversight of settlement institutions. These include Euroclear Belgium, Euroclear SA/NV, Euroclear Bank, and BNY Mellon CSD SA/NV . At European level, Regulation no. 648/2012 of 4 July 2012 on OTC derivatives, central counterparties and trade repositories entered into force in August, and the related implementing technical standards in March 2013. The European Union is also continuing its work on the development of European legislation on central securities depositories (CSDs).

Furthermore, the Bank and the FSMA, the Belgian securities commission, signed a memorandum on 18 October 2012 clarifying the exchange of information and cooperation between the two institutions in connection with the supervision of securities settlement systems and central counterparties. That cooperation aims to prevent gaps and duplication, and to avoid any unnecessary burden on market infrastructures. In its assessment of the market infrastructures based on international standards, the Bank will consult the FSMA on aspects for which the latter is responsible. In the event of a crisis affecting a market infrastructure, there will be consultation.

Table 1 contains an overview of the entities in whose oversight and/or supervision the NBB is involved. Many of these infrastructures have an international dimension with euro area or worldwide operations. The NBB performs the role of lead overseer/supervisor for international infrastructures established in Belgium, such as SWIFT and Euroclear. As a corollary, it participates in cooperative oversight and supervision for international infrastructures established outside Belgium, but providing services to Belgium.

In the current environment, market infrastructures are faced with changing regulations that demand enhanced risk management. At the same time, the market environment leads to a restructuring and a repositioning of the various actors, including market infrastructure users. These changes ultimately influence the business models of market infrastructures. Below is an overview of the points requiring the attention of overseers and supervisors as regards the post-trade market infrastructures established in Belgium.

TABLE 1 FINANCIAL MARKET INFRASTRUCTURES SUBJECT TO THE BANK'S SUPERVISION AND OVERSIGHT

	International college of supervisors / cooperative oversight agreement		The Bank acts as the sole authority
	The Bank acts as the principal authority	The Bank participates under the direction of another principal authority	
Prudential supervision			Belgian branch of BNYM
			Payment and electronic money institutions (18)
Prudential supervision and oversight	Euroclear Belgium (CIK) (ESES)	LCH.Clearnet SA/NV	Euroclear Bank [2]
	Euroclear SA/NV		Atos Worldline [3]
	BNYM SA/NV [1]		BNY Mellon CSD SA/NV
Oversight	SWIFT [4]	TARGET2 Securities (T2S) [3]	NBB-SSS
		TARGET2 (T2) [3]	Bancontact/Mister Cash [3]
		CLS	CEC [3]
			MasterCard Europe [3]

Source: NBB.
(1) BNYM SA/NV is the European headquarters of the BNYM group. The Bank is the principal authority in the college of European supervisors.
(2) The Bank works on an *ad-hoc* basis with other central banks concerned.
(3) Peer review in the Eurosystem/ESCB.
(4) Society for Worldwide Interbank Financial Telecommunication.

1. Oversight of SWIFT

The Society for Worldwide Interbank Financial Telecommunication (SWIFT) is not a payment system but a key messaging provider for payment and securities settlement infrastructures throughout the world. Central bank oversight of SWIFT is justified in view of its crucial importance for the safety and efficiency of payment and securities settlement systems.

Box 1 provides an overview of the set-up of the international co-operative oversight of SWIFT. The NBB acts as lead overseer of SWIFT. The oversight is performed in cooperation with the G10 central banks. Since 2012, information has been shared with a wider group of central banks, as the country representation in the SWIFT oversight arrangements was expanded with the establishment of the SWIFT Oversight Forum. In the Forum, senior representatives of the G10 and ten other central banks conduct joint discussions on the SWIFT oversight policy and results. The SWIFT Oversight Forum held its inaugural meeting in 2012 and held a second meeting for the initial discussions on specific subjects in the second half of the year.

In 2012, SWIFT provided its overseers with an updated self-assessment report regarding its compliance with the High Level Expectations (HLEs). SWIFT's demonstration of compliance with the HLEs does not reflect the overseers' opinion, but SWIFT's own assessment of how it lives up to the HLEs.

Box 2 lists the five HLEs for the Oversight of SWIFT. These constitute the framework for reviewing SWIFT activities that fall within the scope of the oversight. The overseeing central banks address their common security and resilience expectations *directly* to SWIFT, because the company had been identified as a major messaging services provider for correspondent banking activities and for critical payment and securities settlement infrastructures. The expectations centre around security (confidentiality, integrity, availability) and system resilience. As there are other service providers playing a similar role to SWIFT, there is a risk that different overseers may use different oversight/assessment frameworks, thereby creating an unlevel playing field. These concerns have been addressed by the CPSS and IOSCO in their Principles for Financial Market Infrastructures. Annex F of these Principles lists the oversight expectations applicable to critical service providers. It suggests an oversight approach for other critical service providers that is similar to what the overseers of SWIFT aim to achieve with the HLEs.

Two major SWIFT projects that the overseers reviewed in 2012 are "Distributed Architecture" and "FIN Renewal". Both projects are multi-year platform investments that

help to increase the security, resilience and reliability of the services provided. The Distributed Architecture project was already announced at the end of 2007, and will near completion in 2013. With this project, SWIFT set up a multi-zonal messaging architecture, allocating countries to either the European or the Trans-Atlantic zone. It added a SWIFT operating centre for the European zone as well as an additional command and control capability in Asia, enabling operations to be controlled from either Asia, Europe or the US. Operational improvements are made at every SWIFT operational site, and include the renovation of computer rooms and the power and cooling infrastructures. The latest major initiative is the construction of a new state-of-the-art operating centre that replaces one of those currently in use. Monitoring progress in this building project was a major focus of overseers in 2012. In 2013, overseers will monitor the installation of equipment and the activation of the site. The second major SWIFT project reviewed by overseers is the FIN renewal project, The underlying technology platform of FIN, SWIFT's core application for messaging, is being renewed to address long term technology needs while aiming to significantly reduce ongoing operating costs. Only the central FIN application is adapted, not the FIN interfaces and SWIFT network connections at the customers' end. The first components of the renewed application will go live in 2013 and the project extends to 2015. Aspects reviewed include risk management, project management including the monitoring of project milestones, test strategies, and transparency of communication in relation to vendors and customers. Overseers in 2012 also focused on the logical security features or the cyber defence of the SWIFT operations. Standing topics for review include IT audit reports, technology and information, security risk management, and the development of an enterprise-wide risk management framework.

Furthermore, overseers continue to monitor closely SWIFT's financial position, as well as trends in its messaging volumes. SWIFT's FIN messaging traffic, the major contributor to the company's revenue, increased by 3.5 pct. in 2012, compared to 8.9 pct. budgeted. In a difficult general economic environment, SWIFT did achieve a profit before tax of 20 million euro, in line with the budget. SWIFT decided not to grant a messaging rebate on 2012 messaging invoices, but reserved the available profit to fund a technology renewal program on behalf of its customers : SWIFT will contribute to the renewal of Hardware Security Modules at the customer premises in 2013 and 2014. The review of SWIFT's financial position provided assurance that the price reductions are sustainable over the longer term, and compatible with intended investments that are part of the stated SWIFT strategy. SWIFT continues to enjoy a strong financial position, with all investment, including the major multi-zonal architecture project, being funded out of operating cash flow. New projects initiated by SWIFT under its SWIFT2015 strategy are analysed by overseers to the extent that they might impact the stable provisioning of services to the global financial infrastructure. In 2012, SWIFT decided to refocus efforts on a reduced set of initiatives, thereby making sure that sufficient resources can be available for the key projects without diverting attention to less important projects.

Finally, SWIFT's Chief Risk Officer (CRO) in 2012 continued the development of an integrated Enterprise Risk Management framework throughout SWIFT.

Box 1 – The international co-operative oversight of SWIFT

As lead overseer, the NBB conducts the oversight of SWIFT in cooperation with the other G10 central banks, i.e. Bank of Canada, Deutsche Bundesbank, European Central Bank, Banque de France, Banca d'Italia, Bank of Japan, De Nederlandsche Bank, Sveriges Riksbank, Swiss National Bank, Bank of England and the Federal Reserve System (USA), represented by the Federal Reserve Bank of New York and the Board of Governors of the Federal Reserve System.

The NBB monitors SWIFT developments on an on-going basis. It identifies relevant issues through the analysis of documents provided by SWIFT and through discussions with the management. It maintains a continuous relationship with SWIFT, with regular or ad hoc meetings, and serves as the G10 central banks' entry point for the cooperative oversight of SWIFT. In that capacity, the NBB chairs the senior policy and technical groups that facilitate the cooperative oversight, provides the secretariat and monitors the follow-up of the decisions taken.

The various SWIFT oversight groups are structured as follows:

- the **SWIFT Cooperative Oversight Group (OG)** is composed of all G10 central banks, the ECB and the chairman of the CPSS. It meets twice a year. It is the forum through which central banks conduct cooperative oversight of SWIFT, and in particular discuss oversight strategy and policies related to SWIFT;
- within the OG, the **Executive Group (EG)** includes the Bank of Japan, the Federal Reserve Board, the Bank of England, the ECB and the NBB. It meets about four times a year. It holds discussions with SWIFT's board and management on the central banks' oversight policy, issues of concern, SWIFT's strategy regarding oversight objectives, and the conclusions. The EG supports the NBB in preparing for discussions within the broader OG, and represents the OG in discussions with SWIFT. The EG can communicate recommendations to SWIFT on behalf of the OG. At one of the EG meetings, the annual reporting by SWIFT's external security auditor is discussed;
- at the technical level, the **SWIFT Technical Oversight Group (TG)** has four full-day meetings a year with SWIFT management, internal audit and staff to carry out the groundwork of the oversight. Specialised knowledge is needed to monitor SWIFT's use of computer technology and the associated risks. The TG draws its expertise from the pool of staff available at the cooperating central banks. It reports its findings and recommendations to the OG.

In 2012 the **SWIFT Oversight Forum** was set up. The SWIFT Oversight Forum is composed of senior overseers from the G10 central banks (OG) and of ten additional central banks, namely Australia, China, Hong Kong, India, Korea, Russia, Saudi Arabia, Singapore, South Africa and Turkey. It is chaired by the NBB. The SWIFT Oversight Forum's objectives are:

- to facilitate a coordinated flow of information about SWIFT oversight conclusions to the Forum participants;
- to foster discussions on the oversight policy concerning SWIFT;
- to provide input to the OG on priorities in the oversight of SWIFT; and
- to serve as a communications platform on system interdependencies related to the common use of SWIFT or for communication in the case of major contingency situations related to SWIFT.

Box 2 – The High Level Expectations (HLEs) for the Oversight of SWIFT

HLE 1. Risk identification and management – SWIFT is expected to identify and manage relevant operational and financial risks to its critical services and ensure that its risk management processes are effective.

HLE 2. Information Security – SWIFT is expected to implement appropriate policies and procedures, and devote sufficient resources, to ensure the confidentiality and integrity of information and the availability of its critical services.

HLE 3. Reliability and resilience – Commensurate with its role in the global financial system, SWIFT is expected to implement appropriate policies and procedures, and devote sufficient resources, to ensure that its critical services are available, reliable and resilient and that business continuity management and disaster recovery plans support the timely resumption of its critical services in the event of an outage.

HLE 4. Technology planning – SWIFT is expected to have in place robust methods to plan for the entire lifecycle of the use of technologies and the selection of technological standards.

HLE 5. Communication with users – SWIFT is expected to be transparent to its users and provide them information that is sufficient to enable users to understand well their role and responsibilities in managing risks related to their use of SWIFT.

2. Oversight and supervision of retail payment services

European Forum on the Security of Retail Payments

The Bank participates in the work of the European Forum on the Security of Retail Payments. The Forum operates under the aegis of the Eurosystem and the ESCB and brings together representatives of the EU authorities in charge of oversight and prudential supervision. The Forum aims to facilitate common knowledge and understanding by the authorities of the security issues related to electronic retail payment instruments and services that are offered within the EU.

A first report on the security of internet payments was published on 31 January 2013, issuing a set of recommendations to the providers of services covered by the Payments Services Directive, as well as to the governance authorities of payment schemes (including card payment schemes). The implementation of those recommendations is expected to take place by 1 February 2015. Furthermore, a second set of recommendations aiming to increase the security of the payment account access services (account information services and payment initiation services) is currently subject to a public consultation that ends in mid-April 2013. The Forum also initiated work on the security of mobile payments that should materialise in a report by the end of 2013.

Oversight of retail payment systems

The Centre for Exchange and Clearing (CEC) is the Belgian automated clearing house which processes and settles retail payments between banks active in Belgium. It stopped using the NBB infrastructure and migrated to the French technical platform, STET. This was fully completed by the end of March 2013. Although it now uses the platform together with its French equivalent, the CEC remains a separate, independent Belgian system. As an overseer, the NBB paid specific attention to the planning and implementation of the migration. On the occasion of the change of platform, improvements in risk management were introduced: the CEC increased the frequency of the settlement cycles, and it now only credits the receiving participant after final settlement takes place in Target2. These changes were made in accordance with the recommendations of the overseer concerning financial risk management.

Oversight of card payment schemes

The Bancontact-MisterCash debit card scheme is preparing to comply with the Single Euro Payments Area (SEPA) standards, for which the target implementation date is the beginning of 2014. As the overseer of the scheme, the Bank has monitored these developments, with a focus on the financial risk management, as well as on the scheme's new projects.

At the end of 2012, as the lead overseer of MasterCard Europe (MCE), the Bank ended the cooperative assessment of MCE's compliance with the Eurosystem 2008 standards

Prudential supervision of payment institutions and electronic money institutions

At the end of November 2012, the provisions of the European Electronic Money Directive were transposed into Belgian law.[1] In the course of 2012, several service providers considered whether they should start operating under a payment institution licence or an electronic money institution licence, or change from one to the other. Several companies presented their project to the Bank so as to determine, after a preliminary analysis, whether the envisaged services would indeed fall within the scope of the Payment Services Directive and/or Electronic Money Directive. A number of companies formally submitted their request for authorisation after such preliminary analysis. The NBB has granted authorisation to nine payment institutions so far. Most started operating in 2012.

Furthermore, the development of European standards and guidelines relating to areas that are relevant for payment institutions continued to receive particular attention. Topics include the actions to combat money laundering and the use of agents under a European passport.

3. Oversight and supervision of securities settlement systems and operators

The Bank acts as the overseer of securities settlement systems, and as a prudential supervisor of their operator, with respect to three Euroclear group entities. In addition, it acts as the overseer of NBB-SSS (Securities Settlement System), operated by the NBB itself. Finally, the Bank has

(1) The European Directive of 16 September 2009 on electronic money services in the internal market (EMD) was transposed by the Belgian law of 21 December 2009 regulating the activities of payment institutions, within the timeframe required by the European Directive of 13 November 2007 on payment services in the internal market (PSD).

oversight and prudential supervision competencies in relation to the Bank of New York Mellon (BNYM) Group entities established in Belgium.

3.1 Oversight and supervision of Euroclear group

The Bank acts as the overseer and as a prudential supervisor of three Euroclear group entities: Euroclear SA/NV (ESA),[1] Euroclear Bank (EB) and Euroclear Belgium.

ESA

ESA is the Euroclear group's parent company. It owns the securities processing platforms and offers common services for the group's (international) central securities depositories – (I) CSDs. A memorandum of understanding governs the multilateral cooperation concerning the oversight and supervision of the common services which ESA provides to the group's CSDs. The Bank acts as the coordinator of ESA supervision and oversight. The monitoring of the operational reliability and stability of the settlement platforms operated by ESA was still one of the main topics of attention for the regulators. Specific consideration focused on the ESA policy for IT infrastructure management and protection against cyber crime. Furthermore, the review of the compliance of the ESA "common services" with the CPSS-IOSCO Principles for Financial Market Infrastructures was conducted and was shared with the Euroclear group CSDs' authorities. Finally, an analysis was initiated on the recovery and resolution procedures to be developed in the event of default by a group entity.

EUROCLEAR BANK

As an international central securities depository (ICSD), Euroclear Bank (EB) provides settlement and custody services for international securities, bonds, equities and fund instruments. It has nearly 1,400 participants that have access to its network of more than 40 links with domestic market CSDs worldwide.

As the lead overseer of EB, the Bank monitored EB's efforts to further reduce intraday credit and liquidity risks in the Euroclear system. To neutralise credit risk drivers, EB has implemented system changes to optimise the settlement of short-term triparty repo roll-overs. Thanks to the synchronisation of triparty initiations and closings, intraday credit risks will decline significantly. These changes were implemented at the end of March 2013.

After a risk-mapping assessment of EB's asset servicing activities, the Bank initiated a specific work stream on the applicable credit risk management framework regarding the advancing of income and redemption proceeds. In securities markets, it is common business practice for income and redemption proceeds to be advanced before the actual receipt of the final payment from the issuer. Potential credit risks on system participants as a result of these advances need, within Financial Market Infrastructures in particular, to be managed in accordance with the new CPSS-IOSCO Principles stipulating the full collateralisation of all lending. This will require EB to adapt its current procedures in order to fully comply with the new standards.

In the course of 2012, the Bank assessed EB against the full set of Principles for Financial Market Infrastructures issued in April 2012. Of the twenty applicable CPSS-IOSCO Principles, seventeen have been assessed by the NBB as "Fully observed" and three as "Broadly Observed", namely Principle 4 (Credit risk), Principle 11 (Central securities depositories) and Principle19 (Tiered participation arrangements).[2]

Since EB is a critical Financial Market Infrastructure, the IMF included EB in its FSAP for pan-European payment and securities settlement systems, with an assessment based on the same set of international standards.

In 2012, as part of the group's strategy to contain costs and diversify EB's recruitment pool, EB created a remote dual office arrangement for EB operations in Poland. The Bank, as a prudential supervisor, monitored the developments related to this project particularly with regard to operational risks, asset protection, governance and internal controls, and will continue to closely follow the roll-out of the project.

The Bank continued to pay particular attention to the ICAAP process (*Internal Capital Adequacy Assessment Process*) of EB in 2012. In accordance with the Capital Requirements Directive, a *Supervisory Review and Evaluation Process* (SREP) of Pillar II was carried out.

Finally, EB was also requested to put in place a fully-fledged recovery plan, for review by the Bank. As the recovery plan is an evolving document, repeated and continuous interaction between the institution and the Bank is taking place. Also, further revisions are expected following the publication of the related international guidelines and other applicable EU regulations. In parallel, Euroclear SA (ESA) is also setting up a recovery plan, with particular

(1) ESA, the holding company of the Euroclear (I)CSDs, operates under the prudential status of "equivalent settlement institution" due to the core services it performs for Euroclear Bank SA.

(2) See article in this FSR on the "Assessment of Euroclear Bank against the CPSS-IOSCO Principles for Financial Market Infrastructures", p. 129.

attention to group-wide compatibility and coherence of the recovery plans among the various group entities.

EUROCLEAR BELGIUM

Euroclear Belgium mainly holds Belgian securities, in particular Belgian equities. It settles participant transactions jointly with Euroclear Nederland and Euroclear France on the unified ESES settlement platform used by these three CSDs. The Bank monitored the ESES CSDs' decision to join the T2S project and the development by Euroclear Belgium of new services for issuers. It also paid attention to the situation regarding settlement efficiency. The IMF included ESES in its pan-European FSAP, but only so far as assessing the responsibilities of the supervisor or overseer, based on the CPSS-IOSCO Principles for FMIs. The Bank and the coordinated supervision and oversight of ESES were assessed as being compliant with the standards for supervision and oversight.

3.2 Oversight of NBB-SSS

Concerning NBB-SSS, the Bank monitored the implementation by its operator of the recommendations made following the last assessment of the system against the ESCB-CESR standards for securities settlement systems. It further monitored the decision of the NBB-SSS to join the T2S-project and the ongoing implementation of the project in two phases, whereby the first phase implies the use of a new IT-platform and functionalities by the end of 2014 and the second phase the actual joining of T2S in 2016.

3.3 Oversight and supervision of The Bank of New York Mellon group

An important initiative for systemic market infrastructures operating in Belgium is the creation of a CSD by the Bank of New York Mellon Group.

BNY MELLON CSD SA/NV

On 15 December 2012, the Brussels-based BNY Mellon CSD SA/NV (BNYM CSD) was licensed as a CSD by Royal Decree. BNYM CSD is a non-bank subsidiary of the BNYM Corporation, the US (non-banking) holding company of the group. BNYM CSD is overseen by the Bank. BNYM CSD – as a settlement institution – also falls within the scope of prudential supervision.

BNYM CSD will outsource its operations and most of its administrative functions to the Bank of New York Mellon SA (BNYM SA/NV), the Belgium-based bank subsidiary of the New York state chartered Bank of New York Mellon. BNYM SA/NV was licensed for that purpose as an "equivalent settlement institution", which is a Belgian regulatory status for institutions providing services of significant importance to CSDs. As a consequence, BNYM SA/NV has to comply with the prudential requirements linked to this status and it allows the NBB to impose the compliance of the settlement services provided by BNYM SA/NV with the CPSS-IOSCO Principles for Financial Market Infrastructures.

BNYM CSD is to start operations in the course of 2013, after its official notification as a system under the Settlement Finality Directive. It plans to gradually roll out its services, starting with issuer services before providing settlement services and triparty collateral management services. The implementation of each phase will be reviewed by the Bank as prudential supervisor and overseer.

PRUDENTIAL SUPERVISION OF THE BANK OF NEW YORK MELLON SA/NV (BNYM SA/NV)

In 2012, the Bank of New York Mellon Group continued to consolidate its legal entities in Europe. As part of the strategic move towards a single European banking structure, the Irish credit institution of the group, the Bank of New York Mellon Ireland Limited (BNYMIL) was merged with the Brussels based BNYM SA/NV. The business activity which was conducted by BNYMIL prior to the merger is carried on through the Dublin branch established by BNYM SA/NV.

In 2012, the Bank closely monitored the developments relating to the consolidation of the European entities. Focusing specifically on the new activities that are being transferred to BNYM SA/NV further to the consolidation projects, the Bank supervises the potential impact on the risk profile of the bank, particularly via the ICAAP-SREP (Internal Capital Adequacy Assessment Process – Supervisory Review and Evaluation Process). This process is performed in collaboration with the members of the BNYM EEA College via the Joint Risk Assessment process as per the EBA guidelines.

In view of the role of BNYM SA/NV in strengthening the European presence of the group, the Bank decided to organise High Level Supervisory College meetings to complement the existing Technical Level meetings of the Supervisory College, formally set up by the Bank at the end of 2011 in accordance with the CRD III directive.

In the context of a growing need for cross-border supervisory collaboration between Europe and the US, and in

accordance with the Financial Stability Board's key attributes for G-SIFIs, the Federal Reserve Bank initiated both a Supervisory College and a Crisis Management Group (CMG) for Bank of New York Mellon, in which the Bank actively participates. The Bank, for consistency reasons, tries to align its own work in the field of the recovery and resolution plans as far as possible with the work of the CMG.

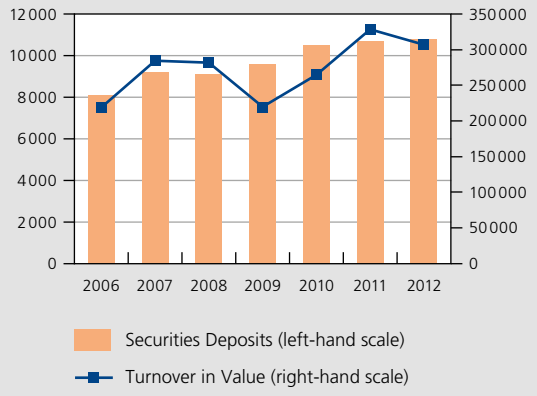
Box 3 – Securities settlement systems in Belgium: key figures on securities deposits and turnover

Securities settlement systems established in Belgium include the ICSD Euroclear Bank (EB) and the CSDs NBB-SSS and Euroclear Belgium (EBE). NBB-SSS and EBE primarily function as depositories for securities issued in Belgium. EB is an international CSD that holds securities deposits in eurobonds and domestic securities from more than 40 markets. A fourth CSD, BNY Mellon CSD SA/NV was set up in December 2012 but is not expected to start its operations until some time in 2013.

Most securities held in EB are fixed-income securities (e.g. eurobonds, government bonds). At the end of 2012, securities deposits held in EB by participants amounted to EUR 10.8 trillion, which is slightly above the previous year's figure of EUR 10.7 trillion. Whereas in 2011 settlement turnover rose 24 % to EUR 328.5 trillion compared to the previous year, the value of transactions processed by EB in 2012 fell 7 % to EUR 307.1 trillion. The decline in turnover is linked to lower trading volumes in European fixed income securities and lower ticket sizes. EB is a multi-currency system. The bulk of EB settlement turnover is in EUR. Other large settlement currencies include USD, GBP and JPY. EB is rated AA+ by Fitch Ratings and AA by Standard and Poor's.

CHART 1 EUROCLEAR BANK SECURITIES DEPOSITS & TURNOVER

(in € billion)

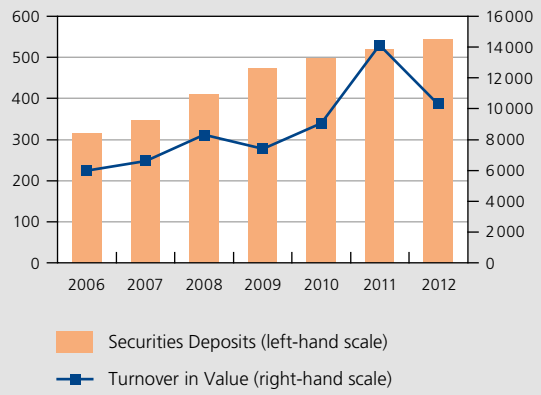


The value of securities deposits in NBB-SSS, the central securities depository for fixed-income Belgian government and corporate debt, has been rising steadily since 2006, reaching EUR 544 billion in 2012, more than 4 % up against 2011. While settlement turnover increased significantly in 2011 (+56 %) – due to a sharp rise in activity on the secondary market for Belgian government linear bonds – turnover declined in 2012 by 27 % from

EUR 14.1 trillion to EUR 10.3 trillion. This is in line with the decrease in 2012 in the secondary market for Belgian government linear bonds, which represents more than 70 % of turnover in NBB-SSS.

CHART 2 NBB SSS SECURITIES DEPOSITS & TURNOVER

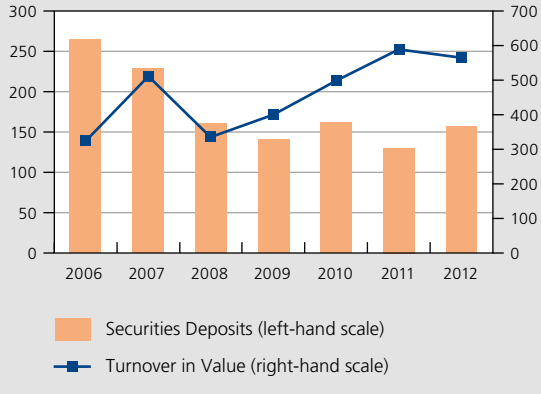
(in € billion)



Unlike EB and NBB-SSS, securities held in EBE are mainly Belgian equities. The value of these securities deposits in EBE is reported in market value and is therefore more affected by market volatility. Securities deposits held in EBE on behalf of participants rose more than 20 % from EUR 130 billion in 2011 to EUR 157 billion in 2012 at year-end. The movement in the value of securities deposits held on behalf of participants in EBE is directly linked to the recovering equity market in Belgium in the course of 2012. Securities deposits are still 40 % lower than in 2006, before the start of the market turmoil. The value of turnover, on the other hand, decreased by 4 % in 2012 to EUR 564 billion from EUR 588 billion in 2011, still above pre-crisis levels.

CHART 3 EUROCLEAR BELGIUM SECURITIES DEPOSITS & TURNOVER

(in € billion)



Assessment of Euroclear Bank against the CPSS-IOSCO Principles for Financial Market Infrastructures

Although the financial market infrastructures (FMIs) have weathered the financial crisis well, the Committee on Payment and Settlement Systems (CPSS) and the Technical Committee of the International Organization of Securities Commissions (IOSCO) decided to update and strengthen the existing international standards for FMIs. This review resulted in the publication of the final version of the CPSS-IOSCO Principles for Financial Market Infrastructures (PFMIs) in April 2012 [1]. These PFMIs introduce new standards (e.g. for general business risk or tiered participation arrangements) while reinforcing existing standards, for example regarding credit and liquidity risk.

Euroclear Bank (EB) was assessed by the NBB against the PFMIs for central securities depositories (CSDs) and securities settlement systems (SSSs) [2] from April to November 2012. From November 2012 to January 2013, the International Monetary Fund (IMF) conducted its own assessment of EB in the framework of an EU FSAP (Financial Sector Assessment Program). The remainder of this article describes the main results and recommendations of the NBB assessment of EB. Such disclosure promoted by CPSS-IOSCO aims at enhancing the transparency of the NBB's oversight role for system participants and at promoting the NBB's accountability as overseer of payment and securities settlement systems. A level playing field is ensured by making the results of the assessment public for all securities settlement institutions [3].

(1) The PFMIs can be downloaded from www.bis.org/publ/cpss101.htm.
(2) Out of the 24 PFMIs, 4 are not applicable to EB (some Principles are addressed only to central counterparties (CCPs) or trade repositories (TRs)).
(3) The most recent assessment of the NBB-SSS and ESES (including Euroclear Belgium) can be found in the FSR of 2011.

Box 1 – The CPSS-IOSCO Principles for Financial Market Infrastructures

PRINCIPLE 1 : LEGAL BASIS

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

PRINCIPLE 2 : GOVERNANCE

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

PRINCIPLE 3 : FRAMEWORK FOR THE COMPREHENSIVE MANAGEMENT OF RISKS

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

PRINCIPLE 4 : CREDIT RISK

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

PRINCIPLE 5 : COLLATERAL

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

PRINCIPLE 6 : MARGIN

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

PRINCIPLE 7 : LIQUIDITY RISK

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

PRINCIPLE 8 : SETTLEMENT FINALITY

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

PRINCIPLE 9: MONEY SETTLEMENTS

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

PRINCIPLE 10: PHYSICAL DELIVERIES

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

PRINCIPLE 11: CENTRAL SECURITIES DEPOSITORIES

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

PRINCIPLE 12: EXCHANGE-OF-VALUE SETTLEMENT SYSTEMS

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

PRINCIPLE 13: PARTICIPANT-DEFAULT RULES AND PROCEDURES

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

PRINCIPLE 14: SEGREGATION AND PORTABILITY

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

PRINCIPLE 15: GENERAL BUSINESS RISK

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

PRINCIPLE 16: CUSTODY AND INVESTMENT RISKS

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

PRINCIPLE 17: OPERATIONAL RISK

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to

ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

PRINCIPLE 18: ACCESS AND PARTICIPATION REQUIREMENTS

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

PRINCIPLE 19: TIERED PARTICIPATION ARRANGEMENTS

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

PRINCIPLE 20: FMI LINKS

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

PRINCIPLE 21: EFFICIENCY AND EFFECTIVENESS

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

PRINCIPLE 22: COMMUNICATION PROCEDURES AND STANDARDS

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

PRINCIPLE 23: DISCLOSURE OF RULES, KEY PROCEDURES, AND MARKET DATA

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

PRINCIPLE 24: DISCLOSURE OF MARKET DATA BY TRADE REPOSITORIES

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

1. Main conclusions of the assessment

The 24 PFMIs are grouped in 9 themes. The main findings are summarised here below. The ratings are summarised in Table 1 at the end.

1.1 General organisation

PRINCIPLE 1: LEGAL BASIS

In general, EB has a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities.

PRINCIPLE 2 : GOVERNANCE

EB has governance arrangements ("user-owned, user-governed" model) that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders. EB could, however, consider the exercise of an external assessment of the Board's functioning, complementing the current internal assessment. The NBB also recommends the disclosure of the conflict of interests policies.

PRINCIPLE 3 : FRAMEWORK FOR THE COMPREHENSIVE MANAGEMENT OF RISKS

EB has policies, procedures and systems to identify, monitor and manage the range of risks it faces. EB focuses on the risks that it bears from others (both participants and other entities including other FMIs), but by reducing its own credit, liquidity and operational risks, EB is able to reduce the credit, liquidity and operational risk that it poses to others. The effectiveness of these policies and systems is assessed on an ongoing basis by the Business departments (as a first layer) that monitor key performance indicators (KPIs), and by entities such as Risk Management or Compliance (as a second layer). In addition, EB regularly performs back-tests (e.g. liquidity stress tests) based on real-life data to test the effectiveness of the policies.

Besides providing the information (ranging from EB's risk management framework to data on the participant's credit usage) needed to allow participants to manage their risks, EB provides them with incentives to keep the risks they pose to EB at an acceptable level (e.g. EB's overdraft interest rates are above the market rates as a disincentive against participants' over-reliance on credit by EB).

In its recovery plan, EB has identified scenarios that may potentially prevent it from being able to provide its critical services, and has included recovery options that can be used in those scenarios. The international regulatory framework for recovery and resolution plans for FMIs is still evolving (CPSS-IOSCO guidelines are expected by this summer). The NBB will therefore follow up the review of EB's recovery plan after these international guidelines have been finalised.

1.2 Credit and liquidity risk management

PRINCIPLE 4 : CREDIT RISK

The policy of EB is to fully collateralise its credit risk exposures. Exceptions where unsecured credit is allowed are covered by EB's own capital. EB has no history of credit losses caused by participant defaults. Although EB's general credit risk management framework is robust, the NBB has identified one weakness regarding the practice of advancing income and redemption payments. Cash payments to the participants relating to redemptions, dividend and interest proceeds may be advanced by EB in the overnight settlement process prior to confirmation of the actual receipt of funds from the issuer. This generates credit exposures on the participants. EB only advances income payments after a credit quality check of both the participants and the issuers. EB has explained that its exposure due to advanced income is secured via a "double claim" (i.e. EB has a claim on the participant to whom the credit was granted and on the issuer as EB is the registered holder of the bonds). However such securing via double claim is not compliant with Principle 5 on collateral, as no haircuts are applied and there may be a heavy concentration on one (or a few) issuer(s). Therefore, the credit extension as a result of advanced income and advanced redemption payments is not considered as fully collateralised.

Some other ICSDs and custodians also adhere to the practice of advancing income and redemption proceeds, potentially using the "double claim" as a substitute for collateral. This may lead to level-playing-field issues, as participants may be tempted to move from an FMI that complies with the PFMI to an institution that does not (as complying would require that payments are advanced only upon full collateralisation, thereby decreasing the participants' available collateral or service level if the client has no collateral). In order to avoid unfair competition among FMIs and custodians in this area, a level-playing-field solution needs to be found. To this end, the NBB will actively cooperate with other relevant overseers and supervisors.

Another recommendation has been made regarding the analysis of credit risk drivers. One of the main drivers of intraday credit exposures relates to the trading and settlement pattern of triparty repo activity, and in particular the mismatch between overnight repo reimbursements and intraday renewals. EB has implemented a project to synchronise settlement of triparty overnight repos in order to eliminate the gap between the settlement of repo reimbursements and renewals, hence reducing the resulting large intraday credit risks – and consequently liquidity risks – for EB.

PRINCIPLE 5 : COLLATERAL

To cover settlement-related credit exposures, EB relies on pledged securities and cash collateral. For a very limited number of participants and for very small amounts, EB

relies in specific cases on a letter of credit (L/C) or guarantees. The collateral valuation model of EB ("SVE") is regularly back- and stress tested. Whenever potential weaknesses are identified by the regular validation process, an action plan is put in place. EB monitors its participants' collateral portfolio composition, including concentration, on a regular basis. In the framework of its credit and liquidity risk management, EB will launch in Q3 2013 a project that will improve the ex-ante monitoring of a participant's collateral portfolio by defining system-embedded criteria for collateral parameters at participant level in terms of securities (in)eligibility and collateral concentrations.

PRINCIPLE 6: MARGIN

(Not applicable to CSDs or SSSs)

PRINCIPLE 7: LIQUIDITY RISK

- *Adequacy of liquid resources*: EB's qualifying liquid resources include its "committed liquidity sources" (investment book, standby facilities, guarantee structure, back-stop facility and committed swap facility), APS[1] collateral and "highly reliable liquidity sources" (i.e. the "core part" of participants' long cash balances which is less than 30 % of its actual long cash balances). EB decided in June 2012 to adopt as a basic requirement for its contingency liquidity risk management the ability to withstand the default of the two participants with the largest payment obligations (stemming from their settlement activities, or from any other role they play for the ICSD, such as treasury counterparty) under stressed conditions.
- *Multicurrency liquidity needs*: EB settles transactions in more than 50 settlement currencies. The most relevant currencies in EB in terms of liquidity needs are EUR, USD, GBP and JPY, representing 95 % of settlement turnover. On a quarterly basis, EB performs a liquidity back-test to verify whether it would have had sufficient liquid resources to cope with the default of the top two participants with the largest exposures (at family level) for one of the relevant currencies (EUR, USD, GBP, JPY) or across currencies.
- *Liquidity back- and stress testing*: EB developed a Liquidity Datawarehouse which has significantly improved its liquidity back- and stress-testing capacity. The liquidity back-testing framework considers the default of the top two clients in line with the framework decided in June 2012.

(1) Appropriation of Pledged Securities, a contractual arrangement that allows EB to immediately appropriate a participant's collateral if the participant defaults. This arrangement has been included in EB's contractual framework and will therefore apply to all new clients. EB has been negotiating with its largest clients, most of which have signed the APS agreement by now (more than 75 % of EB's credit exposures are covered by APS). The credit line of non-APS clients will be capped at 50 % of EB's qualifying liquid sources excluding APS (in order to withstand the default of the two largest participants). Participants that need higher credit lines will need to sign the APS agreement.

1.3 Settlement

PRINCIPLE 8: SETTLEMENT FINALITY

The point of settlement finality is clearly defined in EB's Operating Procedures. Transactions that are entered in the system before the settlement date are settled (provided participants have sufficient cash and securities) during the night batch processing in the night before the settlement date. Transactions that failed to settle during the night batch and transactions that are entered on the same day as the intended settlement date can settle in the Real-time Processing cycle on settlement date. Therefore, most transactions are settled with finality well before the end of the value date. Section 6.6.2 of EB's Operating Procedures defines which instructions can be cancelled by participants. Cancellation instructions must be sent before the input deadline of the settlement process for which instructions are eligible for settlement. After this input deadline, instructions become irrevocable for participants.

PRINCIPLE 9: MONEY SETTLEMENTS

For EB participants, DVP settlement of securities against cash in all eligible settlement currencies is carried out in the books of EB (commercial bank money credited on client's accounts in the books of EB). Settlement in central bank money is not feasible and practical as Euroclear is a multicurrency system, and as it has an international client base, which does not have access to central bank accounts (or credit) in all (or even the most important) settlement currencies. Participants can pay in their cash to EB through TARGET 2 or through correspondent banks.

PRINCIPLE 10: PHYSICAL DELIVERIES

No physical settlement takes place in EB.

1.4 Central securities depositories and exchange-of-value settlement systems

PRINCIPLE 11: CENTRAL SECURITIES DEPOSITORIES

EB applies Belgian/European accounting practices, which are regularly audited by its Internal Audit and external auditor. EB performs monthly reconciliations of its balances with the balances held at its depositories and daily reconciliation of movements for most securities; for some securities a daily reconciliation of balances is performed. Overdrafts or debit balances in securities accounts are prohibited in the system. All securities that are settled in the system are immobilised or dematerialised. EB's own

securities are segregated from those of its participants, which are in turn segregated from securities of other participants. In EB, participants are also able to segregate their own securities from those of their underlying customers. Participants' securities are protected against claims from EB's creditors. EB and its depositories have insurance against securities losses due to physical loss or damage, fraud or cyber risks, for example. EB offers services that are related to custody and settlement of assets, including the provision of credit to participants in order to facilitate the efficient settlement of their transactions. New services go through an approval process and risk assessment before they can be offered to clients. The ongoing monitoring and managing of the risks related to those services is in line with Euroclear's risk framework.
EB has already improved its reconciliation procedures by reconciling balances for some securities on a daily basis, but the NBB nevertheless recommends EB to perform a daily reconciliation of all securities balances where possible. Balances for all international securities, where EB acts as issuer CSD, should be reconciled daily. All balances for which EB receives daily account statements from its depository should be reconciled daily. EB should encourage its depositories from which it does not receive daily account statements, but where it holds a significant part of its total depot, to send daily statements. The sending of daily account statements by the depository should be taken into account in EB's selection and evaluation process of its depositories.

PRINCIPLE 12 : EXCHANGE-OF-VALUE SETTLEMENT SYSTEMS

EB employs a Model 1 DVP system : instructions are settled between participants on a trade-by-trade (gross) basis, with finality of the transfer of securities from the seller to the buyer occurring at the same time as the finality of transfer of funds from the buyer to the seller.

1.5 Default management

PRINCIPLE 13 : PARTICIPANT-DEFAULT RULES AND PROCEDURES

EB has rules and procedures in place to cope with a participant default. These rules have been tested in several bankruptcy/insolvency cases concerning EB participants. Key aspects of the default rules and procedures are publicly disclosed.

PRINCIPLE 14 : SEGREGATION AND PORTABILITY

(Not applicable to CSDs or SSSs)

1.6 General business and operational risk management

PRINCIPLE 15 : GENERAL BUSINESS RISK

EB has robust management and control systems to identify, monitor and manage general business risks. General business risk is one of the key risks identified by Euroclear in its Risk Register. As such, it is included in Euroclear's Enterprise Risk Management (ERM) Framework for identifying, monitoring, controlling and reporting all risk types. On the revenue side, it is the Commercial and Product Management divisions that identify potential business risks and manage them (e.g. client retention efforts). On the cost side, it is Corporate Spend Management that identifies potential risks (e.g. assessments of business needs, suppliers) and manages them accordingly (e.g. renegotiation with suppliers). The Financial Division monitors overall business risks via a monthly review of the actual financial results versus the plan. In addition to these four divisions that act as first lines of defence, the Risk Management Division assists them (e.g. identifies risks that could affect the Euroclear group or EB) and acts as the second line of defence.

EB has developed a recovery plan.

EB has € 1 485 million equity (and liquid net assets, as its equity is invested in liquid assets), which is more than sufficient to cover six months of current operating expenses (€ 379 million based on 2011 figures) and to cover the time needed to implement the recovery plan (the main solutions of which can be implemented within six months).

PRINCIPLE 16 : CUSTODY AND INVESTMENT RISKS

EB's capital is invested in debt securities (EU government, supranational and European Financial Stability Facility bonds only) with a rating of at least AA+, or held in cash at the central bank. These AAA or AA+ government bonds are of very high quality and liquidity. Even in extreme scenarios, where EB would not be able to convert AAA or AA+ rated EU government bonds into cash, it can use them as collateral for obtaining liquidity via the NBB, as these bonds are ESCB eligible and EB has routine access to central bank standing facilities. EB holds its assets and its participants' assets at supervised and regulated entities (in practice big international or local banks or CSDs) on which it contractually imposes minimum requirements for accounting practices and safekeeping procedures. EB has the contractual right to inspect and audit records at depositories. EB ensures via a legal opinion that the ownership rights for its participants' and its own assets are adequately protected. The total stock of securities that EB

holds is diversified over several "common depositories" (for Eurobonds) and more than 40 local depositories. For 14 currencies, EB has several cash correspondents, which allows it to diversify credit and liquidity risk. Where only one cash correspondent is available, credit risk exposures can be mitigated via other techniques such as reverse repos with other counterparties. EB's (prudent) investment strategy is consistent with its overall risk-management policy of keeping a low risk profile. Key elements of its investment strategy are disclosed in its Pillar 3 disclosure report (in the sections related to market, credit and liquidity risk).

PRINCIPLE 17: OPERATIONAL RISK

EB has policies and processes in place for identifying and addressing the full range of operational risks on an ongoing basis. Through its operational risk management framework EB ensures that both internal as well as external sources of operational risks are identified, assessed, monitored and managed. EB's risk management practices are aligned with major recommendations from various regulatory and industry bodies, and international standards.

EB has defined operational reliability objectives, both qualitative and quantitative, ensuring a high degree of security and operational reliability.

Capacity planning and monitoring are part of the control environment of EB.

The Euroclear group-wide Operational Risk Board Policy comprises policy goals for both physical and information security.

EB's business continuity management and plans allow it to resume operations within two hours following disruptive events, and to complete settlement by the end of the day even in the case of extreme circumstances. Data on core systems is mirrored between three geographically dispersed data centres. Regular switching between the two main data centres and tests of the third data centre ensure operations can be switched between data centres. To mitigate the very low probability scenario of data loss of less than one minute, data loss response plans have been developed. The risk of losing staff is mitigated by operating dual offices. EB's business continuity and contingency arrangements are annually reviewed and tested, including with respect to scenarios related to wide-scale and major disruptions.

EB has policies and processes in place for identifying and addressing the full range of operational risks, including direct and indirect effects on its ability to process and settle transactions caused by risks that stem from an external operational failure of participants, other FMIs, and service and utility providers. When EB has outsourced some of its operations to an external service provider, EB ensures that those operations meet the same reliability and contingency requirements they would need to meet if they were provided internally.

1.7 Access

PRINCIPLE 18: ACCESS AND PARTICIPATION REQUIREMENTS

EB's admission criteria are risk-based and allow for fair and open access. The admission criteria are:

1. Financial resources.
2. Technology capability.
3. Need for EB Services.
4. Reputation in the market.
5. Anti-Money Laundering Programme.

These criteria aim to minimise financial and other risks (e.g. reputational risk) to EB and its participants. These criteria apply to all applicants to EB regardless of type and location of the applicant. EB accepts a heterogeneous range of participants from more than 90 different countries. EB participants include major international banks and smaller firms, and various types of institutions (investment banks, central banks, other FMIs, investment funds). EB has set up a sponsorship process to ensure – among other things – that participants continue to fulfil these requirements. If a participant no longer meets the admission criteria, Section 14 of the Terms & Conditions explains the procedure for the termination of its participation.

PRINCIPLE 19: TIERED PARTICIPATION ARRANGEMENTS

EB does not organise tiered participation arrangements in its system. Contractual relationships exist only with direct participants. EB allows its participants to open additional individual accounts for their underlying clients whenever participants decide to do so. Where omnibus accounts are held, there is no information available in the system at individual client level. Risks related to dependencies between participants and their underlying clients (credit and liquidity risks) are managed by EB at an aggregate level. Potential risk that might result from dependencies between participants and their underlying clients include operational risks (when clients' activity is significant). Currently, EB has no formal process in place for analysing the impact of underlying clients' accounts, nor for the monitoring of settlement activity generated by those

underlying client accounts. The adoption of such formal processes should be envisaged by EB in order to enhance its understanding of client activity flows and the related risks.

PRINCIPLE 20: FMI LINKS

EB has processes in place to identify potential sources of risk arising from market links. Before opening a link, EB conducts a risk assessment. EB's Management Committee has to approve all agents (such as CSDs, depositories or cash correspondents) involved in the link. Once the link is in operation, a market link review is performed every three years. The risk assessment covers several aspects (ranging from operational and financial to legal and asset protection criteria). The only link where EB has a credit exposure on an (I)CSD is the Bridge with Clearstream Banking Luxembourg (CBL). EB has a toolbox of credit risk mitigation measures to ensure that EB's credit exposures on CBL are secured. There is only one case where EB receives provisional securities: newly-issued money market instruments received from DTC in the US market. EB blocks such securities in the participants' accounts until they are final in the local market, thereby prohibiting their re-transfer (making it compliant with the PFMIs).

1.8 Efficiency

PRINCIPLE 21: EFFICIENCY AND EFFECTIVENESS

The Euroclear group is user-owned and user-governed and operates in a competitive environment. EB monitors market developments and conducts an annual client survey. Furthermore, EB monitors its efficiency and effectiveness via a Balanced Scorecard (including financial, business, operational, risk and other objectives) and various Key Performance Indicators and Key Risk Indicators on an ongoing basis.

PRINCIPLE 22: COMMUNICATION PROCEDURES AND STANDARDS

EB uses internationally accepted communications standards: ISO message formats and ISIN as identifier. EB is not yet fully ISO compliant in the area of corporate actions (ISO15022) standards, but it has invested in recent years to become more compliant with SMPG (Securities Market Practice Group) recommendations. EB is encouraged to continue these efforts and achieve full compliance with the internationally accepted standards that are relevant for EB's activities, as full compliance reduces (by eliminating manual intervention) both risks and costs for EB and its participants.

1.9 Transparency

PRINCIPLE 23: DISCLOSURE OF RULES, KEY PROCEDURES, AND MARKET DATA

EB discloses information on the company itself, on the services it provides, etc. – from high-level overviews to detailed descriptions of the services and rights and obligations. Most of this information is publicly availably on the Internet. EB is currently conducting a complete review of its Operating Procedures (to be finalised in 2013) in order to increase the ease of understanding of the rules and risks that clients need to manage. In a first phase, which was completed in September 2012, the "Rights and Responsibilities" were summarised after each relevant Section to make it easier for clients to identify the main risks from participating in the FMI.

PRINCIPLE 24: DISCLOSURE OF MARKET DATA BY TRADE REPOSITORIES

(Not applicable to CSDs or SSSs)

TABLE 1 RATINGS SUMMARY

Assessment category	Principle
Observed	1, 2, 3[(1)], 5, 7, 8, 9, 12, 13, 15, 16, 17, 18, 20, 21, 22, 23
Broadly observed	4, 11, 19
Partly observed	–
Not observed	–
Not applicable	6, 10, 14, 24

(1) The IMF has rated this principle as "broadly observed" because EB's recovery plan is not yet fully operationally ready. The NBB is however of the opinion that an "observed" rating is justified for the Principle on risk management frameworks (of which the recovery plan is only one part), because the international regulatory guidelines are still being developed (a consultative report by CPSS-IOSCO on Recovery of FMIs is not expected before summer 2013).

2. Recommendations

The NBB's recommendations are sorted by rating. No serious issues warranting immediate action (linked to rating "not observed") or issues to be addressed in a timely manner (for "partly observed" Principles) have been identified. The NBB has issued three recommendations to be addressed in a defined timeline for the three Principles that have been assessed as "broadly observed". In addition, the NBB has issued some additional recommendations that could be useful to further reduce risks for Principles which are "observed".

TABLE 2 RECOMMENDATIONS

Principles	Issues of concern	Recommended action	Relevant parties	Comments
		Serious and warranting immediate action		
–	–	–	–	–
		To be addressed in a timely manner		
–	–	–	–	–
		To be addressed in a defined timeline		
4	Credit allocations derived from the advanced income and advanced redemption payment process should be adequately measured and mitigated	EB should finalise its action plan that will make income and redemption payments to its participants compliant with the PFMI. The process for advanced income payments to CBL is under review and necessitates a review of the Bridge Agreement with CBL.	EB (+ CBL)	Cooperation by CBL needed
11	Daily reconciliation of balances	Implement daily reconciliation of securities balances where possible	EB	See details in text Principle 11
19	Risks related to dependencies between EB participants and their underlying clients	EB needs to define an action plan for an analysis of the different potential risks related to dependencies between participants and their underlying clients' activity (based on the data available in the system). Next step will be for EB to develop, where relevant, adequate policies and procedures for the identification, monitoring and mitigation of the potential material risks to which EB is exposed.	EB	
		For consideration in the normal course of business		
2	Assessment of Board functioning	Consider the exercise of an *external* assessment of the Board's functioning	ESA	
2	Disclosure of the conflict of interests policies	Disclosure of the conflict of interests policies	ESA	
5	For a limited number of cases and for limited amounts, EB relies on credit risk mitigation measures that do not qualify as adequate collateral (e.g. guarantees)	When adequate collateral is not used, EB should either rely on other types of recourse that can be considered as adequate collateral to cover credit extensions or consider the related credit extensions as non-collateralised credit exposures within the limit set in Principle 4	EB	
22	Full compliance with ISO standards (corporate actions)	EB should continue to increase its compliance with international communications standards	EB	
23	Clarity of Operating Procedures (OPs)	EB is currently conducting a complete review of its OPs (to be finalised in 2013) in order to increase the ease of understanding of the rules and risks that clients need to manage	EB	

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