

# Financial Stability Review

## 2012





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Luc Coene  
Governor

## Foreword

Financial developments over the past twelve months have clearly demonstrated that the road towards a lasting restoration of financial stability in the euro area will not only be long, but also bumpy. In the second half of 2011, the intensification of the sovereign debt crisis had rekindled severe market tensions, triggering a wide range of policy measures. Towards the end of the year, the exceptional three-year long-term refinancing operation carried out by the ECB as well as a substantial strengthening of EU economic governance through tighter fiscal discipline and systematic surveillance of macroeconomic imbalances were instrumental in easing these market pressures. In the early months of 2012, spreads between euro zone government bonds narrowed somewhat while euro area financial institutions were able to regain partial access to market funding. More recently, however, the combination of renewed social tension and serious political uncertainties with a slowdown in economic activity has given rise to a new bout of nervousness.

The interaction between economic growth, public finance vulnerability and the soundness of credit institutions continues to dominate developments in financial markets. In this context, authorities have to carefully ponder the pace at which the structural reforms needed to strengthen economic and financial stability are introduced. On the one hand, this implementation needs to be gradual and targeted so as not to endanger economic recovery. On the other hand, it has to be done in a systematic and uninterrupted way to avoid the financial system being tossed about at the mercy of changes in market perception.

Belgian banks are directly affected by the many challenges facing the euro area financial system. This has especially been the case for Dexia which, given its vulnerable funding structure and its large exposure to sovereigns and other public authorities, has been struggling to reduce its leverage for the last few years. Due to the severe deterioration in market conditions, the restructuring process initiated in 2008 and accelerated in mid-2011 has proved inadequate, calling for more radical action. The Bank has actively contributed to this in-depth reorganisation whose major implication for the Belgian financial system was to separate the Belgian subsidiary, acquired by the State and renamed Belfius, from the rest of the group. Several other subsidiaries have been sold off, while a new funding guarantee mechanism has been put in place by the Belgian, French and Luxembourg States for Dexia SA and its subsidiary Dexia Crédit Local.

More generally, Belgian banks have to rebuild a sustainable profit base from a smaller scale of activities. They have actually reduced the size of their balance sheets significantly in the last few years. This adjustment is probably not over yet, even if the downward trend has recently been levelling off. The bulk of this deleveraging has taken the form of divestment of foreign activities or downsizing of securities portfolios. As such, these operations have mainly taken the form of asset transfers to other institutions and, so, have not resulted in a direct credit contraction, even if they might have contributed to depressing asset prices. Belgian financial institutions are still very

active in their core markets. They have, in particular, recently stepped up their portfolio of Belgian government bonds and further expanded their provision of credit to the national economy. While a withdrawal from ventures in less well-known foreign markets will alleviate some key sources of vulnerabilities, more traditional activities with domestic customers are also sensitive to the business cycle or to changes in the shape of the yield curve. The Belgian mortgage market, in particular, has remained quite buoyant up to now, supported by favourable financing conditions and various fiscal incentives. Contrary to the situation observed in several other EU countries, the increase in house prices has not really abated and authorities will need to closely monitor ongoing market developments as well as the evolution of credit standards applied to all new mortgage loans.

The low level of interest rates also has important implications for financial institutions, in particular for insurance companies and pension funds which are facing increasing difficulties in managing their life insurance contracts with guaranteed rates of return. Since spreads between short-term and long-term interest rates have remained rather wide, intermediation activities have enabled Belgian banks to maintain a high level of interest income, notwithstanding the reduction in volume. Nevertheless, increasing volatility in the spreads between previously closely linked fixed-income assets may make it increasingly difficult for banks to hedge their position and could leave them vulnerable to disruptive interest rate adjustments.

In the post-crisis environment, further steps have been taken to enhance the prudential architecture both at the international and national level. While the EU is still a long way from a truly centralised structure, the three European supervisory authorities, in charge respectively of the banking, insurance and pension funds and securities markets sectors, are speeding up their transformation from mere committees to fully-fledged authorities. To complement this micro-prudential dimension, the newly established European Systemic Risk Board (ESRB) is devising instruments and requiring national authorities to get specific mandates in order to implement an effective macro-prudential policy.

In Belgium, the Bank has been busy setting up the “twin peaks” model, endeavouring to fully exploit the numerous existing synergies between its various areas of expertise. To make efficient use of its newly integrated responsibilities, prudential supervision has been organised according to the “four-eyes” principle, combining a vertical and a horizontal approach. The vertical analyses, conducted by operational teams to assess individual institutions through risk analysis and audit plans, are combined with a horizontal approach covering the sector as a whole, based on transversal analyses per categories of risk.

In order to get an independent assessment of the implementing arrangements for the new supervisory framework, the Belgian authorities have asked the IMF to launch a new Financial Sector Assessment Program (FSAP) for the country at the end of this year. This exercise, which now has to be conducted once every five years in all systemically important financial systems, among them Belgium, will follow the first FSAP program missions undertaken in 2004-2005. The current programme will include stress tests to measure the resilience of Belgian banks and insurance companies to shocks, a global evaluation of financial stability conditions and an assessment of Belgium’s compliance with the standards and codes for, respectively, banking supervision, insurance supervision and securities regulation. This comprehensive examination will enable benchmarking of the Belgian regulatory and supervisory environment with the best existing practices and will help to define more accurately priorities and action plans to further enhance the stability of the Belgian financial system.

Brussels, May 2012

# Executive summary

## 1. Overview

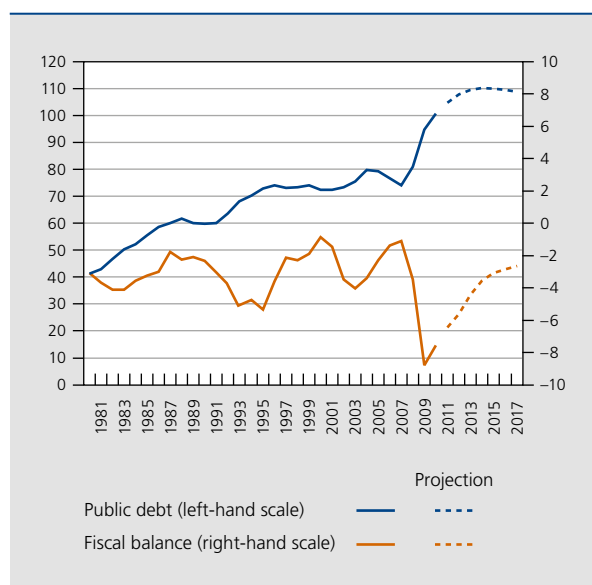
### 1.1 Operating environment

The global financial crisis that started almost five years ago, in the summer of 2007, has been characterised by severe turbulence in the global financial system, large cumulative losses in economic output, and a sharp deterioration in advanced economies' general government fiscal balances and public debt levels. As concerns the latter, between the end of 2007 and the end of 2011, public

debt levels in the advanced economies rose by more than 30 percentage points of these economies' combined GDP, and the latest available IMF forecasts project that this overall debt ratio will peak at around 110 % of GDP in the course of 2013 (Chart 1).

Against this background, sovereign risk perceptions have remained the most important driver of recent developments in global financial markets. The risk also continued to materialise to a significant extent, as a large number of additional downgrades of sovereign ratings took place in the past 12 months, including negative rating actions as regards the debt issued by formerly AAA-rated countries. Another, yet exceptional, manifestation of the materialisation of sovereign risk was the restructuring of Greece's sovereign debt in March 2012, which took the form of a debt exchange with private creditors.

**CHART 1** GENERAL GOVERNMENT FISCAL BALANCES AND PUBLIC DEBT IN THE ADVANCED ECONOMIES  
(in % of GDP)



Source: IMF.

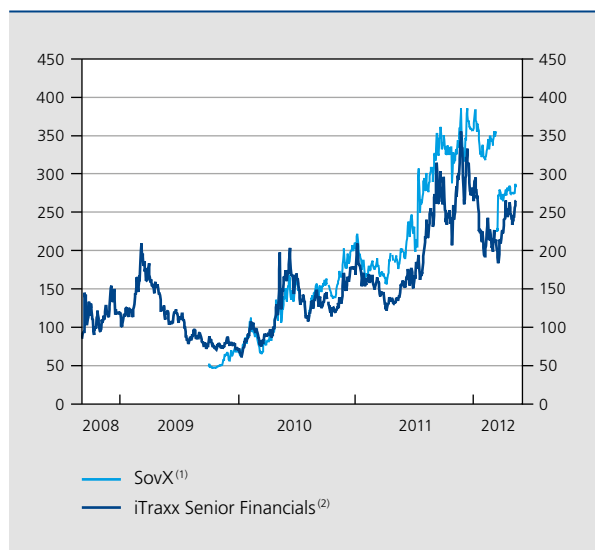
(1) The assumptions underlying this projection are explained in box A1 in the April 2012 edition of the IMF World Economic Outlook (pp. 184-188).

The downgrades of sovereign ratings were concentrated in particular on a number of peripheral euro area countries, where serious internal and/or external imbalances and resulting weak economic growth were perceived to compound the difficulties of rising public debt and the related challenges of restoring the debt to more sustainable levels.

The main development during the period under review was the spreading of tensions on sovereign bond markets, in particular to the two larger southern European countries, Italy and Spain. This spreading of the sovereign debt crisis contributed to a highly correlated surge in the risk premiums for sovereign and bank debt (Chart 2), attesting to the persistence of strong links between sovereign risk perceptions and bank funding conditions in the euro area. In the first instance, banks responded to the drying up of unsecured bond funding by making increasing use of issues of secured bonds, such as covered bonds. With many markets for medium-term funding closed for European

**CHART 2** CREDIT DEFAULT SWAP INDICES FOR EUROPEAN SOVEREIGN DEBT AND FOR THE SENIOR DEBT OF EUROPEAN FINANCIAL INSTITUTIONS

(daily data, basis points)



Sources : Bloomberg, Thomson Reuters Datastream.

- (1) Index measuring the average level of five-year CDS premia referencing the sovereign debt of 19 western European countries. In March 2012, the CDS referencing Cyprus replaced the CDS referencing Greece in this index.  
 (2) Index measuring the average level of five-year CDS premia referencing the senior debt of 25 large European financial institutions.

banks in the second half of 2011, refinancing also shifted increasingly to short-term funding markets and to an increased recourse to Eurosystem financing. In the USD funding markets, European banks had to cope with a significant increase in risk aversion on the part of US money market funds, consequently losing a significant amount of short-term USD funding from this traditional provider of funds. In the unsecured short-term funding markets in euro, counterparty risk concerns also re-emerged as a determinant of borrowing conditions.

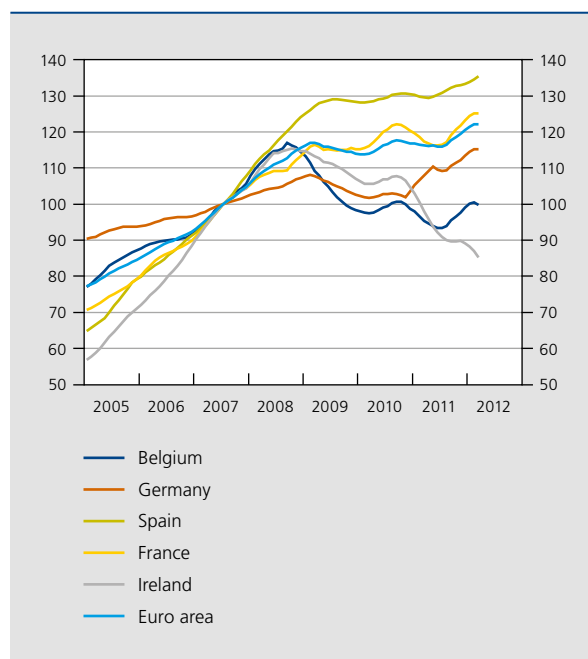
The Eurosystem responded to this new wave of funding difficulties with supplementary measures to support the liquidity position of euro area banks. In the light of the severe tensions in sovereign and bank funding markets in November, and the perceived risk of an acceleration of deleveraging actions by European banks in response to tighter capital and funding positions, the ECB Governing Council decided at its 8 December meeting to conduct two long-term refinancing operations (LTRO) with a maturity of 3 years. These two LTROs, conducted in December and February, resulted in the allotment of slightly more than € 1000 billion of long-term central bank funds to euro area banks. As this central bank funding covered much of the euro area banks' short-term refinancing needs, investor concerns over the liquidity position of

euro area banks eased, contributing to a revival of the primary unsecured bond market in the first quarter of 2012. However, this positive impact of the LTROs was partly negated in April 2012 when renewed tensions in the Italian and Spanish sovereign debt markets fed back to bank funding markets, reconfirming the persistence of a close link between sovereign risk concerns and euro area banks' funding conditions.

This persistence of a close link between sovereign risk and bank funding conditions increases the risk of an acceleration in bank deleveraging strategies, including through cuts in bank credit (Chart 3). Many European banks are now engaged in processes aimed at reducing their total assets and risk-weighted assets and raising their solvency ratios, but the developments so far suggest that the bulk of asset sales or rundowns have focused on non-core assets or non-core lending activities, in particular those denominated in non euro area currencies (US dollar) and/or attracting higher risk weights (asset-based finance and project finance). While the impact on credit extension in the euro area as a whole thus appears limited so far, in some peripheral euro area countries, lending to the domestic private sector has been tightened significantly, highlighting the possibility that deleveraging forces may be felt in varying degrees in banking systems across the

**CHART 3** TOTAL ASSETS OF MONETARY FINANCIAL INSTITUTIONS<sup>(1)</sup>

(indices June 2007 = 100)



Source : ECB, Thomson Reuters Datastream.

- (1) Moving averages of 6 months.



euro area. In countries such as Spain and Ireland, where the total assets of the banking sector expanded most strongly up to 2007, driven by very strong domestic credit growth, deleveraging to unwind previous credit excesses may be unavoidable and even desirable, and is likely to take the form of both tight credit conditions and write-offs of non-performing assets.

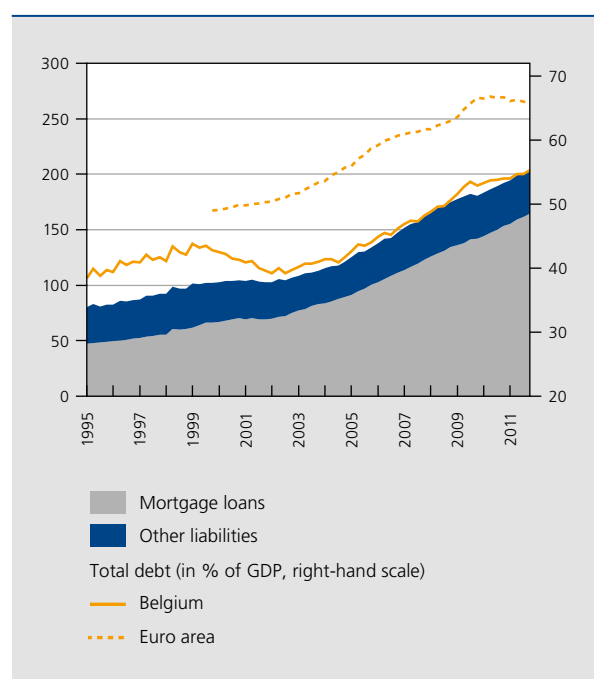
Among the countries shown in Chart 3, Belgian Monetary Financial Institutions appear to be somewhat ahead in the deleveraging process, as a result of the deleveraging process that many large credit institutions have been engaged in since receiving public sector support in 2008 and 2009. However, bank credit to Belgian households and non-financial corporations has continued to grow during the financial crisis, and the data available up to the end of March 2012 show no abrupt slowdown in lending (let alone a credit crunch) in Belgium. Lending to Belgian households, in particular, has continued to grow at a significant pace in recent quarters, contributing to the further rise in Belgian households' indebtedness (Chart 4). While the resulting debt ratio of Belgian households (55.3 % of GDP) remains considerably lower than in the euro area (65.8 % of GDP), the review of recent developments in the Belgian residential mortgage loan market in a separate article highlights a trend towards longer loan maturities and a relatively high (though quite stable) share

of loan-to-value ratios of more than 80 % (including ratios higher than 100 %) in new production. In this connection, it is possible that a sizeable group of borrowers in recent 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. The review of the Belgian residential mortgage market in this article suggests that, in order to maintain the current high asset quality of the Belgian mortgage loan portfolios, increased vigilance is required from banks and authorities to ensure the continuous application of conservative credit standards and adequate risk pricing in new mortgage loans. Where necessary, standards should be tightened.

## 1.2 Banking sector

The strong growth of the Belgian mortgage loan portfolios is an illustration of the refocusing of the Belgian banks' business models on core markets and core activities, as part of the major restructuring processes that several of the large credit institutions engaged in after state-supported rescues in 2008 and 2009. In spite of the efforts undertaken since then to remedy financial vulnerabilities, Belgian financial institutions were not immune to the intensification of sovereign risk concerns and further tightening of bank funding conditions in the second half of 2011, and had to cope with a number of rating downgrades, including as a result of the downgrade of Belgium's rating, which lowered the support floor in Belgian banks' ratings. Given its still vulnerable funding liquidity position and comparatively large exposures to certain euro area countries, Dexia was particularly affected by the developments in financial markets, and its share price collapsed as investors, having regard to the changed market circumstances, reassessed the feasibility of Dexia's restructuring plan to address, in the short-term, the legacies of its strong expansion in the years before the crisis. Given the rapidly worsening risk profile, exacerbated by the impact of low interest rates on the amount of collateral to be posted in swap contracts, and the downgrade of Dexia's credit ratings, the National Bank of Belgium insisted that Dexia submits 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 subsequently agreed measures included the acquisition by the Belgian State of all shares held by Dexia SA in Dexia Bank Belgium (for a total of € 4 billion); the sale of several other subsidiaries, including Dexia Banque Internationale à Luxembourg, Dexia Asset Management, Denizbank in Turkey, and the group's stake in RBC Dexia Investor Services; the establishment of a new funding guarantee mechanism by the Belgian,

**CHART 4** DEBT OF BELGIAN HOUSEHOLDS  
(in € billion, unless otherwise stated)



Source : NBB.



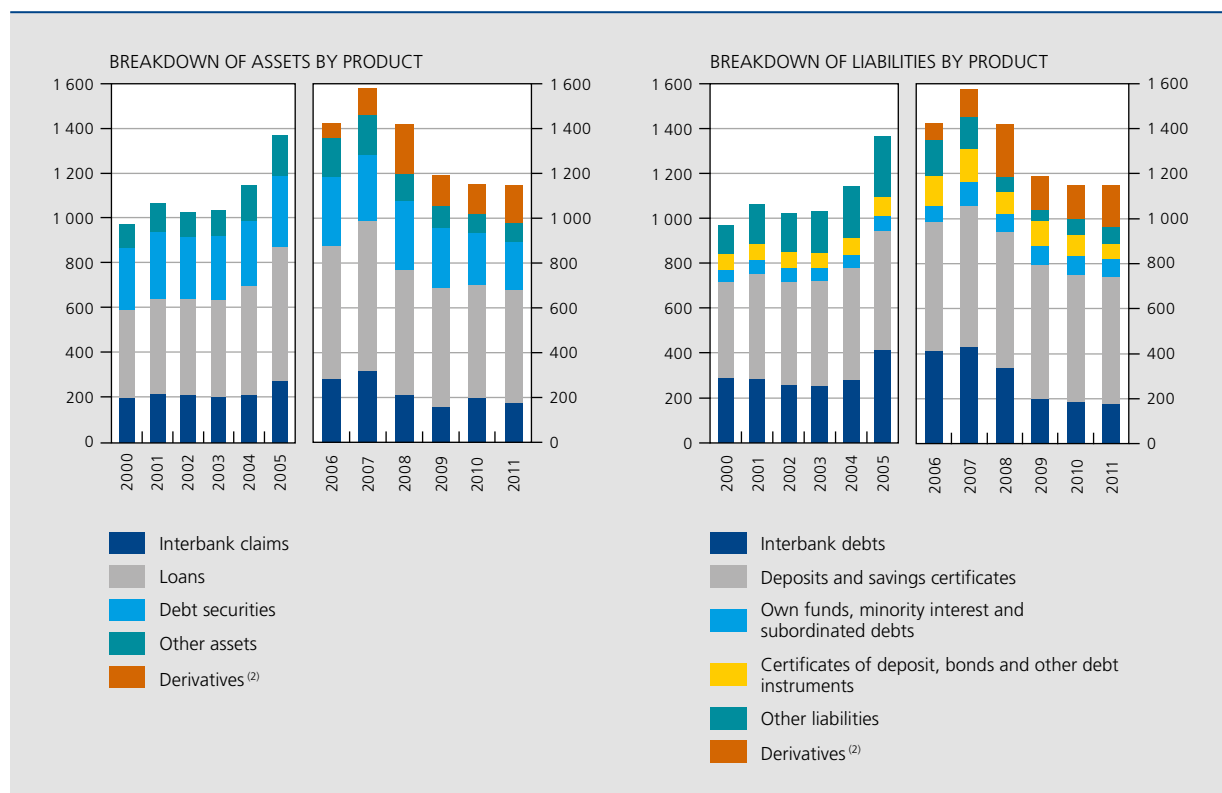
French and Luxembourg States for Dexia SA and its subsidiary, Dexia Crédit Local.

While the intensification of the debt crisis in the euro area since the second half of 2011 may have put more pressure on Belgian banks to deleverage, the decline of the Belgian banking sector's total assets actually slowed in 2011 (Chart 5). After three years of continued deleveraging, this development is mainly the result of a big increase in the market value of interest-rate derivatives, due to the decline in long-term interest rates. When we exclude developments in the market value of derivatives, the Belgian banking sector's total assets pursued their downward trend, contracting by a further € 38 billion in 2011. This decline was concentrated in the balance sheet of the four largest credit institutions, as the assets of the other Belgian banks continued to grow in 2011.

One of the portfolios that contributed to the decline in total assets in 2011 was the sovereign bond portfolio. Escalating sovereign risk premiums in euro area countries during the course of 2011 prompted many European and

Belgian banks to reconsider the size and composition of their government bond portfolios. At the end of 2011, the Belgian banking sector's exposure to European peripheral countries reached € 16 billion or 11 % of total exposures to the public sector, compared to € 50 billion and € 31 billion at the end of 2008 and 2010, respectively. Exposures to Italy dropped by more than half to € 7.8 billion, while exposure to the Spanish public sector declined from € 6.3 billion at the end of 2010 to € 4.0 billion at the end of last year. In the case of Greece, the observed reduction to € 1.2 billion undoubtedly also reflected the booking of large impairments on nominal exposures, in the light of the expected private sector involvement operation due in the first quarter of 2012. Contrasting with these developments, Belgian credit institutions again stepped up their holdings of Belgian government bonds, which rose from € 56 billion at the end of 2010 to € 61 billion at the end of 2011. They represent 41 % of overall exposures to the public sector. Claims on central governments and local authorities in the Czech Republic, France, the Netherlands and Germany account for an additional 31 % of total claims on public sector debtors.

**CHART 5** BALANCE SHEET STRUCTURE OF BELGIAN CREDIT INSTITUTIONS<sup>(1)</sup>  
(consolidated end-of-period data, in € billion)

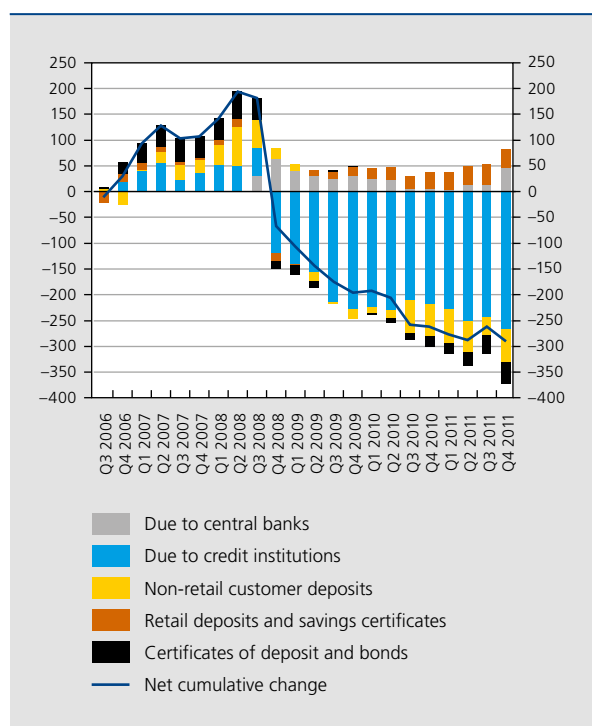


Source: NBB.

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

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

**CHART 6** CUMULATIVE CHANGES IN DEPOSITS COLLECTED AND SECURITIES ISSUED SINCE JUNE 2006  
(consolidated data, in € billion)



Source : NBB.

As regards the restructuring of Belgian banks' liabilities and funding sources, Chart 6 shows that – together with central bank financing – retail deposits and savings certificates are the only source of funding to have increased (by € 35 billion) relative to the levels recorded at the end of June 2006. All the other sources of financing shown in Chart 6 have been reduced as part of banks' strategies to shrink their assets and lower their reliance on wholesale financing. Financing via debt securities was reduced by € 22 billion in 2011. At the same time, wholesale deposits decreased by € 50 billion, mainly in the form of interbank deposits. Banks faced increasing difficulties in rolling over maturing funds as a result of renewed tensions in the euro area interbank markets, rating downgrades, and idiosyncratic funding problems in the case of Dexia Bank Belgium before its nationalisation in October 2011. Refinancing tensions were particularly acute in the unsecured wholesale market – the Belgian banks' short-term unsecured wholesale funding with a maturity up to one year shrank by € 60 billion in 2011 – and this was compensated by a growing recourse to secured funding sources, including central bank financing. This growing use of secured financing was one of the main drivers of the decline in the stock of unencumbered liquid assets from € 232 billion at the end of 2010 to € 191 billion a year later. Nonetheless,

bigger haircuts, increasing cash collateral calls in some derivative contracts, and the falling market value of collateral (e.g. government bonds) also contributed to the marked reduction of the buffer of unencumbered liquid assets. This decline in the liquid asset buffer occurred despite some new securitisation operations concerning Belgian mortgage loans for an estimated global amount of € 11 billion in the last few months of 2011.

Despite an increase in Belgian banks' overall cost of funding, net interest income increased slightly in 2011 to € 13.9 billion from € 13.8 billion in 2010 and proved to be one of the main supporting factors of net profit. In 2011, the net profit of the Belgian banking sector amounted to € 0.4 billion, a sharp contraction in comparison to the previous year when total profits reached € 5.6 billion, as impairments and, to a lesser extent, non-interest income and restructuring costs weighed on the bottom line. Impairments and provisions for credit losses reached € 5.0 billion in 2011, a marked increase compared to the previous year when they totalled € 1.8 billion, even though they remained below the peak levels reached in 2008 and 2009. The main cause of this deterioration in the cost of risk concerned the provisions that banks had to make on their holdings of Greek bonds. Impairments on loans were related, to a large extent, to Hungarian and Irish portfolios.

With a return on equity of only 0.7 % in 2011, down from 10.5 % in 2010, the Belgian banks thus experienced yet another year of weak profitability. This again underlines the risks associated with Belgian banks' strategy of relying mainly on retained earnings as a way of bolstering common equity levels, and the major challenges that they are facing 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 enough capital resources to be able to repay the capital injected by the public authorities. Restoring sustainable profitability will also be crucial for banks to return to a more resilient stand-alone 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. Against this background, further changes in banks' cost structures and business models may be required, 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.

### 1.3 Insurance sector

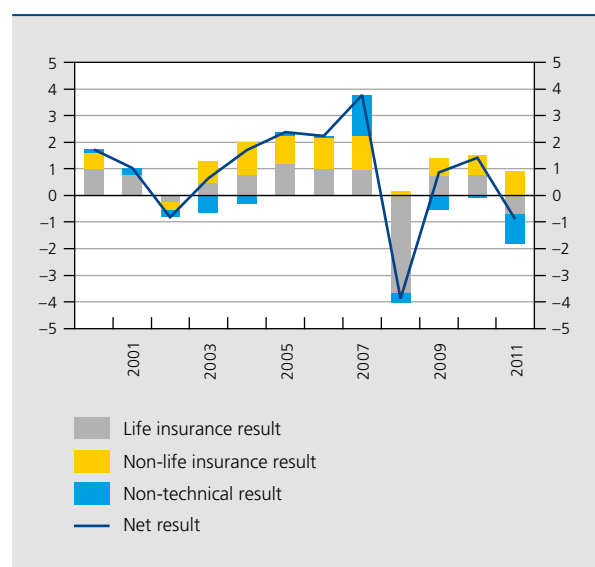
The profitability of the Belgian insurance sector was seriously affected by developments on the European financial markets, the sector's net loss reaching € 0.9 billion in 2011, compared to a net profit of € 1.4 billion in 2010 (Chart 7). The main reason for this adverse development is the recording in the profit and loss account of impairments in the investment portfolios amounting to € 3.1 billion in the life insurance technical account and € 1.0 billion in the non-technical account, due largely to realised losses on Greek government bonds and other peripheral government bonds. The sharpest deterioration was recorded in the net result of life insurance operations, essentially on account of a steep decline in net investment income. In fact, insurance companies realised a large amount of losses on their bond investments, either by recording impairments or by selling securities, significantly reducing the amount of the unrealised losses. During 2011, a net impairment value was thus recorded on the life and non-life technical investment portfolio, in addition to a net profit of € 0.1 billion on the realisation of assets, driven partly by sales of German government bonds. Total net investment income (in the life, non-life and non-technical accounts) fell from € 9.2 billion in 2010 to € 4.0 billion in 2011.

The Belgian insurance sector's exposure to market risk is largely concentrated on fixed-income instruments, making it particularly vulnerable to sudden changes in credit

spreads and liquidity risk premiums. In this connection, the market value of the investment portfolios of Belgian insurers suffered from the strong rise in some sovereign and bank bond risk premiums. A breakdown of the Belgian insurance sector's main exposures to sovereign bonds issued by certain euro area countries between the end of 2010 and 2011 shows that investments in Belgian government bonds reached almost € 62 billion at the end of last year, making up more than half of those exposures at the end of December 2011. The exposure to Belgian government bonds increased by 55 % relative to the end of 2010. Attractive yields on Belgian government bonds (OLOs), which peaked in December 2011, appear to have drawn insurers to Belgian governments bonds last year. Investments in sovereign bonds issued by France (€ 11 billion) also represent a significant share of the total government bond portfolio (10 %). The exposure to German government bonds dropped by a quarter to € 6 billion. Exposures to a number of peripheral euro area countries (Greece, Ireland, Portugal, Spain and Italy) were reduced by more than € 5 billion in 2010 and by a further € 7 billion during 2011, in view of the persistent tension on the government bond markets in those countries. These exposures together make up a total of € 14.4 billion, with respectively 7.3 billion for Italy, 3.3 billion for Spain, 1.4 billion for Ireland, 1.2 billion for Portugal and 1.1 billion for Greece.

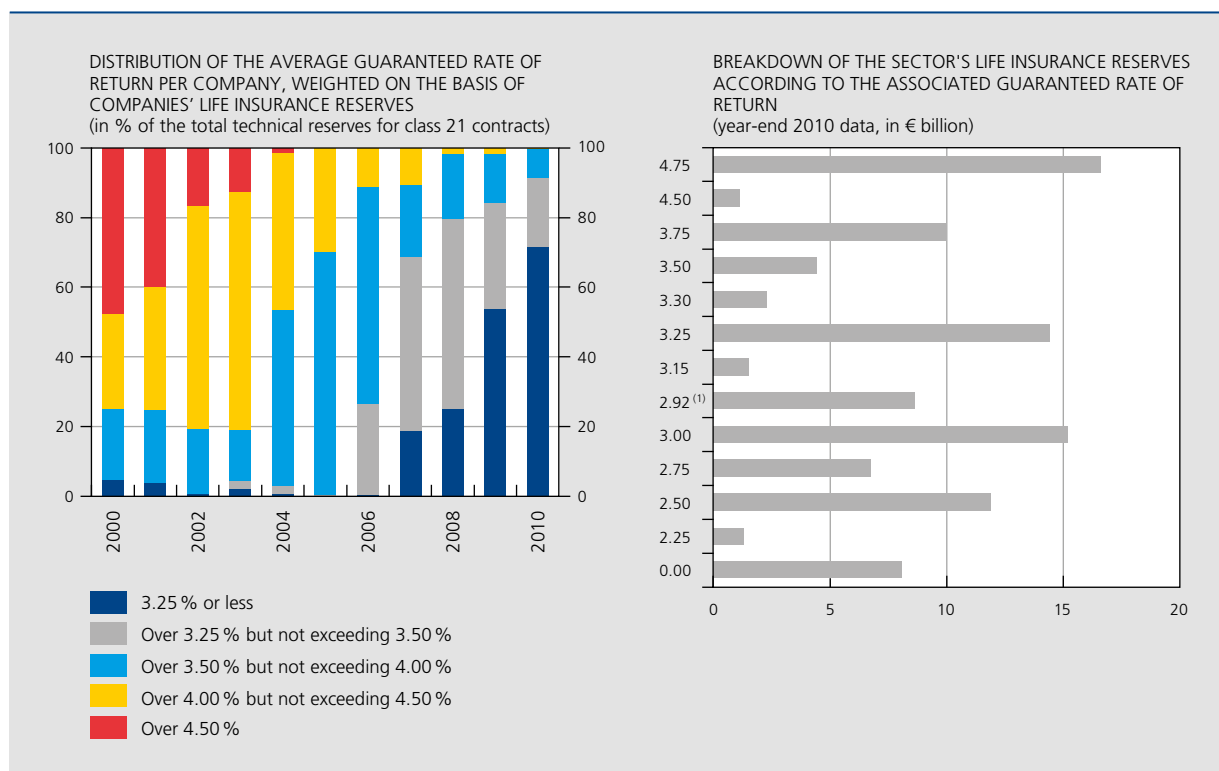
Weak returns on financial investments and the low level of risk-free interest rates pose a challenge for life insurance contracts with high minimum guaranteed rates of return. While the sector has responded to these developments by marketing contracts offering guaranteed rates of return which are more in line with risk-free interest rates and contain clauses which provide for revision on the basis of changing market conditions, the average guaranteed rate of return on class 21 contracts still amounted to 3.25 % at the end of 2010. The legacy of contracts offering high guaranteed rates of return for policyholders still represents a substantial amount of liabilities, with life insurance reserves associated with guaranteed rates of return of 4.75, 4.5, 3.75 and 3.5 % for the individual class 21 coming to € 32 billion at the end of 2010 (Chart 8). These guarantees are usually associated with contracts concluded a long time ago, in most cases guaranteeing these rates of return on future premiums as well. In order to protect themselves against the effects of low interest rates on the profitability of guaranteed 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

**CHART 7** NET RESULTS OF BELGIAN INSURANCE COMPANIES  
(data on a company basis, in € billion)



Source : NBB.

**CHART 8** DISTRIBUTION OF CLASS 21 LIABILITIES



Source : NBB.

(1) Outstanding amount of life insurance reserves guaranteeing returns different from those shown in the chart, with an average guaranteed return of 2.92 %.

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 3.26 % at the end of 2011.

## 2. Thematic articles

### 2.1 Overview of the NBB's oversight and supervision of financial market infrastructures for 2011

Since the adoption of the Twin Peaks supervisory model in April 2011, the National Bank of Belgium (the NBB) is in charge of both the oversight of financial market infrastructures and the prudential supervision of the regulated institutions that operate these infrastructures.

As overseer, the NBB assesses international financial market infrastructures which are based in Belgium, such as MasterCard Europe, Euroclear and SWIFT. Since these infrastructures are located in Belgium, the NBB acts as lead overseer. National financial market

infrastructures overseen by the NBB include NBB-SSS (Securities Settlement System), Bancontact-MisterCash (Card Payment Scheme) and CEC (Retail Payment System). The NBB is also in charge of the prudential supervision of Bank of New York Mellon SA, and the Euroclear group, which is also overseen by the NBB. For the oversight and supervision of Euroclear in particular, important synergies are created as a result of the supervisory reform in Belgium. Finally, as a result of the PSD Directive, several companies applied for the NBB's authorisation to operate as payment institutions.

### 2.2 Review of the Belgian residential mortgage loan market

This article reviews recent developments in the Belgian residential mortgage loan market and reports some aggregate results of a recent quantitative survey of 16 Belgian banks' domestic mortgage loan portfolios.

As in many other countries, the Belgian residential property and mortgage market was characterised by strong growth of both housing prices and mortgage loans

outstanding in the period up to 2007. Since then, experiences have varied significantly between countries. In Belgium, a marginal correction of housing prices and a temporary slowdown in mortgage loan growth in 2009 was followed by new increases in housing prices and mortgage debt. A large number of factors appear to have contributed to the dynamic growth of house prices in Belgium in recent years, ranging from macroeconomic and demographic factors to key changes in the tax regime for mortgage loans and a trend towards higher rates of down payment. Crude and simple measures of housing price valuation nevertheless suggest that housing has become less affordable. For households with a limited amount of own funds for a down payment, the most recent developments may thus have been associated with a need for increasingly large mortgage loans, contributing to upward pressures on debt service levels and/or longer loan maturities.

Although the five year period covered by the survey was probably too short to identify the potential roles that mortgage loan credit standards may have played in the very strong growth of both housing prices and mortgage loans over the last ten years, the trend towards longer loan maturities and the relatively high (if quite stable) share of loan-to-value ratios of more than 80 % (including ratios higher than 100 %) in new production in any case suggest that credit standards were not tightened in a countercyclical way to slow exuberant growth or to anticipate potentially less favourable market conditions. In this respect, it is possible that a sizeable group of borrowers in recent 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. As a result, the most recent mortgage loan vintages may contain some pockets of loans that could prove to be more vulnerable to deteriorating income and housing market conditions.

The review of the Belgian residential mortgage market in this article suggests that, in order to maintain the current high asset quality of the Belgian mortgage loan portfolios, increased vigilance is required from banks and authorities to ensure the continuous application of conservative credit standards and adequate risk pricing in new mortgage loans. Where necessary, standards should be tightened.

### 2.3 The role and impact of external support in bank credit ratings

Since 2008, the banking and sovereign debt crises have pushed credit rating agencies to revise their bank rating methodologies. One of the main objectives of these

revisions has been to increase transparency relating to the impact of external factors on banks' creditworthiness, such as the probability that they will receive support from the state or from a parent company if they encounter difficulty. One type of rating which has received substantial attention in this context - aside from the well-known sovereign ratings - are the so-called bank support ratings. These ratings generally measure the "ability" and "willingness" of a state or a parent to provide support to a bank (subsidiary) when it experiences problems. Support ratings are used by credit rating agencies in combination with stand-alone ratings (which are based on variables reflecting the viability of an institution on its own) in order to derive banks' long-term ratings. These, in turn, are commonly relied upon by market participants in making their investment decisions, and by banks to compute their minimum capital requirements for claims on other banks. The probability of government or parental support for banks and the resulting impact on the banks' long-term ratings are therefore important issues.

In this article, we provide information on how credit rating agencies factor the notion of "support" into their bank ratings, and on the determinants of support in view of the rating agencies' most recent methodological changes. In addition, we investigate empirically the impact of support on the long-term rating of a sample of European commercial banks. Our results suggest that the positive impact of support on the long-term rating of banks with relatively weak stand-alone profiles is quite substantial, averaging between 2.0 and 2.8 notches, depending on the agency whose rating is considered. As one might expect, the prospect of support does not appear to have a significant impact on the rating of banks with strong stand-alone ratings. These results are important because they help us understand not only how banks' ratings have been affected by the likelihood of government support in the past, but also how banks' ratings might be affected in the future by recent international regulatory initiatives aimed at improving bank resolvability and reducing the likelihood that taxpayer funds will be used to bail out banks.

### 2.4 The shadow banking system: economic characteristics and regulatory issues

The shadow banking system, which the Financial Stability Board (FSB) has defined as credit intermediation involving activities and entities outside the regular banking system, was at the heart of the financial crisis of 2007/08. Global policymakers are currently concentrating efforts on strengthening the supervision and regulation of the shadow banking system. These efforts are timely as the

shadow banking system continues to play an important role, although in different forms than before the crisis.

This article describes the shadow banking system from an economic perspective, and thus provides some means of understanding its various manifestations and identifying relevant activities and entities that form part of the shadow banking system. One message of the article is that the shadow banking system comprises mainly activities that involve several entities, and that a systemic view is therefore necessary to identify the systemic risks which may build up over a chain of entities. Another important message concerns the significant linkages between banks

and shadow banking system activities. They are likely to persist in the future, as stricter regulation of banks may shift certain activities from banks to the shadow banking system.

The article reviews the regulatory efforts to strengthen the supervision and regulation of the shadow banking system. The outcome of these efforts is not yet definite, so that an appraisal is premature. However, the recommendations developed so far encompass both proposals for stricter regulation of shadow banking entities and activities, together with stricter regulation of the linkages between banks and the shadow banking system.

# Financial Stability Overview

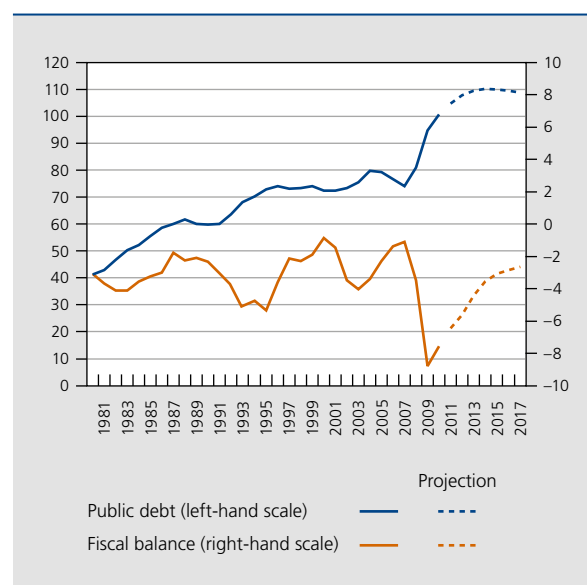
## 1. Operating environment

The global financial crisis that started almost five years ago, in the summer of 2007, has been characterised by severe turbulence in the global financial system, large cumulative losses in economic output and a sharp deterioration in advanced economies' general government fiscal balances and public debt levels. As far as the latter are concerned, between the end of 2007 and the end of 2009, public debt levels in the advanced economies rose by more than 20 percentage points of these economies' combined GDP. Persistently high fiscal deficits in 2010 and 2011 are estimated to have added another 10 percentage points of public debt between the end of 2009 and 2011 and the latest available forecasts from the International Monetary Fund suggest that this overall debt ratio will peak at around 110% of GDP in the course of 2013 (Chart 1).

Against this background, sovereign risk perceptions have remained the most important driver of recent developments in global financial markets. The risk also continued to materialise to a significant extent, as a large number of additional downgrades of sovereign ratings took place in the past 12 months, including negative rating actions as regards the debt issued by formerly AAA-rated countries. Another, yet exceptional, manifestation of the materialisation of sovereign risk was the restructuring of Greece's sovereign debt in March 2012, which took the form of a debt exchange with private creditors.

The downgrades of sovereign ratings were concentrated in particular on a number of peripheral euro area countries, where important internal and/or external imbalances and resulting weak economic growth were perceived to compound the difficulties of rising public debt and the related challenges of restoring the debt to

**CHART 1** GENERAL GOVERNMENT FISCAL BALANCES AND PUBLIC DEBT IN THE ADVANCED ECONOMIES  
(in % of GDP)



Source: IMF.

(1) The assumptions underlying this projection are explained in box A1 in the April 2012 edition of the IMF World Economic Outlook (184-188).

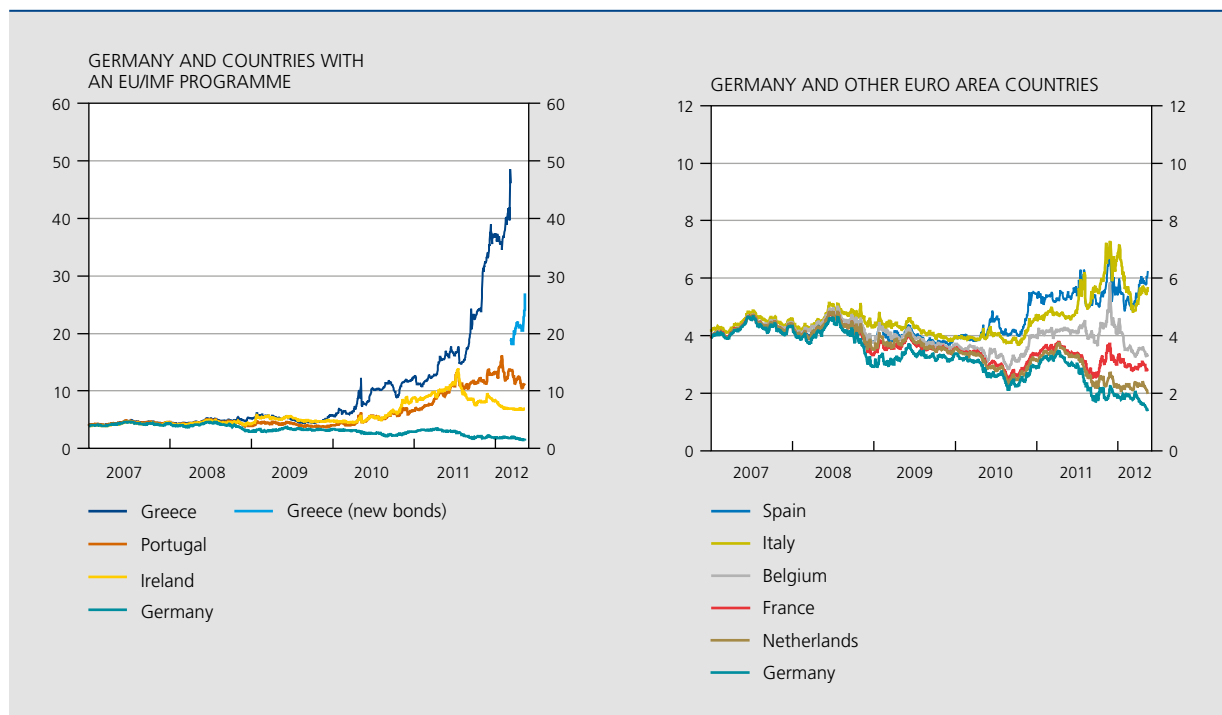
more sustainable levels. In sharp contrast to the record low yields on German government bonds, interest rates on government bonds issued by peripheral euro area countries surged to historically high levels, suggesting an intensification and broadening of investor concerns over sovereign risk in the past 12 months (Chart 2).

The Greek debt restructuring in March 2012 followed major slippages in policy implementation by the Greek authorities, in combination with serious structural problems in the economy, that undermined investor confidence in the economy while raising the need for a second Greek



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

(daily data, in %)



Source : Thomson Reuters Datastream.

support programme to stave off default. During discussions on the details of this second Greek support package, a number of creditor countries stated that further external support would only be possible if the private sector also made a contribution to this programme. This private sector involvement was to take the form of a voluntary participation by private creditors in a re-profiling of Greek sovereign debt maturities by swapping their Greek government bond holdings for new Greek debt with longer maturities. This debt swap of Greek government bonds was launched in March 2012 and involved a loss in net present value of around 75 % for private sector creditors. The anticipation of this debt restructuring operation in the months before its actual implementation contributed to major stress in euro area bank funding markets and increased deleveraging pressures in the banking sector. Moreover, by heightening investor concerns over sovereign risk in the euro area, the developments in Greece also contributed to a further rise in risk aversion and a return of a wide range of risk premiums to levels not seen since the months following the failure of US investment bank Lehman Brothers in September 2008.

Even before the new round of contagious risk aversion in May 2012 that followed the inconclusive Greek

parliamentary elections with high support for parties rejecting the conditions agreed in the second Greek support package, yields on the government bonds of the two other EU/IMF programme countries, Ireland and Portugal, also remained under pressure, suggesting that financial markets remain suspicious about the prospects for a return to sustainable public debt burdens in these countries as well. Yet, Ireland did manage to regain some market confidence thanks to resolute policy implementation and the risk premium on Portugal has also declined somewhat from the peaks reached in January 2012, even if government bond yields in this country remain at levels that seem to rule out a quick return to financial markets.

The main development during the period under review was the spreading of tensions on sovereign bond markets to the two larger southern European countries, Italy and Spain. In early August 2011, concerns over Greece and signs of a significant slowdown in the pace of economic growth in Europe and other major areas of the global economy pushed the Italian and Spanish 10-year government bond yields up to 6.2 %, their highest levels since the creation of the euro area. Against the backdrop of this growing contagion, the Eurosystem reactivated its Securities Markets Programme and began buying Italian

and Spanish government bonds, restoring calm to the markets. However, as these moves were intended and understood to be only a temporary solution pending the implementation of the changes to the European Financial Stability Facility (EFSF) agreed at the EU summit on 21 July, they predictably failed to take the place of more fundamental measures addressing the root causes of the sovereign risk problems. When these measures were not forthcoming at the speed and on the scale expected by the markets, a new wave of risk aversion gathered pace, and increasingly led to contagion of core euro area countries as well.

The spreading of the sovereign debt crisis, first to Italy and Spain and later to a number of core euro area countries such as France, Austria and Belgium, contributed to the surge in the SovX credit default swap index to more than 350 basis points in the second half of 2011 (Chart 3). The rise in this index – measuring the average level of premiums on five-year credit default swaps referencing the sovereign debt of nineteen western European countries – to its highest level since this series was calculated for the first time, was driven by a broad-based increase in individual countries' five-year CDS premiums, including those of Germany and other AAA-rated countries such as France or Austria. In response to these developments, euro area

policy-makers signalled that a new set of measures would be considered, including plans to leverage the lending capacity of the European Financial Stability Facility and a recapitalisation of the European banking sector on the basis of a new assessment of the capital buffers of 71 large European banks. This EBA capital buffer test, focusing on differences between the book and market value of banks' sovereign exposures as at 30 September 2011, measured whether these credit institutions had sufficient core Tier I capital to cover 9 % of their risk-weighted assets, with any capital buffer having to be closed by June 2012 by issuing core Tier I capital, by retaining earnings, by reducing dividend payments or by selling non-strategic assets.

While these measures were approved by the Heads of State and Government on 26 and 27 October, the boost to market confidence was destroyed when the Greek Prime Minister announced plans to hold a referendum on the Greek policy measures to be adopted as part of the planned second Greek support package. Government bond risk premiums and CDS spreads reversed the tightening that had occurred in the run-up to the EU summit on 26 and 27 October, and contagion forces returned at full strength, even affecting core euro area countries. France saw its five-year CDS premium – the price which investors are willing to pay for an insurance contract covering a potential credit event concerning French government bonds – rise to a record high of 250 basis points on 23 November. The Belgian CDS reached almost 400 basis points at that time, up from 143 basis points at the end of June 2011 and 217 basis points at the end of 2010. Even the premium on German credit default swaps exceeded 100 basis points.

This spreading of sovereign risk concerns to core countries of the euro area in the second half of 2011 occurred as financial markets reassessed the sustainability of the fiscal positions of all euro area countries against the background of a significant slowing of economic growth in the second half of 2011, while taking into account potential fiscal liabilities related to guarantees which countries had given to the EFSF or potential additional fiscal support measures for credit institutions with large exposures to the weakest euro area Member States. Towards the end of the year, risk aversion in the context of questions over the future structure of the monetary union may also have contributed to the general rise in euro area countries' CDS premiums.

In response to this new heightening of market tension in November, at the summit on 8 and 9 December the Heads of State and Government of the euro area and of other EU countries agreed the broad outline of a Fiscal Compact and closer coordination of economic policy,

**CHART 3** CREDIT DEFAULT SWAP INDICES FOR EUROPEAN SOVEREIGN DEBT AND FOR THE SENIOR DEBT OF EUROPEAN FINANCIAL INSTITUTIONS  
(daily data, basis points)



Sources: Bloomberg, Thomson Reuters Datastream.

(1) Index measuring the average level of five-year CDS premiums referencing the sovereign debt of 19 western European countries. In March 2012, the CDS referencing Cyprus replaced the CDS referencing Greece in this index.

(2) Index measuring the average level of five-year CDS premiums referencing the senior debt of 25 large European financial institutions.

while reinforcing the financial stabilisation framework. On this last point, it was decided in the first quarter of 2012 to strengthen the euro area's crisis management capabilities and resources by bringing forward the planned establishment of the European Stability Mechanism (ESM), so that its financial resources of € 500 billion could be combined with the funds left in the EFSF.

The intensification of the public debt crisis in peripheral euro area countries in the second half of 2011 also had significant adverse effects on the funding situation of European banks, as evidenced by the close correlation in Chart 3 between the SovX index and a corresponding index for credit default swaps referencing the senior debt of 25 major European financial institutions (iTraxx Senior Financials). Notwithstanding the creation of the monetary union, banks have actually continued to exhibit a significant home bias in their investments in sovereign debt instruments. Consequently, a large share of European banks' exposure to the sovereign debt issued by the most vulnerable euro area countries appears on the balance sheet of these countries' domestic banking systems. In the three EU/IMF programme countries, this led to a complete loss of access to the interbank markets for these domestic banks, resulting in very heavy reliance on Eurosystem financing. However, as non-domestic banks also held substantial claims on peripheral euro area countries, the tensions on sovereign debt markets spread well beyond the domestic banking systems of the weakest Member States. As shown in Table 1, at the end of December 2011, European banks' cross-border exposures to the public sector in Greece, Portugal, Ireland, Italy and Spain amounted to € 205.3 billion. Large additional exposures take the form of debt claims on other counterparties

such as banks (€ 233.3 billion) or other non-bank private sector debtors (€ 904.1 billion) or of potential exposures related to derivatives transactions, guarantees granted or credit commitments (€ 482.3 billion).

Banks tend to hold very large portfolios of government securities because they can use them as collateral for their borrowings. Fluctuations in the value of these securities or rating downgrades significantly affected the quality and eligibility of large amounts of this collateral in 2010 and 2011, so that the use of these instruments for banks' external funding became more expensive or even impossible in private markets. Since the market value of some government bonds on European banks' balance sheets had fallen dramatically, that also affected the banks' access to unsecured funding markets, 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, widening the spreads – from a low level at the beginning of 2007 – relative to five-year swap or Bund rates (Chart 4, left-hand panel). In the second half of 2011, the primary market for issues of senior unsecured bonds by European banks even almost completely dried up.

Initially, banks responded to this drying up of unsecured bond funding by making increasing use of issues of secured bonds, such as covered bonds (Chart 4, right-hand panel). In core euro area countries, these covered bond markets proved relatively resilient to heightened market tension, enabling banks to continue to issue medium- and long-term debt, despite increased tiering, with yields on

**TABLE 1** CROSS-BORDER CLAIMS OF EUROPEAN BANKS<sup>(1)</sup> ON SELECTED EURO AREA COUNTRIES<sup>(2)</sup>  
(consolidated data, in € billion, at the end of December 2011)

	Greece	Portugal	Ireland	Italy	Spain	Total
Public sector .....	16.9	18.9	8.7	111.9	48.9	205.3
Banks .....	2.4	19.8	37.8	70.1	103.3	233.3
Other foreign claims .....	50.4	87.7	208.1	315.0	243.0	904.1
Potential exposures <sup>(3)</sup> .....	22.4	36.6	117.2	183.4	122.7	482.3
<b>Total</b> .....	<b>92.1</b>	<b>163.0</b>	<b>371.7</b>	<b>680.3</b>	<b>517.9</b>	<b>1 825.0</b>
<i>p.m. Total end-December 2010</i> .....	<i>116.9</i>	<i>184.0</i>	<i>397.4</i>	<i>749.2</i>	<i>580.7</i>	<i>2 028.2</i>

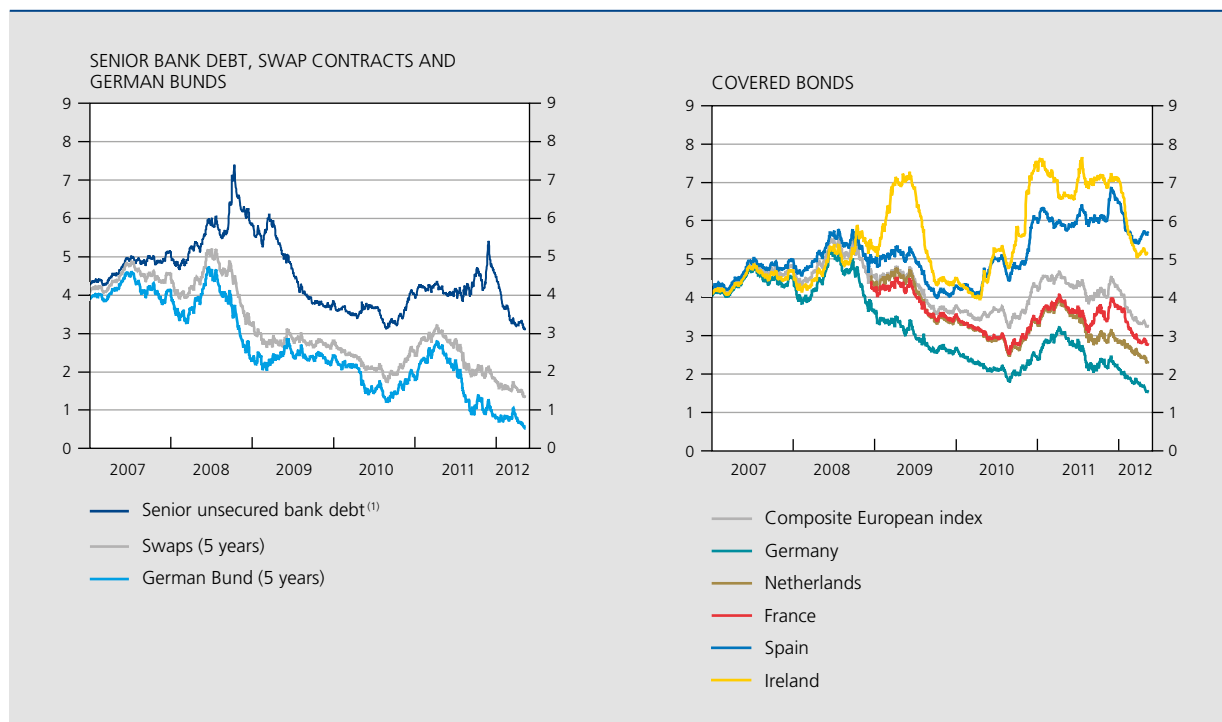
Source: BIS.

(1) Banks controlled by residents and established in Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

(2) Data from reporting of consolidated international banking statistics. The assets are allocated on the basis of ultimate risk, i.e. after risk transfer.

(3) Cross-border claims resulting from exposures in the form of derivatives, guarantees granted and credit commitments.

**CHART 4** YIELDS ON BANK BONDS, SWAP CONTRACTS AND GERMAN BUNDS  
(daily data, in %)



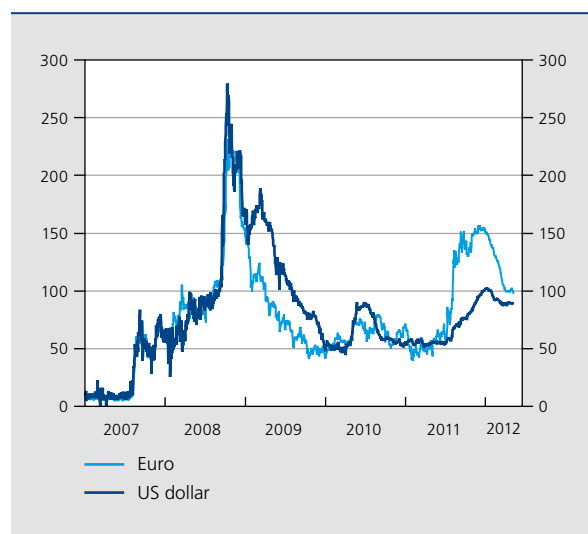
Sources: iBoxx, Thomson Reuters Datastream.

(1) iBoxx euro corporate banks senior index referencing unsecured senior bank debt denominated in euro.

Irish and Spanish covered bonds at persistently high levels and French covered bond yields decoupling from the Dutch yields in the autumn. In November, in order to support this key component of bank financing, the European Central Bank (ECB) launched a covered bond purchase programme amounting to € 40 billion.

With many markets for medium-term funding closed for European banks in the second half of 2011, refinancing also shifted increasingly to short-term funding markets and to greater recourse to Eurosystem financing. Yet, in the USD funding markets, European banks had to cope with a significant increase in risk aversion on the part of US money market funds, consequently losing a significant amount of short-term USD financing from this traditional provider of funds. In the markets for unsecured short-term funding in euro, counterparty risk concerns also re-emerged as a determinant of borrowing conditions. While some banks simply lost access to this market, many others had to pay a premium relative to overnight-index-swap (OIS) rates, the fixed rates paid by counterparties on interest rate swaps receiving the overnight rate for a specified period. In the second half of 2011 and early 2012, this premium reached its highest level since the beginning of 2009 (Chart 5).

**CHART 5** SPREADS BETWEEN 1-YEAR LIBOR AND OIS<sup>(1)</sup>  
(daily data, basis points)



Sources: Bloomberg, Thomson Reuters Datastream.

(1) Spreads between 1-year Libor and the fixed rate paid by the counterparty on an interest rate swap receiving the overnight interest rate for a one-year period.

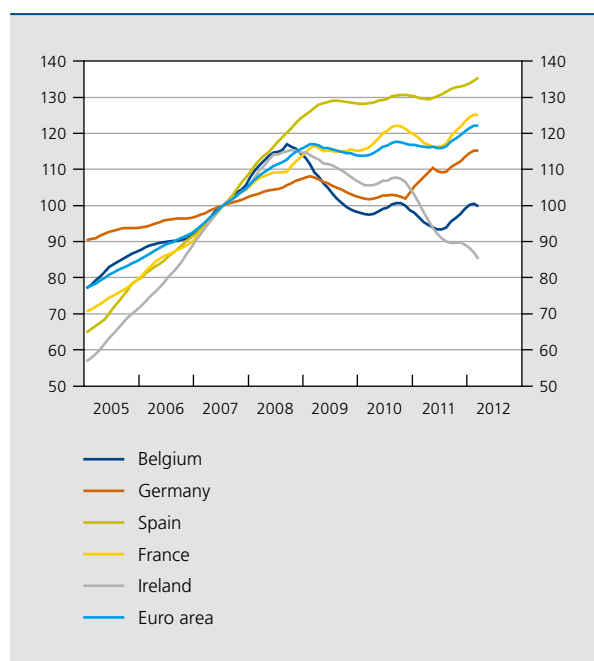
The Eurosystem responded to this new wave of funding difficulties with supplementary measures to support the liquidity position of euro area banks, following which several of the reviewed indicators of funding stress eased considerably. These measures comprised the introduction of long-term refinancing operations, relaxation of the collateral rules, and new facilities for USD funding. In light of the severe tension in sovereign and bank funding markets in November, and the perceived risk of an acceleration of deleveraging actions by European banks in response to tighter capital and funding positions, the ECB Governing Council decided at its 8 December meeting to conduct two very long-term refinancing operations (LTRO) with a maturity of 3 years and full allotment and to extend the list of eligible collateral for Eurosystem loans by lowering the rating threshold required for certain asset-backed securities and allowing national central banks to accept as collateral bank loans which met specific eligibility criteria. These two LTROs, conducted in December and February, resulted in the allotment of slightly more than € 1 000 billion of long-term central bank funds to euro area banks. As this central bank funding covered much of the euro area banks' short-term refinancing needs, investor concerns over their liquidity position eased, contributing to a revival of the primary unsecured bond market in the first quarter of 2012. Yet, this positive impact of the LTROs

was partly undone in April 2012, when renewed tension in the Italian and Spanish sovereign debt markets fed back to bank funding markets, confirming the persistence of a close link between sovereign risk concerns and euro area banks' funding conditions. This interlinkage appears to have even strengthened in the case of Italy and Spain, as local banks in these countries have met the bulk of their sovereigns' financing needs in previous months, leading to an increased exposure of these national banking systems to the domestic sovereign debtor.

This persistence of a tight link between sovereign risk and bank funding conditions increases the risk of a new acceleration of bank deleveraging strategies, including through bank lending cuts (Chart 6). In order to minimise the risk that such deleveraging programmes might give rise to a significant tightening of credit conditions for non-financial debtors, the European authorities put in place, as part of the EBA supplementary stress test exercise, a framework to monitor the deleveraging and recapitalisation plans of the banks identified as having a capital shortfall. While many European banks are now engaged in processes aimed at reducing their total assets and risk-weighted assets and raising their solvency ratios, the developments so far suggest that the bulk of asset sales or run-downs has focused on non-core assets or non-core lending activities, in particular those denominated in currencies other than the euro (US dollar) and/or attracting higher risk weights (asset-based finance and project finance). While the impact on credit extension in the euro area as a whole so far appears limited, in some peripheral euro area countries credit extension to the domestic private sector has been tightened significantly, highlighting potentially various degrees of deleveraging forces being felt in the banking systems across the euro area. In countries where the total assets of the banking sector expanded the most up to 2007 under the impetus of very strong domestic credit growth, like Spain and Ireland, deleveraging to unwind previous credit excesses may be unavoidable and even desirable, and is likely to take the form of both tight credit conditions and write-offs of non-performing assets. Ireland, which was forced into a very expensive restructuring of its financial system, appears to have made more progress in this regard than Spain, where banking sector difficulties stemming from domestic real estate exposures continued to weigh heavily on investor sentiment, even after the announcement of a new series of support measures in May 2012.

Among the countries shown in Chart 6, Belgian Monetary Financial Institutions (MFIs) appear to be somewhat ahead in deleveraging their balance sheets, as a result of the restructuring that many large credit institutions in Belgium have undertaken since receiving public sector support in

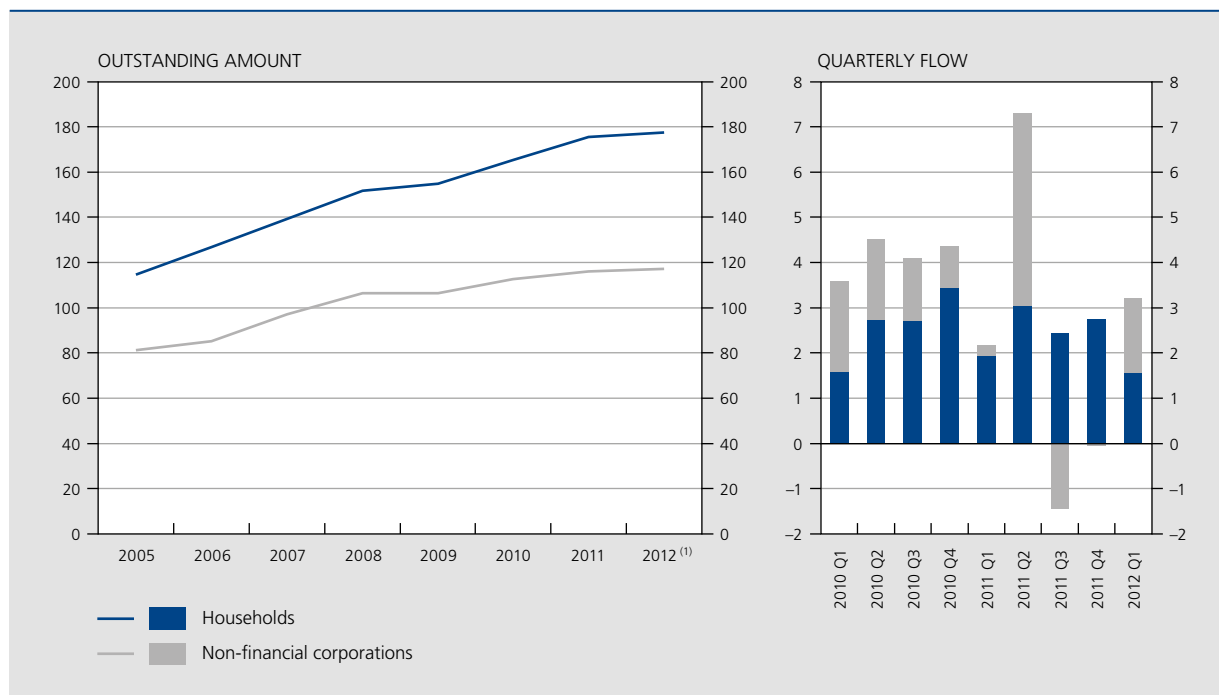
**CHART 6** TOTAL ASSETS OF MONETARY FINANCIAL INSTITUTIONS<sup>(1)</sup>  
(indices June 2007 = 100)



Sources: ECB, Thomson Reuters Datastream.  
(1) Moving averages of 6 months.

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

(data corrected for securitisation operations, in € billion)



Source: NBB.

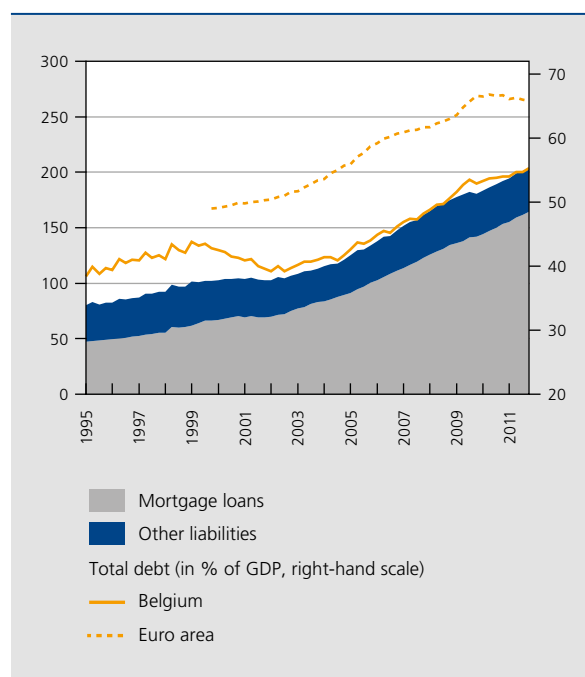
(1) As at the end of March 2012.

2008 and 2009. A marked decrease in Belgian MFIs' total assets between the end of 2008 and the end of 2009 thus followed from a deliberate reduction in the wholesale activities, contributing to a drop in interbank claims by more than € 180 billion between the end of September 2008 and the end of December 2009. This decline was partly attributable to a reduction in intragroup financing in the context of the dismantling of Fortis group, leading to changes in the consolidation perimeter of Fortis Bank Belgium. Notwithstanding this decline in total assets since June 2007, the process of bank deleveraging in Belgium looks likely to continue in the coming quarters.

Although Belgian MFIs have reduced their total assets, bank lending to Belgian households and non-financial corporations has continued to grow throughout the financial crisis, including in the most recent period (Chart 7). The data available up to the end of March 2012 show no abrupt slowdown in credit extension (let alone a credit crunch), even though banks have reported in the latest bank lending survey a moderation in the demand for credit. This confirms the findings in the section devoted to the Belgian banking sector below that banks have concentrated their deleveraging actions on non-core assets and activities, preserving their key role as credit providers

**CHART 8**
**DEBT OF BELGIAN HOUSEHOLDS**

(in € billion, unless otherwise stated)



Source: NBB.

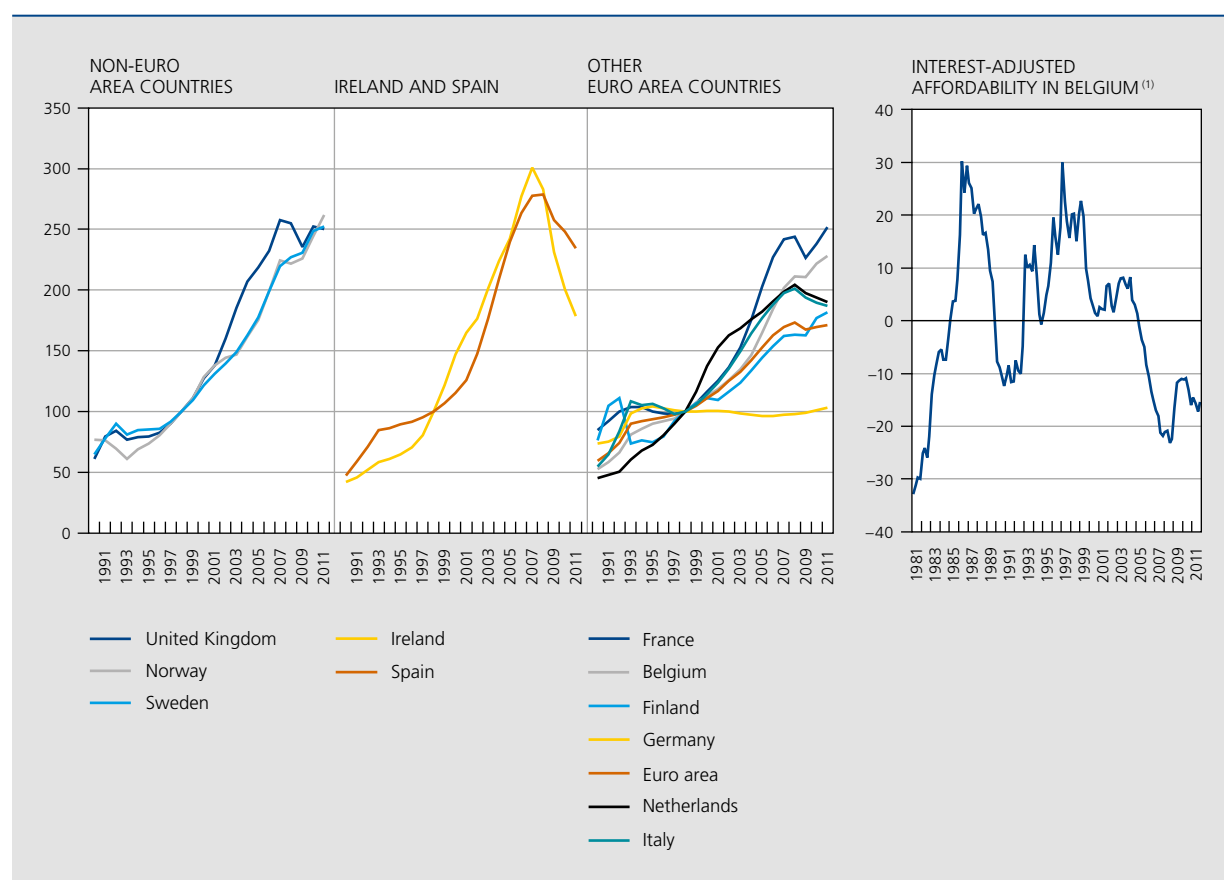
in the Belgian economy. Lending to Belgian households, in particular, has continued to grow at a significant pace in recent quarters, contributing to a further rise in Belgian households' indebtedness (Chart 8). While the resulting debt ratio of Belgian households (55.3 % of GDP) remains considerably lower than the euro area average (65.8 % of GDP), the gap between the two has fallen from 15 percentage points in 2005 to 10 percentage points in 2011 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.

As illustrated in Chart 8, mortgage loans have been the main driver of the higher debt of Belgian households in recent years. A more extensive analysis of these developments can be found in the article "Review of the Belgian residential mortgage loan market" in this publication. This

article reviews recent developments in the Belgian residential mortgage loan market and reports some aggregate results of a recent quantitative survey of 16 Belgian banks' domestic mortgage loan portfolios. As in many other countries, the Belgian residential property and mortgage market was characterised by strong growth of both housing prices and mortgage loans outstanding in the period up to 2007 (Chart 9, left-hand panel). Since then, experiences have varied significantly between countries. In Belgium, a marginal correction of housing prices and a temporary slowdown in mortgage loan growth in 2009 was followed by new increases in housing prices and mortgage debt. While a large number of factors appear to have contributed to the dynamic growth of house prices in Belgium in recent years – ranging from macroeconomic and demographic factors to key changes in the tax regime for mortgage loans and a trend towards higher rates of down payment –, crude and simple measures of housing price valuation nevertheless suggest that housing has become less affordable (Chart 9, right-hand panel). For

**CHART 9** HOUSE PRICES AND AFFORDABILITY MEASURES

(indices 1998 = 100, unless otherwise stated)



Sources: OECD, NBB.

(1) Ratio between the disposable income of households and the average mortgage loan debt service, which itself depends on house prices and interest rates; percentage deviation from the average of the period since the first quarter of 1981. A negative sign indicates overvaluation of property prices.



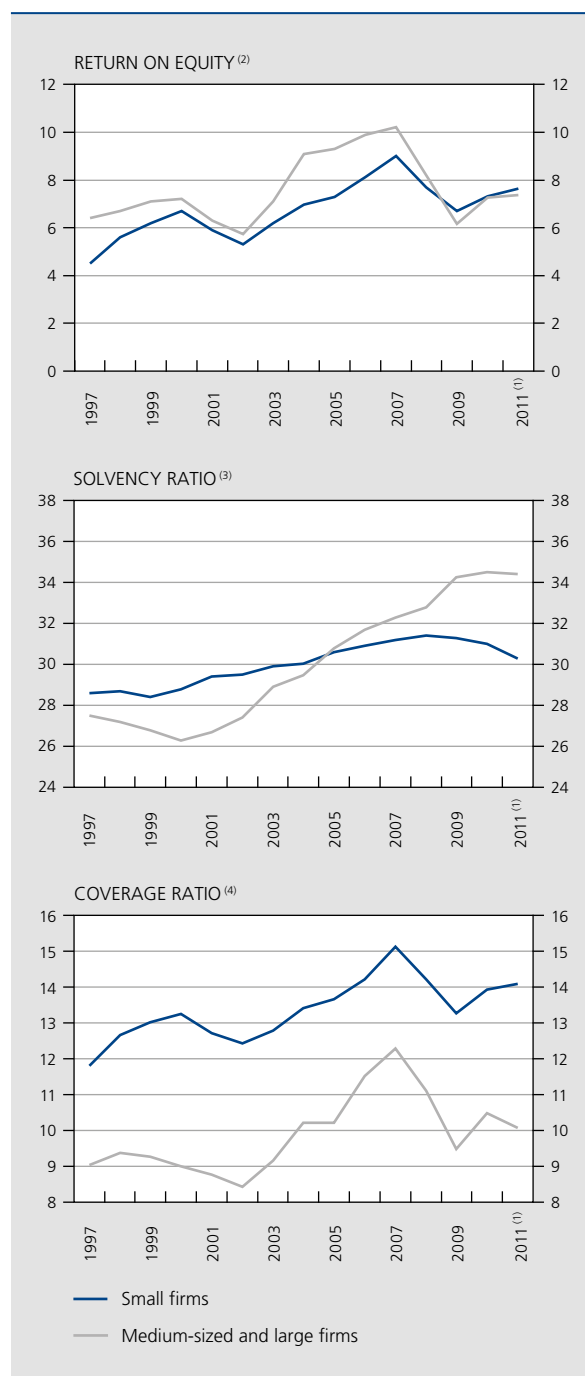
households with a limited amount of own funds for a down payment, the most recent developments may thus have been associated with a need for increasingly large mortgage loans, contributing to upward pressures on debt service levels and/or longer loan maturities.

While the five-year period covered by the survey of 16 Belgian banks' domestic mortgage loan portfolios was probably too short to identify the potential roles that mortgage credit standards may have played in the very strong growth of both housing prices and mortgage loans over the last ten years, the trend towards longer loan maturities and the relatively high (if quite stable) share of loan-to-value ratios of more than 80 % (including ratios higher than 100 %) in new production in any case suggest that credit standards were not markedly tightened in a counter-cyclical way to slow exuberant growth or anticipate potentially less favourable market conditions. As a result, the most recent mortgage loan vintages may contain some pockets of loans that could prove to be more vulnerable to deteriorating income and housing market conditions. In this connection, the FSR article on the Belgian residential mortgage market suggests that, in order to maintain the current high asset quality of Belgian mortgage loan portfolios, increased vigilance is required from banks and authorities to ensure the continuous application of conservative credit standards and adequate risk pricing in new mortgage loans. Where necessary, standards should be tightened.

Chart 10 shows recent developments in the profitability and solvency of Belgian non-financial corporations, on the basis of a limited sample of 2011 accounts already available in the Central Balance Sheet Register. The use of these 2011 data is associated with a number of caveats due to the limited size of this sample and some selection biases as regards the calendar dates of the accounting year, the economic sector and size of the companies whose accounts are taken into consideration. In particular, as the sample of company accounts used for calculating these indicators mostly concerns companies that have an accounting year that does not coincide with the calendar year, the indicators shown for 2011 largely reflect the economic conditions prevailing in Belgium in the second half of 2010 and the first half of 2011, rather than the full year 2011.

Based on the available data, the median return on equity held by Belgian non-financial corporations is estimated to have broadly stabilised in 2011 around the levels reached in 2010, following the major decline in profitability in 2008 and 2009. The median solvency ratio, which measures own funds as a percentage of the balance sheet total, shows a more varied experience in 2011 between

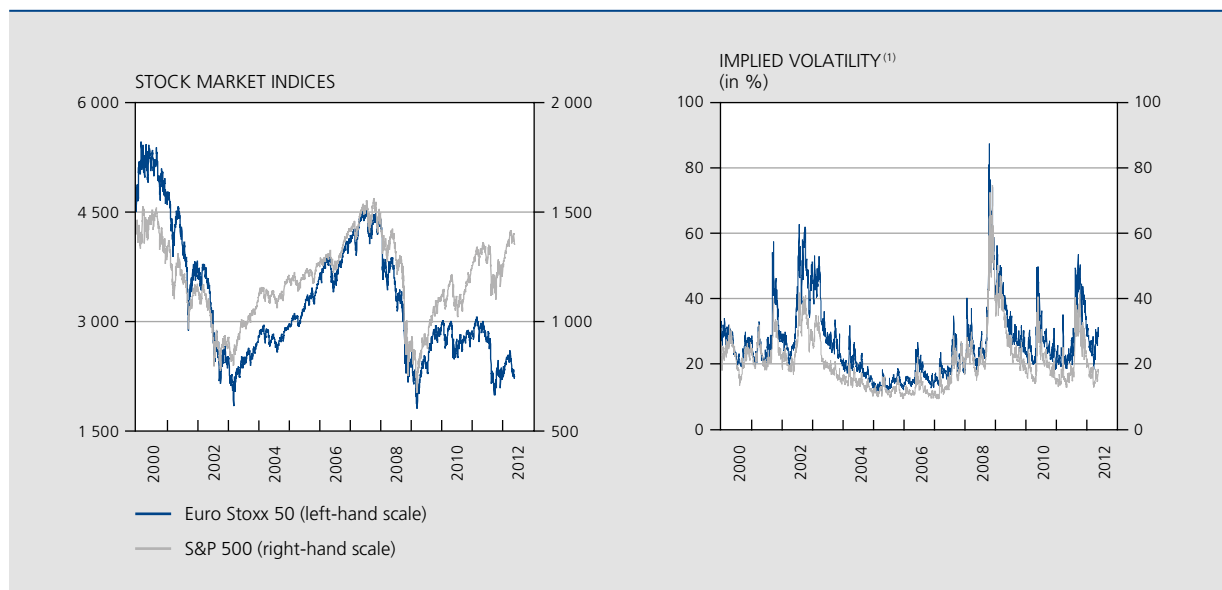
**CHART 10** MEDIAN PROFITABILITY AND SOLVENCY INDICATORS FOR BELGIAN NON-FINANCIAL CORPORATIONS



Source: NBB.

- (1) The medians in 2011 are calculated by applying to the 2010 medians the percentage change observed in a constant sample of early reporters in the Central Balance Sheet Register. A company is considered to be small when it submits its annual accounts to the Central Balance Sheet Register in accordance with the abbreviated financial reporting scheme. Medium-sized and large companies report in accordance with full-format accounts.
- (2) The return on equity is the ratio between the net after-tax result and capital and reserves.
- (3) The solvency ratio is defined as own funds divided by the balance sheet total.
- (4) The coverage ratio is calculated by dividing the cash flows by the sum of debts and provisions.

**CHART 11** 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.

the small firms (where the median declined in 2011) and the medium-sized or large firms (where the median stabilised at 2010 levels). For both categories of firms, the median solvency ratios nevertheless remain high compared to those recorded in previous years, in particular for medium-sized and large firms. This development is partly attributable to the continuing effect of introducing a more favourable fiscal regime for own funds in 2006. The coverage ratio, shown in the lower panel of Chart 10, expresses the extent to which debts and provisions are covered by cash flows. For the small firms, this ratio stabilised at the level of 2010. For the medium-sized and large firms, the coverage ratio declined again, after the recovery observed in 2010.

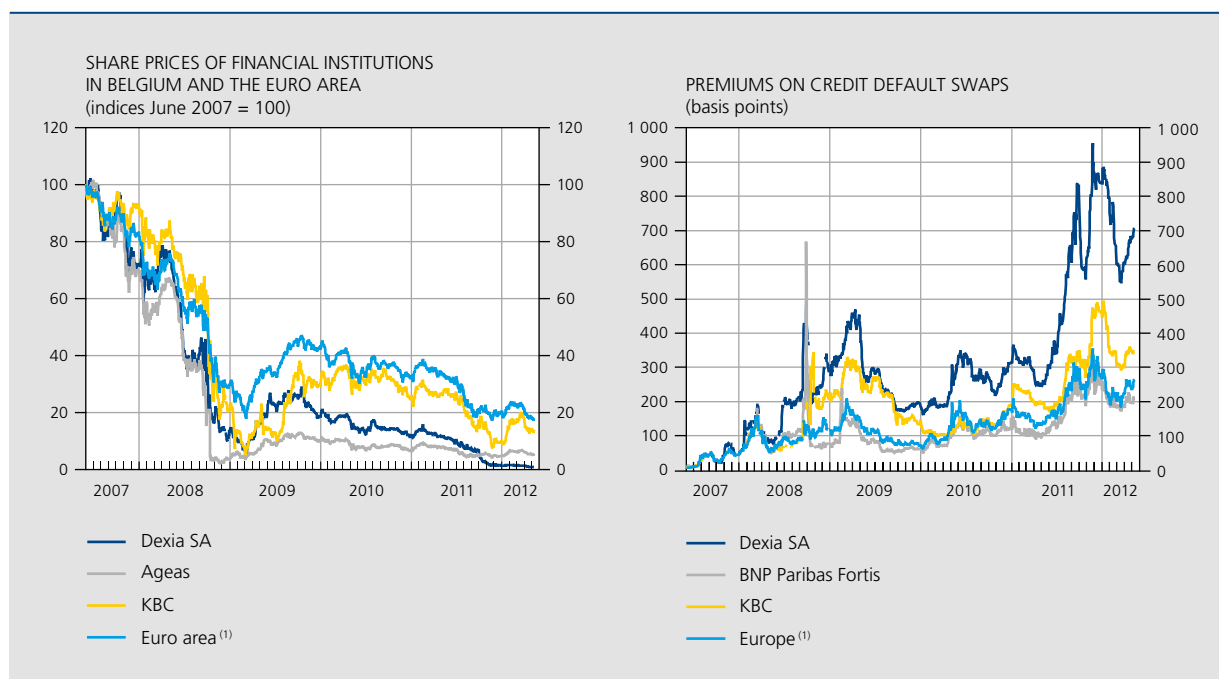
As a result of the slowdown in economic growth and substantial losses on global financial markets, non-financial corporations in Belgium and the euro area are expected to experience significant spillovers from the public debt crisis in the euro area, as suggested by the recent weakness in European stock markets, in the aftermath of the May 2012 inconclusive Greek parliamentary elections with high support for parties rejecting the conditions agreed in the second Greek support package (Chart 11). Anxiety over the global economic outlook and the European debt crisis also led to episodes with sharp increases in the implied volatility measures during the period under review.

In view of their close economic and financial links with the euro area, Central and Eastern European countries have also experienced significant fallout from the sovereign debt crisis. The environment deteriorated particularly in countries with fiscal or external vulnerabilities, such as Hungary. In this country, a large volume of loans denominated in Swiss francs was an additional channel for the transmission of tension, as the euro area crisis had contributed to a strong appreciation of the Swiss franc against the euro and the Hungarian forint. In September, in order to limit the scale of the impact of that appreciation on households with mortgages, the Hungarian government unilaterally announced a home protection plan whereby – up to the end of January 2012 – households could base their mortgage loan repayments on exchange rates significantly lower than the market rates. That forced the banking sector to recognise substantial impairments on a large proportion of their better quality mortgage loans. In December, with the banking sector's agreement, the government presented a series of additional measures, this time focusing on non-performing loans and arranging for the costs of these support measures to be shared between the government and the banks.

## 2. Banking sector

As highlighted in Chart 12, the Belgian financial institutions' equity prices and CDS premiums were not

**CHART 12** 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.

immune to the intensification of sovereign risk concerns and renewed tightening of bank funding conditions in the second half of 2011 and the first months of 2012. At the time of finalising this Financial Stability Review, Belgian financial institutions' market indicators were affected by the new round of contagious risk aversion that followed the inconclusive Greek parliamentary elections of 6 May 2012 showing high support for parties rejecting the conditions agreed in the second Greek support package. During the period under review, Belgian banks were also affected by a number of rating downgrades, notably as a result of the downgrade of Belgium's rating which lowered the support floor in domestic banks' ratings.

Given its still vulnerable funding liquidity position and comparatively large exposures to certain euro area countries, Dexia SA was particularly affected by the developments in financial markets. Its CDS premiums reached a peak of more than 950 basis points at the end of November 2011, significantly higher than those observed in the aftermath of the Lehman Brothers failure. Its share price also collapsed as investors reassessed the feasibility of the restructuring plan that Dexia SA had launched in 2008 – and decided to speed up in May 2011 – to address

the legacies of its strong expansion in the years before the global financial crisis, given the changing market circumstances.

Following the first government interventions in 2008, Dexia had set up a radical restructuring plan to reduce the group's risk profile and its leverage, by refocusing its business on traditional financial intermediation through sales of non-strategic operating entities and financial assets and termination of its proprietary trading activities. The plan also provided for cutting the group's operating expenses in order to boost its profitability. This plan was meant to enable the financial institution to gradually scale down its short-term funding needs, which had reached € 260 billion in October 2008, or almost 40 % of the balance sheet total at the time. Since then, implementation of this restructuring plan imposed by the European Commission had enabled the group to cut its balance sheet total by € 130 billion (a 20 % reduction), notably by pruning the portfolio of non-strategic assets, and to reduce its short-term borrowing needs by € 160 billion between December 2008 and June 2011. The group's solvency ratios also improved, with a Tier I capital ratio of 11.4 % in June 2011, against 10.6 % in December 2008.

In view of the unstable financial climate prevailing in the first half of 2011, Dexia decided to speed up this restructuring process in order to reduce its risk profile more rapidly and thus improve its financial position. That acceleration was announced on 27 May 2011. Nevertheless, despite this announcement, and taking account of the group's vulnerability in terms of its liquidity position, the situation deteriorated, rendering it impossible to continue pursuing the strategy adopted in 2008. Given the rapidly worsening risk profile, exacerbated by the impact of low interest rates on the amount of collateral to be posted in swap contracts, and the downgrade of Dexia's credit ratings, the National Bank of Belgium insisted that Dexia submits 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 subsequently agreed measures included the acquisition by the Belgian State of all shares held by Dexia SA in Dexia Bank Belgium (for a total of € 4 billion); the sale of several other subsidiaries, including Dexia Banque Internationale à Luxembourg, Dexia Asset Management, Denizbank in Turkey, and the group's stake in RBC Dexia Investor Services; the establishment of a new funding guarantee mechanism by the Belgian, French and Luxembourg States for Dexia SA and its subsidiary, Dexia Crédit Local; and the acquisition by the Caisse des Dépôts et de Consignations (CDC) and the Banque Postale of 65 % and 5 % respectively of the capital of Dexia Municipal Agency. The European Commission gave its provisional approval to the sale of Dexia Bank Belgium and the State guarantee covering the refinancing of Dexia SA and Dexia Crédit Local, although the amount of the guarantee was limited to € 45 billion pending a detailed restructuring plan for Dexia SA, which was submitted in March 2012.

The nationalised Belgian subsidiary of Dexia SA was renamed Belfius Bank and Insurance in March 2012. This carved-out entity temporarily maintained its financing of Dexia SA, but its unsecured exposure to the group was replaced by secured financing. This financing has now been placed in run-off and should be reduced to nil by 2015.

As shown in Table 2, Dexia SA and Belfius recorded substantial losses in 2011 as a result of the new restructuring of Dexia SA, leading to a sharp decline in the Tier I ratio of the so-called *restbank* Dexia SA. This table provides an overview of several key financial indicators for the main bancassurance groups in Belgium, together with the corresponding sector aggregates that will be used in the rest of the report.

The recent developments in the total assets and risk-weighted assets of KBC group that are shown in Table 2 point to the significant further progress that this institution made in its restructuring plan in 2011, efforts which included the sale of Centea, Fidea and KBL EPB. At the start of 2012, KBC group also reached an agreement for the sale of its two Polish subsidiaries Kredyt Bank and Warta and repaid a first tranche of 500 million euros of the Yield Enhanced Securities issued to the Belgian federal government, with a 15 % penalty. This still leaves an important amount of Yield Enhanced Securities to be repaid in the coming years.

## 2.1 Deleveraging and asset restructuring

The restructuring processes undertaken by the main bancassurance groups have led to a substantial decline of individual financial institutions' total assets and risk-weighted assets. This deleveraging process, initiated in 2008, affected the Belgian banking sector's aggregate balance sheet in different ways. In this connection, it should be recalled that the scope of the standardised supervisory reporting schemes used in the remainder of this chapter is 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.

In the case of the former Dexia group, for example, the prudential sector aggregates for the Belgian banking sector covered only the activities of Dexia Bank Belgium, now Belfius, and its subsidiaries, leaving out the operations conducted by Dexia SA's subsidiaries in France (Dexia Crédit Local and its former subsidiary FSA), Luxembourg (Dexia BIL) and Turkey (Denizbank). Hence, the above-mentioned recent restructuring of Dexia SA is visible in the aggregate accounts only to the extent – and in the form – that it affected the accounts of Dexia Bank Belgium, which was nationalised in October 2011 and renamed Belfius Bank in 2012. For some other banking entities established in Belgium and having one or more subsidiaries, the consolidated supervisory data also capture only part of the activities of larger financial groups. This is for example the case of ING Bank Belgium and BNP Paribas Fortis. In this connection, it should be reminded that the exit of Fortis Bank Nederland from the consolidation perimeter of Fortis Bank Belgium (now BNP Paribas Fortis) in the last quarter of 2008 had a marked impact on the Belgian banking sector's balance sheet.

**TABLE 2** KEY INDICATORS FOR THE MAIN FINANCIAL INSTITUTIONS, THE BANKING SECTOR AND THE INSURANCE SECTOR <sup>(1)</sup>  
(consolidated end-of-period data, in € billion, unless otherwise stated)

	Ageas <sup>(1)</sup>	BNP Paribas Fortis <sup>(1)</sup>	Dexia SA <sup>(1)</sup>	Belfius <sup>(1)</sup>	KBC <sup>(1)</sup>	Banking sector <sup>(2)</sup>	Insurance sector <sup>(3)</sup>
Net profit							
2007	3.99		2.53	1.03	3.28	6.7	3.8
2008	-28.02	-20.56	-3.33	-0.57	-2.48	-21.2	-3.9
2009	1.19	-0.67	1.01	0.42	-2.47	-1.2	0.9
2010	0.22	1.91	0.72	0.68	1.86	5.6	1.4
2011	-0.58	0.10	-11.64	-1.37	0.01	0.4	-0.9
2012 (Q1)	-0.08		-0.43		0.38		
Total assets							
2007	871.2		604.6	264.7	355.6	1 578.4	220.4
2008	92.9	586.8	651.0	263.1	355.3	1 422.1	223.8
2009	93.2	435.0	577.6	253.8	324.2	1 190.5	234.4
2010	99.2	348.0	566.7	247.9	320.8	1 151.1	248.5
2011	90.6	346.2	412.8	232.5	285.4	1 147.3	253.0
2012 (Q1)	92.7		399.0		290.6		
Risk-weighted assets (banking)							
2007		270.2 <sup>(5)</sup>	159.4 <sup>(5)</sup>	62.4 <sup>(5)</sup>	135.1 <sup>(6)</sup>	583.5 <sup>(7)</sup>	
2008		203.4 <sup>(6)</sup>	152.8 <sup>(6)</sup>	51.8 <sup>(6)</sup>	141.4 <sup>(6)</sup>	491.7 <sup>(6)</sup>	
2009		148.0 <sup>(6)</sup>	143.2 <sup>(6)</sup>	49.9 <sup>(6)</sup>	128.3 <sup>(6)</sup>	407.5 <sup>(6)</sup>	
2010		119.3 <sup>(6)</sup>	140.8 <sup>(6)</sup>	49.6 <sup>(6)</sup>	116.1 <sup>(6)</sup>	372.5 <sup>(6)</sup>	
2011		118.0 <sup>(6)</sup>	83.4 <sup>(6)</sup>	53.0 <sup>(6)</sup>	110.4 <sup>(6)</sup>	373.8 <sup>(6)</sup>	
2012 (Q1)			86.5 <sup>(6)</sup>		108.9 <sup>(6)</sup>		
Tier I ratio banking (in % of RWA)							
2007		9.5	9.1	8.1	8.7	12.1	
2008		10.7	10.6	12.9	9.7	11.3	
2009		12.3	12.3	13.8	11.0	13.2	
2010		16.5	13.1	14.6	12.4	15.5	
2011		16.5	7.6	12.7	11.6	15.1	
2012 (Q1)			7.0		12.1		
Insurance solvency margin (in % of required margin)							
2007	235				265		223 <sup>(4)</sup>
2008	202				188		205 <sup>(4)</sup>
2009	231				260		233 <sup>(4)</sup>
2010	227				216		231 <sup>(4)</sup>
2011	207				201		198 <sup>(4)</sup>
2012 (Q1)	207				248		

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

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

(2) Consolidated data, based on the prudential reporting scheme, which does not always include all of the groups' subsidiaries.

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

(4) As reported in the quarterly accounts.

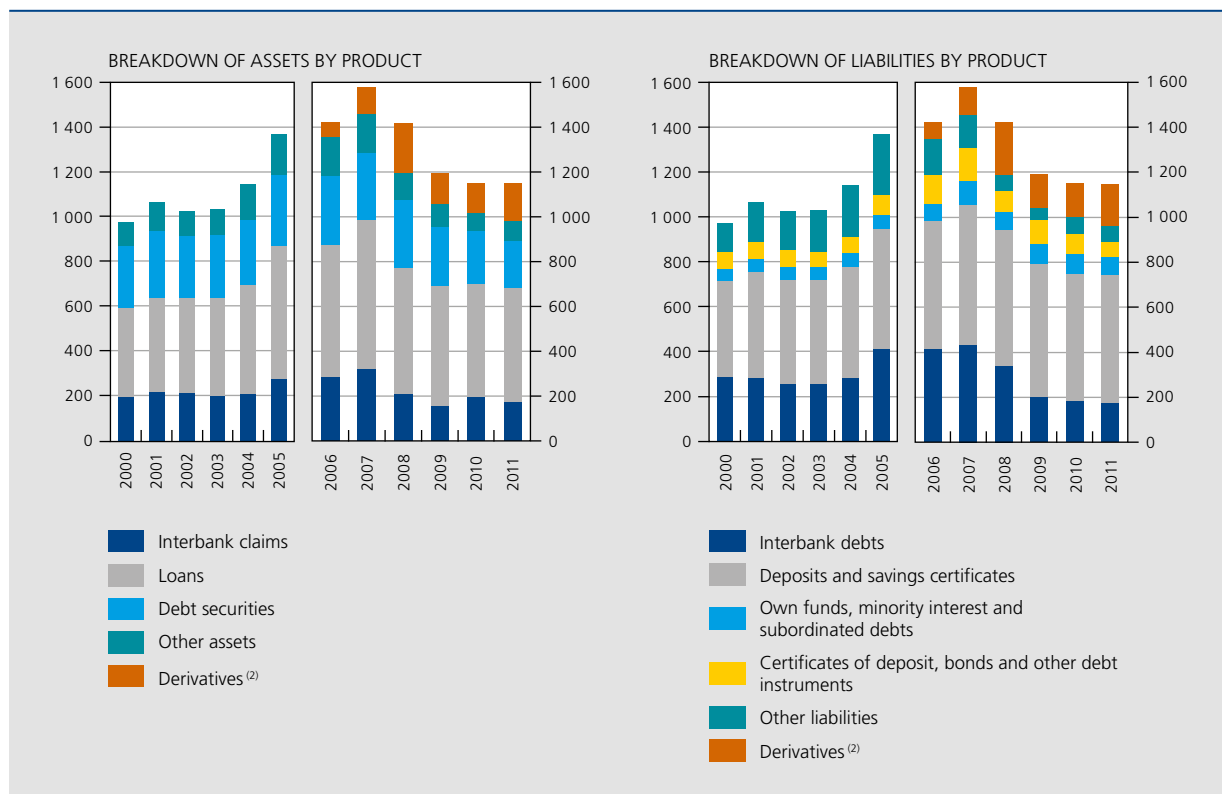
(5) As calculated according to Basel I.

(6) As calculated according to Basel II.

(7) Mix of Basel I and Basel II risk-weighted assets.

**CHART 13** BALANCE SHEET STRUCTURE OF BELGIAN CREDIT INSTITUTIONS<sup>(1)</sup>

(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.

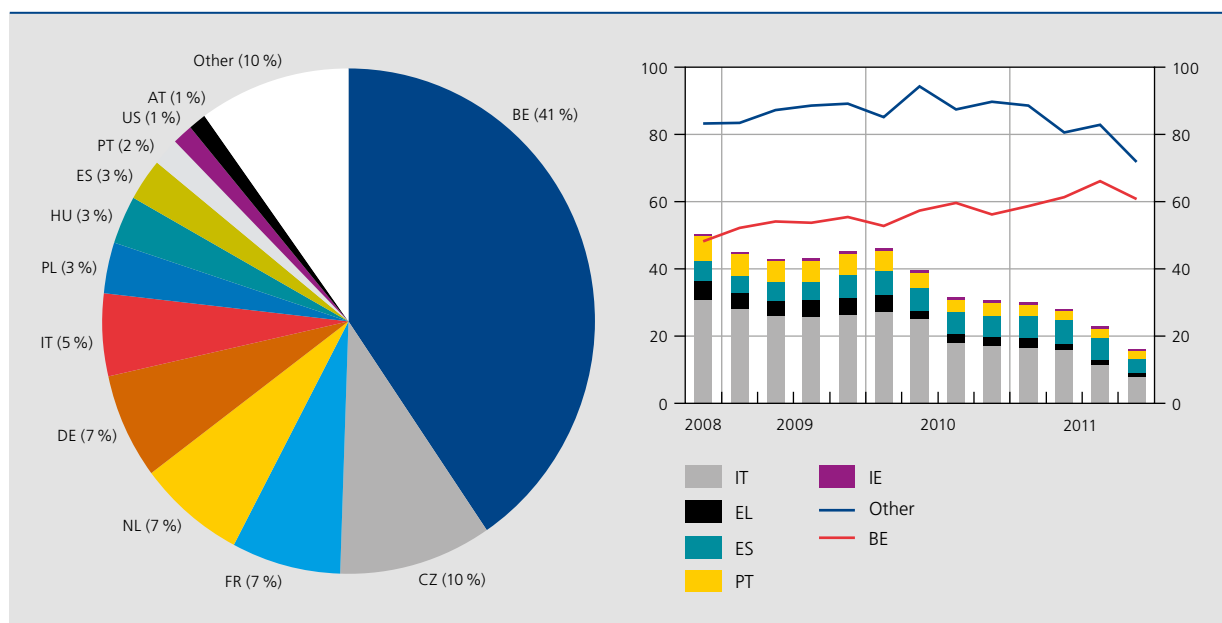
While the major financial institutions in the Belgian financial system are thus still engaged in an extensive restructuring of their activities, the intensification of the debt crisis in the euro area in the second half of 2011 may have added pressure on the banks to deleverage. Yet, looking simply at the development of the Belgian banks' total assets, the process of deleveraging appears to have slowed down in 2011 (Chart 13). After three years of continued deleveraging, this development is mainly the result of a big increase in the market value of interest-rate derivatives, due to the decline in long-term interest rates. Until 2005, when the consolidated banking data were established according to Belgian GAAP, these derivatives were accounted for off the balance sheet. Since 2006, with the adoption of IFRS, the market value of these contracts, and changes therein, are booked separately on the balance sheet. When we exclude developments in the market value of derivatives, the Belgian banking sector's total assets pursued their downward trend, contracting by a further € 38 billion in 2011. This decline was concentrated in the balance sheet of the four largest credit institutions,

as the assets of the other Belgian banks continued to grow in 2011.

One of the portfolios that contributed to the decline in total assets in 2011 was the sovereign bond portfolio (Chart 14). Escalating sovereign risk premiums in euro area countries during the course of 2011 have prompted many European and Belgian banks to reconsider the size and composition of their government bond portfolios. In Europe, there was a general increase in home bias, with reductions in cross-border exposures in particular focused on peripheral sovereign bonds. The Belgian banks were no exception in this regard. They significantly reduced their exposure to the public sector of European peripheral countries, as well as other cross-border holdings of sovereign government bonds, notably US Treasuries and Central and Eastern European government bonds. At the end of 2011, exposures to European peripheral countries reached € 16 billion or 11 % of total exposures to the public sector, compared to € 50 billion and € 31 billion at the end of 2008 and 2010, respectively. Exposures to Italy

**CHART 14**
**BELGIAN BANKS' EXPOSURE TO THE PUBLIC SECTOR<sup>(1)</sup>**

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



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.

dropped by more than half to € 7.8 billion, while exposure to the Spanish public sector declined from € 6.3 billion at the end of 2010 to € 4.0 billion at the end of last year. In the case of Greece, the observed reduction to € 1.2 billion undoubtedly also reflected the booking of large impairments on nominal exposures, in the light of the expected private sector involvement operation due in the course of the first quarter of 2012. Contrasting with these developments, Belgian credit institutions again stepped up their holdings of Belgian government bonds, which rose from € 56 billion at the end of 2010 to € 61 billion at the end of 2011. They represent 41 % of overall exposures to the public sector. Claims on central governments and local authorities in the Czech Republic, France, the Netherlands and Germany account for an additional 31 % of total claims on public sector debtors.

The contraction of the size of Belgian banks' underlying balance sheet is not only the result of a decrease in foreign government bonds but is part of a more general process by which exposures to foreign counterparties are being reduced, as banks move back to their core markets and activities. Table 3 breaks down the loan and debt securities portfolios, according to the type and geographical residence of the counterparty. These portfolios, which together account for 78 % of the total balance sheet, explain 90 % of the reduction in total assets since 2007.

The total amount of loans and advances and debt securities declined again in 2011, to reach € 684 billion and € 212 billion respectively at the end of the year.

At the end of 2011, retail loans (€ 263.1 billion) represented 38 % 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. These retail exposures are mainly claims on counterparties resident in Belgium (€ 202.2 billion), even if some banks have non-Belgian subsidiaries with a strong focus on retail banking business. Lending to the Belgian private sector in general so far seems to have been unaffected by the difficult macroeconomic environment, even though banks may have tightened somewhat their credit policies for some SMEs and for trade and project finance. Exposures to Belgian retail counterparties increased by € 7 billion in 2011, accounting for the major part of the overall increase in retail assets (more than € 9 billion). The growth in Belgium was backed to a large extent by mortgage loans to Belgian households (see also the related article in this Financial Stability Review).

As regards non-retail exposures, the bulk of the decline in 2011 of Belgian banks' loan portfolio and debt securities holdings followed from lower exposures to foreign central governments and non-resident (financial and



**TABLE 3** BREAKDOWN OF THE LOAN PORTFOLIO AND BANKS' DEBT SECURITIES HOLDINGS

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

	Total					of which vis-à-vis counterparties resident in Belgium				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
<b>Loans and advances<sup>(1)</sup></b>										
Credit institutions .....	320.8	213.2	156.1	195.8	174.3	14.8	8.2	7.9	12.3	7.0
Corporate .....	313.5	290.7	244.4	197.8	187.6	97.0	111.0	101.3	92.7	102.1
Retail .....	276.2	208.0	237.4	254.0	263.1	151.2	141.6	173.0	195.2	202.2
Central governments .....	16.4	13.3	14.4	11.3	9.2	9.6	6.4	8.7	3.7	6.2
Non-credit institutions <sup>(2)</sup> .....	60.1	43.5	40.3	43.6	49.4	30.3	33.0	35.4	34.1	44.4
<b>Total .....</b>	<b>987.0</b>	<b>768.7</b>	<b>692.6</b>	<b>702.4</b>	<b>683.7</b>	<b>302.9</b>	<b>300.2</b>	<b>326.3</b>	<b>338.0</b>	<b>361.9</b>
<b>Debt securities</b>										
Credit institutions .....	80.2	63.7	53.1	36.8	40.2	1.2	0.4	0.4	1.0	0.3
Corporate .....	70.2	71.7	49.1	45.0	40.3	4.3	19.5	1.0	1.4	3.2
Central governments .....	136.6	156.7	156.7	143.4	127.0	46.1	48.1	55.3	56.1	60.7
Non-credit institutions <sup>(2)</sup> .....	8.9	6.6	5.8	6.7	4.6	0.7	0.6	0.7	0.4	0.5
<b>Total .....</b>	<b>296.2</b>	<b>298.8</b>	<b>264.7</b>	<b>231.9</b>	<b>212.0</b>	<b>49.4</b>	<b>68.7</b>	<b>57.4</b>	<b>58.9</b>	<b>64.8</b>

Source: NBB.

(1) Including the loans and advances reported under "Held for Trading" (respectively € 39.1, 13.5, 4.3, 28.9 and 23.8 billion at the end of 2007, 2008, 2009, 2010 and 2011).

(2) The counterparty "Non-credit institutions" covers *inter alia* loans to financial institutions other than banks and to local government authorities.

non-financial) corporates. This development is consistent with continued asset sales and portfolio run-offs as part of the banks' restructuring strategies, focused on reducing non-core assets. The left-hand panel of Chart 15 confirms in this connection that the geographical breakdown of Belgian banks' loans and debt securities has changed significantly between the end of 2007 and 2011. Claims on Belgian counterparties increased by € 74 billion between the end of 2007 and the end of 2011, or, expressed as a percentage of total loans and advances and debt instruments, from a share of 27 % to 48 % four years later. On the contrary, exposures to euro area counterparties and the rest of the world declined by € 214 billion and € 249 billion respectively over the same period.

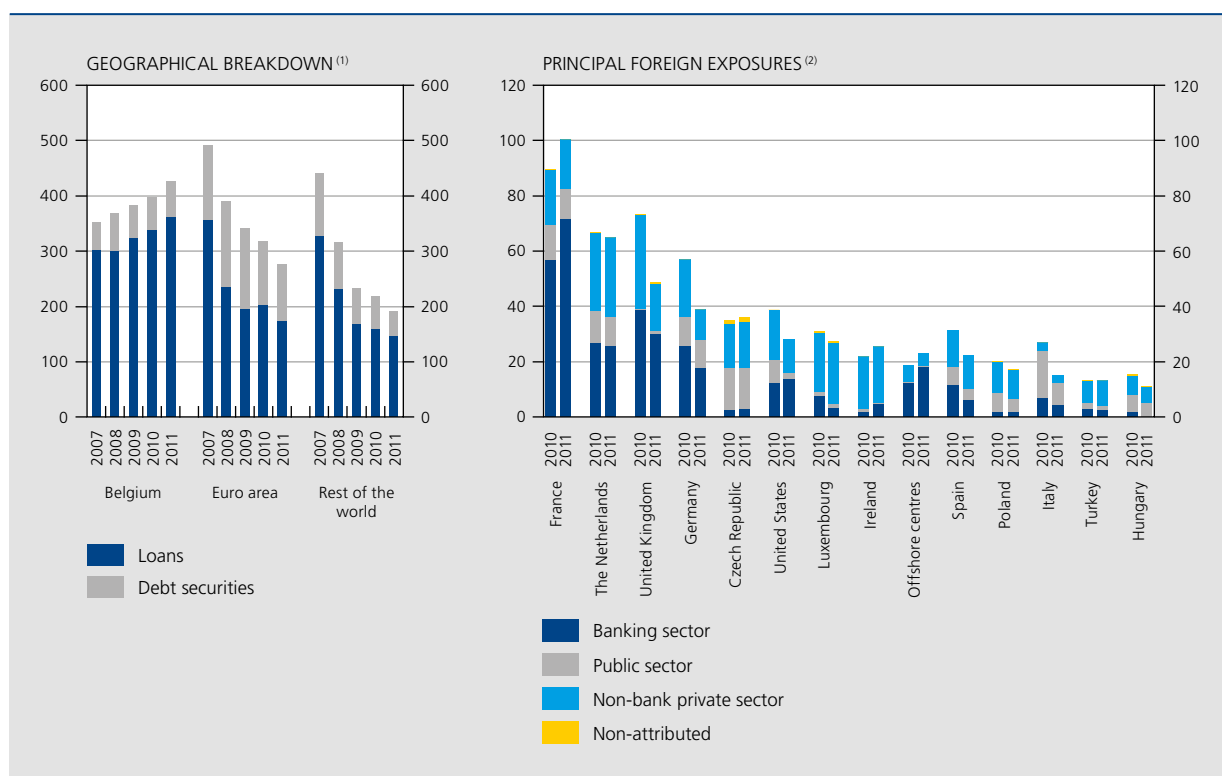
The right-hand panel of Chart 15 provides some detail about the principal foreign exposures at the end of 2010 and 2011. Neighbouring countries and major trading partners, such as France, the Netherlands, the UK or Germany, account for a major share of the Belgian banking sector's foreign exposures. In addition, Belgian banks have developed a strategic presence in Central and Eastern Europe, where total exposure came to € 91 billion at the end of December 2011, a level somewhat lower than in 2010. The four principal exposures in this region include the Czech Republic, Poland, Turkey and Hungary.

Looking more specifically at the exposures to the foreign non-bank private sector, the right panel of Chart 15 confirms that these remain significant, even though they have been reduced in some countries in 2011. At the end of December 2011, these claims still accounted for 40 % of Belgian banks' total foreign exposures. They are concentrated in Central and Eastern Europe (€ 50 billion), the Netherlands (€ 29 billion), Luxembourg (€ 22 billion), Ireland (€ 20 billion), France (€ 18 billion), the United Kingdom (€ 17 billion), the United States (€ 12 billion) and Spain (€ 12 billion). In Ireland, Turkey and several Central and Eastern European countries, the majority of these non-bank private sector claims take the form of loans to corporates and retail counterparties granted by Belgian banks' local subsidiaries. For the other claims on the foreign non-bank private sector, 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).

While remaining the largest component of total foreign exposures, claims on foreign banking institutions have been further reduced in 2011 as a result of renewed tensions in the interbank market. Yet, Belgian banks still have substantial exposures to the foreign banking sector

**CHART 15**
**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.

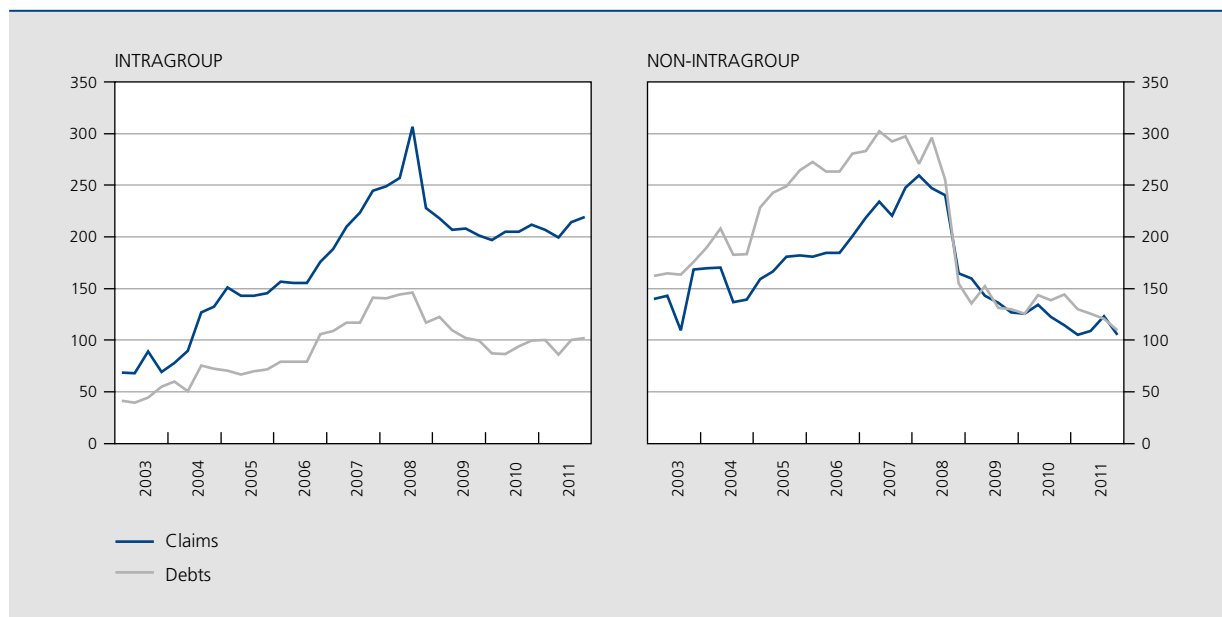
(2) Data obtained from the consolidated reporting of international banking statistics. Data compiled in accordance with the Belgian accounting standards (Belgian GAAP). The assets are classified according to the ultimate risk, i.e. after risk transfer.

in France (€ 72 billion), the United Kingdom (€ 30 billion), the Netherlands (€ 26 billion) and Germany (€ 18 billion). To some extent, these consolidated data capture intragroup interbank exposures, for example when the Belgian consolidating credit institutions are part of a larger financial group, such as in the case of BNP Paribas Fortis or ING Belgium. The increase in exposures vis-à-vis the French banking sector in 2011 relates to such intragroup claims.

Chart 16 looks more closely at the importance of intragroup financing, using data compiled on a territorial basis, distinguishing the intragroup flows between banking entities located in Belgium and those based abroad from other 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. On the eve of the major change in the consolidation perimeter of BNP Paribas Fortis in the fourth quarter of 2008, net intragroup financing by Belgian counterparties amounted

to € 161 billion. At the end of that year, reflecting to a large extent the end of intragroup financing of Fortis Bank Nederland, this amount had dropped to € 111 billion. After a temporary fall, this net sum of intragroup financing returned to close to € 110 billion in the period 2010-2011. At the end of last year, the gap between gross intragroup interbank claims and debts reached € 117 billion. As non-intragroup transactions are balanced, this means 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 branches and subsidiaries of foreign banking groups) are part of bigger banking groups. Different models for recycling funding within a group across borders can be distinguished. 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 Belgium).

**CHART 16** CROSS-BORDER INTERBANK INTRAGROUP AND NON-INTRAGROUP POSITIONS  
(consolidated end-of-period data, in € billion)



Source : NBB.

## 2.2 Liabilities and funding structure

Intragroup transactions are an important dimension of the overall liquidity position and management of the Belgian banks, which continue to enjoy a large and broadly stable deposit base. Chart 17 shows that, on a company basis, total customer deposits have been close to € 500 billion since 2007, even if they fell back somewhat over recent months (from € 516 billion at the end of June 2011 to € 505 billion at the end of March 2012). Within these total customer deposits, there have nevertheless been some important changes in composition, with a sharp rise in the amount of savings deposits at the expense of term deposits. Savings deposits stabilised through the year 2011, offsetting the outflows related to the successful issuance of State notes in December, and increased again by € 6 billion during the first three months of 2012 due to customers' preference for these products given the increasing yield differential vis-à-vis term and sight deposits and, possibly, the upward revision in the withholding tax. Up to a certain threshold, interest revenues on regulated savings deposits are indeed exempt from this tax.

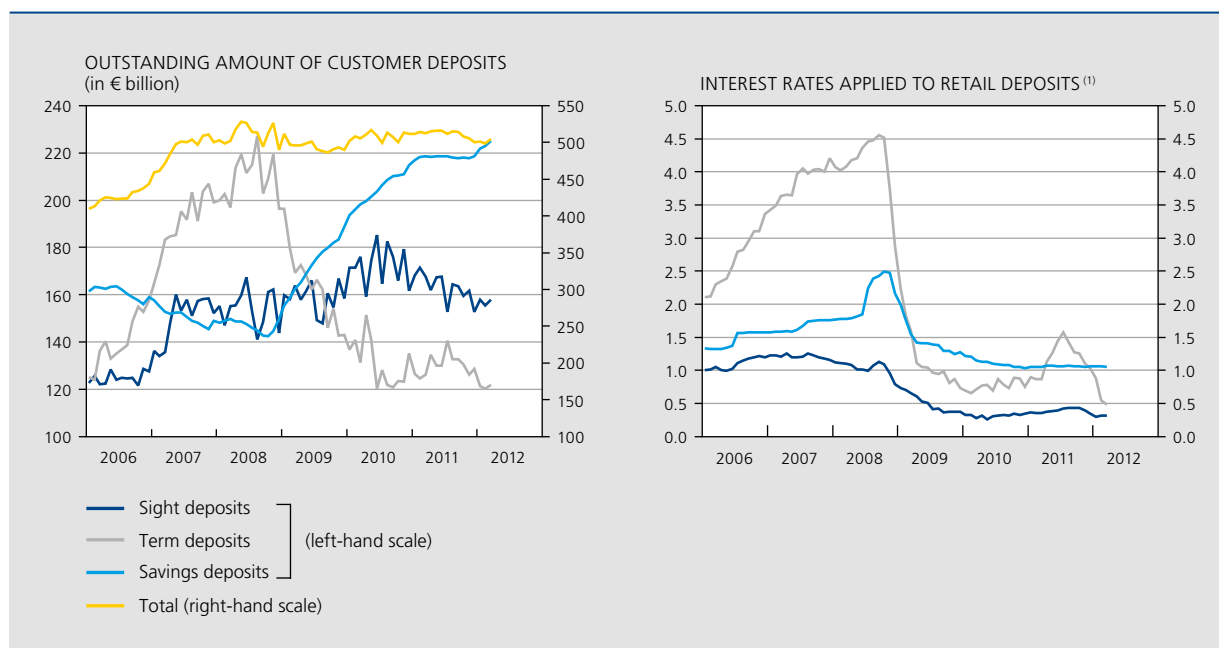
On a consolidated basis, taking into account deposits collected through foreign subsidiaries, customer deposits reached € 568 billion at the end of 2011. The total amount of customer deposits breaks down into

€ 339 billion of retail deposits (including savings certificates) and € 229 billion of other customer deposits.

As shown in Chart 18, retail deposits and savings certificates are the only source of funding – together with central bank financing – to have increased (by € 35 billion) relative to the levels recorded at the end of June 2006. Expressed in terms of total funding, their share increased from 28 % at the end of 2008 to 41.8 % at the end of last year. All the other non-central bank sources of financing shown in Chart 18 have been reduced as part of banks' strategies to shrink their assets and lower their reliance on wholesale financing. This reorientation of the funding structure of Belgian banks towards more retail funding has gone hand in hand with a refocus on domestic funding sources. If we exclude central bank funding, the share of funding that is sourced in Belgium jumped from 42.7 % to 58.1 % of total funding between the end of 2008 and the end of 2011.

The non-retail customer deposits, interbank debts and debt financing form together the Belgian banks' wholesale funding. Belgian banks started to reduce their reliance on wholesale funding in the fourth quarter of 2008, when severe disruptions in funding markets put serious pressure on the liquidity position of Dexia and Fortis. In 2011, this reduction of wholesale funding continued. While financing via certificates of deposit and bonds was reduced by

**CHART 17** CUSTOMER DEPOSITS : OUTSTANDING AMOUNTS AND INTEREST RATES APPLIED  
(unconsolidated data)



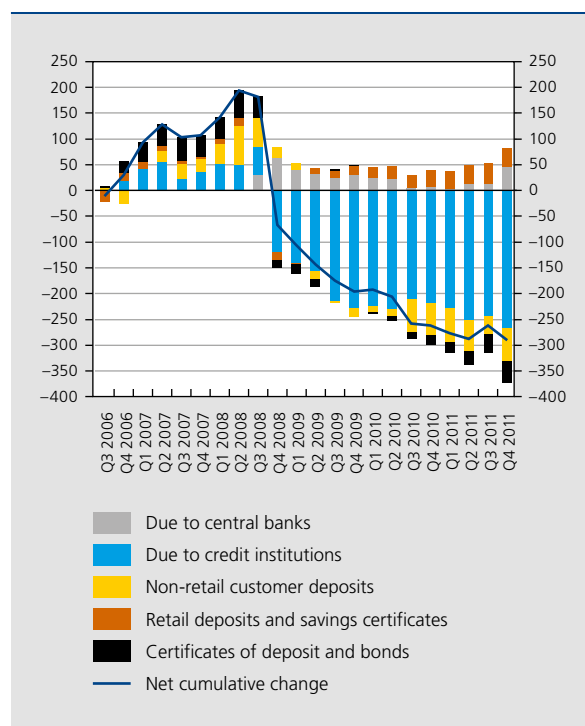
Source : NBB.

(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 the term deposits.

€ 22 billion, wholesale deposits decreased by € 50 billion, mainly in the form of interbank deposits. This further reduction of wholesale financing in 2011 was in line with the banks' business model restructuring. Yet, in part, it also stemmed from increasing difficulties to roll over maturing funds as a result of tensions in the euro area bank funding markets, rating downgrades and idiosyncratic funding problems in the case of Dexia Bank Belgium before its nationalisation in October 2011. (Re)financing in dollars was also complicated by US counterparties' increased reluctance to lend to European banks.

Table 4 provides some additional data about the Belgian banking sector's funding structure, together with information on the pool of unencumbered liquid assets and the regulatory stress test ratio. The table also shows the development of the ratio between the banking sector's customer loans and customer deposits, showing a stable loan-to-deposit ratio of 90 % since 2009. Deposits, including interbank deposits, amounted to € 715 billion at the end of 2011, with debt certificates providing an additional € 101 billion in bank funding. Around € 308 billion of this total funding is wholesale funding that matures within one year. This short-term wholesale financing consists of unsecured and secured wholesale financing. Short-term unsecured wholesale funding shrank by € 60 billion in 2011, confirming that refinancing tensions

**CHART 18** CUMULATIVE CHANGES IN DEPOSITS COLLECTED AND SECURITIES ISSUED SINCE JUNE 2006  
(consolidated data, in € billion)



Source : NBB.

were particularly vivid in the unsecured wholesale market. In contrast, short-term secured wholesale funding increased by € 6 billion. This latter category includes the financing obtained from central banks maturing within one year, thus excluding the amounts obtained by Belgian banks in the December 3-year LTRO.

The growing recourse to short- and long-term secured funding sources, together with higher haircuts, increased collateral calls in some derivative contracts and a falling market value of collateral (e.g. government bonds), led to a decline in the stock of unencumbered liquid assets, from € 232 billion at the end of 2010 to € 191 billion at the end of 2011. This decline in the buffer of liquid assets has come despite some new securitisation operations of Belgian mortgage loans for an estimated global amount of € 11 billion in the last few months of 2011. As in the past, Belgian banks made use of these operations to create central bank-eligible collateral as they kept the related debt securities on their balance sheet.

The left-hand panel of Chart 19 shows the monthly development of the stock of unencumbered liquid assets as a percentage of total assets since the end of 2009, on a company basis. After reaching more than 20 % of total assets in the course of 2010 and the first months of 2011, the ratio declined again as a result of the above-mentioned factors, reaching 16 % at the end of 2011. The decline in the unencumbered liquid asset pool in 2011 mainly concerned the assets eligible for central bank financing. In the first three months of 2012, the ratio rose again, reaching 17 % at the end of March 2012.

The right-hand panel of Chart 19 shows the development of the regulatory liquidity stress test ratio on a consolidated and company basis. Since 1 January 2011, this regulatory ratio has become binding, while before it was simply an observation ratio. It is designed to ensure that banks have sufficient high-quality liquid assets to survive a severe stress scenario lasting for one month. To satisfy the requirements, this ratio should be 100 % or lower. As shown as well in Table 4, the liquidity stress test ratio on a consolidated basis rose from 78 % at the end of 2010 to 83 % at the end of 2011, as the negative impact of the decline in the stock of unencumbered liquid assets outweighed the reduction in funding sources that are most penalised in the stress test, in particular short-term wholesale funding. The Chart also shows the development of the liquidity stress test ratio on a company basis. These indicators suggest that the short-term liquidity profile of the Belgian banks improved in the

**TABLE 4** FUNDING STRUCTURE, LIQUIDITY BUFFER AND REGULATORY LIQUIDITY STRESS TEST RATIO

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

	2009	2010	2011
Total assets .....	1 190	1 151	1 147
Total funding <sup>(1)</sup> .....	913	849	816
o/w deposits .....	763	724	715
o/w debt certificates .....	150	125	101
Short-term wholesale funding <sup>(2)</sup> .....	454	362	308
o/w unsecured .....	267	222	162
o/w secured .....	187	140	146
Unencumbered liquidity buffer ..	223	232	191
Regulatory liquidity stress test ratio (in %) <sup>(3)</sup> .....	102	78	83
Loan-to-deposit ratio (in %) <sup>(4)</sup> ..	90	90	90

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.

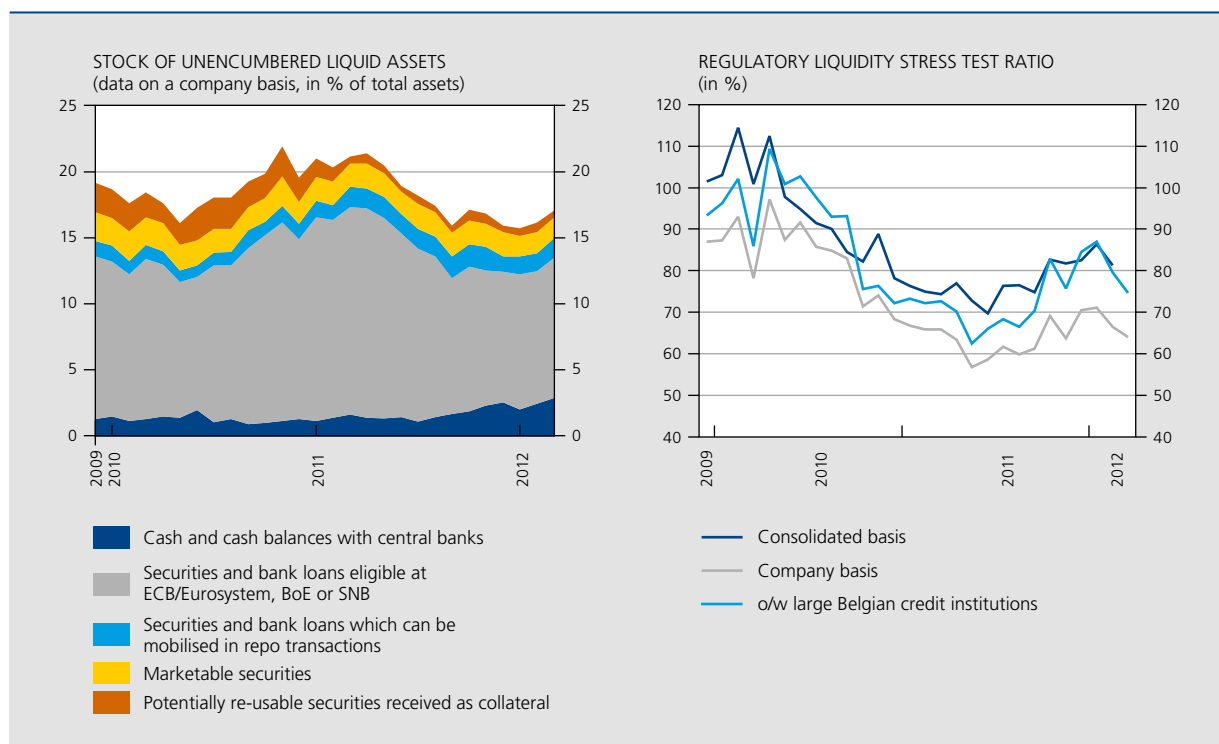
(3) Regulatory stress test ratio for the one-month horizon. It is a ratio between net cash outflows in a liquidity stress test scenario – simulated i.a. by applying stressed run-off rates to various sources of funding – and the available unencumbered liquidity buffer. The ratio should be 100 % or lower.

(4) Ratio between customer loans and customer deposits.

first quarter of 2012, for both the sector and the group of the four large credit institutions, whose ratios remain higher than for the group of the other Belgian credit institutions, which rely to a larger extent on retail-based funding and are thus less sensitive to the NBB's liquidity stress scenarios.

The overall methodology of the Belgian regulatory stress test ratio is comparable to the Basel III liquidity coverage ratio which will be implemented as of 2015. The other Basel III liquidity ratio, the net stable funding ratio, will be imposed as of 2019. It aims at limiting the long-term differences between – on the one hand – illiquid assets and the potential absorption of liquidity relating to off-balance-sheet activities and – on the other hand – sources of funding considered to be stable. These less volatile funding sources are mainly comprised of customer deposits and long-term debt financing. As concerns the latter, the introduction of a Belgian covered bond framework is likely to broaden the possibilities for Belgian banks to issue long-term bonds (see Box 1).

**CHART 19** STOCK OF UNENCUMBERED LIQUID ASSETS AND LIQUIDITY STRESS TEST RATIO



## Box 1 – A legal framework for Belgian covered bonds

In Belgium, there was no legal framework for the issuance of covered bonds. In order to broaden the possibilities for Belgian banks to issue medium- and long-term bonds, a draft law for the establishment of a legal framework for Belgian covered bonds has been agreed, and is now in its final steps before becoming operational. Covered bonds are dual-recourse instruments. This means that, besides the claim on a pool of assets which cover the bonds – usually mortgage loans or claims on public sector entities –, the investor also has recourse to the issuer, which is not the case for asset-backed securities. The latter can also be distinguished from covered bonds by the fact that the credit risk is no longer borne by the issuer, the assets being transferred to a separate vehicle, whereas for covered bonds, the covering assets remain on the balance sheet of the issuer.

The draft law on Belgian covered bonds and the royal decree of application define, amongst other things :

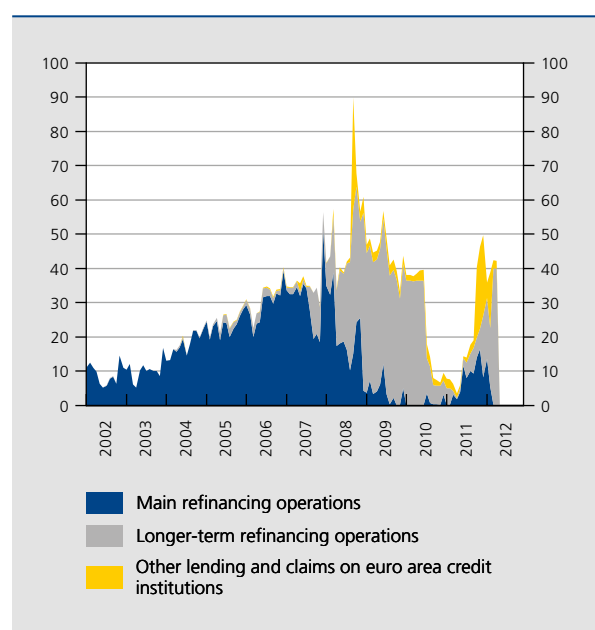
- the conditions to be met by the Belgian credit institutions to carry out such activity and the additional authorisation requirements to issue Belgian covered bonds;
- the types of assets eligible for inclusion in the cover pool of Belgian covered bonds (mainly mortgage loans and claims on public sector entities), as well as the rules governing the valuation and composition of the cover pool, including the required degree of over-collateralisation;
- the nature of the cover pool as a separate pool of assets of the issuer, segregated from its general assets and set aside exclusively for the reimbursement of the holders of Belgian covered bonds;

- the regime for managing that separate pool of assets, the conditions for appointing a portfolio manager and their powers.

While offering the Belgian credit institutions a new funding possibility, the issuance of covered bonds raises nevertheless a number of issues. The main one relates to the increasing encumbrance of the balance sheet, heightened by the usual over-collateralisation of covered bonds, and, as a consequence, the declining share of assets that remain available to cover depositors and unsecured bondholders, which might, in the latter case, push up the cost of such funding. To meet these concerns, the framework will allow the National Bank of Belgium to limit the amount of covered bonds that any one institution can issue. However, these restrictions are not a panacea for limiting the encumbrance of Belgian banks' assets because other funding instruments, such as securitisation or repo transactions, while different from the issuance of covered bonds, might lead to the same outcome.

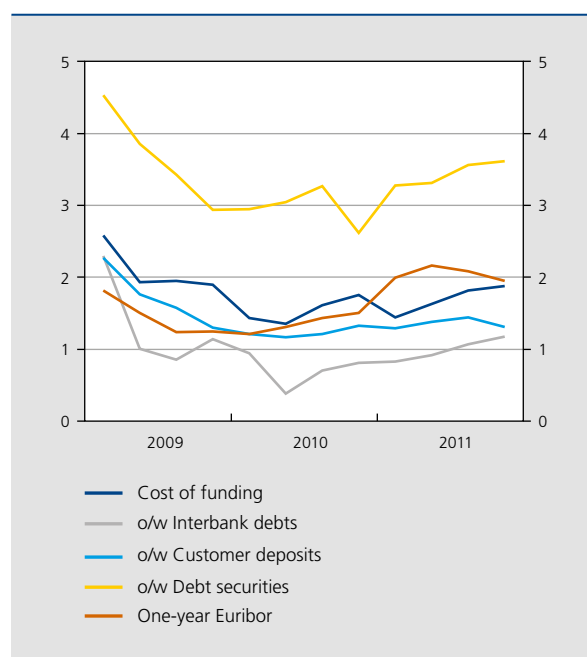
Even though the aggregate result of the liquidity stress test ratios has remained under the regulatory threshold of 100 %, this hides quite divergent positions within the individual institutions. As highlighted previously, Dexia Bank Belgium has had to cope with acute liquidity pressures, which forced it to resort to a large extent to central bank funding in order to compensate for the loss of other sources of funding. Chart 20 shows the significant increase in loans provided by the National Bank of Belgium to euro area credit institutions. This central bank financing, which in practice mainly concerns Belgian

**CHART 20** NATIONAL BANK OF BELGIUM'S CLAIMS ON EURO AREA CREDIT INSTITUTIONS  
(in € billion)



Source : NBB.

**CHART 21** BELGIAN CREDIT INSTITUTIONS' COST OF FUNDING AND ONE-YEAR EURIBOR RATE  
(data on a company basis, in %)



Sources : Thomson Reuters Datastream, NBB.

credit institutions, rose from €3 billion at the end of April 2011 to almost €50 billion at the end of 2011. Of this €50 billion, almost half of the central bank financing was provided outside the regular ECB refinancing operations, reflecting exceptional liquidity assistance to Dexia Bank Belgium/Belfius in the framework of the restructuring of Dexia SA. By the end of March and April 2012, this total Bank financing had dropped again to €42 billion, in spite of the additional liquidity provided to Belgian credit institutions on the occasion of the second 3-year LTRO,



conducted at the end of February. In this connection, while some Belgian banks have stepped up their recourse to central bank financing to offset or pre-fund funding arriving at maturity, other banks appear to have taken this opportunity of long-term central bank financing to lock in stable financing at a moderate cost. While the funding via the LTROs will be available for a period of three years, some banks could repay part of it earlier to avoid an important “cliff effect” at the end of the maturity and associated difficulties of refinancing with a potentially high competition at that time.

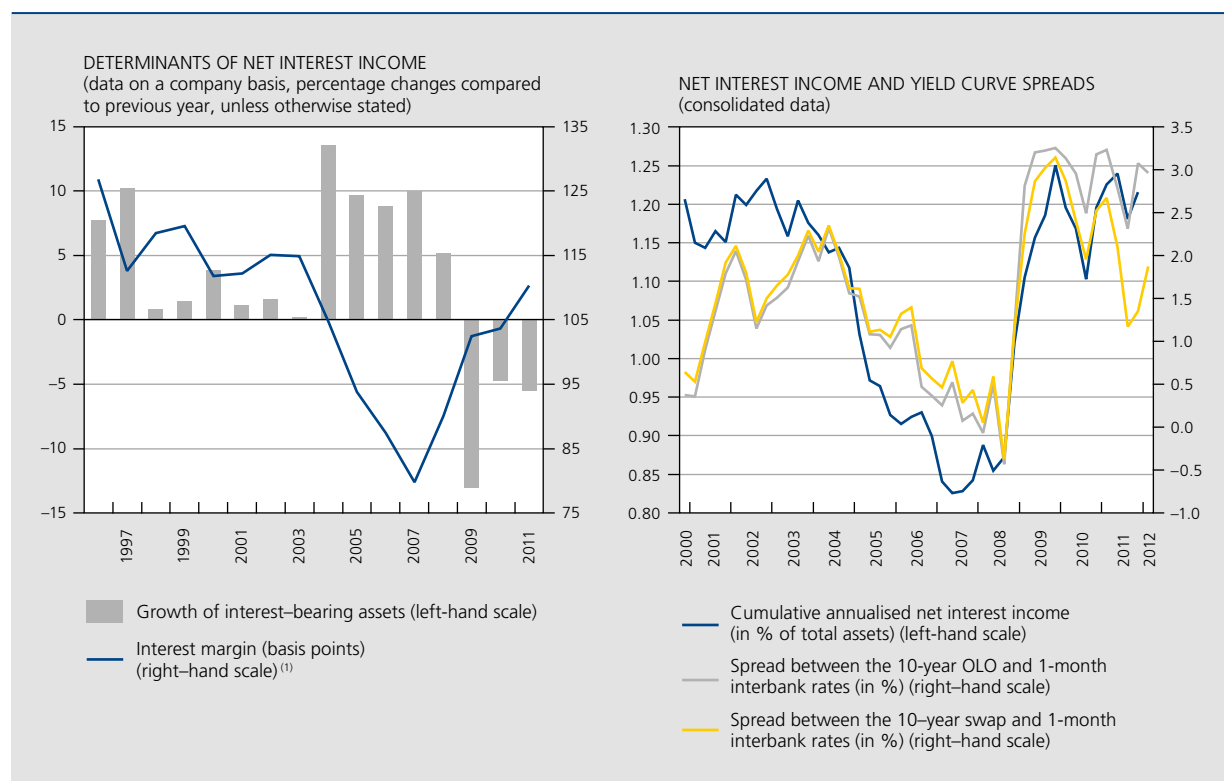
The funding received through the LTROs has eased potential short-term refinancing pressures, buying additional time for banks to adjust business models to the important changes in the funding environment that have occurred since 2007. These changes include a better pricing of liquidity risk and a higher cost of funding for banks perceived to have a weak financial profile. While banks’ profitability may suffer from a higher reliance on medium- or long-term debt instruments, retail deposits could also become more expensive in case of greater competition between banks for this funding source. Against this

background, Chart 21 highlights recent developments in the cost of several funding sources, showing that many of those became more expensive in 2011 notwithstanding a quite stable development in the Euribor rate. In particular, the cost of funding via debt securities tended to increase in 2010 and 2011, highlighting the further challenges Belgian banks could face in securing stable funding at a reasonable cost and so, to reach sufficient profitability levels.

## 2.3 Profitability

Despite the increase in Belgian banks’ cost of funding, net interest income increased slightly in 2011 to € 13.9 billion from € 13.8 billion in 2010 and proved to be one of the main supporting factors of net profit. In 2011, the net profit of the Belgian banking sector amounted to € 0.4 billion, a sharp contraction in comparison to the previous year when total profits reached € 5.6 billion, as impairments and, to a lesser extent, non-interest income and restructuring costs weighed on the bottom line (Table 5). The return on equity of Belgian banks reached a low of 0.7 %, down from 10.5 % in 2010.

**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.

**TABLE 5** MAIN COMPONENTS OF THE INCOME STATEMENT  
(consolidated data)

	In € billion					In % of operating income
	2007	2008	2009	2010	2011	
<b>Net interest income</b> .....	<b>13.30</b>	<b>14.48</b>	<b>14.89</b>	<b>13.77</b>	<b>13.95</b>	<b>71.2</b>
<b>Non-interest income</b> .....	<b>13.01</b>	<b>4.80</b>	<b>3.93</b>	<b>6.39</b>	<b>5.65</b>	<b>28.8</b>
Net fee and commission income (excluding commissions paid to bank agents) .....	7.35	6.76	5.66	5.15	5.24	26.8
(Un)realised gains or losses on financial instruments <sup>(1)</sup> .....	3.76	-3.83	-2.74	-0.04	-0.76	
Other non-interest income .....	1.91	1.86	1.01	1.28	1.17	
<b>Total operating income (bank product)</b> .....	<b>26.31</b>	<b>19.28</b>	<b>18.82</b>	<b>20.15</b>	<b>19.60</b>	<b>100.0</b>
<b>Total operating expenses (-)</b> .....	<b>16.08</b>	<b>16.59</b>	<b>14.61</b>	<b>13.29</b>	<b>13.18</b>	<b>67.3<sup>(2)</sup></b>
Staff expenses (including commissions paid to bank agents) ...	9.15	9.20	7.94	7.40	7.43	
General and administrative expenses (including depreciation) ..	6.93	7.39	6.67	5.90	5.75	
<b>Total impairment and provisions (-)</b> .....	<b>3.18</b>	<b>13.31</b>	<b>7.36</b>	<b>1.83</b>	<b>5.02</b>	
Impairments on loans and receivables .....	0.38	2.84	5.59	1.76	3.05	
Impairments on other financial assets .....	2.50	7.46	0.29	-0.09	1.37	
Other impairments and provisions .....	0.30	3.01	2.06	0.16	0.60	
<b>Other components of net operating income<sup>(3)</sup></b> .....	<b>0.64</b>	<b>-0.83</b>	<b>0.11</b>	<b>0.45</b>	<b>-0.37</b>	
<b>Net operating income<sup>(4)</sup></b> .....	<b>7.71</b>	<b>-11.43</b>	<b>-3.04</b>	<b>5.48</b>	<b>1.02</b>	
<b>Total profit or loss on discontinued operations</b> .....	<b>0.00</b>	<b>-9.04</b>	<b>0.00</b>	<b>0.97</b>	<b>-0.31</b>	
<i>p.m. Net profit or loss (bottom-line result)<sup>(5)</sup></i> .....	<i>6.66</i>	<i>-21.21</i>	<i>-1.22</i>	<i>5.56</i>	<i>0.36</i>	

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 and disposal groups classified as held for sale, not qualifying as discontinued operations.

(4) Including the negative goodwill recognised immediately in profit or loss, which is not shown as such in the table, and amounted to € 0.02 billion in 2007, € 0.03 billion in 2008, € 0.00 billion in 2009, € 0.00 billion in 2010 and € 0.04 billion in 2011.

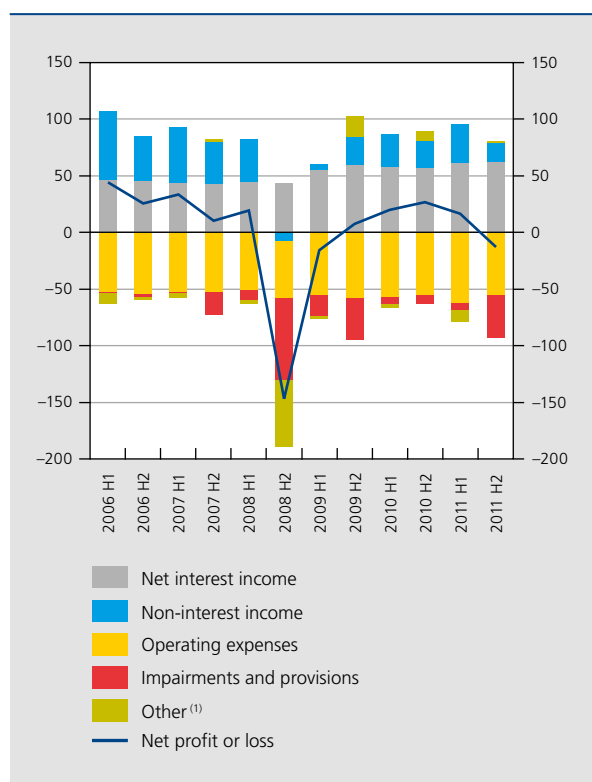
(5) The amounts of taxes and minority interests, which are items explaining the difference between net operating income and the net bottom-line result, are not broken down in this table, but can be found in Table 10 of the Statistical Annex.

Despite additional reductions in the amount of interest-bearing assets and liabilities, Belgian banks have been able to benefit from the still advantageous slope of the yield curve, allowing them to further increase their interest margins (Chart 22). While the spread between one-month interbank rates and the 10-year swap yield decreased in the course of 2011, the yield differential with Belgian government bonds (OLOs) – on which the reference rates for the repricing of Belgian variable rate mortgage loans are based – remained elevated. Looking ahead, the extent to which Belgian banks will be able to sustain a high level of net interest income will depend also on the share of their operations that will be (re)priced according to one or the other long-term

reference rate. So far, Belgian banks have been able to offset the negative impact of more expensive wholesale funding as well as the reduction, in an environment of low interest rates, of the structural margins banks can earn on cheap deposits (such as sight or savings deposits). They nevertheless remain vulnerable to an increase in short-term interest rates and the associated flattening of the yield curve, making maturity transformation activities less profitable. Even under the hypothesis of a persistently steep yield curve, the low interest rate environment will lead to the repricing of financial assets at lower yields than historical coupons and exert downward pressure on margins or, alternatively, give an incentive to banks to increase carry-trade positions.

**CHART 23**
**MAIN COMPONENTS OF THE INCOME STATEMENT**

(consolidated data, in % of total assets, basis points)



Source: NBB.

(1) This item comprises mainly exceptional items and taxes.

In 2011, non-interest income totalled €5.6 billion, a €0.7 billion drop on 2010. In 2011, non-interest income accounted for 28.8 % of total operating income while this percentage had been around 50 % in 2006 and 2007, reflecting the change in Belgian banks' profitability drivers over time and the transition towards a business model characterised by a return to more traditional activities. Fee and commission income proved stable, the impact of customers' smaller investment appetite being offset, among other things, by fees on the placement of Belgian State notes. On the contrary, trading results deteriorated significantly from a negative result of €42 million in 2010 to a loss of €763 million in 2011. Widening of spreads on corporate, bank and government bonds had a negative impact on the market value of these instruments. Sales of bonds and mark-to-market losses on equity positions also contributed to the deterioration of results. Important mark-to-market accounting gains on liabilities of around €1 billion, related to the positive impact of rising credit spreads on own liabilities, limited losses, however. As shown in Chart 23, the negative trend in non-interest income mainly took place during the second half of the year.

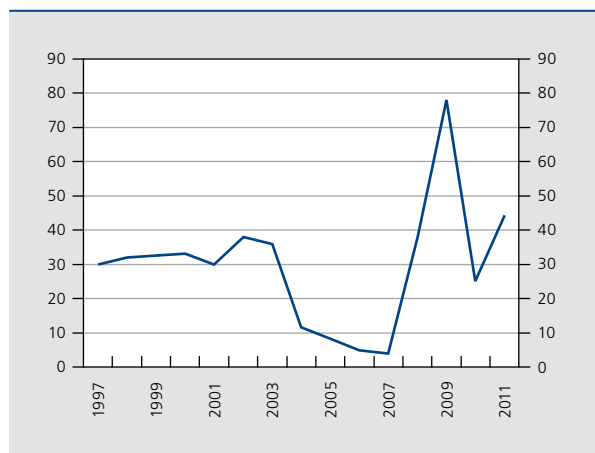
Operating expenses remained under control in 2011, reaching a level close to that seen a year before. However, the fact that these expenses tend to stabilise while structural income sources come under pressure could lead to a deterioration in the cost-to-income ratio, which compares operational expenses, such as staff expenses, to total operating income. 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. 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 more severe Basel III solvency rules as compared to the current standards.

Last year, exceptional items and costs related to group restructurings put the bottom line of the income statement under pressure. First, Belgian banks had to record losses on their shares in associated entities, such as Dexia Asset Management in the case of Belfius and AG Insurance in the case of BNP Paribas Fortis, of around €0.4 billion in total. BNP Paribas Fortis also suffered some one-off losses due to the reorganisation of its group's Turkish activities, reported under the item "profit and losses on discontinued operations", which compared negatively to strong one-off gains made in 2010 on the sales of subsidiaries and branches.

Total impairments and provisions proved to be the major driver of the marked decline in the Belgian banking sector's net profits. They reached a high level of €5.0 billion in 2011, a marked increase when compared to the previous year when they totalled €1.8 billion, even though they remained below the peak levels reached in 2008 and 2009. The main cause of this deterioration in the cost of risk was the provisions banks had to take on their holdings of Greek bonds. In this connection, KBC also had to book provisions on retail investment products partly linked to the performance of Greek government bonds. These losses were recorded in the bank's non-interest income.

Disregarding impairments on Greek government bonds, other impairments also rose in 2011. As shown in Chart 24, the loan loss ratio rose from 25 basis points in 2010 to 44 basis points in 2011, which is higher than the historical average. The cost of risk on Belgian counterparties remained low, but deteriorated somewhat during the last few months of the year on the back of a worsening economic environment. In 2011, impairments on loans were related, to a large extent, to loans to foreign counterparties, including the Hungarian and Irish private

**CHART 24** LOAN LOSS RATIO<sup>(1)</sup>  
(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.

sectors. In Ireland, important provisions had to be taken on mortgage loans and corporate loans linked to the real estate sector. In Belgian banks' Hungarian entities, impairments were mainly related to FX mortgage loan portfolios. Depreciation of the Hungarian forint led to repayment difficulties for an increasing share of households which had taken out a mortgage in foreign currency, mainly in Swiss francs. The provisions banks had to take on these portfolios were pushed higher towards the end of the

year when the Hungarian government unilaterally implemented measures to support troubled mortgage borrowers. The possibility for borrowers to repay their loans at a favourable exchange rate forced banks to recognise important provisions, as they were bearing the losses related to exchange rate differentials.

## 2.4 Asset quality

The observed increase in the loan loss ratio followed from the rise in the percentage of impaired claims, which almost doubled between 2007 and 2011 to reach 3.3 % on average at the end of last year (Table 6). Loans to retail borrowers and corporates showed the strongest developments, with percentages of impaired claims for these counterparties rising to respectively 4.1 % and 5.9 %. The main cause of the deterioration in the credit quality of Belgian banks' loan portfolios lies in their exposures to foreign counterparties, stemming for example from Belgian banks' participation in international corporate financing markets or their presence through subsidiaries in countries where credit risks have materialised to an important extent, as in Hungary and Ireland. The coverage ratio of impaired loans dropped slightly from 42.8 % to 41.5 % between 2010 and 2011.

In an economic environment characterised by weak growth prospects in several countries in and outside of the euro area, a further deterioration of loan portfolio quality of the Belgian banks cannot be ruled out. As was shown in Chart 15, exposures vis-à-vis Central and Eastern European

**TABLE 6** CREDIT QUALITY INDICATORS  
(consolidated end-of-period data, in € billion, unless otherwise stated)

	Total loans	Percentage of impaired claims <sup>(1)</sup>					Coverage ratio <sup>(2)</sup>				
		2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Credit institutions	174.3	0.0	0.4	0.8	0.4	0.3	59.0	68.2	47.7	55.5	88.2
Corporate <sup>(3)</sup>	187.6	2.3	2.3	4.3	4.9	5.9	37.2	47.1	46.0	43.2	42.7
Retail <sup>(4)</sup>	263.1	2.8	3.3	3.5	3.5	4.1	27.6	33.6	39.0	41.2	39.7
Non-credit institutions <sup>(5)</sup>	49.4	0.3	1.3	0.3	0.9	0.6	31.9	19.9	17.9	45.4	29.2
<b>Total<sup>(6)</sup></b>	<b>683.7</b>	<b>1.5</b>	<b>2.0</b>	<b>2.9</b>	<b>2.8</b>	<b>3.3</b>	<b>32.3</b>	<b>41.1</b>	<b>43.0</b>	<b>42.8</b>	<b>41.5</b>

Source : NBB.

(1) Impaired claims (according to IAS 39 definition) as a % of total loans.

(2) Percentage of impaired claims covered by specific or general provisions.

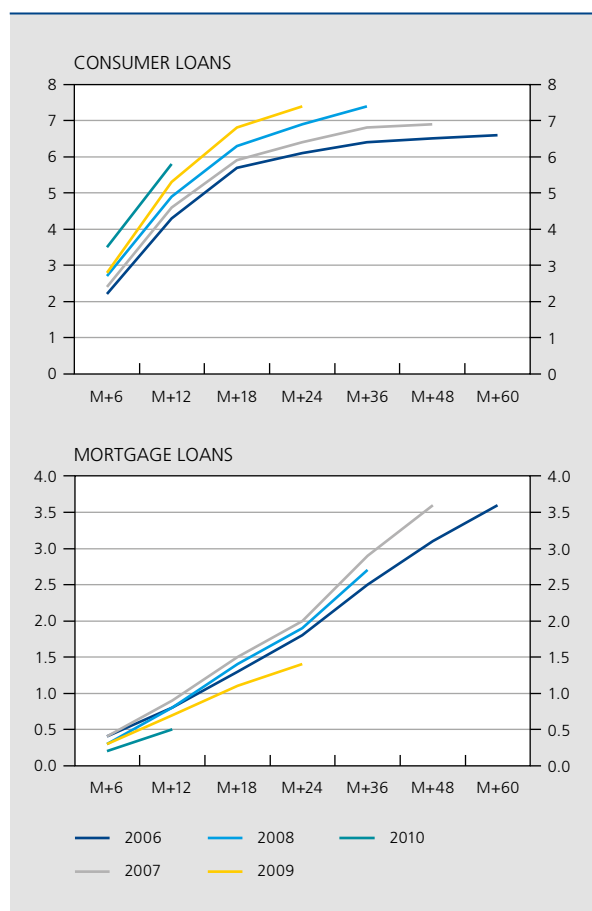
(3) Exposures on non-financial corporations, plus some non-bank financial corporations.

(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.

**CHART 25** PROPORTION OF LOANS TO BELGIAN HOUSEHOLDS WITH PAYMENT DEFAULTS<sup>(1)</sup>, BY VINTAGE<sup>(2)</sup>  
(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 regularisations of loans are not taken into account.

counterparties with potential economic imbalances also remain quite significant (e.g. Hungary or Turkey).

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 25). For the vintage 2009 of consumer loans, for example, the cumulative default rate after 24 months reached 7.4% in 2011, while the comparable figures for vintages 2008, 2007 and 2006 after two years had been respectively 6.9%, 6.4% and 6.1%. The vintage statistics for mortgage loans show no clear deviation from historical default rates, as cumulative default rates broadly follow the same trajectory. In this connection, it must be noted however that the low trajectory of the most recent

vintages 2009 and 2010 may reflect to some extent the high number of so-called green loans originated during those years, creating an upward bias in the denominator of the ratio (for more details, see the related FSR article on recent developments in the Belgian residential mortgage loan market). As customers tend to give priority to the 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 if credit losses for banks on Belgian retail clients have remained very low up till now.

## 2.5 Solvency

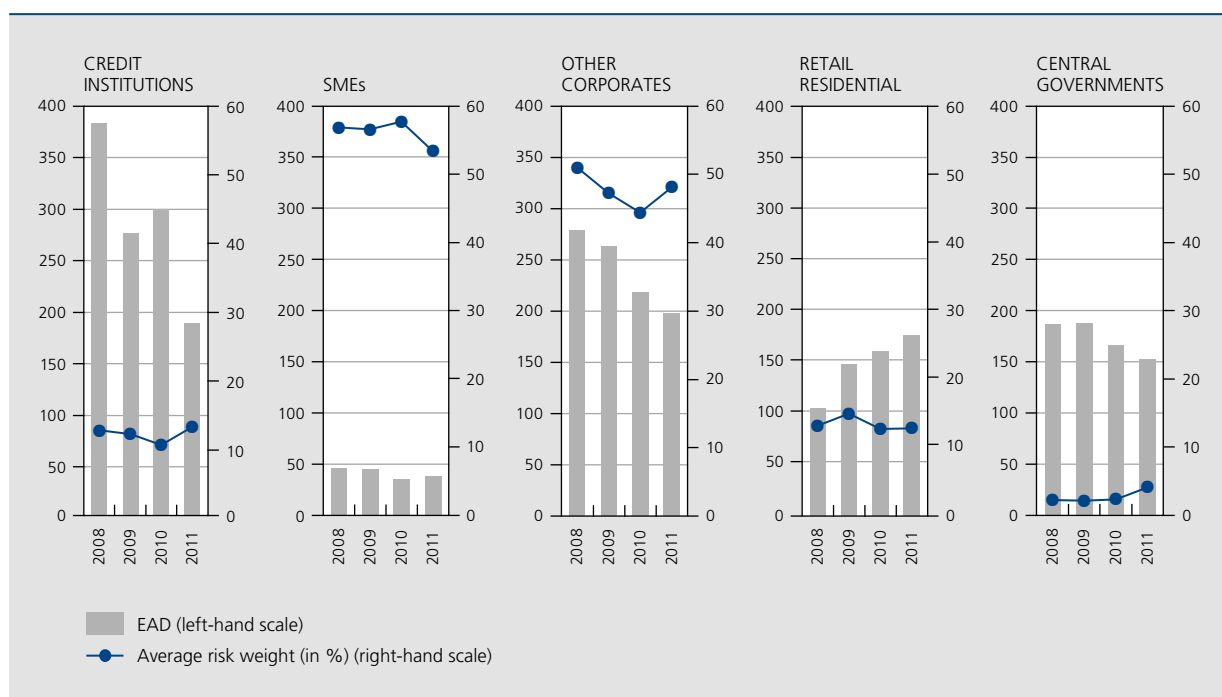
While most credit risks in the Belgian banking sector stem from exposures on the balance sheet, off-balance-sheet exposures in the form of undrawn portions of credit lines, or guarantees extended to third parties, may also be a source of sometimes significant credit risk. To calculate the Basel II capital 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 SA approach increased from € 203 billion at the end of 2010 to € 235 billion at the end of 2011, as certain banks moved sovereign bonds from IRB portfolios to SA portfolios, presumably to benefit from the 0% risk weight applied on better-quality government bonds.

In the case of the IRB portfolios, which covered EAD for an amount of € 849 billion at the end of 2011, the resulting average risk weight can be computed by dividing the risk-weighted assets related to a certain counterparty to the associated exposure at default. The ratio varies significantly from one asset class to the other, 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 remained the highest of all asset classes, even though it declined in 2011, mainly as a result of an idiosyncratic change in methodology at one of the large credit institutions. For all the other asset classes shown in Chart 26, except for retail residential, the average risk

**CHART 26**
**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.

weight increased for IRB exposures. The impact of these higher risk weights for credit institutions, non-SME corporates and central governments on total risk-weighted assets were compensated however by a reduction in the total amount of exposures in these three portfolios, as Belgian banks continued to restructure their balance sheet.

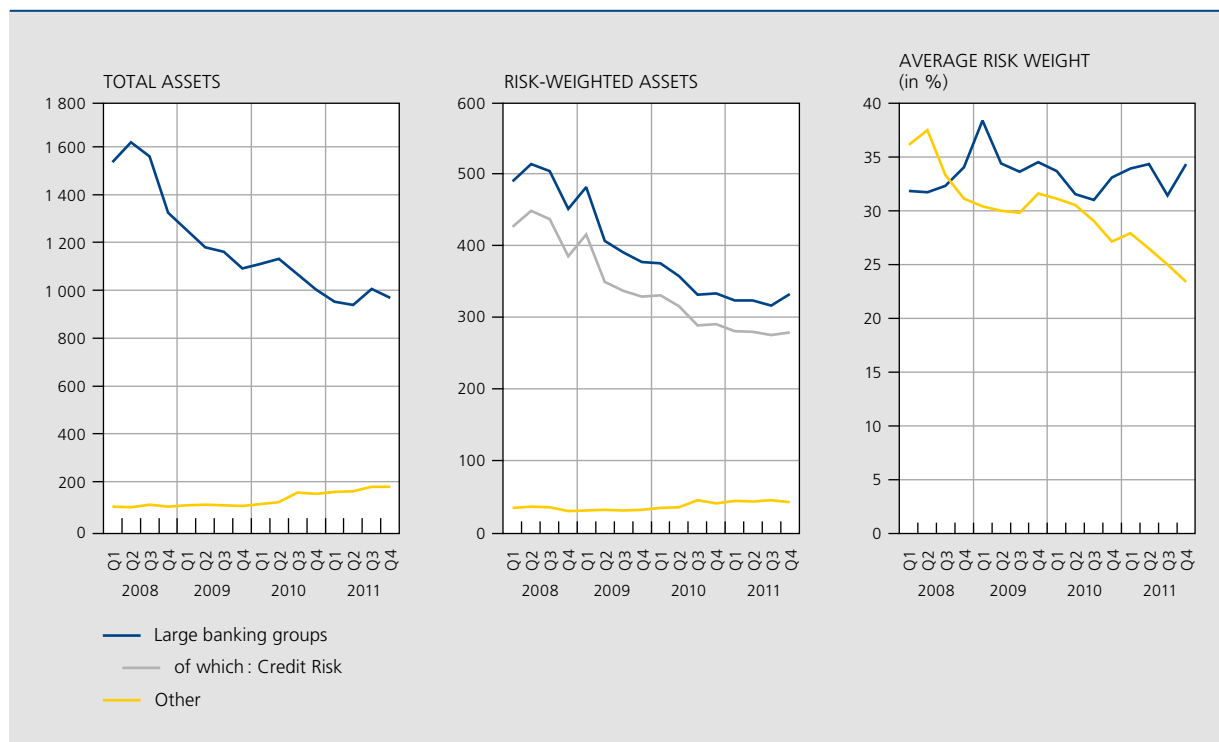
Turning to developments in Belgian banks' total risk-weighted assets (RWA), Chart 27 and Table 7 show that total RWA stabilised in 2011 at around €375 billion euro, resulting from quite varied developments in the subcomponents of these RWA and between large and other credit institutions. Even though the risk weights of credit exposures increased on average, RWA covering credit risk declined by €10 billion, in line with the deleveraging strategies of the large banking groups. As shown in Chart 27, the large banks have significantly reduced their RWA for credit risk and other risks since 2008. This development stemmed mainly from lower EAD, rather than lower risk weights, as the latter remained stable at between 30 and 35 % over this period. The experience of the small banks has been quite different, as their rising asset total contributed to a further increase in RWA, notwithstanding a decline in the average risk weight.

As shown in Table 7, the Belgian banking sector's aggregate risk-weighted assets stabilised in 2011, reaching €373.8 billion. While credit risk-related RWA account for the bulk of this total, some €22 billion worth of RWA stem from market risks. These RWA related to market risk increased by €11.1 billion in 2011, following the implementation of the Capital Requirements Directive III (CRD III or Basel 2.5) during the last quarter of 2011. 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.

The Tier I ratio reached its highest quarterly level ever at the end of June 2011 (16.3 %) but fell thereafter to a still high level of 15.1 % by the end of December 2011, close to the level reached at the end of 2010 (15.5 %). The main factor behind this decline was the decrease in regulatory capital from €57.8 billion at end-2010 to €56.5 billion at end-2011 due to a reduction of the eligible reserves, including KBC Bank's large dividend payments to KBC Group, inter alia to allow it to repay €500 million of Yield Enhanced Securities.

**CHART 27** TOTAL ASSETS, RISK-WEIGHTED ASSETS AND AVERAGE RISK WEIGHT

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



Source : NBB.

**TABLE 7** BREAKDOWN OF TIER I CAPITAL AND RISK-WEIGHTED ASSETS

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

	2009	2010	2011
Tier I capital <sup>(1)</sup>	53.9	57.8	56.5
composed of:			
Core Tier I <sup>(2)</sup>	47.1	50.9	49.8
Hybrid capital	6.8	6.9	6.6
Risk-weighted assets	407.5	372.5	373.8
composed of:			
Credit risk	352.3	322.8	312.9
Market risk	16.1	10.7	21.9
Operational risk	38.8	35.1	35.2
Other	0.2	3.9	3.8
Tier I capital ratio (in %)	13.2	15.5	15.1
Core Tier I capital ratio (in %)	11.6	13.7	13.3

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.

The Tier I capital and risk-weighted assets in Table 7 are calculated according to the current Basel II rules. In this connection, it must be recalled however that the above-mentioned CRD III extended until the end of 2011 the regulatory floor imposed on risk-weighted assets calculated according to internal models. These 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 would come back to 13.8 %.

In the future, the new Basel III rules (or CRD IV) 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 2013 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 mainly relies 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 enough capital resources to be able to repay the capital injected by the public authorities.

In order to improve the quality of the 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 2011, it represented a negative amount of € 6 billion, a € 1.8 billion deterioration when compared to the end of 2010.

The minimum required regulatory capital ratios will also be significantly different under Basel III than under the current Basel II 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.

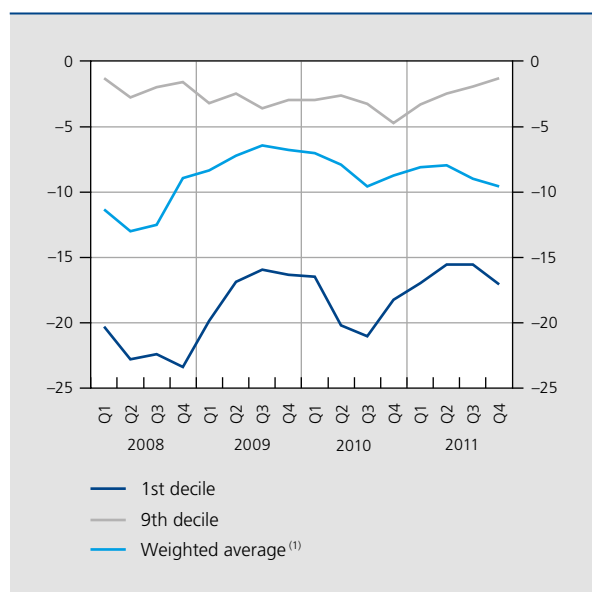
## 2.6 Interest rate risk

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

**CHART 28** 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.

– 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 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 28 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 increasing somewhat in the second half of 2011, yet it remains well 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. 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. Risks stemming from changes in credit spreads on fixed-income instruments are not captured either.

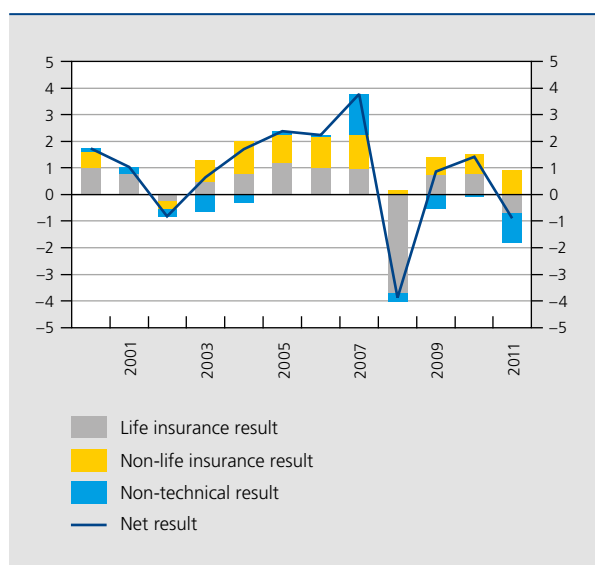
### 3. Insurance sector

The profitability of the Belgian insurance sector was seriously affected by developments on the European financial markets, the sector's net loss reaching €0.9 billion in 2011, compared to a net profit of €1.4 billion in 2010 (Chart 29). The main reason for this adverse development is the recording in the profit and loss account of impairments in the investment portfolios amounting to €3.1 billion in the life insurance technical account and €1.0 billion in the non-technical account, due largely to realised losses on Greek government bonds and other peripheral government bonds.

Table 8 breaks down the net profit and loss of the insurance sector into its three main components, namely the life insurance technical result, the non-life insurance technical result and the non-technical result. The sharpest deterioration was recorded in the net result of life insurance operations, essentially on account of a steep decline in net investment income. That income totalled barely €4.0 billion in 2011, compared to €7.8 billion in 2010. However, this sharp fall was offset to some extent by an accompanying decline in the cost of claims and operating expenses. In that regard, it should be noted 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. Together with the premiums collected during

**CHART 29** NET RESULTS OF BELGIAN INSURANCE COMPANIES

(data on a company basis, in € billion)



Source : NBB.

the year, fluctuations in the technical reserves resulting from these additional liabilities form the result of the insurance activities. In 2011, that result of insurance activities was less negative than in 2010 (€ 4.7 billion versus 7.1 billion). Although the net investment income could not fully offset the negative result of the insurance activities – leading to an overall deficit (€ 0.7 billion) in

the life insurance technical account – this loss was significantly lower than in 2008 when a negative technical result of € 3.7 billion was recorded.

Non-life insurance also suffered from a drop in investment income, which declined from € 1.2 billion in 2010 to € 0.9 billion in 2011. The overall technical result of non-life insurance improved nevertheless by € 0.2 billion to € 0.9 billion.

In the non-technical account, there was a significant deterioration in the net investment income drawn from the assets not covering the life or non-life activities, which was only fractionally compensated by the very slight improvement in the other results, relating to exceptional items and taxes. Total net investment income (in the life, non-life and non-technical accounts) fell from € 9.2 billion in 2010 to € 4.0 billion in 2011.

The amount of life insurance premiums collected by the sector in 2011 was down slightly against the 2010 level (Chart 30). In recent years, the stronger preference of households for liquidity, owing to the ongoing economic slowdown and uncertainty on financial markets, has gradually eroded demand for life insurance products. This shift in demand may have been compounded by the predominance of the bancassurance business model in Belgium, which perhaps prompted banks needing substantial liquidity to try to channel household savings into banking products rather than life insurance contracts. Consequently, since 2009, life insurance premiums have remained below an annual figure of € 20 billion, and in

**TABLE 8** MAIN COMPONENTS OF THE PROFIT AND LOSS ACCOUNT OF BELGIAN INSURANCE COMPANIES

(data on a company basis, in € billion)

	2008	2009	2010	2011
Life insurance technical result	-3.7	0.7	0.8	-0.7
Result of insurance activities	-0.3	-8.0	-7.1	-4.7
Net investment income	-3.4	8.8	7.8	4.0
Non-life insurance technical result	0.2	0.7	0.7	0.9
Result of insurance activities	0.0	-0.4	-0.4	0.1
Net investment income	0.2	1.0	1.2	0.9
Non-technical result <sup>(1)</sup>	-0.4	-0.5	-0.1	-1.1
Net investment income	0.3	-0.7	0.2	-0.9
Other results	-0.6	0.2	-0.3	-0.2
<b>Net result for the financial year</b>	<b>-3.9</b>	<b>0.9</b>	<b>1.4</b>	<b>-0.9</b>

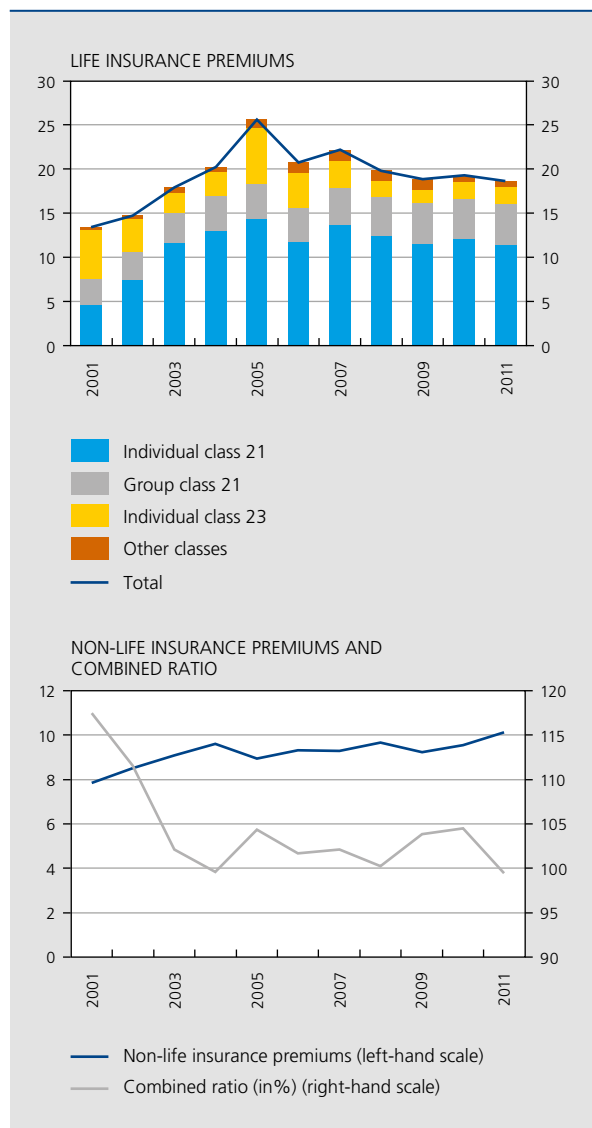
Source : NBB.

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

CHART 30

PREMIUM INCOME AND COMBINED RATIO<sup>(1)</sup>

(data on a company basis, 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.

2011 they reached their lowest level since 2003. 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 relating to financial market developments. Premiums for class 23 contracts, in which the policyholder assumes the financial risks on the investments, in fact represented only around 15 %, on average, of total life insurance premiums for the period 2007-2011. Among individual policies, those in class 21 – which offer a guaranteed rate of return – are still the most common.

Non-life insurance premiums net of reinsurance premiums rose by a considerable 6 % in 2011 relative to 2010. Consequently, the combined ratio which relates the total cost of claims plus operating expenses to net premium income improved, falling from 105 % in 2010 to less than 100 % in 2011. It is the first time since 2004 that the combined ratio has dropped below 100 %. In 2009 and 2010, this inverted measure of the underlying profitability of non-life insurance operations had reached its highest level since 2005. However, even then this ratio remained well below the peak levels seen in 2000-2002, when it exceeded 110 %. In recent years, insurance companies have 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. Hence, in response to the renewed increase in the combined ratio in 2009 and 2010, premiums were revised upwards in most non-life insurance classes in 2011, as is evident from the strong increase in non-life insurance premiums.

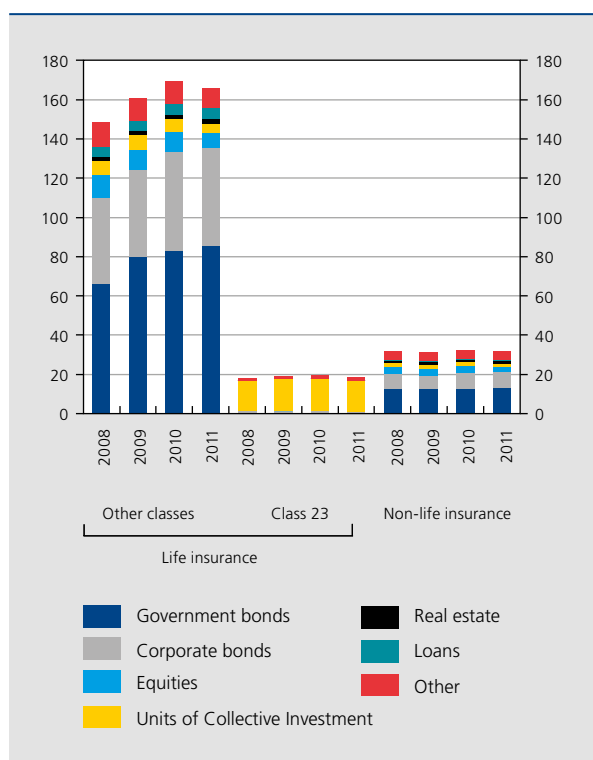
Unlike most non-life insurance premiums, which are collected under contracts renewed annually, life insurance premiums are generally collected under long-term contracts. In their case, the potential benefits payable to policyholders are far in the future. The investment of the premiums collected during 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 (Chart 31). The same factors also explain why life insurance activity is much more sensitive to financial market developments than non-life insurance business, as recent events have again confirmed.

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 10 % of the total assets covering the life insurance liabilities.

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 52 % and 30 % respectively of the investment portfolio at the end of December 2011. 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

**CHART 31** COMPOSITION OF THE COVERING ASSETS PER INSURANCE ACTIVITY

(end-of-period data on a company basis, in € billion)



Source : NBB.

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 2011. The lower book value of equities and units of collective investment (UCIs) is the main explanation of the decline in the total covering assets in life insurance in 2011.

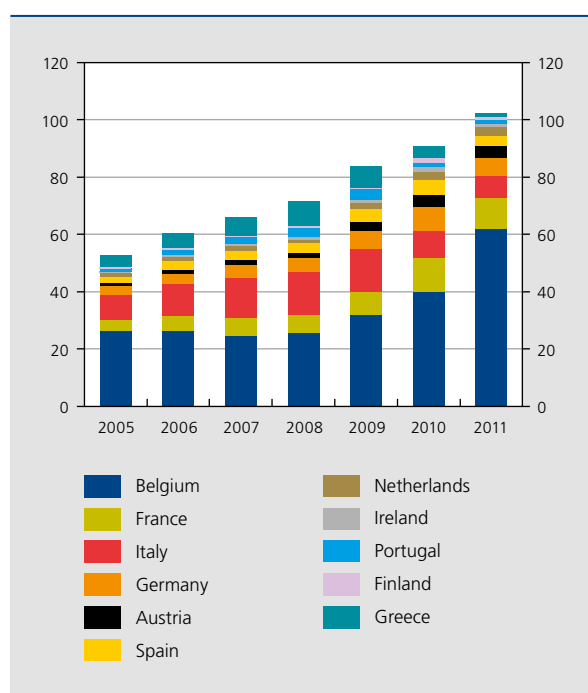
Given the composition of the covering assets, the insurance sector's exposure to market risk is largely concentrated on fixed-income instruments, making it particularly vulnerable to interest rate fluctuations and sudden changes in credit spreads and liquidity risk premiums. In this connection, the market value of the investment portfolios of Belgian insurers suffered from the strong rise in some sovereign and bank bond risk premiums.

A breakdown of the Belgian insurance sector's main exposures to sovereign bonds issued by certain euro area

countries between the end of 2005 and 2011 shows that investments in Belgian government bonds reached almost € 62 billion at the end of last year, making up more than half of those exposures at the end of December 2011 (Chart 32). The exposure to Belgian government bonds increased by 55 % relative to the end of 2010. Attractive yields on Belgian government bonds (OLOs), which peaked in December 2011, appear to have drawn insurers to Belgian governments bonds last year. Investments in sovereign bonds issued by France (€ 11 billion) also represent a significant share of the total government bond portfolio (10%). The exposure to German government bonds dropped by a quarter to € 6 billion. Exposures to a number of peripheral euro area countries (Greece, Ireland, Portugal, Spain and Italy) were reduced by more than € 5 billion in 2010 and by a further € 7 billion during 2011, in view of the persistent tension on the government bond markets in those countries. These exposures together make up a total of € 14.4 billion, with respectively 7.3 billion for Italy (–22 % relative to end 2010), 3.3 billion for Spain (–32 %), 1.4 billion for Ireland (–15 %), 1.2 billion for Portugal (–17 %) and 1.1 billion for Greece (–73 %). All these exposures are gross positions at book value, without adjustment for any associated hedging.

**CHART 32** BREAKDOWN OF THE MAIN EXPOSURES TO EURO AREA GOVERNMENT BONDS

(end-of-period data on a company basis, at book value, in € billion)



Source : NBB.

When assessing the impact of changes in the market prices of financial assets on Belgian insurance companies, it should be remembered that the unconsolidated supervisory reporting for balance sheet positions is based on Belgian GAAP, whereby all investments on the balance sheet are recorded at their book value, namely the acquisition value less depreciation and impairments. Nevertheless, subject to the approval of the supervisor, a part of the gross unrealised capital gains on financial assets can be included in the regulatory solvency position. In addition, separate prudential reporting pertaining to the financial assets covering the technical provisions in life and non-life insurance is based on the valuation of assets using market prices, except for government bonds, which are kept at their book value owing to the underlying assumption that they will be held to maturity.

As a result of the significant widening of spreads in 2011 between the yields on the government bonds of certain euro area countries and those on the German Bund, which also concerned the Belgian sovereign debt instruments, the amount of the unrealised gains on insurance companies' bond portfolios declined from € 0.3 billion at the end of December 2010 to become an unrealised loss of € 1.8 billion at the end of June 2011 (Chart 33). In the second half of the year, however, insurance companies

realised a large amount of losses on their bond investments, either by recording impairments or by selling securities, significantly reducing the amount of the unrealised losses. During 2011, a net impairment value of € 2.7 billion was thus recorded on the life and non-life technical investment portfolio, in addition to a net profit of € 0.1 billion on the realisation of assets, driven partly by sales of German government bonds. The booking of impairments on such a large scale explains why the remaining bond portfolio recorded an unrealised net gain of € 1.4 billion at the end of last year.

The equity exposures were also affected in 2011. As a result, the unrealised net gains of € 1 billion at the end of 2010 were converted to an unrealised loss of € 0.1 billion at the end of December 2011.

Considering the investment portfolio as a whole, the amount of the unrealised gains at the end of 2011 (€ 3.8 billion) was comparable to the level reached at the end of 2010. The strong quarterly volatility of these unrealised gains nevertheless bears witness to the vulnerability of the insurance companies' investment portfolio to fluctuations in market values. In that regard, insurance companies should be prudent in their arrangements for sharing profits with policyholders, in view of the current uncertainty over the economic situation and financial market conditions. It is essential to avoid excessive levels of profit redistribution in order to safeguard the solvency margin. Similarly, there is a need for caution regarding the inclusion of unrealised gains in that margin, since those gains can easily disappear, or even turn into unrealised losses from one quarter to the next, rendering the solvency position highly volatile.

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 (Chart 34). 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. The total solvency margin, comprising both explicit and implicit elements, has remained above 195 % of the minimum required in each quarter

**CHART 33** DIFFERENCE BETWEEN THE MARKET VALUE AND BOOK VALUE OF THE INVESTMENT PORTFOLIO OF BELGIAN INSURANCE COMPANIES  
(end-of-period data on a company basis, in € billion)

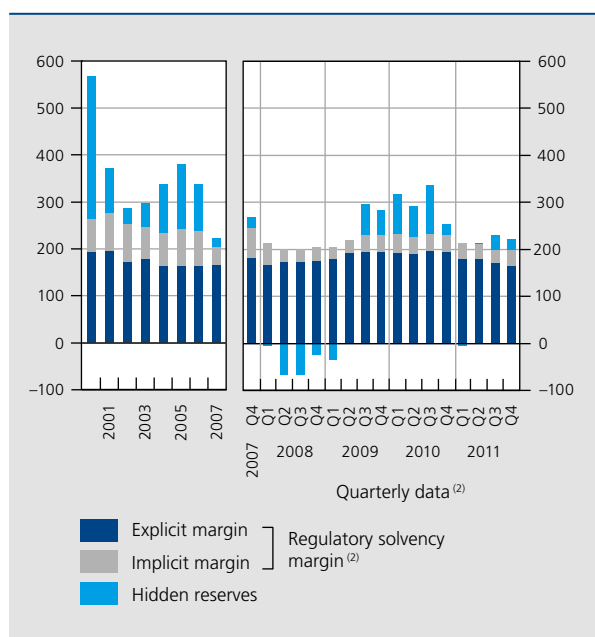


Source : NBB.



**CHART 34 SOLVENCY MARGIN OF BELGIAN INSURANCE COMPANIES**

(data on a company basis, 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.

since the end of 2007, and reached 198 % at the end of December 2011. Taking account of all unrealised gains or losses, including those not included in the implicit margin – in which case they form a hidden reserve or deficit – the adjusted solvency has been fairly volatile in recent years. In the second half of 2011, this hidden margin turned positive again, due to the above-mentioned developments in the unrealised capital gains in the investment portfolio, mainly as a result of the large impairments booked for some assets. This volatility of the adjusted solvency shows that insurance companies cannot always count on their hidden reserves to offset heavy losses on the market value of their investment portfolios. Under the future prudential framework, Solvency II, such volatility in own funds will become the rule, since both assets and liabilities will be measured on a market-consistent valuation basis.

In accordance with the Solvency I prudential framework, the balance sheet valuation takes no account of the effect of interest rate reductions on the discounted value of the insurance companies' liabilities towards

policyholders. In the case of long-term insurance contracts, such as life insurance or disability insurance, interest rate changes may 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. While it is true that, under Solvency I, the prudent valuation rules and limits restricting concentration on certain types of assets compensate for the fact that the liabilities are not valued at market prices, the current regulations on solvency – by taking partial account of unrealised capital gains on financial investments, but not the valuation of the liabilities at market price – still do not accurately reflect the challenges which a low interest rate environment presents for insurance companies. 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 second quarter of 2011, in order to test the resilience of the European insurance sector in a crisis situation in a Solvency II environment, EIOPA conducted its second European stress test. One group and two Belgian companies of systemic importance took part, representing market coverage of more than 50 % of the premiums, if account is taken of the Belgian subsidiaries of foreign groups participating in the stress test on a consolidated basis. Although the sector was quite well represented in this test, the level of representativeness was still lower than in the latest quantitative impact study of Solvency II by the European authorities (QIS5), so that it is difficult to compare the findings of these two exercises. This stress test measures the impact of various scenarios on the year-end 2010 balance sheets drawn up in accordance with the Solvency II rules and applying the standard formulas to calculate the Solvency Capital Requirement (SCR) and the Minimum Capital Requirement (MCR) used in the technical specifications of the QIS5 exercise. Three main scenarios (baseline, adverse and inflation) reproduce various macroeconomic environments. The baseline scenario corresponds to a moderately stressed situation. The adverse scenario introduces severe stress on the baseline scenario variables, while the inflation scenario causes a reverse movement in interest rates compared to the adverse scenario, namely a steep rise, all other market and credit risks remaining unchanged. Each scenario is reflected in a range of assumptions concerning the independent risk factors (interest rates, share prices, property prices, spreads, natural catastrophe events, claims inflation and shocks concerning mortality and longevity rates). An individual



**TABLE 9** SUMMARISED RESULTS OF THE EIOPA STRESS TEST FOR THE SAMPLE OF BELGIAN INSURANCE COMPANIES

(in € billion, unless otherwise stated)

	Available capital	Surplus capital	SCR ratio <sup>(1)</sup>	MCR ratio <sup>(1)</sup>
Before the stress test .....	10.7	4.4	170	379
After the baseline scenario .....	9.1	2.8	145	322
After the adverse scenario .....	7.7	1.4	122	272
After the inflation scenario .....	9.9	3.6	157	349
After the sovereign stress scenario .....	9.2	2.9	146	325
After low yield scenario 1 .....	8.6	2.3	136	303
After low yield scenario 2 .....	9.5	3.2	150	334

Source: NBB.

(1) Available capital in % of the capital requirements.

sovereign stress scenario was tested separately on the basis of assumptions concerning country-specific widening of the sovereign spreads. After the test, the results for the various risk factors were aggregated on the basis of correlations comparable to those of the QIS5, but with the diversification effects limited to the main risk categories. The results of each scenario compare the reduction in available capital to the situation before taking account of the shocks defined in the test, and the MCR and SCR coverage ratios before and after taking account of those shocks.

Taking the sample of Belgian companies as a whole, the available capital – which totalled € 10.7 billion at the end of 2010 –, would have contracted by around € 3 billion in the worst case scenario, causing the average solvency ratio (SCR coverage ratio) to fall from 170 % to 122 % under Solvency II (Table 9). The MCR coverage ratio would drop from 379 % to 272 % on average in the adverse scenario. However, the results vary considerably from one company to another, ranging from solvency ratios above the sample average to ratios well below that figure.

The main risk factors contributing to the widespread reduction in available capital in the stress scenarios are a decline in interest rates, a fall in share prices and commercial real estate prices, and a widening of the spreads on government bonds in the context of a separate sovereign stress scenario. In relative terms, measured by the change in available capital in relation to the starting level, the interest rate risk and the share price risk are the main risk factors in the adverse scenario, while risks specific to insurance (natural catastrophe events, pandemics) are the

dominant factors in the baseline and inflation scenarios. Taking all scenarios together, it is the stress on sovereign debt spreads that is by far the most significant risk factor, with an average reduction in available capital of 14 %.

In the second half of 2011, in a separate scenario, EIOPA also tested the resilience of insurance companies to a low interest rate environment. Such an interest rate scenario over a long period is considered more relevant for the insurance sector than the parallel movement in interest rates used for the main stress test. Such a declining yield curve scenario is particularly challenging for insurance portfolios involving a guaranteed rate of return for policyholders, as this rate will be more difficult to match with an investment portfolio generating lower returns. Two yield curves were used to revalue the assets and discount the projected cash flows on the liabilities side. The scenario 1 yield curve shows a clear downward trend and is U-shaped, flattening out after a period of 10 years; the scenario 2 curve reflects the lowest levels recorded for the euro yield curve up to the end of August 2010. The results show that, on average for the sample, the increase in the life insurance technical provisions more than offsets the upward revaluation of the assets, especially in the more adverse scenario 1. Overall, available capital would decline by 20 % in scenario 1 and by 12 % in scenario 2, reducing the SCR coverage ratio to 136 % in scenario 1 and 150 % in scenario 2, compared with 170 % before application of the stress test assumptions.

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.

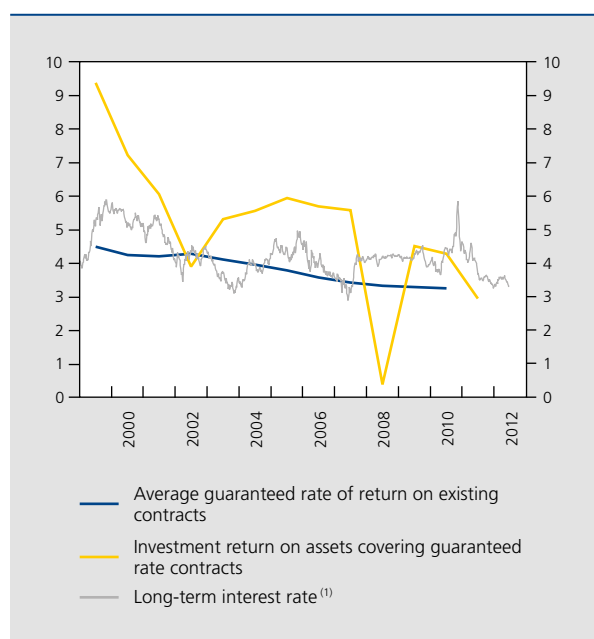
The profitability of insurance contracts guaranteeing such returns was eroded when long-term interest rates began to drop below those levels. The sector has gradually modified that adverse structure by marketing contracts offering guaranteed rates of return which are more in line with risk-free interest 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: it declined from 4.5 % at the end of 1999 to 3.25 % at the end of 2010 (Chart 35). Yet, it should also be noted that the actual returns on the investments covering class 21 contracts have only partially recovered since the

slump in 2008 caused by the fall in share prices following the collapse of Lehman Brothers. These net returns came to barely 4.5 % in 2009 and 4.28 % in 2010. And preliminary figures for the year 2011 show a net return of only 2.95 %.

The decline in the average guaranteed rate of return on individual life insurance contracts was seen throughout the sector, since the proportion of the technical reserves in class 21 held by companies guaranteeing an average rate of return of more than 4 % dropped from 75 % at the end of 2000 to less than 0.5 % in 2010. At the end of 2010, around 91 % of the sector's technical reserves were held by insurance companies offering an average guaranteed rate of return of 3.5 % or less (Chart 36).

Yet, the legacy of contracts offering high guaranteed rates of return for policyholders still represents a substantial amount of liabilities. The life insurance reserves associated with guaranteed rates of return of 4.75, 4.5, 3.75 and 3.5 % for the individual class 21 came to € 32 billion at the end of 2010 and represent 31.5 % of the total class 21 life insurance reserves. These guarantees are usually associated with contracts concluded a long time ago, in most cases guaranteeing these rates of return on future premiums as well. 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.

**CHART 35** GUARANTEED RATE OF RETURN ON CLASS 21 CONTRACTS

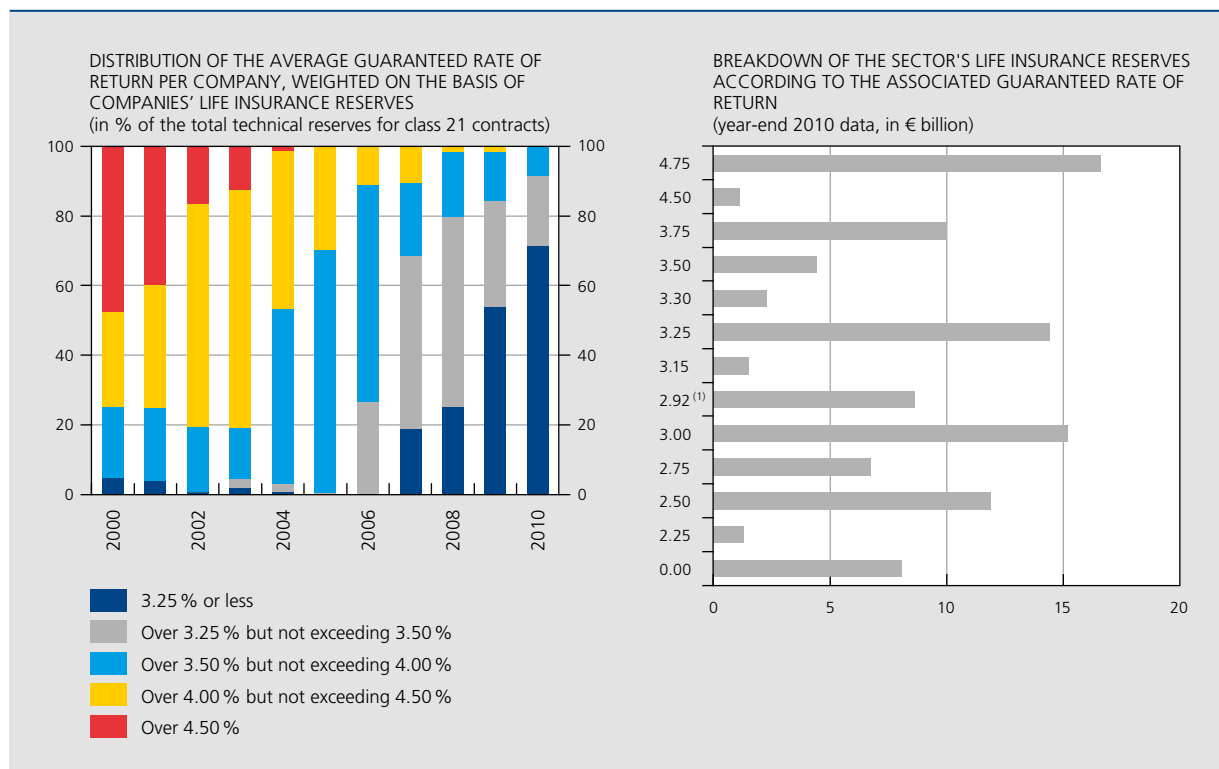


Sources: Thomson Reuters Datastream, NBB.

(1) Yield on the secondary market in ten-year Belgian government loans (OLOs).

**CHART 36** DISTRIBUTION OF CLASS 21 LIABILITIES

(data on a company basis)



Source: NBB.

(1) Outstanding amount of life insurance reserves guaranteeing returns different from those shown in the chart, with an average guaranteed return of 2.92 %.

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 3.26 % at the end of 2011.

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**TABLE 1** NUMBER OF CREDIT INSTITUTIONS

	2004	2005	2006	2007	2008	2009	2010	2011
Credit institutions governed by Belgian law with Belgian majority shareholding .....	33	26	26	25	23	21	21	20
Credit institutions governed by Belgian law with foreign majority shareholding .....	26	28	25	27	28	27	27	27
EU Member States .....	20	23	20	21	21	19	20	20
Other States .....	6	5	5	6	7	8	7	7
Belgian branches of foreign credit institutions .....	45	50	54	58	56	56	59	61
EU Member States .....	36	41	46	49	47	47	50	52
Other States .....	9	9	8	9	9	9	9	9
<b>Total</b> .....	<b>104</b>	<b>104</b>	<b>105</b>	<b>110</b>	<b>107</b>	<b>104</b>	<b>107</b>	<b>108</b>

Source: NBB.

**TABLE 2** KEY FIGURES  
(consolidated data)

	2000	2001	2002	2003	2004	2005	2006 <sup>(1)</sup>	2007 <sup>(1)</sup>	2008 <sup>(1)</sup>	2009 <sup>(1)</sup>	2010 <sup>(1)</sup>	2011 <sup>(1)</sup>
<b>A. Large banking groups</b>												
Balance sheet total (in € billion) .....	840.6	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
Customers' holdings (in € billion) .....	440.5	477.0	465.4	453.9	482.1	532.0	667.4	700.9	612.8	622.5	559.8	518.4
Loans and advances to customers (in € billion) ....	352.4	374.8	381.2	384.9	433.2	535.1	553.8	619.0	505.0	481.7	450.7	441.4
Risk asset ratio (in %) .....	11.7	12.7	12.8	12.4	12.6	11.1	11.2	10.8	16.2	17.0	19.2	18.2
Net after tax results (in € billion) .....	4.7	3.4	2.9	3.6	4.6	5.7	9.2	6.2	-21.5	-1.5	5.0	-0.1
Return on average assets (in %) .....	0.6	0.4	0.4	0.4	0.5	0.5	0.7	0.4	-1.4	-0.1	0.5	0.0
Return on average equity (in %) .....	22.7	15.0	12.6	14.2	17.3	19.9	23.1	13.7	-40.8	-3.8	11.1	-0.1
Cost-income ratio (in %) .....	71.5	72.9	73.2	72.8	70.6	72.3	55.5	60.6	86.3	77.7	65.5	66.5
<b>B. Total of Belgian credit institutions</b>												
Balance sheet total (in € billion) .....	971.3	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
Customers' holdings (in € billion) .....	504.2	545.0	535.3	531.9	570.1	622.1	715.7	761.6	681.8	691.9	636.7	615.2
Loans and advances to customers (in € billion) ....	392.7	416.3	421.3	428.8	482.9	591.3	591.0	666.2	555.6	536.5	506.6	509.4
Risk asset ratio (in %) <sup>(2)</sup> .....	11.9	12.9	13.1	12.8	13.0	11.5	11.9	11.2	16.2	17.3	19.3	18.5
Net after tax results (in € billion) .....	5.5	3.8	3.2	4.0	5.2	6.6	9.7	6.7	-21.2	-1.2	5.6	0.4
Return on average assets (in %) .....	0.6	0.4	0.4	0.4	0.5	0.5	0.7	0.4	-1.3	-0.1	0.5	0.0
Return on average equity (in %) <sup>(2)</sup> .....	20.4	13.7	11.8	13.6	15.8	18.5	22.4	13.2	-36.5	-2.6	10.5	0.7
Cost-income ratio (in %) .....	72.2	74.1	74.7	73.9	72.0	72.6	55.7	61.1	86.1	77.7	65.9	67.3

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)

	2006	2007	2008	2009	2010	2011
<b>Assets</b>						
Financial assets held for trading	211.8	254.2	281.4	164.6	174.4	197.9
Financial assets designated at fair value through profit and loss	39.9	46.7	28.4	29.7	24.5	12.8
Available-for-sale financial assets	238.8	215.8	214.7	176.8	159.7	150.1
Loans and receivables (including finance leases)	806.3	925.3	772.3	718.3	698.9	687.3
Held-to-maturity investments	14.8	14.5	13.1	12.8	14.1	13.5
Derivatives used for hedging	2.3	5.6	4.4	4.6	5.5	8.5
Tangible assets	7.0	8.1	8.4	8.2	6.8	7.1
Goodwill and other intangible assets	2.2	3.9	4.7	4.1	2.9	2.9
Investments in associates, subsidiaries and joint ventures	3.5	29.8	1.6	2.5	6.4	5.4
Miscellaneous	95.2	74.5	93.2	69.0	58.1	62.0
<b>Liabilities</b>						
Financial liabilities held for trading	125.3	193.7	240.1	147.6	169.2	196.1
Financial liabilities designated at fair value through profit and loss	61.9	61.5	60.9	47.1	49.0	42.9
Financial liabilities measured at amortised cost	1 094.2	1 183.2	955.1	863.1	818.8	748.6
Financial liabilities associated to transferred assets	15.8	21.6	7.4	8.0	9.7	19.1
Derivatives used for hedging	1.7	4.1	10.1	11.1	12.5	19.8
Provisions	2.6	2.5	3.1	2.9	5.4	5.3
Miscellaneous	73.2	44.5	96.3	57.0	29.3	62.8
Total equity and minority interest	47.3	67.3	49.1	53.7	57.2	52.8
<b>Balance sheet total</b>	<b>1 422.0</b>	<b>1 578.4</b>	<b>1 422.1</b>	<b>1 190.5</b>	<b>1 151.1</b>	<b>1 147.3</b>

Source: NBB.

**TABLE 4** MAIN BALANCE SHEET ITEMS BY PRODUCT  
(consolidated end-of-period data, in € billion)

	2006	2007	2008	2009	2010	2011
<b>Assets</b>						
Loans to credit institutions .....	285.7	320.8	213.2	156.1	195.8	174.3
Loans and advances to other than credit institutions .....	591.0	666.2	555.6	536.5	506.6	509.4
Debt instruments .....	319.3	296.2	298.8	264.7	231.9	212.0
Equity instruments .....	64.4	52.8	15.9	8.8	5.8	4.7
Derivatives <sup>(1)</sup> .....	51.8	120.5	223.1	135.1	133.2	167.0
Other assets .....	109.7	122.0	115.6	89.3	77.7	79.8
<b>Liabilities</b>						
Debts to credit institutions .....	415.3	431.7	276.2	167.6	177.2	128.5
Customers' holdings .....	715.7	761.6	681.8	691.9	636.7	615.2
Deposits <sup>(2)</sup> .....	556.4	582.4	557.4	541.8	511.4	513.9
Bank bonds and other debt securities .....	159.3	179.1	124.4	150.0	125.3	101.3
Derivatives <sup>(1)</sup> and short positions .....	119.4	186.3	247.6	157.0	151.6	187.1
Subordinated liabilities .....	25.7	36.0	37.0	30.2	29.4	26.4
Other liabilities .....	98.6	95.5	130.4	90.2	98.9	137.5
Total equity and minority interest .....	47.3	67.3	49.1	53.7	57.2	52.8
<b>Balance sheet total</b> .....	<b>1 422.0</b>	<b>1 578.4</b>	<b>1 422.1</b>	<b>1 190.5</b>	<b>1 151.1</b>	<b>1 147.3</b>

Source: NBB.

(1) Including accrued income and expenses.

(2) Deposits booked at amortised cost.

**TABLE 5** LOANS AND ADVANCES TO CUSTOMERS <sup>(1)</sup>  
(consolidated end-of-period data, in € billion)

	2006	2007	2008	2009	2010	2011
Term loans .....	272.2	266.7	265.7	235.8	214.4	203.9
Mortgage loans .....	189.7	208.3	132.2	158.3	178.5	183.9
Current accounts .....	34.4	28.8	24.0	17.9	26.5	23.7
Consumer credit .....	15.4	17.1	16.9	16.9	23.7	23.2
Finance leases .....	18.2	21.4	21.7	19.1	8.0	11.2
Bills & own acceptances .....	2.2	2.9	1.7	0.8	0.2	0.3
Securitised loans (for capital and not accounting purposes) .....	8.0	4.0	19.1	30.1	20.3	23.5
Other .....	17.9	88.2	62.7	44.2	6.4	18.9
<b>Total .....</b>	<b>558.0</b>	<b>637.3</b>	<b>544.0</b>	<b>523.4</b>	<b>478.0</b>	<b>488.6</b>

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)

	2006	2007	2008	2009	2010	2011
<b>Total long positions</b> .....	374.6	378.7	316.2	276.0	244.1	222.2
<b>Debt instruments</b> .....	319.3	296.2	298.8	264.7	231.9	212.0
Held for trading .....	53.1	57.6	37.0	25.7	14.5	13.9
Designated at fair value through profit and loss .....	21.5	15.5	15.8	14.9	12.2	5.7
Available-for-sale .....	231.7	206.9	208.5	170.5	156.5	146.7
Loans & receivables .....	0.0	1.9	24.6	41.1	34.9	32.5
Held-to-maturity .....	13.0	14.2	12.8	12.5	13.8	13.2
<i>p.m. Debt instruments involved in repo transactions excluding re-used debt instruments</i> .....	139.5	146.5	109.0	99.7	60.8	76.7
<b>Equity instruments</b> .....	51.6	52.8	15.9	8.8	5.8	4.7
Quoted equity .....	36.1	36.5	9.4	4.8	3.0	1.5
Held for trading .....	31.2	28.9	7.3	2.2	1.8	0.6
Designated at fair value through profit and loss .....	0.3	2.6	0.2	0.9	0.3	0.2
Available-for-sale .....	4.6	4.9	1.9	1.7	0.9	0.7
Unquoted equity .....	15.7	16.3	6.5	4.0	2.8	3.2
Held for trading .....	12.8	12.9	4.3	1.7	1.2	0.8
Designated at fair value through profit and loss .....	0.7	0.9	0.8	0.1	0.6	0.6
Available-for-sale .....	2.1	2.5	1.3	2.2	1.1	1.8
<i>p.m. Equity involved in repo transactions excluding re-used equity</i> .....	0.0	0.2	5.6	–	–	–
<b>Investments in associates, subsidiaries and joint ventures (non-consolidated entities)</b> .....	3.5	29.8	1.6	2.5	6.4	5.4
<b>Total short positions</b> .....	47.3	64.1	14.9	9.2	3.1	2.7
<b>Debt instruments</b> .....	15.5	14.1	14.3	8.6	2.9	2.0
<b>Equity instruments</b> .....	31.9	50.0	0.6	0.6	0.2	0.7

Source: NBB.

**TABLE 7** LIABILITIES TOWARDS CUSTOMERS  
(consolidated end-of-period data, in € billion)

	2006	2007	2008	2009	2010	2011
Retail deposits .....	289.9	280.9	259.1	283.3	299.7	304.2
of which :						
Sight deposits <sup>(1)</sup> .....	54.9	62.1	52.8	62.6	56.6	61.0
Savings deposits <sup>(1)</sup> .....	142.7	131.1	129.2	163.5	186.4	183.7
Term deposits <sup>(1)</sup> .....	61.5	64.1	60.0	32.8	28.1	34.1
Customer savings certificates .....	27.1	27.2	29.9	38.9	36.5	34.6
Deposits of corporates .....	223.7	257.7	256.8	202.3	164.7	149.4
Deposits of non-credit institutions .....	29.7	32.1	34.9	33.1	38.1	43.8
Other customer deposits .....	13.2	11.8	6.6	23.2	8.8	16.4
Certificates of deposits .....	78.1	81.2	37.7	53.6	25.9	10.0
Bonds and other debt certificates .....	54.1	70.7	56.8	57.5	62.9	56.6
<b>Total</b> .....	<b>715.7</b>	<b>761.6</b>	<b>681.8</b>	<b>691.9</b>	<b>636.7</b>	<b>615.2</b>

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					
	2006	2007	2008	2009	2010	2011
Derivatives (notional amounts)						
Held for trading	9 789	8 763.9	10 913.0	8 573.2	7 621.9	6 729.7
Interest rate derivatives	8 153.4	6 749.7	9 198.5	7 332.3	6 662.4	5 795.2
Equity derivatives	285.6	340.8	214.8	151.9	132.5	156.8
Currency derivatives	1 038.9	1 265.5	1 085.4	737.9	710.1	682.4
Credit derivatives	217.6	365.7	311.5	300.3	94.9	75.9
Commodity derivatives	26.5	40.6	101.0	50.1	21.7	19.2
Other derivatives	67.1	1.6	1.8	0.6	0.3	0.3
Hedging derivatives	519.1	375.1	347.9	350.7	319.6	363.6
Micro-hedging	245.3	116.4	123.8	91.6	104.0	119.4
Portfolio-hedging	273.8	258.6	224.2	259.2	215.6	244.2
Total derivatives	10 308.2	9 138.9	11 261.0	8 923.9	7 941.5	7 093.3
Off-balance-sheet commitments						
Given						
Loan commitments	352.4	451.7	315.8	268.0	163.7	140.9
Guarantees	282.4	265.8	281.0	215.2	60.9	81.4
Other commitments	303.5	311.2	365.3	281.8	187.9	233.2
Received						
Loan commitments	22.8	23.8	33.9	31.0	63.0	5.3
Guarantees	760.9	1 107.3	581.5	564.5	385.5	295.7
Other commitments	338.0	313.4	229.2	213.1	181.9	201.9

Source: NBB.

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

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

	2006	2007	2008	2009	2010	2011
Own funds sensu stricto ("tier 1 capital") <sup>(1)</sup>	45.9	67.5	55.7	53.9	57.8	56.5
of which hybrid instruments	0.0	7.8	7.8	6.8	6.9	6.6
Additional items of own funds for credit and market risks ("tier 2 capital")	19.7	22.6	24.6	17.3	15.2	13.5
of which upper tier 2 <sup>(2)</sup>	5.8	5.9	9.3	3.4	3.2	3.6
of which lower tier 2 <sup>(3)</sup>	13.9	16.7	16.6	15.8	15.0	12.8
Deduction of participations	-3.3	-26.6	-1.0	-1.0	-1.3	-0.8
<b>Total</b>	<b>62.3</b>	<b>63.6</b>	<b>79.5</b>	<b>70.3</b>	<b>71.9</b>	<b>69.3</b>
Additional items of own funds for market risks only ("tier 3 capital") <sup>(4)</sup>	0.1	0.0	0.1	0.2	0.2	0.0
<b>Risk asset ratio (in %)</b>	<b>11.9</b>	<b>11.2</b>	<b>16.2</b>	<b>17.3</b>	<b>19.3</b>	<b>18.5</b>

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)

	2010	2011
Interest income .....	67.6	71.5
Interest expenses (–) .....	53.9	57.5
Net interest income .....	13.8	13.9
Dividend income .....	0.2	0.1
Net fee income .....	5.2	5.2
<i>Fees received</i> .....	7.0	7.2
<i>Fees paid</i> (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	–0.3
Trading income (gains or losses on financial assets held for trading) .....	–0.4	–1.6
Other fair value accounting gains and losses .....	0.1	1.1
<i>Gains and losses on financial assets and liabilities designated at fair value through profit and loss</i> .....	0.0	1.0
<i>Fair value adjustments in hedge accounting</i> .....	0.1	0.1
Other net operating income .....	1.1	1.1
Non-interest income .....	6.4	5.6
Gross operating income (banking product) .....	20.2	19.6
Staff expenses (–) .....	6.6	6.6
Commissions paid to bank agents (–) .....	0.8	0.9
General and administrative expenses (–) .....	5.1	5.1
Depreciation (–) .....	0.8	0.7
Operating expenses (excluding impairment losses and provisions) (–) .....	13.3	13.2
Impairment losses on financial assets (–) .....	1.7	4.4
Impairment on property, investment properties, intangible assets, investments and associates and joint ventures accounted for using the equity method (–) .....	0.1	0.3
Provisions (–) .....	0.1	0.3
Impairment losses and provisions (–) .....	1.8	5.0
Share of the profit or loss of associates, and joint ventures accounted for using the equity method .....	0.3	–0.4
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 .....	0.1	0.0
<b>Net operating income</b> .....	<b>5.5</b>	<b>1.0</b>
Total profit or loss after tax from discontinued operations .....	1.0	–0.3
<b>Total profit or loss before tax and minority interest</b> .....	<b>6.4</b>	<b>0.7</b>
Tax expenses related to profit or loss from continuing operations (–) .....	0.5	0.0
<b>Total profit or loss after tax and before minority interest</b> .....	<b>5.9</b>	<b>0.7</b>
Minority interest (–) .....	0.4	0.3
<b>Net profit or loss</b> .....	<b>5.6</b>	<b>0.4</b>

Source: NBB.

**TABLE 11** MAIN COMPONENTS OF THE INCOME STATEMENT OF CREDIT INSTITUTIONS GOVERNED BY BELGIAN LAW<sup>(1)</sup>  
(consolidated data, in € billion)

	2004	2005	2006	2007	2008	2009	2010	2011
Net interest income .....	12.8	12.7	12.8	13.3	14.5	14.9	13.8	13.9
Non-interest income .....	11.4	12.8	13.9	13.0	4.8	3.9	6.4	5.6
Net fee income .....	7.2	7.9	6.7	7.4	6.8	5.7	5.2	5.2
(Non-)realised capital gains or losses on financial assets and liabilities .....	2.0	2.2	3.6	3.8	-3.8	-2.7	0.0	-0.8
Other non-interest income .....	2.2	2.7	3.6	1.9	1.9	1.0	1.3	1.2
Gross operating income (banking product) .....	24.2	25.5	26.6	26.3	19.3	18.8	20.2	19.6
Expenses .....	-17.4	-18.5	-14.8	-16.1	-16.6	-14.6	-13.3	-13.2
Staff expenses .....	-7.8	-7.9	-9.0	-9.2	-9.2	-7.9	-7.4	-6.6
Impairment losses and provisions .....	-0.5	0.4	-0.4	-3.2	-13.3	-7.4	-1.8	-5.0
Tax expenses (-income) and other income .....	-1.1	-0.8	-1.7	-0.4	-10.6	1.9	0.5	-1.0
Net profit or loss .....	5.2	6.6	9.7	6.7	-21.2	-1.2	5.6	0.4

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

	2004	2005	2006	2007	2008	2009	2010	2011
<b>A. By the location of their registered office</b>								
Belgium <sup>(1)</sup> .....	118	110	107	106	100	96	95	93
European Economic Area <sup>(2)</sup> .....	60	58	55	51	52	51	50	54
Rest of the world <sup>(3)</sup> .....	3	3	0	0	0	0	0	0
<b>Total</b> .....	<b>181</b>	<b>171</b>	<b>162</b>	<b>157</b>	<b>152</b>	<b>147</b>	<b>145</b>	<b>147</b>
Free service provision <sup>(4)</sup> .....	681	740	762	791	873	919	964	976
<b>B. By specialisation<sup>(5)</sup></b>								
Life insurance .....	31	30	29	30	30	29	28	26
Non-life insurance .....	122	116	110	104	100	95	93	96
Life and non-life insurance .....	28	25	23	23	22	23	24	25
<b>Total</b> .....	<b>181</b>	<b>171</b>	<b>162</b>	<b>157</b>	<b>152</b>	<b>147</b>	<b>145</b>	<b>147</b>

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)

	2004	2005	2006	2007	2008	2009	2010	2011
Investments .....	143.3	166.5	183.7	201.7	202.7	214.9	229.5	230.9
All activities with the exception of class 23 .....	124.4	141.7	158.3	177.2	184.6	195.8	210.0	212.4
Shares <sup>(1)</sup> .....	15.1	17.9	18.8	19.8	13.4	11.4	12.0	9.4
Debt securities .....	88.2	101.2	115.2	130.0	136.6	151.5	165.9	169.7
Land and buildings .....	2.6	2.6	2.5	2.6	3.1	3.1	3.0	3.1
Mortgage loans .....	5.7	5.5	5.5	5.4	5.4	5.3	5.2	5.7
Investments in affiliated undertakings .....	8.2	9.2	11.0	14.2	15.7	16.9	16.8	15.5
Others .....	4.6	5.3	5.2	5.2	10.5	7.7	7.1	9.0
Class 23 .....	18.9	24.8	25.5	24.6	18.1	19.1	19.5	18.5
Shares <sup>(1)</sup> .....	13.7	19.5	21.2	19.5	13.6	14.9	15.2	14.5
Debt securities .....	3.2	4.1	3.8	4.6	4.2	3.9	4.1	3.6
Others .....	2.0	1.3	0.4	0.5	0.3	0.3	0.2	0.4
Reinsured part of technical provisions .....	6.6	5.2	4.9	4.8	7.0	6.6	6.8	7.0
Claims and other assets .....	13.8	13.3	13.2	13.8	14.1	12.9	12.2	15.1
<b>Total</b> .....	<b>163.7</b>	<b>185.0</b>	<b>201.9</b>	<b>220.4</b>	<b>223.8</b>	<b>234.4</b>	<b>248.5</b>	<b>253.0</b>

Source : NBB.

(1) Including shares in UCITS.

**TABLE 14** MAIN COMPONENTS OF INSURANCE COMPANIES' LIABILITIES

(data on a company basis, in € billion)

	2004	2005	2006	2007	2008	2009	2010	2011
Own funds .....	9.4	10.2	10.7	11.9	14.2	14.5	14.6	13.5
Technical provisions .....	137.8	156.5	169.9	185.5	188.0	198.5	211.0	215.2
Life insurance (with the exception of class 23) .....	88.9	103.7	115.2	130.6	139.4	149.2	160.4	165.9
Class 23 .....	19.2	25	25.7	24.7	18.2	19.2	19.6	18.6
Non-life insurance .....	24.2	22.7	23.3	24.0	24.8	24.2	24.9	24.9
Others .....	5.5	5.1	5.7	6.2	5.5	5.9	6.1	5.8
Reinsurance companies' deposits .....	2.5	2.7	2.6	2.7	4.8	4.7	4.9	5.0
Creditors' claims .....	11.8	13.5	16.5	17.6	14.5	14.3	15.5	16.5
Other liabilities .....	2.2	2.0	2.2	2.6	2.3	2.5	2.6	2.8
<b>Total</b> .....	<b>163.7</b>	<b>185.0</b>	<b>201.9</b>	<b>220.4</b>	<b>223.8</b>	<b>234.4</b>	<b>248.5</b>	<b>253.0</b>

Source: NBB.

**TABLE 15** COMPONENTS OF THE INCOME STATEMENT OF INSURANCE COMPANIES  
(data on a company basis, in € billion, unless otherwise stated)

	2004	2005	2006	2007	2008	2009	2010	2011
<b>A. Technical account in life insurance</b>								
Net premiums written .....	20.0	25.2	20.4	21.9	19.5	18.6	19.0	18.4
Claims paid (-) .....	8.5	10.2	13.0	13.0	15.3	13.5	12.7	15.5
Change in the provisions for claims (-) .....	15.2	20.5	12.4	13.3	2.9	11.5	11.7	6.1
<b>Premiums after insurance costs</b> .....	<b>-3.7</b>	<b>-5.4</b>	<b>-5.0</b>	<b>-4.4</b>	<b>1.3</b>	<b>-6.5</b>	<b>-5.5</b>	<b>-3.2</b>
Net operating expenses (-) .....	1.2	1.3	1.4	1.6	1.6	1.6	-1.6	-1.6
<b>Result before investment income</b> .....	<b>-4.9</b>	<b>-6.8</b>	<b>-6.4</b>	<b>-6.0</b>	<b>-0.3</b>	<b>-8.0</b>	<b>-7.1</b>	<b>-4.7</b>
Net investment income .....	5.7	8.0	7.4	6.9	-3.4	8.8	7.8	4.0
<b>Technical result life insurance</b> .....	<b>0.8</b>	<b>1.2</b>	<b>1.0</b>	<b>1.0</b>	<b>-3.7</b>	<b>0.7</b>	<b>0.8</b>	<b>-0.7</b>
<b>B. Technical account in non-life insurance</b>								
Net premiums written .....	9.6	8.9	9.3	9.3	9.7	9.2	9.5	10.1
Claims paid (-) .....	5.7	5.6	5.9	6.3	6.5	6.6	6.8	7.1
Change in the provisions for claims (-) .....	1.0	1.1	0.8	0.5	0.4	0.4	0.4	0.1
<b>Premiums after insurance costs</b> .....	<b>2.9</b>	<b>2.3</b>	<b>2.6</b>	<b>2.5</b>	<b>2.8</b>	<b>2.2</b>	<b>2.3</b>	<b>3.0</b>
Net operating expenses (-) .....	2.9	2.7	2.8	2.7	2.8	2.6	2.7	2.9
<b>Result before investment income</b> .....	<b>0.0</b>	<b>-0.4</b>	<b>-0.2</b>	<b>-0.2</b>	<b>0.0</b>	<b>-0.4</b>	<b>-0.4</b>	<b>0.1</b>
Net investment income .....	1.2	1.5	1.3	1.5	0.2	1.0	1.2	0.9
<b>Technical result non-life insurance</b> .....	<b>1.2</b>	<b>1.1</b>	<b>1.2</b>	<b>1.3</b>	<b>0.2</b>	<b>0.7</b>	<b>0.7</b>	<b>0.9</b>
<b>C. Non-technical account</b>								
Total technical result life and non-life insurance .....	2.0	2.3	2.2	2.2	-3.5	1.4	1.5	0.2
Residual net investment income .....	0.3	0.7	0.5	1.7	0.3	-0.7	0.2	-0.9
Other and exceptional results and taxes .....	-0.6	-0.6	-0.5	-0.1	-0.7	0.2	-0.3	-0.2
<b>Net result</b> .....	<b>1.7</b>	<b>2.4</b>	<b>2.2</b>	<b>3.8</b>	<b>-3.9</b>	<b>0.9</b>	<b>1.4</b>	<b>-0.9</b>
<i>p.m. Return on equity (in %)</i> .....	<i>18.0</i>	<i>23.3</i>	<i>20.8</i>	<i>31.7</i>	<i>-27.3</i>	<i>6.3</i>	<i>9.7</i>	<i>-6.6</i>

Source: NBB.

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

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

	2004	2005	2006	2007	2008	2009	2010	2011
Explicit margin .....	9 702	10 750	11 716	12 897	15 928	16 148	15 938	15 155
<i>In % of required margin</i> .....	164	165	164	166	195	191	177	162
Implicit margin .....	4 092	5 148	5 279	3 144	1 407	1 999	1 886	1 774
Future profits of life insurance activities .....	755	749	655	484	360	288	226	213
Unrealised capital gains .....	3 337	4 399	4 624	2 660	1 047	1 711	1 660	1 561
<i>In % of required margin</i> .....	69	79	74	40	17	24	21	19
<b>Total margin</b> .....	<b>13 794</b>	<b>15 898</b>	<b>16 996</b>	<b>16 042</b>	<b>17 336</b>	<b>18 147</b>	<b>17 824</b>	<b>16 929</b>
<i>In % of required margin</i> .....	<b>234</b>	<b>244</b>	<b>238</b>	<b>206</b>	<b>212</b>	<b>215</b>	<b>198</b>	<b>181</b>

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)

	2004	2005	2006	2007	2008	2009	2010	2011
Bonds .....	55.8	57.4	59.5	64.1	66.2	69.0	70.4	73
Equities .....	12.7	13.9	14.1	10.1	7.7	6.6	6.1	4.7
Real estate .....	2.4	2.2	2.1	1.4	1.6	1.7	1.7	1.7
Loans .....	3.6	2.7	2.3	2.3	2.8	2.6	2.7	2.9
UCITS .....	15.1	16.2	16.5	16.1	12.5	12.1	11.3	10.2
Others .....	10.3	7.6	5.5	5.9	9.2	8.0	7.8	7.4
<b>Total (in € billion) .....</b>	<b>147.3</b>	<b>168.8</b>	<b>182.7</b>	<b>193.1</b>	<b>196.5</b>	<b>210.8</b>	<b>221.3</b>	<b>216.1</b>

Source: NBB.



**TABLE 18** KEY FIGURES OF STOCKBROKING FIRMS  
(data on a company basis)

	2004	2005	2006	2007	2008	2009	2010	2011 <sup>(4)</sup>
Number of companies	36	31	27	26	23	23	23	22
Securities portfolio for own account (in € billion) <sup>(1)(2)</sup>	1.89	0.25	0.14	0.23	0.39	0.39	0.09	0.10
Balance sheet total (in € billion) <sup>(2)</sup>	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	69.64
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	33.92
Income (in € billion) <sup>(2)</sup>	0.19	0.27	0.32	0.36	0.28	0.29	0.28	0.27
Operating expenses (in € billion) <sup>(2)</sup>	0.18	0.18	0.21	0.25	0.28	0.30	0.26	0.26
Net after tax results (in € billion) <sup>(2)</sup>	0.05	0.10	0.13	0.17	0.06	0.06	-0.01	0.04
Return on average equity (in %) <sup>(3)</sup>	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

# Overview of the NBB's oversight and supervision of financial market infrastructures for 2011

Since the adoption of the Twin Peaks supervisory model in April 2011, the National Bank of Belgium (the NBB) is in charge of both the oversight of financial market infrastructures and the prudential supervision of the regulated institutions that operate these infrastructures. The central bank's oversight of the payment and settlement infrastructures is motivated by the ultimate policy objective of promoting the safety and efficiency of the financial system as a whole.

The prudential supervision for its part aims at ensuring the robustness of the market infrastructures at micro-level, thus helping to maintain the confidence of the institution's counterparties.

In order to pool expertise and strengthen the synergies between the oversight function and the prudential supervision function, the two functions are performed by the same team.

**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	Bank of New York Mellon SA/NV (BNYM) <sup>(1)</sup>		Belgian branch of BNYM  Payment and electronic money institutions (±15)
Prudential supervision and oversight	Euroclear Belgium (formerly CIK) (EBE)  Euroclear SA/NV (ESA)	LCH.Clearnet SA/NV	Euroclear Bank (EB) <sup>(2)</sup>  Atos Worldline <sup>(3)</sup>
Oversight	SWIFT	Target2 Securities (T2S) <sup>(3)</sup> Target2 (T2) <sup>(3)</sup> CLS	NBB-SSS Bancontact/Mister Cash <sup>(3)</sup> CEC/UCV <sup>(3)</sup> MasterCard Europe <sup>(3)</sup>

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 by the European System of Central Banks (ESCB).

Many of the infrastructures that are overseen and/or supervised by the NBB have an international dimension; some of them limit their operations to the euro area, others operate worldwide. In line with the principles for cooperative oversight and supervision, the NBB performs the role of lead overseer/supervisor for international infrastructures established in Belgium, such as SWIFT and Euroclear. As a corollary, and under the leadership of the relevant national central bank/supervisor, the NBB plays a role in cooperative oversight and supervision for international infrastructures established outside Belgium, but providing services to Belgium. Table 1 contains an overview of the (cooperative) oversight and/or supervision in which the NBB is involved.

## 1. Oversight of SWIFT

The NBB acts as lead overseer of the Society for Worldwide Interbank Financial Telecommunication (SWIFT), as the company is incorporated in Belgium. The oversight of

SWIFT is performed in cooperation with the G10 central banks. 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. In 2011, the G10 central banks decided to expand country representation in the SWIFT Oversight arrangements, by having senior representatives of the G10 and 12 other central banks conducting joint discussions on the SWIFT oversight policy and results in the SWIFT Oversight Forum. The SWIFT Oversight Forum is being set up in 2012.

In 2011, SWIFT provided overseers with an updated version of its self-assessment report regarding the High Level Expectations (HLEs), which constitute the framework for reviewing SWIFT activities that fall within the scope of the

### 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 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)**, composed of all G10 central banks, the ECB and the chairman of the CPSS, is the forum through which central banks conduct cooperative oversight of SWIFT, and in particular discuss oversight strategy and policies related to SWIFT. It meets twice a year;
- within the OG, the **Executive Group (EG)**, which meets about four times a year, 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. The EG includes the Bank of Japan, the Federal Reserve Board, the Bank of England, the ECB and the NBB;
- 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 understand 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 2011 the OG agreed to set up the **SWIFT Oversight Forum** in the course of 2012. The SWIFT Oversight Forum is composed of senior overseers from the G10 central banks (OG) and 12 additional central banks. The SWIFT Oversight Forum's objectives are to:

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

The central banks of the following countries/territories are joining the G10 central banks in the SWIFT Oversight Forum: Australia, Brazil, China, Hong Kong, India, Korea, Mexico, Russia, Saudi Arabia, Singapore, South Africa and Turkey.

oversight. 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 5 HLEs for the Oversight of SWIFT. These HLEs provide a common set of expectations for this global messaging company. The overseeing central banks decided to address their 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. Oversight expectations centre around security (confidentiality, integrity, availability) and system resilience. The fact that SWIFT is subject to the

overseers' HLEs could lead it to make investments in security and resilience that would not have been envisaged by a company not subject to oversight.

To the extent that technology barriers to competition have been lowered, allowing other companies to start offering services similar to SWIFT's, the specific resilience requirements imposed on SWIFT through the HLEs could place it at a disadvantage compared to its competitors. This level playing field issue has been addressed in the newly proposed CPSS-IOSCO principles for financial market infrastructures which suggest an oversight approach vis-à-vis critical service providers.

## 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.

In the fourth quarter of 2007, SWIFT announced plans to overhaul its messaging infrastructure, which included setting up a multi-zonal messaging architecture. The new topology permits multiple processing zones, making it possible for intra-zone messages to be kept within their region of origin. This major project to switch to a multi-zonal architecture was split into two phases. In the first stage, two message processing zones were created, namely the European and Trans-Atlantic zones. Country allocation to processing zones was determined in 2008. An additional SWIFT operating centre for the European zone started up in 2009. SWIFT added a command and control capability in Asia, which now allows its operations to be controlled from Asia, Europe or the US. In the second stage of the multi-zonal architecture project, SWIFT is building a new operating centre, replacing one of those currently in use.

One of the major focal points of the oversight activities in 2011 was the monitoring of this multi-zonal architecture project. Aspects reviewed included the resilience features of the new architecture, the organisation of project management, the monitoring of project milestones, the testing strategies, and customer communication plans. Other areas of specific SWIFT oversight attention include cyber defence, IT audit activities, security risk management and enterprise risk management. The next steps in the roll-out of a renewed multi-zonal architecture infrastructure will also be a major oversight focus in the coming year.

A second major project for overseers' review constitutes the renewal by SWIFT of its core application for messaging: FIN. In this multi-year project, SWIFT will renew the FIN application and its underlying technology platform to address long term technology needs while aiming to significantly reduce ongoing operating costs.

Overseers continue to monitor closely SWIFT's financial position, as well as trends in its messaging volumes. SWIFT's FIN messaging traffic, which is the major contributor to the company's revenue, increased by 9.9 % in 2011, compared to 7.1 % budgeted. This higher than expected growth can in part be attributed to the high market volatility in 2011. SWIFT decided to grant a 16 % rebate on 2011 messaging invoices, in addition to the 20 % structural price reduction for messaging that came into effect in 2011. Key enablers for these price reductions were a major cost restructuring initiative launched in 2009 that ended in 2011, the establishment of a culture of continuous cost containment, and actual revenues that exceed the budget figure. 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 have an impact on the critical services of FIN and SWIFTNet that are subject to oversight.

In 2011, SWIFT's Chief Risk Officer (CRO), who was appointed to this new post at SWIFT at the end of 2010, continued the development of an integrated Enterprise Risk Management framework throughout SWIFT, and consulted on risk management guiding principles for steering discussions on the desired risk approach throughout SWIFT. The established framework contributes to fostering risk management discussions between the Board and management of SWIFT and to roll out a consistent approach across all business functions.

## 2. Oversight of card payment schemes and retail payment systems

### Card Payment Schemes (CPS)

In 2010 the assessment reports on the compliance of domestic card payment schemes with the harmonised ESCB standards were finalised and were subjected to a “peer review”. For Belgium, the Bank has assessed the compliance of the Bancontact-MisterCash scheme.

The assessment of international card payment schemes also progressed during the same timeframe. The Bank acts as “lead overseer” of MasterCard Europe which has its head office in Belgium.

The assessment of these domestic and international schemes should result in the presentation by the Eurosystem of a report on the whole sector in Europe in 2012. The major outcomes will be published on an aggregate basis.

In line with customary practice for each assessment exercise, the principal results relating to each of the assessed entities could give rise to recommendations that will be addressed directly to the governance body in charge of the entity concerned. The expectation is that this governance body will then set up an action plan to implement the recommendations or, alternatively, it will demonstrate how it achieves an equivalent risk mitigation in practice by means of satisfactory organisational arrangements.

### Retail payment systems

The CEC (Centre for Exchange and Clearing) is the Belgian automated interbank payment netting scheme. The system is owned by the Belgian financial sector but is operated by the NBB, and processes retail payments of various types: credit transfers (in both the national and the SEPA format), credit and debit cards, direct debits, and cheques exchanged between the system's participants.

Settlement takes place once a day, whereby the net settlement system results in a single multilateral net balance per participant that is then settled (the single balance for each participant is calculated from all the payments which he has sent and received).

Under the risk classification regime used at European level, the CEC is considered a system of major importance that would not, however, generate systemic risk in the event of malfunctioning. Compliance with the standards

applicable to this category of system (the G10 Core Principles<sup>(1)</sup> I, II, VII, VIII, IX and X) had already been previously assessed. In recent years, the NBB, in its capacity as overseer of the CEC, has reinforced its requirements for financial risk management and has recommended that the system should increase the frequency of the settlement cycles. The objective is to limit the amounts involved if a participant were unable to fulfil his obligations. The introduction of several settlement cycles per day in the CEC, which constitutes a fundamental change for the system, has been submitted for the consent of the system's owners. The timetable for implementing these multiple settlement cycles is currently being established. This schedule is linked to another major on-going project, namely the migration of the CEC towards a SEPA-compliant automated clearing house.

## 3. Oversight of securities settlement systems

The NBB exercises its oversight responsibilities regarding securities settlement systems (SSS) vis-à-vis four entities delivering settlement services in Belgium, namely the Euroclear companies (Euroclear SA/NV, Euroclear Bank and Euroclear Belgium) and the NBB-SSS, the settlement system for Belgian government debt and other fixed-term securities.

### Oversight of Euroclear SA/NV

Euroclear SA/NV (ESA) is the Belgium-based parent company of the Euroclear group which comprises the International Central Securities Depository (ICSD) Euroclear Bank as well as the national CSDs Euroclear Belgium, Euroclear France, Euroclear Nederland, Euroclear UK & Ireland, Euroclear Sweden and Euroclear Finland.

ESA owns the securities processing platforms and provides various common services to the (I)CSDs. While the oversight/supervision of the (I)CSDs is exercised on an individual basis by each competent authority in accordance with their national regulatory framework, an international cooperative agreement involving the same authorities has been set up for the coordination of the regulatory initiatives relating to the common services delivered by ESA to the CSDs of the group.

The NBB is in charge of coordinating this multilateral cooperation process (see Box 3).

(1) Core principles for systemically important payment systems, BIS (www.bis.org), Basel, January 2001.

### Box 3 – The international cooperative oversight and supervision arrangements for Euroclear SA

The cooperative oversight and supervision framework for the Euroclear group entities is structured around ESA. It takes into account the respective competences of the various national authorities involved. This cooperative framework does not replace each authority's competences vis-à-vis the Euroclear entity in its own country (i.e. the (I)CSDs are still supervised and overseen by their respective national supervisors and overseers).

The NBB as lead overseer and lead prudential supervisor coordinates contacts with foreign authorities acting as single point of contact for ESA. An international cooperation scheme has been established regarding the oversight and supervision of ESA in a multilateral Memorandum of Understanding (MoU). The principles in the MoU specifically refer to the need to avoid gaps and duplications in the oversight / supervision as well as an unnecessary burden for ESA. The parties to this MoU are the authorities of the countries where the domestic CSD is part of the Euroclear group:

- Belgium: National Bank of Belgium, Financial Services and Markets Authority;
- France: Banque de France, Autorité des Marchés Financiers;
- The Netherlands: De Nederlandsche Bank, Autoriteit Financiële Markten;
- United Kingdom: Bank of England, Financial Services Authority;
- Sweden: Sveriges Riksbank, Finansinspektionen;
- Finland: Bank of Finland, FIN-FSA.

For Ireland, the Central Bank of Ireland participates in the Technical Committee meetings with observer status.

The scope of the MoU basically concerns, on the one hand, the exchange of information relevant for coordination and cooperation between the authorities in the area of oversight / supervision and, on the other hand, the coordinated assessment of the common services that are provided by ESA to support the activities of the (I)CSDs in the group.

In practical terms, two committees are in charge of the implementation of the cooperation framework.

- First, there is a **High Level Committee (HLC)** composed of senior representatives of the signatory authorities. The mandate of this senior level steering body is to pursue agreement on and implementation of the policies and priorities arising from the coordinated assessment, and to notify and discuss with ESA's Board and Management the recommendations resulting from the assessments, as well as the strategy concerning ESA's common services and other issues.
- In addition, a **Technical Committee (TC)** composed of all the signatory authorities assists the implementation of the agreed policies regarding the coordinated assessment of ESA's common services as defined by the HLC. The TC supports the coordinated assessment of all common functionalities and services of ESA. Ad-hoc working groups may be put in place by the TC in order to address those issues for which specific expertise is required.

Finally, a permanent secretariat, managed by the NBB, provides administrative support for both committees.

In addition, a crisis communication scheme, coordinated by the NBB, has been set up for contacts between the authorities and ESA.

The Belgian authorities are responsible for the enforcement, follow-up and coordination of the implementation of the mutually agreed recommendations, drawn up on a consensus basis and addressed to ESA as a result of the coordinated assessment of the common services.



The overseers and prudential supervisors involved in this cooperative arrangement rely among others on the information provided by Euroclear's Risk Management and Internal Audit division in order to proactively monitor the company's risk profile. The joint regulatory assessment programme includes other relevant issues such as the stability of Euroclear's IT systems, strategic developments and the adequacy of the governance arrangements.

In 2011, the NBB conducted an extensive analysis of Euroclear's incident and crisis management arrangements. This analysis found that Euroclear had a well-organised process to detect, evaluate and resolve incidents.

Since Euroclear decided to abandon its Single Platform project and instead to upgrade the existing local platforms, the authorities of the Euroclear group wanted assurance that each market's needs are duly considered when the investment plan is drawn up. This has been done by analysing both the internal and external governance. Regarding the internal governance, an assessment was conducted on the IT governance and on the various committees at local and at group level that decide on the prioritisation of projects. For the external governance, a questionnaire was sent to the local Euroclear CSDs and selected participants in the Market Advisory Committees (MACs) to ascertain their views on the stakeholder input in Euroclear's decision process and to see whether Euroclear's decisions are adequately communicated and explained to the market.

### Oversight of Euroclear Belgium

Euroclear Belgium (EBE), the central securities depository for Belgian shares, operates on the same IT platform "ESES" (Euroclear Settlement for Euronext-zone Securities) as Euroclear France (EF) and Euroclear Nederland (ENL). The governance structure of the three ESES CSDs has also been harmonised (e.g. common CEO). The overseers and supervisors from these three countries have set up a cooperative arrangement for matters related to the ESES CSDs. The authorities have also fine-tuned the ESES crisis communication arrangements, because an IT incident on the common ESES platform will probably affect all three CSDs.

In the first quarter of 2011, the ESES CSDs further integrated their operating arrangements, implementing a more functionally-oriented operations management framework across the ESES CSDs. This adaptation includes the outsourcing of the EBE and ENL settlement services' operations to EF.

The overseers and prudential supervisors from the NBB, together with their Dutch and French equivalents, have continued their regular monitoring of the CSDs' functioning (e.g. analysis of the settlement efficiency/settlement fails, service and IT developments).

### Oversight of 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 maintains a network of more than 40 links with domestic markets worldwide.

The Euroclear system operated by EB, together with a selection of market links, has been subjected to an assessment against the standards for use in the Eurosystem credit operations. Furthermore, EB has also been assessed against the ESCB-CESR standards.

Specific attention has been given to liquidity risk management matters, with the aim of further enhancing the existing contingency framework in line with the new requirements to be embedded in the forthcoming new CPSS-IOSCO principles. A comprehensive oversight data reporting project has also been initiated. Its main objective is to develop key risk indicators to analyse data series for banking and business activities, and to devise a pro-active risk monitoring tool to detect early warning signals. The new reporting will also improve the mapping of system interdependencies in the Euroclear system.

In 2011, the NBB embarked on a risk mapping assessment of EB's asset servicing activities. These activities comprise income and redemptions, corporate actions, new issues, proxy voting and tax services.

After a first high-level analysis of the potential impacts and possible solutions in case of a hypothetical long-term IT outage affecting both the active data centre and the two back-up data centres serving the Euroclear Group (I)CSDs, the NBB requested EB in 2011 to conduct a more detailed analysis of EB-specific services, including interdependencies with other market players and infrastructures. The outcome of this analysis should provide further input on EB's ability to perform critical functions even in the very extreme scenario in which all data centres are down for a longer period of time (e.g. a 5-day period). In particular, EB's ability to prioritise systemic transactions, the accessibility of data records, and interaction with relevant counterparties (participants, central banks, depositories, cash correspondents) will be analysed in this respect.

## Oversight of NBB-SSS

In 2011 the assessment of the NBB-SSS against the ESCB-CESR recommendations for securities settlement systems was finalised. A schedule for the implementation of the recommendations<sup>(1)</sup> was agreed with the operator.

As is the case for other CSDs, the operator of NBB-SSS also took part in the negotiations on the development of the TARGET2-Securities (T2S) settlement platform, was acquainted with the T2S platform design and analysed the changes it will require to the NBB-SSS system.

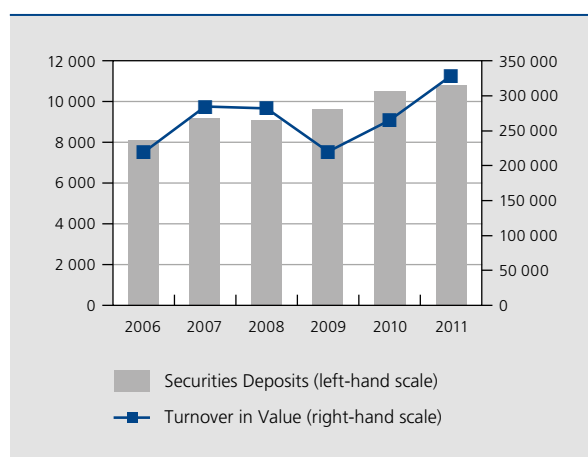
(1) The oversight assessment and recommendations can be consulted at:  
[http://www.nbb.be/doc/ti/AssessmentNBBSSS\\_CPSS\\_IOSCO\\_May2011.pdf](http://www.nbb.be/doc/ti/AssessmentNBBSSS_CPSS_IOSCO_May2011.pdf)

### Box 4 – Securities settlement systems in Belgium: key figures on securities deposits and turnover

Three securities settlement systems are established in Belgium: the ICSD Euroclear Bank (EB) and the CSDs NBB-SSS and Euroclear Belgium (EBE). Whereas NBB-SSS and EBE primarily function as depositories for securities issued in Belgium, EB holds securities from more than 40 markets. Apart from size, other differences relate to the type of securities settled or the range of eligible currencies to settle securities against payment. Each system's own characteristics should be taken into account when evaluating the impact of the financial crisis based on key figures on securities deposits and turnover in value.

Most securities held in EB are fixed-income debt securities (e.g. eurobonds, government bonds). At the end of 2011, securities deposits held in EB on behalf of participants amounted to EUR 10.8 trillion, a 3 % rise from EUR 10.5 trillion in 2010. Settlement turnover rose 24 % from EUR 265.8 trillion in 2010 to EUR 328.5 trillion in 2011. As a result, the level of total settlement turnover is above pre-crisis levels again, after dropping in 2009. The average value of transactions processed by EB each day in 2011 is more than EUR 1.2 trillion. EB is a multi-currency system. The bulk of EB settlement turnover is in EUR. Other large settlement currencies include USD and GBP.

**EUROCLEAR BANK SECURITIES DEPOSITS & TURNOVER**  
(in € billion)

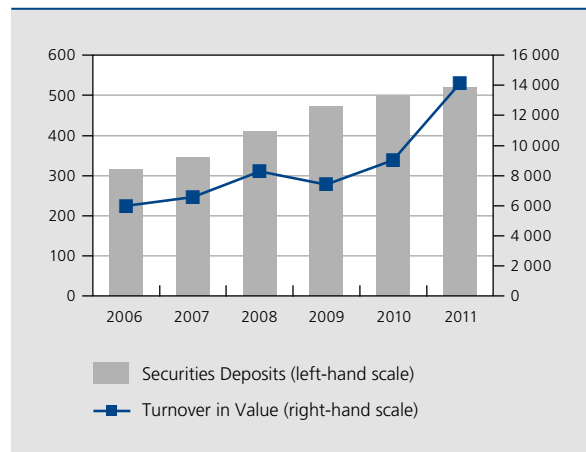


NBB-SSS, the central securities depository for fixed-income Belgian government and corporate debt, has reported a steady rise in securities deposits since 2006 (boosted partly by dematerialisation and new issuance of corporate debt), reaching EUR 521 billion in 2011, 4 % up against 2010. Settlement turnover increased significantly in the course of 2011 to EUR 14.1 trillion (+56 %). This rise is mainly due to the European sovereign debt crisis: the secondary market in Belgian government linear bonds – representing more than 70 % of turnover in NBB-SSS – peaked in 2011 at EUR 10.9 trillion, up from EUR 6.6 trillion in 2010.



#### NBB-SSS SECURITIES DEPOSITS & TURNOVER

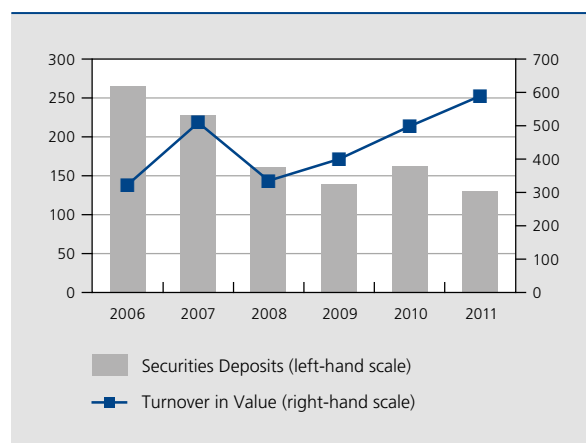
(in € billion)



Unlike EB and NBB-SSS, securities held in EBE are mainly shares. 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 fell by more than 19 % from EUR 162 billion in 2010 to EUR 130 billion in 2011 at year-end. Compared to 2006, before the start of the market turmoil, the value of securities deposits dropped by 50 %. The value of turnover, on the other hand, rose 18 % in 2011 to EUR 588 billion from EUR 498 billion in 2010, and is above pre-crisis levels again.

#### EUROCLEAR BELGIUM SECURITIES DEPOSITS & TURNOVER

(in € billion)



## 4. Prudential supervision of the Euroclear group

In 2011, the prudential supervision of the Euroclear group focused in particular on monitoring the restoration of an acceptable profitability for the group, with due regard for

the correct absorption in the financial accounts of both the termination of the Euroclear Single Platform project and the prevailing economic environment.

Because of the systemic nature of the group and its role in financial market stability, there was a particular attention on

the appropriate implementation of the CRD III principles relative to the remuneration policy, that aim to establish a clear and solid alignment of the remuneration of the group's executives with the pursuit of the group's long-term objectives.

The relocation project involving a large-scale staff transfer from EB to a branch to be established in Poland will be reviewed in detail, taking into account the relevant European bank regulations as well as the specific requirements governing strategic decisions in Belgium.

Finally reference should be made to a cooperation agreement relative to the control of clearing and settlement operations outsourced by EBE to Euroclear France, concluded on 1 July 2011 between the Belgian and French authorities (the NBB and the Financial Services and Markets Authority on the one hand, the Banque de France and Autorité des Marchés Financiers on the other) so as to allow the Belgian authorities to continue to control the compliance of EBE with its obligations under Belgian law.

### Box 5 – Synergies derived from combining the Oversight and Prudential Supervision of Euroclear

The NBB and the then CBFA had been co-operating for several years already on the Euroclear group.

By housing both the prudential supervision and the oversight of Euroclear (Euroclear Bank (ICSD), Euroclear Belgium, and Euroclear SA) within a single entity at the NBB, synergies can be further developed on the following aspects:

- Collection of Information: optimised assistance to joint meetings, full availability of, and access to, both prudential and oversight information, and removal of any remaining overlapping activities.
- Harmonisation and alignment of supervisory activities, whereby
  - a) duplication of work is avoided and available know-how is used most effectively; this implies, for example, that during prudential on-site reviews, oversight issues can also be analysed.
  - b) integrated (prudential/oversight) teams conduct common analyses on specific topics/risks, in order to take into account the perspective of both approaches;
  - c) oversight or supervision analyses and conclusions are discussed jointly and mutually checked, in order to arrive at analyses and conclusions that integrate both aspects.
- Communication towards the institution: a single view should be communicated from both the oversight and the prudential perspective, with maximum consistency and coherence in the recommendations (each formal request or recommendation to Euroclear indicates the statute under which it is made: prudential supervision or oversight).
- Evolution towards a joint annual action plan with an oversight section and a prudential section, which compares risk analysis from the micro prudential and the systemic risk perspective.

## 5. Prudential supervision of The Bank of New York Mellon SA (BNYM SA)

In 2009 and 2010 the Bank of New York group completed the first phase of its strategy to strengthen its European presence. Starting from BNYM SA, intra or extra group acquisitions are made, and acquired entities are turned into branches.

In 2011, as part of its strategic reorganisation programme in Europe, the group integrated the German company it acquired in 2010 into its existing German branch, and also opened a new branch in France.

In 2011 the NBB monitored the developments relating to the integration of the acquired entities with an eye on the major risks in clearing, settlement & custody activities, i.e.

operational risk (because of the integration of the IT platforms and applications of the acquired entities), liquidity risk and credit risk.

In advance of the conclusion of this first phase in the reorganisation of the group's presence in Europe, the NBB decided to convene periodic meetings of the regulatory authorities affected by the presence of branches of BNYM SA in their jurisdiction. The objectives of such meetings were on the one hand to prepare for the establishment of a Supervisory College as foreseen by the CRD III directive (as soon as an institution has at least two "significant" branches), and on the other hand to facilitate the information exchange prior to the establishment of this Supervisory College. The actual College was formally set up in the fourth quarter of 2011.

## 6. Prudential supervision of payment institutions

The provisions of the European Directive of 13 November 2007 on payment services in the internal market (the PSD Directive) allowed legal persons which had started the

activities of payment institutions before 25 December 2007 to continue those activities until 30 April 2011, the deadline for seeking formal authorisation to provide payment services.

Several companies that complied with the requirements have therefore been formally granted authorisation to operate as payment institutions following the analysis of their request and the information provided in support of that request.

Various companies planning to offer services in the area of payments have presented their project to the NBB so as to determine after a preliminary analysis whether the envisaged services would indeed fall within the scope of the PSD Directive. Several companies formally submitted their documentation supporting their authorisation request after such preliminary analysis; some of them were granted authorisation as payment institutions and started operating in 2011.

The development of European standards and guidelines related to various areas that are especially relevant for payment institutions (for instance, the actions to combat money laundering) received particular attention.

# Review of the Belgian residential mortgage loan market

This article reviews recent developments in the Belgian residential mortgage loan market and reports some aggregate results of a recent quantitative survey of 16 Belgian banks' domestic mortgage loan portfolios. The main conclusions can be found in the last section.

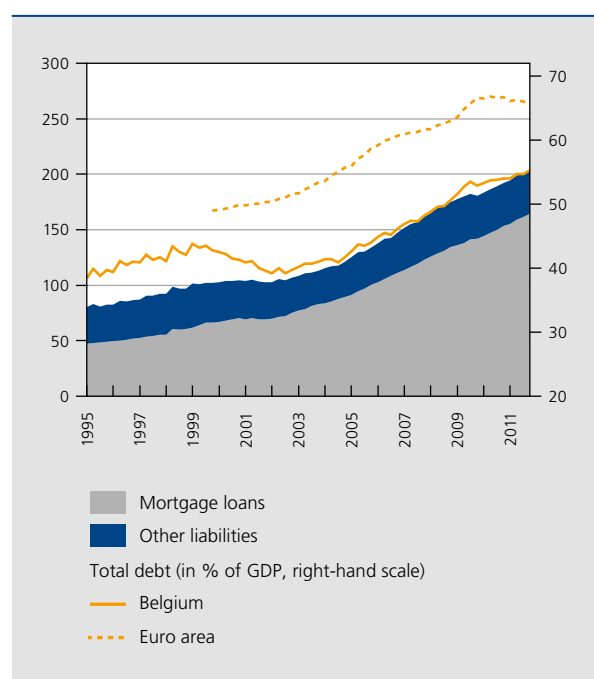
## 1. Review of market developments

Over the last ten years, the Belgian household sector's mortgage debt has increased strongly, rising from

€70 billion at the end of 2000 to €164 billion at the end of 2011 (Chart 1). This strong growth of mortgage liabilities has pushed the overall debt ratio of Belgian households up to 55.8 % of GDP. It remained nevertheless considerably lower than in the euro area (65.8 % of GDP) as at the end of 2011. The Belgian households also continue to have a high net financial asset position – calculated as the difference between total financial assets and liabilities – in comparison with other euro area countries (Chart 2).

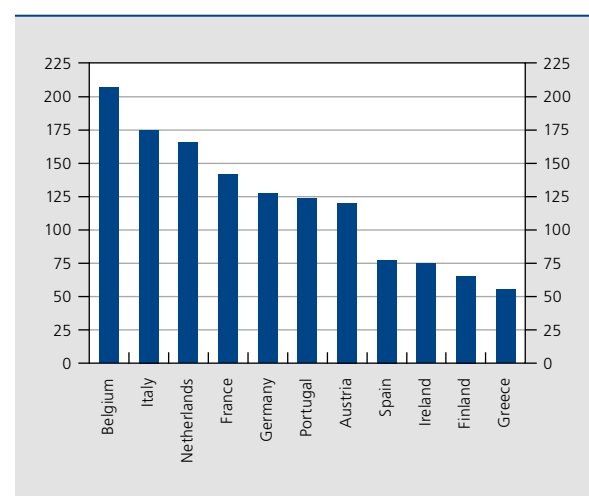
Three main factors may have contributed to this increased indebtedness, namely an increase in the number of mortgage loans outstanding, an increase in the average amount of new mortgage loans, and a decline in the rate

**CHART 1** DEBT OF BELGIAN HOUSEHOLDS  
(in € billion, unless otherwise stated)



Source: ECB, NBB.

**CHART 2** NET FINANCIAL ASSET POSITION OF HOUSEHOLDS  
(in % of GDP)



Source: EC, NBB.

of amortisation of the outstanding stock (due to rising average maturities or lower rates of capital repayments, for example). This section 1 of the article will show that a substantial increase in the number of mortgage loans outstanding goes indeed a long way towards explaining the observed development. This is partly related to the recent strong growth in loans for energy-saving investments, because of the favourable tax regime for so-called “green loans” in the years 2009-2011, but, more generally, it reflects a rise in the number of mortgage loans financing secondary market transactions.

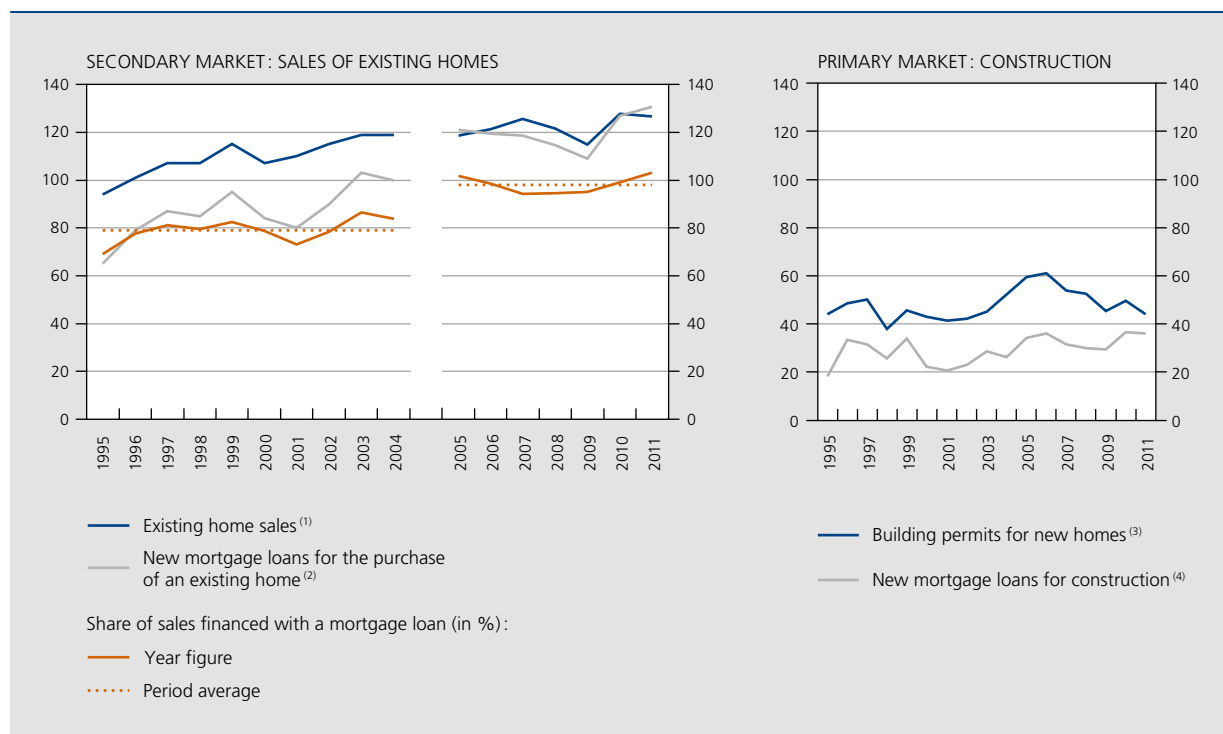
Second, growth in the average amount of new mortgage loans for the purchase of an existing house also played an important role in the expanding stock of mortgage loans, notwithstanding an apparent increased use of own funds (down payments) in the financing of purchases of existing houses since 2006. The latter could prove to be a temporary phenomenon, however. Third and lastly, a trend towards longer loan maturities must have reduced, at the margin, the rate of amortisation of the outstanding stock, even if bullet loans continue to represent a negligible

share of the outstanding stock of Belgian mortgage loans. These last aspects will be illustrated in more detail in section 2 of this article.

Chart 3 documents aggregate data about the number of transactions on the primary and secondary housing market and the associated total number of mortgage loans reportedly intended either for the construction of a new house or for the acquisition of an existing house.

As regards the primary market, building permits for new residential property came to around 50 000 units per year in the period 2000-2011, while new mortgage loans for construction purposes averaged 29 500 per year over this same period. The number of transactions on the primary market and the associated number of mortgage loans have been relatively stable, confirming the view that there was no strong boom in new residential building in Belgium during the period of strong price growth (in contrast to what happened in a number of other countries). However, the share of newly constructed houses financed with mortgage loans increased somewhat, rising from less

**CHART 3** MORTGAGE FINANCING IN PRIMARY AND SECONDARY HOUSING MARKET TRANSACTIONS  
(thousands, unless otherwise stated)



Sources: FPS Economy, NBB.

(1) Sales of houses and apartments, excluding building plots.

(2) Mortgage loans for purchase or purchase and renovation.

(3) Building permits for new homes, excluding building permits for renovation.

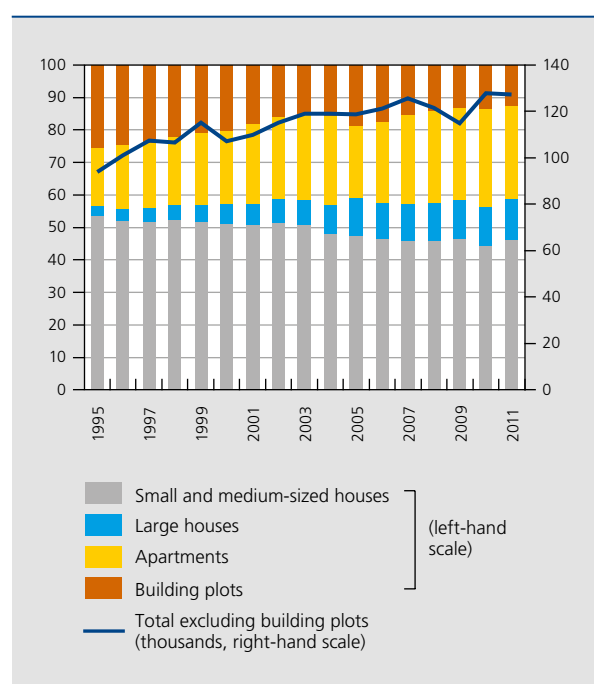
(4) Mortgage loans for construction.

than 60 % in the period 2004-2008 to 75 % or more in 2010 and 2011.

On the secondary market, the number of existing home sales has followed an upward trend, with some fluctuations, since 1995, the number of transactions *per annum* reaching close to 127 500 in 2010 and 2011. The data also suggest that the introduction of a new tax regime for mortgage loans in 2005 led to a structural change in the number of housing transactions financed with mortgage loans, as the share of mortgage loan financing rose to almost 100 % in the period 2005-2010, while the comparable ratio in the period 1995-2004 was only around 80 %. This aggregate estimate of the share of mortgage loan financing in secondary market transactions may display some upward bias since no correction is made for the existence of transactions financed by more than one mortgage loan, but it broadly confirms the findings of a recent private sector study claiming that only 10 % of housing sales are financed without a mortgage loan.

Looking more closely at what is behind the significant increase in the number of existing home sales (Chart 4), the most notable development is an increase in the number of apartment sales and a decline – in both absolute and relative terms – in the number of building plot transactions.

**CHART 4** BREAKDOWN OF THE TOTAL NUMBER OF RESIDENTIAL REAL ESTATE TRANSACTIONS  
(% of total, unless otherwise stated)



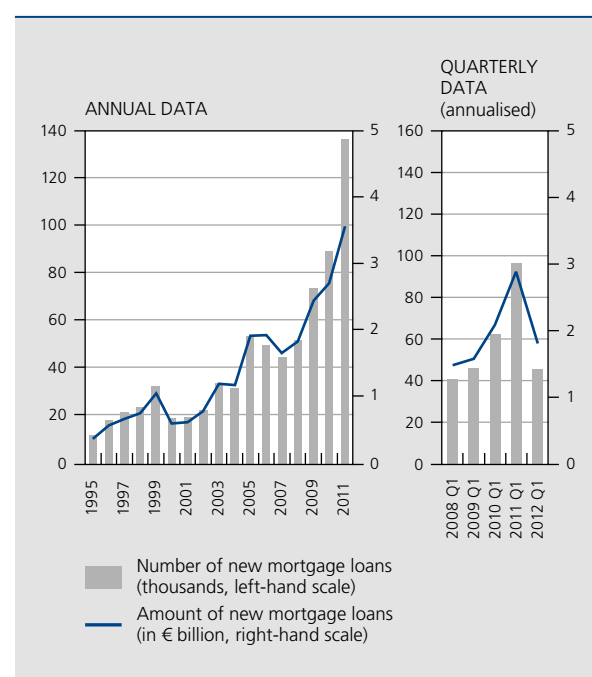
Source : FPS Economy.

In contrast, the share of houses (whether small, medium-sized or large) in total secondary market transactions has remained quite stable (55% – 60%) since 1995. The increased scarcity of building plots undoubtedly contributed to the reduced number of land sales. These tighter space constraints and the increasing price of land are in turn also likely to have boosted the appetite for apartments, on both the demand and supply side. In this connection, (anticipation of) the ageing of the population is also an important factor, as the baby-boom generation is reaching an age when downsizing to smaller housing (apartments) is in demand.

Although turnover on the Belgian residential real estate market is increasing, it nonetheless remains quite low compared to other countries. This reflects the very high share of owner-occupied housing in Belgium, combined with a traditionally strong reluctance to move. It probably also stems from the high registration taxes that discourage regular flipping of properties. However, in the Flanders region, the portability of registration taxes, introduced in 2002, has eased this constraint somewhat.

In addition to the significant increase in the number of new mortgage loans financing transactions on the primary or secondary market, there was also a surge in the number of mortgage loans for renovation (Chart 5). The use of these loans was boosted by the fiscal incentives

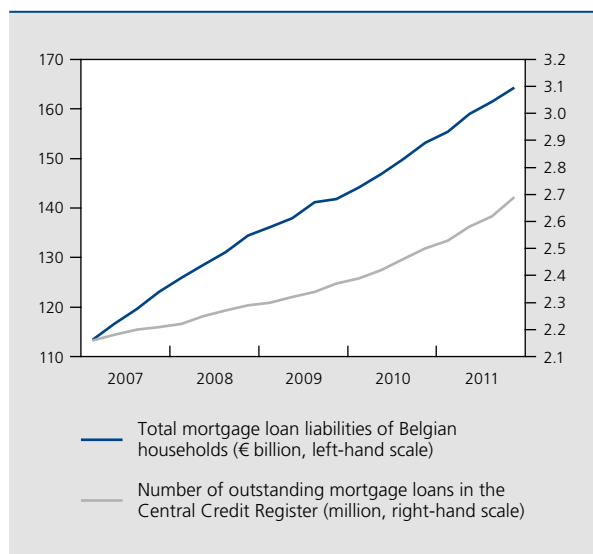
**CHART 5** MORTGAGE LOANS FOR RENOVATION



Source : NBB.



**CHART 6** OUTSTANDING NUMBER AND AMOUNT OF MORTGAGE LOANS



Source: NBB.

for energy-saving investments financed with green loans, introduced in 2009. These green loans were associated with an interest subsidy of 1.5 percentage points, paid for by the federal government, and proved very successful, as the number of new loans for renovation purposes surged from an annual average of 36 000 in the period 2000-2008 to an annual average of 100 000 in the years 2009-2011. Although the average size of these loans was limited to around € 30 000, the large number of loans in these three years resulted in new production totalling € 8.7 billion. Data for the first quarter of 2012 show that the expiring of the fiscal incentives for green loans and many energy-saving investments at the end of 2011 has led to a significant decline in the number and amounts of new mortgage loans for renovation.

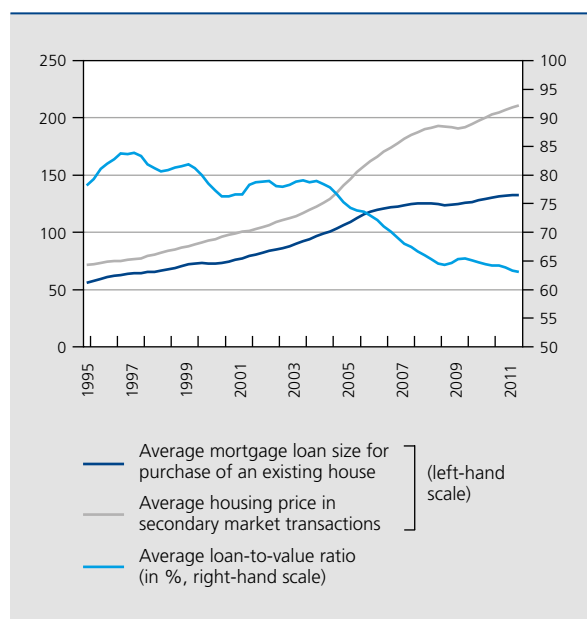
The data in the Central Credit Register – which has information on all outstanding household loans in Belgium since the beginning of 2007 – shows that the number of mortgage loans in Belgium has risen from less than 2.2 million contracts in 2007 to almost 2.7 million at the end of 2011. As highlighted in Chart 6, its rate of expansion only partly matches the growth of the outstanding amount of households' mortgage liabilities (shown as well in Chart 2), suggesting that an increase in the average size of new mortgage loans also took place over the period 2007-2011. This is somewhat surprising in view of the large number of relatively small loans for renovation in the last three years, and draws attention to potential developments in the average size of mortgage loans other than for renovation purposes.

This is done in Chart 7, looking at developments in the average size of new mortgage loans that are used to finance the purchase of an existing house or apartment, excluding mortgage loans used for renovation or construction purposes. Aggregate statistics can be used to calculate the average size of new mortgage loans, by dividing the volume of new mortgages by the number of new mortgage loans. These calculations show an average mortgage loan size of € 60 000 in 1996 which had doubled to € 120 000 by end-2006. During this period, the average composite housing price – a volume-weighted average of the selling prices of small and medium-sized houses, large houses and apartments – and the average mortgage loan size followed a fairly similar pattern, resulting in a loan-to-value ratio (the ratio between the two) of around 80 %. Since 2006, however, the two aggregates have increasingly diverged.

Between end-2006 and end-2011, the average mortgage loan size increased by an additional 10 % to € 132 000, while the composite house price rose by 24 % to € 211 000. The associated loan-to-value ratio dropped as a result to around 65 % in the years 2007-2011. As will be shown in section 2 of this article, the recent vintages of new mortgage loans have actually exhibited a wide distribution of loan-to-value ratios at origination, suggesting that the developments shown in Chart 7 have to

**CHART 7** DEVELOPMENTS IN THE AVERAGE AMOUNT OF NEW MORTGAGE LOANS AND AGGREGATE LTV RATIO

(in € thousand, unless otherwise stated)



Source: NBB.

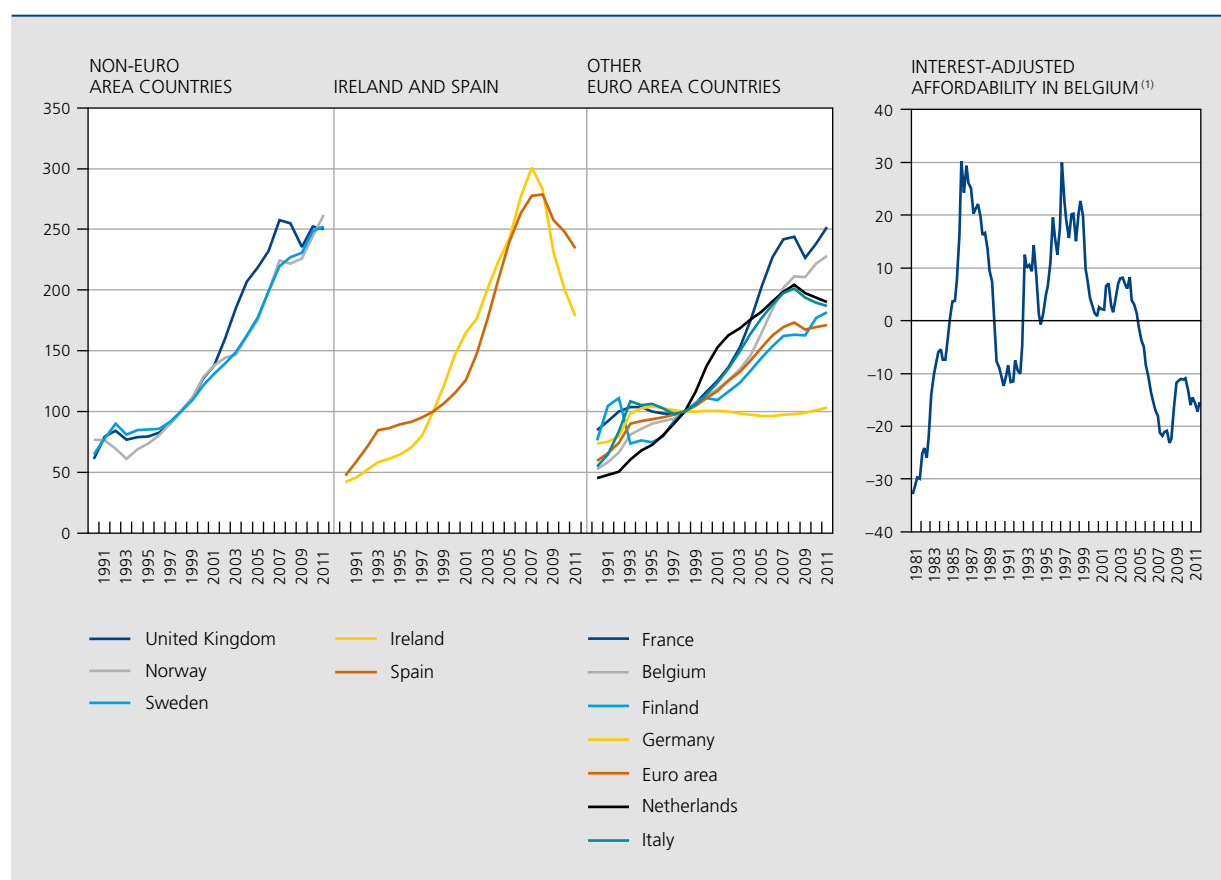
be interpreted with caution, as they represent the average outcome of a wide range of mortgage loans with very different characteristics. Although the aggregate data do not allow a further refinement of the analysis of the potential causes for the increasing gap between the average housing price paid and the estimated average mortgage loan size in recent years, some factors explaining the average increase in the use of own funds in the financing of secondary market transactions can be highlighted.

A first explanatory factor was already illustrated in Chart 3, which showed that the new tax regime for mortgage loans, introduced in 2005, seems to have changed the incentives for house buyers to finance part of the transaction with a mortgage loan. If the observed 20 percentage point increase in the share of secondary market transactions financed with a mortgage loan mainly concerned households taking out a mortgage loan for tax reasons, rather than for financial constraint reasons (limiting the amount borrowed to the level taken

into account in the tax return), the relative weight of new mortgage loans with a quite low loan-to-value ratio in new production could have increased in the period 2005-2011, relative to what it was before.

A second factor that may explain, over time, the rise in the use of own funds is the increased tendency for young singles or households to buy a small house or apartment (rather than renting) as an intermediate step towards the acquisition of a medium-sized or large house. This strategy works well in a period of rising housing prices, as the sale of the first property after a few years realises (leveraged) capital gains that can be used for the down payment on the subsequent acquisition of a medium-sized or large house, which may permit a proportionately higher down payment in the second transaction in some cases. This factor could thus have contributed to the observed aggregate decline in loan-to-value ratios on new mortgage loans, considering that households selling their first property when acquiring their second one

**CHART 8** HOUSE PRICES AND AFFORDABILITY MEASURES  
(Indices 1998=100, unless otherwise stated)



Sources: OECD, NBB.

(1) Ratio between the disposable income of households and the average mortgage loan debt service, which itself depends on house prices and interest rates; percentage deviation from the average of the period since the first quarter of 1981. A negative sign indicates overvaluation of property prices.

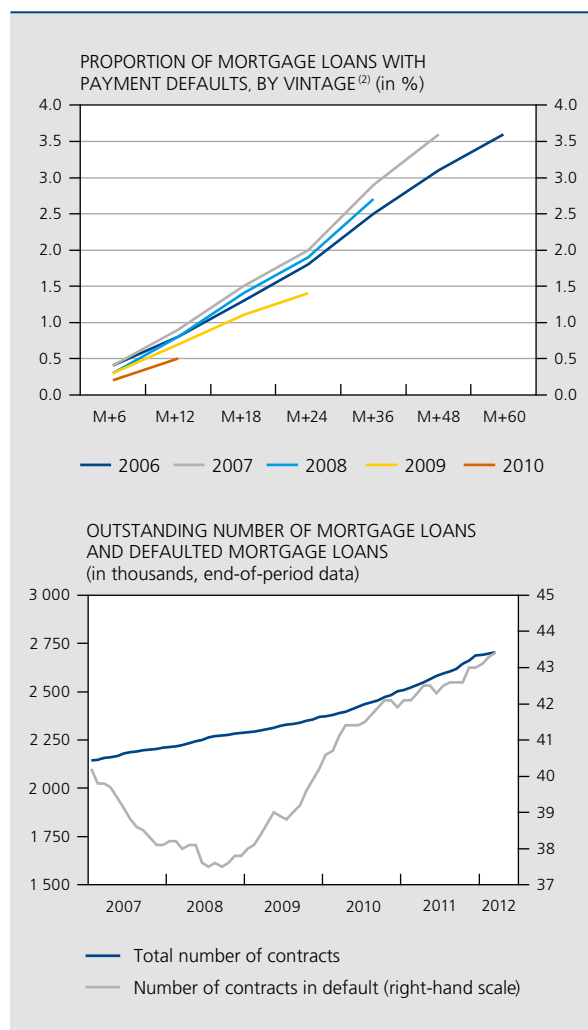
must have released substantial amounts of home equity. A third factor mentioned in the context of the observed increased use of own funds in recent years is the adoption of tax regularisation measures that favoured reinvestment of repatriated capital in some types of assets, including Belgian real estate. In this connection, the financial crisis and associated large losses on financial investments also seem to have enhanced the relative attraction of real estate (projects) as an investment asset in households' asset portfolios.<sup>(1)</sup> In a similar vein has the greater flexibility and the lower tax rate for gifts and donations probably also stimulated additional intergenerational transfers of financial resources in the context of home purchases.

As the factors mentioned above are likely to have contributed to a one-off or temporary increase in the use of own funds in secondary market transactions, they may have contributed to a one-off or temporary increase in the level of housing prices. When the effect of the temporary factors peters out, house prices may come under downward pressure. Similarly, changes in the tax regime for mortgage loans – for which legislative powers will be transferred by the federal government to the regional authorities as part of the reform of the state – may lead to new changes in the incentives for households to finance real estate transactions with mortgage loans.

Chart 8 provides an update on house price developments in Belgium and a number of other European countries since 1990, and shows the results of a measure of housing affordability in Belgium developed by the National Bank of Belgium. As regards house price developments, there does not appear to have been, as such, any significant or specific difference in real estate price changes between non-euro area countries and euro area countries since the start of monetary union at the beginning of 1999. Compared to the end of 1998, house prices in the United Kingdom, Sweden or Norway showed broadly the same sharp linear increase up to 2007 as was observed in many euro area countries, with many seeing prices rise by a factor of 2 or 2.5 relative to end-1998 levels. Since then, the experience of the various countries has been much more diverse. In Ireland and Spain, prices have dropped sharply from their recent peaks, in response to significant imbalances that had been built up due to excessive construction of new dwellings. A number of other countries have also experienced a cooling of real estate prices, but to a much lesser degree, such as the Netherlands, Italy or the UK. In several other countries, such as Belgium, France, Finland, Sweden or Norway, house prices reached new record levels in the course of 2011.

In Belgium, housing prices resumed their upward trend most recently in mid-2009. At the end of 2011, the house price index was up by 2.1 % relative to the same

**CHART 9** MORTGAGE LOANS WITH PAYMENT DEFAULTS<sup>(1)</sup>, BY VINTAGE AND OUTSTANDING AMOUNTS



Source : NBB.

(1) As recorded in the Central Credit Register.

(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 regularisations of loans are not taken into account.

period one year ago, following an increase of 5.9 % between end-2009 and end-2010. While the financial crisis had triggered a correction of the overvaluation of property prices, in the first half of 2010 prices were still estimated to be overvalued by a little more than 10 %. That estimate is, of course, subject to considerable uncertainty, notably because it is based on an analysis of relative price movements, not absolute price levels, and because some determinants are not considered. It is derived from an interest-adjusted affordability indicator which, compared to its long-term average, considers

(1) Du Caju Ph., "Asset formation by households during the financial crisis", NBB Economic Review, June 2012.

the ratio between household disposable income and the average mortgage loan debt service, which in turn depends on house prices and mortgage interest rates. This measure deteriorated again from mid-2010 to around 15 % in the last quarter of 2011, not just because of rising house prices this time, but also on account of the adverse movement in the other determinants, namely the new rise in interest rates and the meagre growth of disposable income.

In order to detect possible changes in the historically very low loss rates on Belgian mortgage loans, Chart 9 highlights a number of credit quality indicators on the basis of data in the Central Credit Register. The upper panel of the Chart shows cumulative default rates for the most recent vintages of new mortgage loans. Default rates show some variations between the different vintages, but broadly follow the same trajectory. The low trajectory of the most recent vintages 2009 and 2010 may reflect to some extent the high number of green loans originated during those years, creating an upward bias in the denominator of the ratio. The lower panel shows developments in the total number of mortgage loans outstanding and the number of mortgage loans with a payment default, as registered in the Central Credit Register. This credit quality indicator of Belgian households' mortgage loans deteriorated in 2009, when the Belgian economy was in recession and the Belgian housing market cooled. The number of mortgage loans with a payment default then rose to 1.7 % of the total number of mortgage loans outstanding. At the end of March 2012, this ratio stood at 1.6 %.

## 2. Aggregate results of a quantitative survey of 16 banks' Belgian mortgage loan portfolios

This section provides some aggregate results of a recent quantitative survey of 16 Belgian credit institutions' domestic residential mortgage loan portfolios.

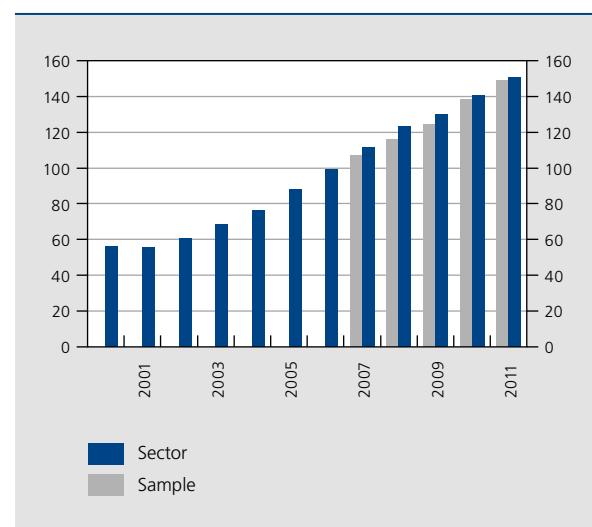
As shown in Chart 10, the institutions completing this questionnaire reported, for the end of 2011, a total outstanding amount of Belgian residential mortgage loans very close to the figure found in the territorial banking sector statistics for mortgage loan exposures to domestic households (respectively € 149 and € 151 billion). Given that households' total mortgage liabilities amount to € 164.3 billion at that time, the results below cover more than 90 % of the relevant exposures, and should thus be considered as quite representative for the structure of Belgian households' mortgage debt.

Almost all the banks in the survey reported strong growth of their mortgage loan portfolios in the period under review. Between 2007 and 2011, which is the period covered by the survey, the banking sector's aggregate domestic mortgage loan exposure rose by 35 %. While several reasons were cited for this strong growth, banks also signalled that they monitor very closely their market shares in new volumes and adjust their marketing strategies when actual market shares deviate too much from their targets. The banks suggested in this connection that the mortgage loan market is very price-sensitive, so that a bank's pricing policy relative to that of its competitors may have a major impact on its market share.

Banks were asked to break down their outstanding stock and new annual production volumes (vintages) for various mortgage loan characteristics.

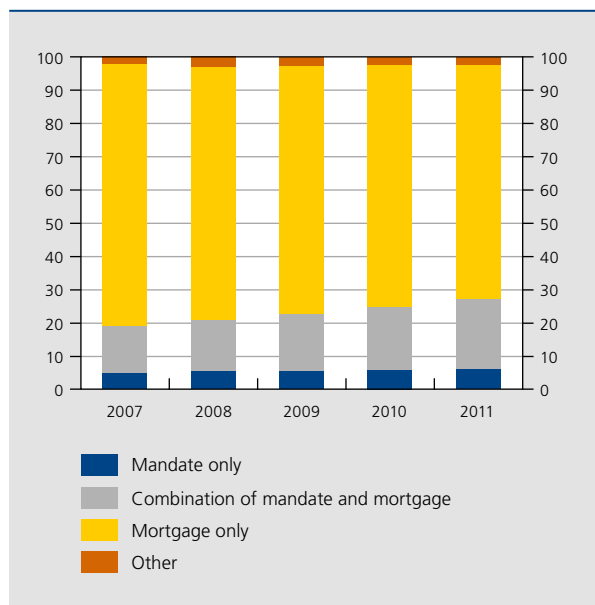
A first table asked for a breakdown of the residential mortgage loan stock according to whether the exposures concerned owner-occupied or buy-to-let dwellings. While a number of banks could not provide the requested information, data covering two-thirds of the relevant mortgage loan exposure suggest that more than 90 % of the outstanding stock finances owner-occupied houses, and that this ratio has remained very stable in recent years. This structural feature of the Belgian mortgage market is not surprising, given the very high rate of owner-occupied housing in Belgium (more than 70 %).

**CHART 10** TOTAL OUTSTANDING AMOUNTS OF BELGIAN RESIDENTIAL MORTGAGE LOANS  
(in € billion)



Source : NBB.

**CHART 11** USE OF MANDATES AND MORTGAGES  
(in % of total outstanding amounts at the end of the year)



Source : NBB.

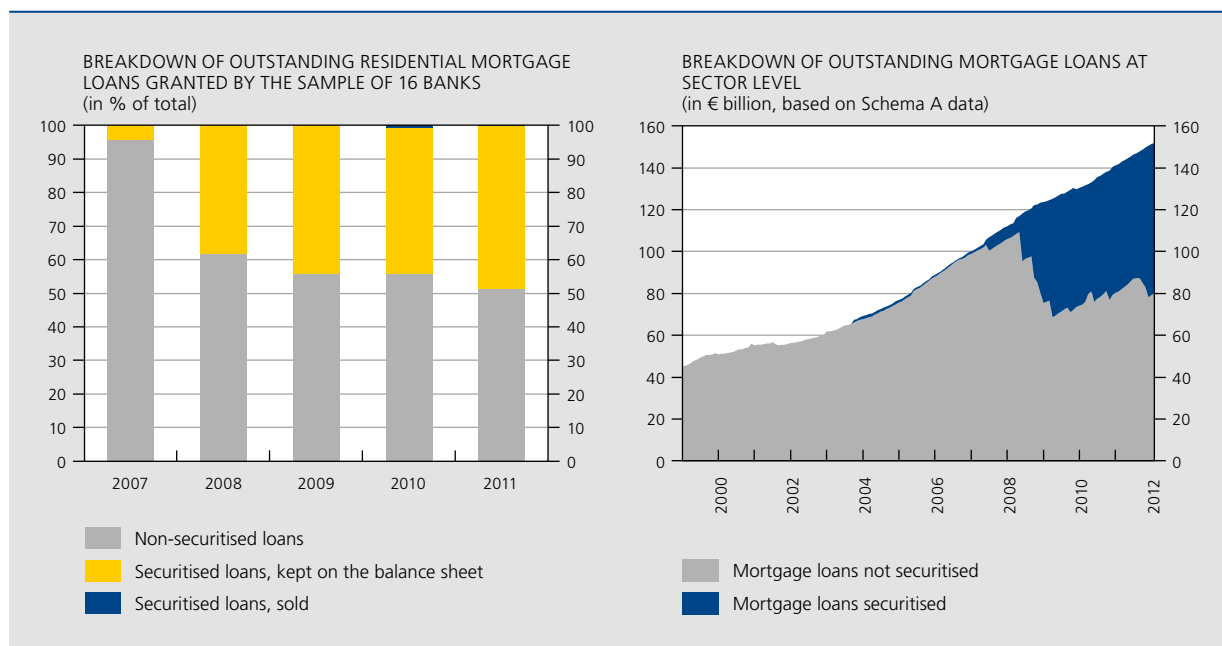
Another breakdown of the outstanding stock concerned the type of mortgage loan repayments. Full sample data in this case show that 94 % of the outstanding stock at the

end of 2011 concerned loans with regular capital repayments (as opposed to bullet loans). Here again, the ratio remained very stable in the period 2007-2011.

For another structural feature of the outstanding mortgage loan stock, dealing with the type of guarantee securing the mortgage loan, individual and aggregate data (Chart 11) showed a clear trend towards increased use of mortgage loans combining an effective mortgage deed (for part of the loan) with a mandate for the bank to take such a mortgage deed (for the other part of the loan). It appears to be standard practice to reserve the effective mortgage deed for the part of the mortgage loan that is eligible for tax relief, while the remaining part of the loan is secured with a mandate. While banks claimed to have experienced few difficulties with mandates in the past, the market trend appears to have been due largely to strong commercial pressures on banks to accept mandates to some extent. Yet, with a share of 71 % of the stock at the end of 2011, mortgage loans secured exclusively by a mortgage remain predominant. The figures for mortgage loans secured by a mandate only (6 %) or other types of guarantees (2 %) are quite low.

Chart 12 shows the aggregate result of the requested breakdown of the outstanding amount according to whether the mortgage loans have been securitised, and whether these securitised assets have been sold

**CHART 12** SECURITISATION OF BELGIAN RESIDENTIAL MORTGAGE LOANS  
(in € billion)



Source : NBB.

or kept on the balance sheet. The data confirm that a large proportion of Belgian residential mortgage loans has been securitised since 2008. As at the end of December 2011, the 16 banks taken together had securitised € 72 billion (or 48 % of the total stock) of Belgian residential mortgage loans. The result is in line with comparable information collected in the context of the Belgian monetary statistics shown in the right-hand chart (securitised share of 48 % at the end of last year). The bulk of these mortgage loan securitisations took place after 2008 for liquidity purposes, as the resulting mortgage-backed securities were included in the pool of central bank eligible assets. Only a very small fraction of these mortgage-backed securities has been sold. The forthcoming covered bond framework in Belgium is likely to broaden the possibilities for Belgian banks to securitise their domestic mortgage loans.

Turning to the parameters that may have influenced the average size of new mortgage loans and borrowers' associated debt burden, the following two charts will successively look at developments in the loan-to-value (LTV) ratio and loan maturities. The reported results concern both stock and annual vintage data.

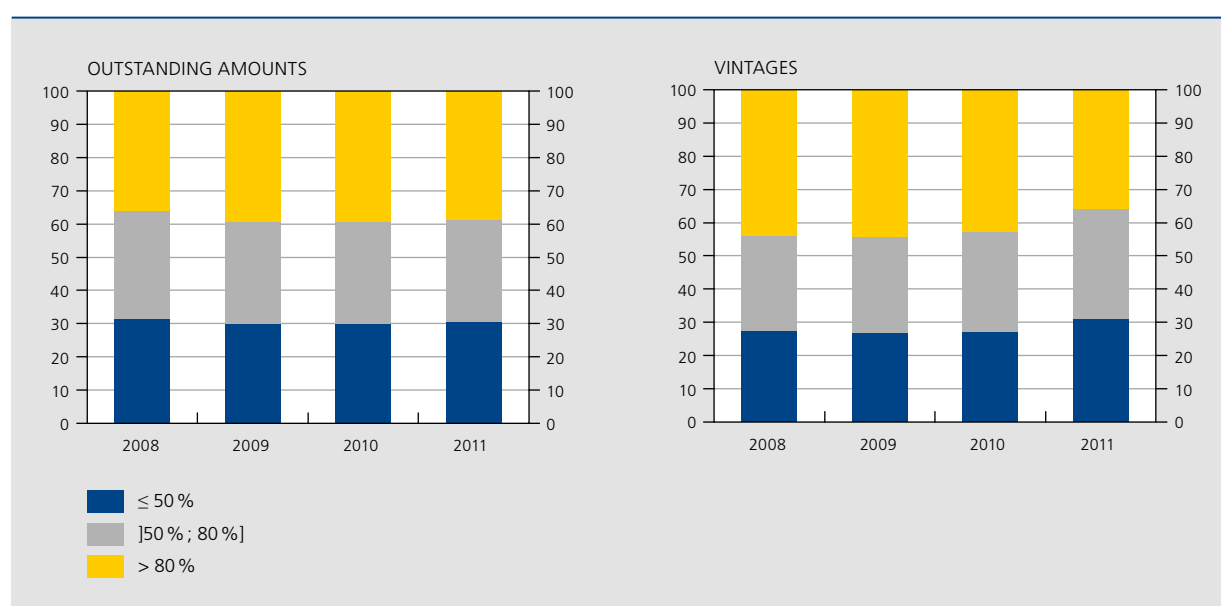
Chart 13 provides a very broad-brush breakdown of the stock and recent vintages according to the LTV ratio at the time of the origination of the loan. In order to mitigate the effects of potential differences in the way these LTV

ratios are defined and calculated between the different institutions, the breakdown in the chart is limited to three main classes. The principal conclusion that can be drawn from the collected data is that there is a wide distribution of LTV ratios at origination, and that the share of loans with an LTV ratio of more than 80 % at origination (including LTV ratios higher than 100 %) is quite high, representing roughly 40 % of the outstanding stock or of the average vintage in the period 2007-2010. Due to the large amount of mortgage loans with a low loan-to-value ratio, a rough estimate of the average LTV at origination for the vintages 2008-2011 gives an average LTV ratio of 68 %, which seems to be in line with the aggregate estimate in Chart 7 above. In this connection, it must be remembered that the large number of green loans originated in 2009, 2010 and (particularly) 2011 was probably associated with a rather low LTV ratio.

As regards the denominator in the loan-to-value ratios (the "V"), many banks seem to rely on the sale price in the notary deed, with a limited number of additional expert valuations being reserved for very large mortgage loans or specific types of transactions only. Some banks also use statistical models to estimate the value of the financed dwelling on the basis of a number of parameters (location, number of rooms, etc.). When the mortgage loan also finances renovation or conversion, an adjusted value (e.g. 85 %) of the cost of the work is included in the denominator of the loan-to-value ratio.

**CHART 13** LOAN-TO-VALUE RATIOS AT ORIGINATION

(in % of total loans at the end of the year or total loans granted during a particular vintage)

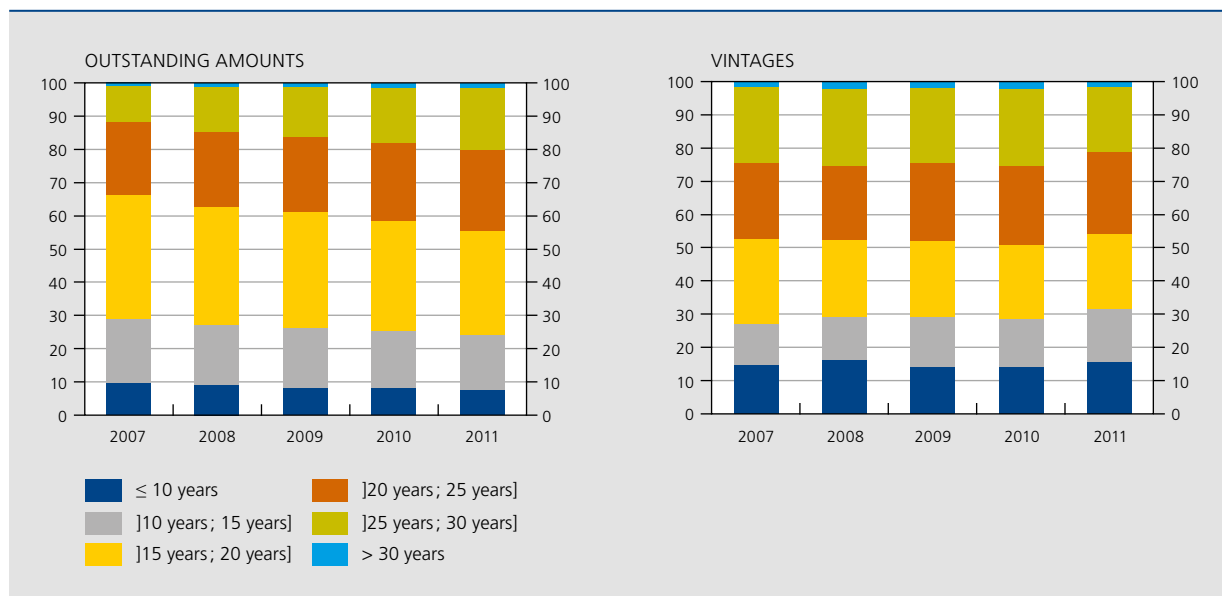


Source : NBB.

CHART 14

## MATURITIES AT ORIGATION

(in % of total loans at the end of the year or total loans granted during a particular vintage)



Source: NBB.

Chart 14 provides the breakdown of the stock and vintages according to the original maturity of the mortgage loan. The data show that the share of loans with an original maturity of more than 25 years at origination increased from less than 12 % of the outstanding stock at the end of 2007 to almost 20 % of the outstanding stock four years later. As the mortgage loan law caps the maturity of mortgage loans at 30 years, the percentage of loans with a maturity higher than 30 years has remained very small. The share of loans with an original maturity of more than 20 years in the outstanding stock surged from 33.5 % in 2007 to 44.6 % in 2011. As highlighted in the right-hand chart, these mortgage loans with maturities higher than 20 years have indeed accounted for almost 50 % of annual production volumes since 2007.

The large share of loans with long maturities after 2008 is somewhat surprising as it occurred during a period when mortgage loan rates declined over the period considered (Chart 17 below). While the increase in mortgage loan interest rates in 2007 and the first 9 months of 2008 may have justified some increase in loan maturities – to compensate for the negative effect of higher interest rates on the overall debt service of new mortgage loans, all other things being equal –, the subsequent drop in mortgage loan rates was not followed by a reversal in the share of long mortgage loan maturities. The increased borrowing capacity that resulted from the lower interest rates after

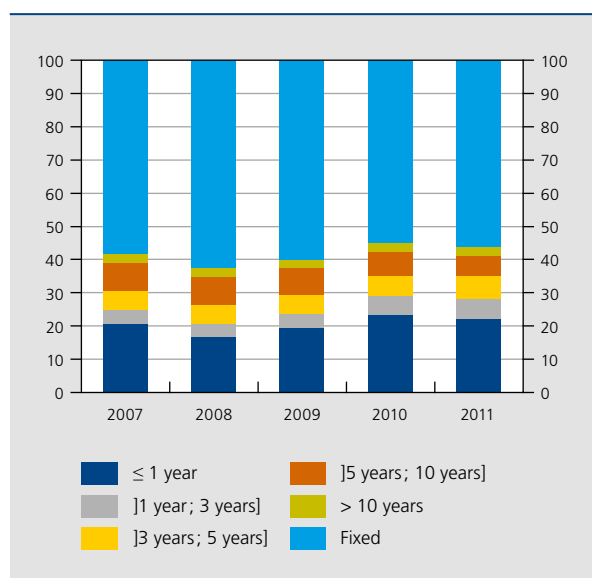
September 2008 therefore appears to have been leveraged procyclically by maintaining the longer loan maturities, using up a potential safety valve to absorb upward pressures on debt service levels if and when mortgage loan rates go up.

The data collected from the 16 banks on the debt service ratios of borrowers at the time of the origination of the mortgage loans could not be aggregated in a meaningful way because the banks used quite different definitions for the denominator of this ratio (available income). For all the banks, the data collected nevertheless showed a wide range of debt service ratios at origination among individual households, with around one-fifth of borrowers reserving 50 % or more of their “disposable income” for paying interest and repaying capital on their mortgage loan at the time of origination. The data collected did not show any major change over time in the relative weight of the various classes of debt service levels at origination (in spite of changing mortgage loan interest rates), which would tend to confirm the view that income and associated financial scope for debt service are more a starting point than an end result in the process of Belgian households’ decisions about how much can be borrowed, taking into account the prevailing market conditions.

Changes in debt service levels after origination are mainly the result of revisions of mortgage interest rates in those contracts for which the mortgage interest rate has not



**CHART 15** INTEREST RATE VARIABILITY: TIME TO NEXT RE-PRICING DATE  
(in % of total loans at the end of the year)



Source : NBB.

been fixed for the whole maturity of the contract. In this connection, Chart 15 shows that the mortgage loan portfolios of the 16 banks are dominated by mortgage loans for which the interest rate is fixed for the whole term of the contract. At the end of 2011, these represented 56 % of the outstanding stock. Of the mortgage loans having some form of interest rate variability, 22 % of the stock at the end of 2011 was scheduled to be re-priced in the course of 2012. As regards loans for which the interest rate variability is one year or less, it must be remembered that in practice that period is one year, as the Belgian mortgage loan regulations forbid interest rate variability below 1 year.

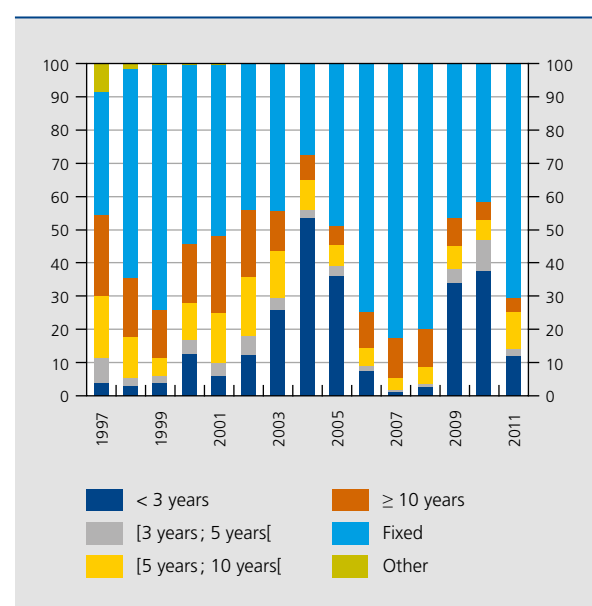
As highlighted in Chart 16, which confirms the data collected from the 16 banks but shows a much longer history, the relative weights of mortgage loans with fixed or variable mortgage interest rates can vary quite considerably from one vintage to another. While Belgian households continue to have a strong preference for fixed rate contracts, in periods when the interest rate gap between fixed and variable rates becomes substantial, variable rate contracts take a significant share of new production. In 2009 and 2010, for example, mortgage loans with an interest rate fixed for a period of less than three years accounted for more than one-third of the new annual volume. Mortgage borrowers opting for such variable rate mortgage loans run the risk of higher debt service levels in the future if interest rates rise. However, this risk is not

open-ended in Belgium, as the mortgage loan law imposes strict limits on the maximum interest rate variability that lenders are allowed to pass on to mortgage borrowers. The rate charged to borrowers may never exceed a level that is twice the initial rate. The mortgage loan law and banks' commercial policies have resulted, moreover, in a standard practice for variable rate mortgage loans to have a cumulative cap of 1, 2 and 3 % respectively on the upward or downward adjustment that can take place in the first, second and subsequent years of the loan.

In the last quarter of 2011, there was a significant, albeit temporary, rise in the reference rates for reviewing mortgage interest rates, which are based on monthly average yields on Belgian government bonds. This was particularly the case for the one-year interest rate contracts, for which the reference rate increased from 1.1 % in October to 2.9 % in December, before subsiding to 0.9 % in February 2012. Mortgage interest rates for new loans did not reflect this high volatility in Belgian government bond yields, however (Chart 17), as their pricing is linked to banks' internal transfer prices, adjusted for a commercial margin.

Looking at the outstanding stock of mortgage loans in the right-hand chart, the information unsurprisingly shows that the average yield on short-term variable rate contracts is more volatile than that on other contracts;

**CHART 16** INITIAL FIXED INTEREST RATE PERIOD, BY VINTAGE  
(in % of total loans granted during a particular year)

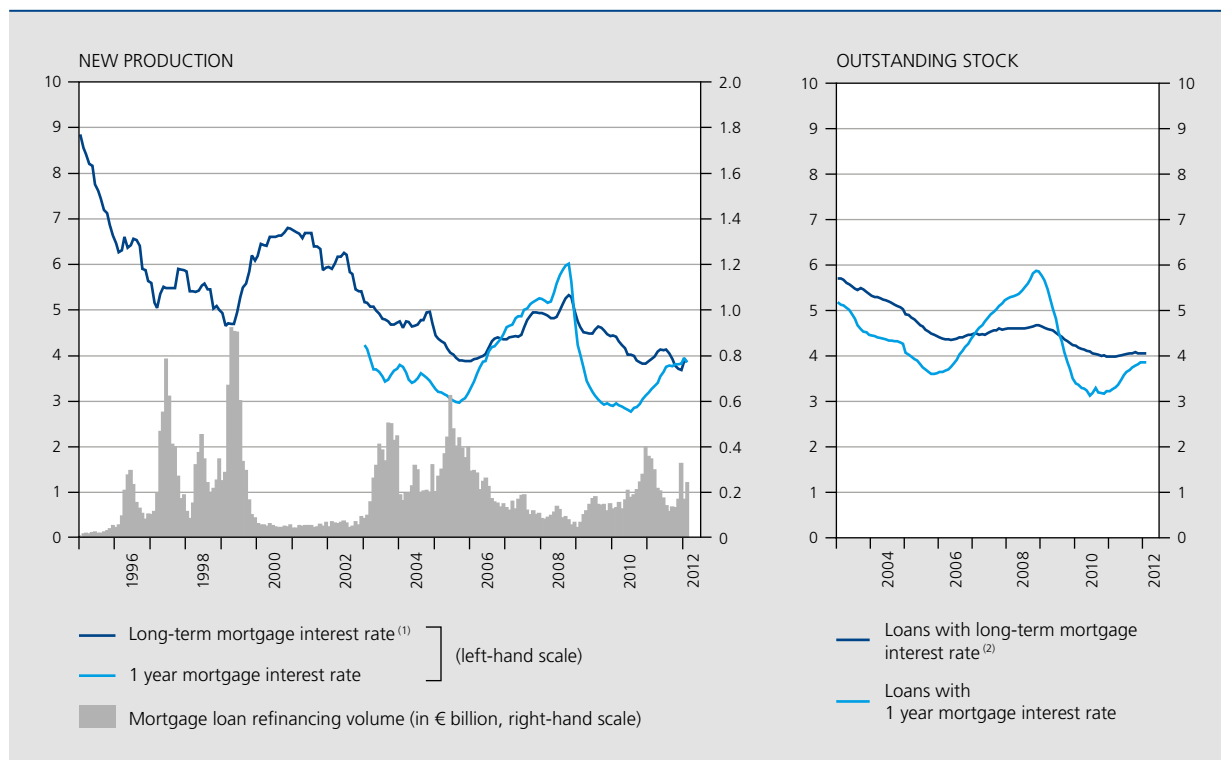


Source : BVK/UPC.



**CHART 17** MORTGAGE LOAN INTEREST RATES

(in %, unless otherwise stated)



Source : NBB.

(1) Initial rate fixed for at least 10 years.

(2) Rate fixed for more than five years.

in 2011, the latter fell to its lowest level since at least 2003. In this connection, it must also 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-hand panel of Chart 17, 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. Given the at times very keen competition between banks on this market, it is unclear whether the commercial margins taken by banks are sufficiently high to achieve this.

## Conclusion

This article has reviewed recent developments in the Belgian residential mortgage loan market, on the basis of aggregate statistics and information collected through a recent quantitative survey of 16 Belgian banks' domestic mortgage loan portfolios.

As in many other countries, the Belgian residential property and mortgage market was characterised by strong growth of both housing prices and mortgage loans outstanding in the period up to 2007. Since then, experiences have varied significantly between countries. In Belgium, a marginal correction of housing prices and a temporary slowdown in mortgage loan growth in 2009 was followed by new increases in housing prices and mortgage debt. A large number of factors appear to have contributed to the dynamic growth of house prices in Belgium in recent years, ranging from macro-economic and demographic factors to key changes in the tax regime for mortgage loans and a trend towards higher rates of down payment. Crude and simple measures of housing price valuation nevertheless suggest that

housing has become less affordable. For households with a limited amount of own funds for a down payment, the most recent developments may thus have been associated with a need for increasingly large mortgage loans, contributing to upward pressures on debt service levels and/or longer loan maturities.

Although the five year period covered by the survey was probably too short to identify the potential roles that mortgage loan credit standards may have played in the very strong growth of both housing prices and mortgage loans over the last ten years, the trend towards longer loan maturities and the relatively high (if quite stable) share of loan-to-value ratios of more than 80 % (including ratios higher than 100 %) in new production in any case

suggest that credit standards were not markedly tightened in a countercyclical way to slow exuberant growth or anticipate potentially less favourable market conditions. In this respect, it is possible that a sizeable group of borrowers in recent 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 current high asset quality of the Belgian mortgage loan portfolios, banks and authorities may thus need to maintain greater vigilance over ongoing market developments and monitor more strictly whether sufficiently conservative credit standards and adequate risk pricing are applied to all new mortgage loans. Where necessary, standards should be tightened.

# The role and impact of external support in bank credit ratings

Patrick Van Roy  
Cristina Vespro

## Introduction

Since 2008, the banking and sovereign debt crises have pushed credit rating agencies to revise their bank rating methodologies. One of the main objectives of these revisions has been to increase transparency relating to the impact of external factors on banks' creditworthiness, such as the probability that they will receive support if they encounter difficulty. Massive government interventions during the banking crisis have indeed confirmed that government support can lower the probability that a bank will default. More recently, in the European countries at the centre of the sovereign debt tensions, the link between major banks' creditworthiness and the perceived problems of their respective sovereign has also been evident<sup>(1)</sup>.

One type of rating which has received substantial attention in this context – aside from the well-known sovereign ratings – are the so-called bank support ratings. These ratings generally measure the "ability" and "willingness" of a state (or a parent company) to provide support to a bank (subsidiary) when it experiences problems. Support ratings are used by credit rating agencies in combination with stand-alone ratings (which are based on variables reflecting the viability of an institution on its own) in order to derive banks' long-term ratings. These, in turn, are commonly relied upon by market participants in making their investment decisions, often as a consequence of ratings-related mandates. To the extent that the likelihood of support is incorporated into banks' long-term ratings, it also has an impact on their cost of funding. Banks with a

high probability of support may be able to maintain lower capital buffers – above the minimum required levels – than banks that are unlikely to receive external support.

Bank support ratings also affect banks' regulatory minimum capital requirements for claims on other banks through their impact on long-term ratings. This is true not only for banks which use the standardised approach of the Basel framework, which makes direct use of banks' long-term ratings, but also for banks which use the internal ratings-based approach, since these banks often take account of the likelihood of support in their internal assessments of their bank counterparties.

The probability of government or parental support for banks and the resulting impact on the banks' ratings are therefore important issues. In fact, the relevance of support for bank ratings was vividly illustrated by Moody's announcement in the autumn of 2011 that the subordinated debt ratings of 88 European banks were being placed on review for downgrade, on the grounds that "systemic support for subordinated debt in Europe is becoming ever more unpredictable, due to a combination of anticipated changes in policy and financial constraints" (Moody's, 2011). Yet, the impact of support ratings on long term ratings has not been studied in detail, except by Packer and Tarashev (2011) who discuss rating methodologies for banks on the basis of descriptive statistics pertaining to a sample of 60 large internationally active banks.

In this article, we provide information on how credit rating agencies factor the notion of "support" into their bank ratings, and on the determinants of support in view of the rating agencies' most recent methodological changes. In

(1) A recent CGFS report (BIS, 2011) discusses the main channels through which a deterioration in the creditworthiness of a sovereign can have an impact on the banking system.

addition, we investigate empirically the impact of support on the long-term rating of a sample of 245 European commercial banks. Our results suggest that the positive impact of support on the long-term rating of banks with relatively weak stand-alone profiles is quite substantial, averaging between 2.0 and 2.8 notches, depending on the agency whose rating is considered. As one might expect, the prospect of support does not appear to have a significant impact on the rating of banks with strong stand-alone ratings.

These results are important because they help us understand not only how banks' ratings have been affected by the likelihood of government support in the past, but also how banks' ratings might be affected in the future by reforms aimed at improving bank resolvability and reducing the likelihood that taxpayer funds will be used to bail out banks. If these reforms succeed in reducing the probability of government interventions, it is likely that they will lead to a reassessment of sovereign support in rating agencies' methodologies, with an associated reduction in the impact of support on banks' long-term credit ratings. A decrease in some banks' long-term ratings would then be expected.

The remainder of the article is organised as follows. Section 1 explains how the three main credit rating agencies include the notion of support in their bank ratings, and illustrates the relevance of this concept for the main Belgian banks. Section 2 provides some stylised facts on support ratings: link with support/parent rating and bank size, as well as changes over time. Section 3 quantifies the impact of support ratings on the long-term rating of a sample of European commercial banks. Section 4 summarises our findings and offers some policy conclusions.

## 1. Role of support in credit rating agencies' methodologies

Leaving aside short-term ratings, which refer to short-term financial obligations and, in general, are not the main reference for market participants, rating agencies generally produce three types of assessments of bank issuers (which they may or not communicate to the public): stand-alone ratings, support ratings and long-term ratings:

- Stand-alone ratings reflect the intrinsic financial strength of an institution in the absence of any external support;
- Support ratings measure the possibility and the probability that a bank may receive external support. Fitch is the only agency that currently discloses a separate support rating. While the other rating agencies incorporate the probability of potential support in their methodologies, they do not publish separate bank support ratings;

- Long-term ratings, which are derived from stand-alone and support ratings, reflect the issuers' ability to meet all of their most senior financial obligations on a timely basis over the term of the obligation (an implication of this methodology is that while a bank's stand-alone rating might migrate significantly in times of stress, its long-term rating might not, depending on the rating agency's assessment of the potential for support).

We start by presenting the methodology used by Fitch, since this agency has developed a niche in rating banks, and consequently has more bank ratings than Moody's and S&P.<sup>(1)</sup> In addition, it is also the only rating agency to publish its support ratings, which are used in Section 3 to evaluate empirically the impact of support on the long-term ratings of all three main credit rating agencies.

### 1.1 Fitch

Fitch's view as to the intrinsic – or 'stand-alone' – creditworthiness of a given bank is indicated by its viability ratings. Viability ratings, which were introduced in July 2011, are the legacy individual ratings, but with greater granularity and on a more familiar rating scale ('aaa' to 'f'). Rating of debt issues not expected to receive support (e.g. hybrid debt) is notched from these viability ratings.

Fitch's assessment of support for a given bank is captured in its support ratings, which range from 1 (support almost certain) to 5 (support uncertain). Note that support ratings capture "extraordinary support", i.e. support that is provided to prevent fundamentally non-viable banks from defaulting, while viability ratings capture "ordinary support", which includes access to central bank funding, for example (Fitch acknowledges that the distinction between the two can become blurred at times of stress). According to Fitch's methodology, the main role of support ratings is to set a minimum rating floor below which long term ratings cannot fall (see Table 1).

The long-term issuer default rating is the rating used to notch debt issues expected to receive support (e.g. senior debt). A close look at Fitch's bank ratings reveals that, for banks with a viability rating higher than or equal to the minimum floor set by their support rating, the long-term issuer default rating is generally equal to the viability rating.<sup>(2)</sup> For banks with a viability rating below the minimum floor set by their support rating, the long-term issuer default rating is set equal or higher

(1) As of end-2011, there were approximately 2,700 banks in the world with a rating from Fitch, 1,400 with a rating from Moody's and 2,000 with a rating from S&P.

(2) This is not true for about 10% of banks with a viability rating above 'ccc' and for a majority of banks with a viability rating below 'ccc'.

**TABLE 1** DEFINITION OF AND MINIMUM LONG-TERM RATING FLOOR SET BY FITCH'S SUPPORT RATINGS

Support Rating	Definition and minimum rating floor
1	A bank for which there is an extremely high probability of external support. The potential provider of support is very highly rated in its own right and has a very high propensity to support the bank in question. This probability of support indicates a minimum long-term rating floor of "A-".
2	A bank for which there is a high probability of external support. The potential provider of support is highly rated in its own right and has a high propensity to provide support to the bank in question. This probability of support indicates a minimum long-term rating floor of "BBB-".
3	A bank for which there is a moderate probability of support because of uncertainties about the ability or propensity of the potential provider of support to do so. This probability of support indicates a minimum long-term rating floor of "BB-".
4	A bank for which there is a limited probability of support because of significant uncertainties about the ability or propensity of any possible provider of support to do so. This probability of support indicates a minimum long-term rating floor of "B".
5	A bank for which there is a possibility of external support, but it cannot be relied upon. This may be due to a lack of propensity to provide support or to very weak financial ability to do so. This probability of support indicates a long-term rating floor no higher than "B-" and in many cases, no floor at all.

than the minimum floor depending on Fitch's opinion on the propensity of the supporter to provide support. This propensity is determined by a range of factors, including the function of the bank (e.g. commercial versus public), ownership (state versus private) and systemic importance.

The result of Fitch's methodology is illustrated in Table 2 for the four major Belgian banks,<sup>(1)</sup> with the notches of long-term issuer default rating uplift due to support in the last column.

A first observation from Table 2 is that support (either from the government or from the parent) is a factor which increases the long-term rating of Belgian banks by 2 to 5 notches. Note that the uplift due to support cannot be

**TABLE 2** FITCH'S CREDIT RATINGS OF MAIN BELGIAN BANKS (as of 1 May 2012)

	Viability rating	Support rating (minimum floor)	Long-term issuer default rating	Uplift due to support <sup>(1)</sup>
Belfius . . . . .	bb	1 (A-)	A-	+5 notches
KBC Bank . . . . .	bbb-	1 (A-)	A-	+3 notches
BNP Paribas Fortis . . . . .	bbb+	1 <sup>(2)</sup>	A	+2 notches
ING Belgium . . . . .	-	1 <sup>(2)</sup>	A+	-

(1) Notches of differences between long-term issuer default rating and viability rating.

(2) Minimum long-term rating floor of BNP Paribas Fortis and ING Belgium withdrawn in May 2009 and September 2010 respectively.

calculated for ING Belgium, as the latter does not have its own viability rating (for its parent company, ING Bank, the uplift amounts to 1 notch, from a to A+).

A second observation is that Belfius and KBC Bank have a long-term rating equal to the minimum long-term rating floor set by their support rating (A-), while BNP Paribas Fortis and ING Belgium have a long-term rating exceeding this same floor. This is explained by the fact that, contrary to the former two banks, Fitch expects the latter two to be able to benefit from support provided by their respective parents (BNP Paribas and ING Bank), which can themselves rely on support provided by their respective sovereigns which are highly rated (AAA).

## 1.2 Moody's

Moody's view as to the intrinsic creditworthiness of a given bank is indicated by its bank financial strength ratings, which do not take into account the probability of external support or sovereign risk. Moody's financial strength ratings have a less granular rating scale ('A' to 'E', including "+" and "-" qualifiers) than its long-term ratings, but are translated on the same scale (AAA to CCC and below)<sup>(2)</sup> after which they are called "baseline credit assessments" (see Moody's, 2008 and 2012). Moody's then evaluates the potential external support to adjust the baseline credit assessment to a final long-term rating.

Moody's long-term ratings include two types of ratings which are both constructed by factoring support considerations into the baseline credit assessments. First, long-term deposit ratings, which reflect the capacity of the obligor to meet punctually its foreign and local currency deposit obligations. Second, long-term senior debt

(1) Throughout the article, we use the commercial name of banks.

(2) Throughout the article, we use S&P's scale for the long-term ratings of all three credit rating agencies.

**TABLE 3** MOODY'S CREDIT RATINGS OF MAIN BELGIAN BANKS  
(as of 1 May 2012)

	Financial strength rating (baseline credit assessment)	Long-term deposit rating	Long-term senior debt rating	Uplift due to support <sup>(1)</sup>
Belfius . . . . .	D (BB)	A–	A–	+5 notches
KBC Bank . . . . .	C– (BBB+)	A+	–	+3 notches
BNP Paribas Fortis . . . . .	C– (BBB+)	A+	–	+3 notches
ING Belgium . . . . .	C+ (A)	AA–	–	+2 notches

(1) Notches of differences between long-term deposit rating and baseline credit assessment.

ratings, which also incorporate support, but which apply to senior bank obligations, and are available for fewer institutions than long-term deposit ratings.<sup>(1)</sup>

Moody's recognises that there is a direct linkage between sovereign strength and bank ratings (which depends on the level of direct exposure to domestic sovereign debt, the support element). Moody's states that the correlating factors can be offset somewhat by foreign ownership, geographically diversified balance sheets and income sources, and product characteristics (Moody's, 2012). However, in the absence of these mitigating factors outlined above, even the strongest banks will be unable to exceed the rating of the domestic sovereign by more than one notch.

The result of Moody's methodology is illustrated in Table 3 for the four major Belgian banks.

As shown in Table 3, support contributes once again towards increasing the long-term rating of Belgian banks relative to the rating that would apply if support were not taken into account. According to Moody's, Belfius and KBC Bank's long-term ratings indeed reflect its current perception of the Belgian government's strong willingness to support both banks, while BNP Paribas Fortis and ING Belgium's long-term ratings both incorporate high support from the parent and high systemic support by Belgium.

(1) As of end-2011, there were approximately 500 banks in the world with a long-term senior debt rating and 1,000 with a bank deposit rating from Moody's.

### 1.3 S&P

S&P's methodology follows three steps (S&P, 2011). First, S&P determines the stand-alone rating (called "Stand-Alone Credit Profile" or SACP) of an institution. The SACP is based on six factors. The first two, economic risk and industry risk, represent the strengths and weaknesses of the broader operating environment that "anchor" the SACP. The other four factors represent bank-specific strengths and weaknesses. Based on the analysis of these factors, the SACP is notched up or down relative to the anchor. The rating scale of the SACP ranges from aaa to cc.

S&P then combines the SACP and the conclusions from the evaluation of the group or government support in the assignment of an indicative Issuer Credit Rating (ICR). This indicative ICR is the same as the SACP unless the bank is likely to receive additional capital, liquidity, or risk relief from the government or the parent group in a crisis. The "final" ICR is set one-notch up or down from the indicative ICR on the basis of the relative creditworthiness of the bank in its peer group (banks with similar SACP).

The result of S&P's methodology is illustrated in Table 4 for the four major Belgian banks.

The main observation from Table 4 is that support contributes towards increasing the long-term rating of Belfius and KBC Bank by 3 and 1 notches, respectively. Note that the uplift due to support cannot be calculated for BNP Paribas Fortis and ING Belgium as they don't have their own SACP. For their parent companies, the uplift amounts to 1 notch, from a+ to AA– for BNP Paribas and from a to A+ for ING Bank.

**TABLE 4** S&P'S CREDIT RATINGS OF MAIN BELGIAN BANKS  
(as of 1 May 2012)

	Stand-alone credit profile rating	Issuer credit rating	Uplift due to support <sup>(1)</sup>
Belfius . . . . .	bbb–	A–	+3 notches
KBC Bank . . . . .	bbb+	A–	+1 notch
BNP Paribas Fortis . . . . .	–	AA–	–
ING Belgium . . . . .	–	A+	–

(1) Notches of differences between issuer credit rating and stand-alone credit profile rating.

According to S&P, Belfius gets a three-notch upgrade to A– from bbb– because it considers that Belfius has “high” systemic importance in Belgium and that the government is willing to provide short-term extraordinary liquidity in case of stress. The issuer credit rating of KBC Bank is one notch higher than the SACP, reflecting the bank’s high systemic importance for Belgium, and S&P’s assessment of the Belgian government as “supportive” in a crisis.

The following section provides more details on the support ratings of Fitch, the only rating agency to publish such ratings.

## 2. Support ratings

The analysis in this section as well as in Section 3 is based on a sample including all 245 European commercial banks which had a support rating from Fitch as of 1 February 2012. As mentioned earlier, Fitch (like the other rating agencies) bases its assessment of the likelihood of support on both the ability and the willingness of the sovereign and/or the parent to provide such support. We therefore first compare support ratings with sovereign or parent ratings (taking the sovereign or parent rating as a proxy for the ability to intervene) before comparing them with the size of banks scaled by GDP (taking this variable as a proxy for the government’s or parent’s willingness to intervene). Next, we compare the distribution of bank support ratings in 2007 and 2012 to see if Fitch’s opinion on the likelihood of support for European commercial banks has changed following the banking and sovereign crises.

### 2.1 Distribution of support ratings

#### 2.1.1 By sovereign and parent rating

Table 5 reveals that there is a clear link between banks’ support ratings and the long-term rating of the country in which they are located. While the average support rating is equal to 1.6 for banks located in countries rated AAA–AA, it is equal to 2.0 in countries rated A, 3.3 in countries rated BBB, 2.8 in countries rated BB, and 4.7 in countries rated B and below. In addition, the absolute correlation between support ratings and sovereign ratings (with the latter converted on a numerical scale ranging from AAA = 17 to CCC and below = 1) is equal to 0.56 and is highly significant.

Next, we turn to a comparison of support ratings of banks and long-term ratings of their parents. Among the 245 sample banks, 175 have a parent and 105 have a parent which is another bank (the other parents being mainly states and public authorities as well as non-financial companies). Of these 105 sample banks, 91 have a parent which is bank with a credit rating. In Table 6, we compare the support ratings of these 91 banks with their parent’s credit rating. We do not consider the ratings of other types of parents because they are already included in Table 5 (when the parent is the state or the public authority) or simply because we don’t have the data (e.g. when the parent is a non-financial company).

Table 6 shows that there is a clear link between the support rating of banks and the rating of their parent, with the absolute correlation between the two ratings equalling 0.69 and being highly significant. Overall, Tables 5 and 6 demonstrate that there is a clear relation between support ratings of banks and the ability of their sovereign

**TABLE 5** DISTRIBUTION OF EUROPEAN COMMERCIAL BANKS’ SUPPORT RATINGS BY THE LONG-TERM RATING OF THE COUNTRY IN WHICH THE BANK IS LOCATED <sup>(1)</sup>

Support rating	Sovereign rating					Total
	AAA-AA	A	BBB	BB	B and below	
1 .....	68	15	3	–	–	86
2 .....	8	16	26	10	–	60
3 .....	3	10	10	11	–	34
4 .....	2	2	9	1	5	19
5 .....	9	–	18	3	10	40
<b>Total</b> .....	<b>90</b>	<b>43</b>	<b>66</b>	<b>25</b>	<b>15</b>	<b>239</b>

(1) 6 banks out of 245 sample banks are located in a country without sovereign rating.



**TABLE 6** DISTRIBUTION OF EUROPEAN COMMERCIAL BANKS' SUPPORT RATINGS BY LONG-TERM RATING OF THE PARENT  
(when the parent is another bank with its own rating available)

Support rating	Parent rating					Total
	AAA-AA	A	BBB	BB	B and below	
1 .....	15	34	–	–	–	49
2 .....	1	24	7	–	–	32
3 .....	–	1	1	1	1	4
4 .....	–	3	–	–	1	4
5 .....	–	–	–	–	2	2
<b>Total</b> .....	<b>16</b>	<b>62</b>	<b>8</b>	<b>1</b>	<b>4</b>	<b>91</b>

and/or parent – as measured by their long-term rating – to rescue them.

### 2.1.2 By bank size

In Table 7, we show the distribution of support ratings by classes of bank size (total assets as a % of country GDP), with the latter taken as a proxy of the willingness of a sovereign or parent to rescue its banks (subsidiaries).

Although positive and highly significant, the correlation between support ratings and bank size (0.35) is lower than the correlation between support ratings and sovereign/parent ratings (0.56 and 0.69, respectively).

On the one hand, this result may suggest that Fitch puts more emphasis on the ability of sovereigns (or parents) to rescue their banks (subsidiaries) than on their willingness to do it. On the other hand, the willingness of a sovereign to rescue a bank might be determined by considerations other than the institution's size, such as its business model, its interconnectedness or its 'substitutability' within the system, i.e. criteria which are not considered here. Similarly, the willingness of a parent to support one of its subsidiaries may have little to do with its size, as even the failure of a

small banking entity may damage a group's reputation.<sup>(1)</sup> In addition, a broader question is whether size only explains the willingness of a sovereign (or parent) to intervene, or whether it also has an impact on its ability to do so, with the largest institutions being potentially "too big to be rescued" (in which case we would indeed expect a much lower correlation between support ratings and bank size than between support ratings and sovereign/parent ratings).

Finally, it is worth mentioning that an ordered probit model with the support rating as the dependent variable, and the three variables considered in this section (sovereign rating, parent rating and bank size as a % of country GDP) as explanatory variables, classifies 52 % of the banks in the sample in the correct support rating category and 36 % of them in the support rating category immediately above or below the actual support rating. While these statistics show that a simple model based on three variables is already very good at predicting support ratings, they also indicate that these variables do not perfectly explain support ratings.

(1) Fitch (2011a) confirms that it takes into account a wide-range of factors when assessing the propensity to support a bank: for support by the sovereign, the state guarantees and commitments, the relationship of the bank with the state, and the bank's importance to the state; for support by institutional owners, the guarantees and commitments, the percentage control, the nature of the owner, and the bank's importance to the owning institution(s).

**TABLE 7** DISTRIBUTION OF EUROPEAN COMMERCIAL BANKS' SUPPORT RATINGS BY BANK SIZE CLASSES

Support rating	Banks' total assets (as a % of country GDP)				Total
	> 25 %	5-25 %	1-5 %	< 1 %	
1 .....	40	24	13	9	86
2 .....	8	17	23	12	60
3 .....	5	12	10	7	34
4 .....	–	–	8	11	19
5 .....	5	4	11	26	46
<b>Total</b> .....	<b>58</b>	<b>57</b>	<b>65</b>	<b>65</b>	<b>245</b>



## 2.2 Pre- and post- crisis view on support

While there are reasons to believe that the banking and sovereign crises have affected bank support ratings, the exact nature of this impact is unclear. On the one hand, it is plausible that support ratings have been modified to reflect an increased probability of support over recent years. Indeed, the massive government interventions which occurred during the banking crisis of 2008-2009 demonstrated states' ability and willingness to rescue their ailing banks. On the other hand, it appears equally likely that support ratings may have been modified to reflect lower support, since the sovereign crisis which started in 2010 has affected the public finances of a number of countries, having an impact, in turn, on states' ability to intervene. A recent CGFS report (BIS, 2011) observes that even in countries where sovereign support initially had a stabilising effect on the banks, the growing fiscal impact and the perceived decreasing ability of the sovereign to provide future support has intensified the downward pressure on the banks' ratings.

In order to investigate this issue, Table 8 compares Fitch's support ratings in July 2007 and in February 2012 for 196 EU commercial banks which had a support rating in both periods. A number of caveats apply to these data, however. First, Table 8 only compares banks which received a rating in both periods<sup>(1)</sup>. Second, over the period under consideration, a number of banks in the sample have undergone mergers and restructuring, hence the 2007 and 2012 samples are not fully comparable. Third, Table 8 fails to show the dynamics of a number of support ratings which have changed more than once between 2007 and 2012 (these changes, however, generally go in the same direction).

(1) More specifically, 49 banks with a support rating in 2012 did not yet have a support rating in 2007, whereas a number of banks which had a support rating in 2007 no longer had a support rating in 2012. The 2007 support rating of these banks was not lower than the 2007 sample average, so there is no reason to suspect that the results of Table 8 suffer from some kind of survivorship bias.

Bearing these limitations in mind, Table 8 shows that 66 % of banks (129 out of 196) had the same support rating in 2012 as in 2007, while 21 % of them (42 out of 196) have seen their rating change to a higher number (implying lower support) and only 13 % (25 out of 196) have seen their rating change to a lower number (greater support). Overall, the average support rating for European commercial banks has remained stable, changing only from 2.3 to 2.4.

A closer look at the 42 banks which are seen in 2012 as less likely to get support reveals that 30 (71 %) had their support rating modified for the last time in 2010 or later, with Fitch mentioning for the vast majority of them the downgrade of their respective sovereign or parent as the reason behind these changes. Among the 25 banks which have seen their view of support increase, 19 (76 %) had their support rating modified for the last time in 2009 or earlier, with Fitch mentioning state rescues as the primary reason. These results thus confirm the conjecture expressed at the beginning of this section: while the banking crisis had a positive impact on Fitch's view of support, the sovereign crisis had the opposite effect.

Finally, looking at Fitch's reports, it is worth mentioning that none of the recent changes in support ratings seems to already reflect a belief that financial reforms will have a highly positive impact on the resolvability of banks and an associated decline in the likelihood of support (see Section 4).

## 3. Impact of support ratings on long-term ratings

As explained in Section 1, all three main credit rating agencies take into account the notion of support when assigning long-term ratings. While Fitch publishes separate support ratings which set floors below which

**TABLE 8** DISTRIBUTION OF 2007 AND 2012 EUROPEAN COMMERCIAL BANKS' SUPPORT RATINGS

Support rating 2007	Support rating 2012					Total
	1	2	3	4	5	
1 .....	68	23	2	–	–	93
2 .....	3	14	4	–	7	28
3 .....	2	7	17	2	3	31
4 .....	–	1	5	7	1	14
5 .....	–	–	2	5	23	30
<b>Total</b> .....	<b>73</b>	<b>45</b>	<b>30</b>	<b>14</b>	<b>34</b>	<b>196</b>

long-term ratings cannot fall, thereby enabling an indirect calculation of the number of notches of uplift from stand-alone ratings to the long-term rating, S&P publishes directly the number of notches of uplift due to (sovereign) support. In contrast, Moody's publishes neither separate support ratings nor the number of notches of uplift.

In order to quantify the impact of the notion of support on the long-term ratings issued by the three main credit rating agencies and to take a consistent approach across them, we use an econometric regression where Fitch's support ratings are used as a proxy to represent the opinion of all three rating agencies regarding the probability of external support for a bank. We argue that this is a realistic assumption, given that rating agencies are less likely to disagree regarding the probability that a bank will receive support than regarding its creditworthiness.<sup>(1)</sup>

We thus estimate the following equation by ordinary least squares,<sup>(2)</sup> separately for Fitch, Moody's and S&P:

$$\text{Long-term rating}_i = \alpha + \beta \times \text{Fitch's support rating}_i + \gamma \times \text{stand-alone rating}_i + \varepsilon_i$$

where:

- the subscript  $i$  identifies the sample bank considered,
- the long-term rating is the long-term issuer default rating (Fitch), the deposit rating (Moody's) or the issuer credit rating (S&P) translated into the quantitative 1 to 17 scale, with AAA = 17, AA+ = 16, AA = 15....B+ = 4, B = 3, B- = 2, CCC and below = 1,
- Fitch's support rating has its scale inverted (i.e. 5 refers to banks with the highest probability of support and 1 refers to banks with the lowest probability of support),
- the stand-alone rating is the viability rating (Fitch), the baseline credit assessment (Moody's) or the stand-alone credit profile rating (S&P) on a 1 to 17 scale.

In the above equation, the coefficients  $\beta$  and  $\gamma$  represent, respectively, the impact of a one-notch increase in the support rating and the stand-alone rating on the long-term rating of banks. For instance, if we estimate  $\beta = 3$  and  $\gamma = 1$ , this means that, all other things being equal, a one-notch increase in Fitch's support rating will translate into a three-notch increase in the bank's long-term rating, while a one-notch increase in the stand-alone rating will translate into a one-notch increase in the long-term rating.

(1) However, a comparison of support ratings issued by Fitch and Capital Intelligence, a smaller credit rating agency active essentially in emerging markets, reveals that agencies sometimes disagree on the likelihood of support.

(2) Since the long-term rating variable takes a large range of values (17), we choose to treat it as a continuous rather than discrete variable for ease of interpretation. Results of an ordered probit model (not shown here) confirm those obtained with the OLS regressions.

(3) By splitting the sample in this way, we also try to address the non-linear effects of support ratings implied by the fact that, at least in the case of Fitch, these ratings work as effective floors to long-term ratings.

Since there are reasons to believe that the impact of support is different across banks, with the banks with the weakest stand-alone rating benefiting most from support, we have performed the regression analysis for two groups of banks: those with a relatively low stand-alone rating (i.e., stand-alone rating lower than or equal to the minimum floor set by Fitch's support rating) and banks with a relatively high stand-alone rating (i.e., stand-alone rating higher than minimum floor set by Fitch's support rating)<sup>(3)</sup>. We expect  $\beta$  to be larger for the former group of banks. The results of the regression analysis are shown in Table 9 (all regressions have an adjusted R-squared greater than 0.80).

The results of Table 9 show that European commercial banks with a support rating floor (as implied by Fitch's support rating) greater than or equal to their stand-alone rating have their long-term rating primarily determined by their support rating: the impact of an increase of one notch in support ratings on long-term ratings is on average between 2.0 notches (S&P) and 2.8 notches (Fitch), ceteris paribus. The impact of support found for Fitch is not surprising given that support floors generally increase by 3 notches for every one-notch increase in support ratings (cf. Table 1). The impact of support found for Moody's and S&P, which is somewhat smaller, may reflect slight differences of opinion on the likelihood of support or simply differences of methodology compared

**TABLE 9** IMPACT OF SUPPORT AND STANDALONE RATINGS ON LONG-TERM RATINGS OF EUROPEAN COMMERCIAL BANKS

Credit rating agency (number of banks)	Impact of a one notch increase in the support rating on the long-term rating (= $\beta$ )	Impact of a one notch increase in the stand-alone rating on the long-term rating (= $\gamma$ )
Banks for which Fitch's support rating floor $\geq$ credit rating agency's stand-alone rating		
Fitch (72 banks) . . . . .	+ 2.8 notches**	+ 0.1 notches *
Moody's (87 banks) . . . . .	+ 2.3 notches**	+ 0.7 notches**
S&P (39 banks) . . . . .	+ 2.0 notches**	+ 0.6 notches**
Banks for which Fitch's support rating floor < credit rating agency's stand-alone rating		
Fitch (74 banks) . . . . .	+ 0.2 notches*	+ 0.9 notches**
Moody's (60 banks) . . . . .	+ 0.6 notches	+ 1.0 notches**
S&P (30 banks) . . . . .	+ 0.2 notches	+ 1.4 notches**

\*\* and \* denote statistical significance at the 1% and 5% levels respectively.

to Fitch.<sup>(1)</sup> Although statistically significant, the impact of a one-notch increase in stand-alone ratings on long-term ratings is much lower than that of support ratings, as it never exceeds 0.7 notches across rating agencies. This result is consistent with the expectation that banks with relatively low stand-alone ratings should see their long-term rating primarily determined by their support rating.<sup>(2)</sup> Note that the impact of stand-alone ratings found for Moody's and S&P is higher than for Fitch, once again probably due to differences in methodology.

The results for European banks with a support rating floor lower than their stand-alone rating show that long-term ratings are not economically (Fitch) or statistically (Moody's and S&P) affected by support ratings, but that they tend rather to be determined by stand-alone ratings: an increase of one notch in stand-alone ratings translates into a gain of almost 1 notch in the long-term rating (Fitch) and up to 1.4 notches (S&P). This result is in line with the intuition that for banks which cannot rely on external support, their long-term rating is determined by their stand-alone rating.

## 4. Conclusions and policy implications

This article reviews rating agencies' bank rating methodologies, focusing in particular on how they incorporate into their bank credit ratings the likelihood that a financial institution will receive external support (either from the government or from the parent) in a crisis. Rating agencies' assessments of support generally reflect two factors: the potential supporter's ability to provide support and its willingness to do so.

In the case of the four main Belgian banks, a comparison of credit ratings which refer to their stand-alone creditworthiness with the final long-term ratings which take into account the "support" reveals that support contributes to an increase in the bank's long-term rating of up to 5 notches. The empirical investigation of the impact of "support" on long-term ratings for a sample of 245 European commercial banks shows that, for banks with a relatively weak stand-alone credit profile, support ratings appear to have a significant impact on the final long-term rating of the institution.

Whether and how external support is taken into account in banks' ratings is an important issue, in particular because bank credit ratings are widely used by market participants for their investment decisions. As support can have an impact on banks' probability of default, incorporation of the prospect of support into banks' long-term ratings also has an impact on their cost of funding.

Our analysis not only contributes to the understanding of how banks' ratings have been affected by the prospect of external support in the past, but also indicates how banks' ratings might be affected in the future by recent international, regulatory initiatives aimed at ensuring the resolvability of banks without government support (e.g., resolution regimes and recovery and resolution plans). In the UK, for instance, structural reforms relating to the organisation of banks' activities have been introduced with the goal of reducing the need for the government to feel compelled to intervene to support banks.

A question that arises in the context of our analysis is, in fact, what the impact of such reforms on banks' credit rating will be. If these reforms succeed in reducing the likelihood of government interventions, they are likely to lead to a reassessment of sovereign support in rating agencies' methodologies, reducing the impact of support in banks' credit ratings. This will potentially imply a decrease in some banks' long-term ratings.<sup>(3)</sup>

Rating agencies recognise that implementation of new legislation will take a long time, so that a withdrawal of sovereign support would be gradual. Consequently, it is too early to assess the rating implications of the new resolution regimes for individual entities. Additional credit rating actions may be triggered over the medium term, depending on the funding and capital positions of banks.<sup>(4)</sup> At the same time, banks' stand-alone creditworthiness could improve in countries that follow more prudent policies. The overall effect on banks' long-term ratings will also depend on the effect of the resolution regimes on the funding profiles of banks, as mentioned above.

Yet, as events since 2008 have demonstrated, public support is a current reality. Indeed, in S&P's view, sovereigns will continue to intervene to support systemically important banks in a crisis situation, to protect the economy. Fitch also observes that it is critical for regulators to develop market confidence that large complex banks can

(1) In the case of S&P, the results might also be due to the limited number of banks on which the analysis is based.

(2) It may be tempting to ascribe the lower impact of stand-alone ratings to the fact that they are on a more granular scale (1 to 17) than support ratings (1 to 5), hence that any change in these ratings is likely to matter "less". However, the results of the second part of Table 8 show that, for banks with relatively high stand-alone ratings, changes in these ratings have a bigger impact than changes in support ratings.

(3) Moody's has already taken several rating actions to review systemic support currently factored in its ratings of banks, and potentially remove it. Following the recent legislative reforms for the banking sector in the US, Fitch has also taken some rating actions and reduced the number of US banks that it believes will receive support. According to S&P, the new criteria (see S&P, 2011) in its banks' rating methodology allows it to take into account the impact of new resolution regimes; if these regimes are successfully implemented, that may lead to rating revisions and potentially to downgrades, if S&P decides that sovereign support is no longer likely in certain cases. However, rating agencies do not yet appear to have taken any additional measures to review banks' ratings as a consequence of the new reforms (in the UK, for instance).

(4) The Bank of England (2011) discusses the impact of a permanent reduction in the perceived probability of public support on earnings and higher borrowing costs for UK banks.

effectively be resolved without support, and this is not straightforward.

If the ongoing reforms are successfully implemented and government intervention gradually disappears, more volatility in bank ratings over the next decade may be expected. This will be important, in light of the impact that credit ratings have on the actions of investors, borrowers, issuers, and governments. Such a potential outcome of regulatory reforms further emphasises the need to reduce any automatic use of ratings in financial decisions relating to banks. This is indeed one of the objectives of the newly proposed EU regulation on credit rating agencies.

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# The shadow banking system : economic characteristics and regulatory issues

Joachim Keller

## Introduction

The shadow banking system, which the Financial Stability Board (FSB) has defined as credit intermediation involving activities and entities outside the regular banking system, was at the heart of the financial crisis of 2007/08. Indeed, flawed securitization and the ensuing collapse of shadow banking entities such as Special Investment Vehicles (SIVs), Asset-backed Commercial Paper Conduits (ABCP conduits) and also some Money Market Funds (MMFs) generated risk that spread through the whole financial system.

Banks were seriously affected not only by the overall market dislocation but also by their direct exposure to the shadow banking system. For instance, banks invested in securitized products and provided support to many entities of the shadow banking system in the form of liquidity or credit guarantees. One of the main lessons was that, although the idea behind practices such as securitization was to transfer credit risk off the banks' balance sheet, ultimately the banks remained interlinked and exposed, and took most of the losses. Arguably, systemic risk was underpriced and allowed banks to engage in regulatory arbitrage by using the shadow banking system, to a large extent through the creation of off-balance sheet vehicles and exposures. The Belgian banks Fortis, KBC and Dexia were no exception, and incurred heavy losses on exposures to the shadow banking system.

The markets reacted quickly in the wake of the crisis and the flawed market segments (such as securitization involving subprime loans) were shut down. Many entities of the shadow banking system, such as SIVs and ABCP conduits, vanished or were consolidated on the banks'

balance sheets. Some regulatory reforms were developed to improve the reflection of the risk associated with the banks' exposure to shadow banking system activities. Specifically, banks now face higher capital charges for securitization exposures, and also for exposures due to support for off-balance-sheet entities.

The crisis revealed the need for broad regulatory reform at the micro-prudential and macro-prudential level. Due to the need to stabilize the banking system, regulatory efforts concentrated first on a new regulatory framework for banks. This framework has been set up and has already been implemented, or soon will be. Regulators have now turned their attention to the shadow banking systems and are currently developing proposals for improving the supervision and regulation of the shadow banking system. This is warranted, as the shadow banking system still plays an important role. According to some estimates, the size of the European shadow banking system amounted to 9.5 trillion EUR by end of 2010, which is equivalent to 30 % of the total liabilities of European banks (Bouveret, 2011).<sup>(1)</sup>

Section 1 of this article provides an economic definition of the shadow banking system; Section 2 reviews some of its main manifestations and provides a Belgian perspective. Section 3 discusses the risks and benefits of the shadow banking system. Section 4 reviews the current regulatory efforts at the global level. Lastly, Section 5 concludes.

(1) See also Boglio et al (2011) for similar estimates of the size of the shadow banking system of the Euro area. Note, however, that these are somewhat rough estimates because the available data sources are not exhaustive and do not permit a clear delineation of the shadow banking system.

## 1. An economic definition of the shadow banking system

What is the main economic role of the shadow banking system and how can it be defined? The term “shadow banking system” highlights broadly its three main characteristics: 1) it performs similar functions as banks, namely credit intermediation; 2) it is a system that involves several actors who interact with each other and who are often market-based; 3) it is in the “shadow” of banks – i.e. it is subject to less regulation and monitoring than “regular” banks.<sup>(1)</sup> Echoing these properties, the FSB (2011) has broadly defined the shadow banking system as *“the system of credit intermediation that involves entities and activities outside the regular banking system”*. Note that this definition refers not just to entities but also to activities, which in turn involve multiple actors, possibly including banks.

The two charts below contrast the traditional and the shadow banking system in a highly stylized way which helps in summarizing the main difference between the traditional and the shadow banking system and also in outlining the main characteristics of the shadow banking system. A more detailed description of these characteristics follows in the next sections and throughout the article.

Figure 1 depicts the case of traditional bank intermediation. Figure 2 shows a stylized shadow banking system comprising different credit intermediation chains (the arrows indicate the flow of funding; the credit

intermediation functions are in the other direction). Some of the credit intermediation chains involve only non-bank institutions (the chain involving securitization (SPVs), SIVs, MMFs), others involve banks (for instance banks investing in securitized products and refinancing them through repos). This shows that the extent to which credit intermediation is performed in an integrated way or in a “dis-intermediated” way involving several actors may vary. As will be discussed further in the following section, the shadow banking system and the banking system are not separated but most of the times heavily intertwined and interlinked. That is, the process of credit intermediation in practice often involves bank as well as non-bank institutions.

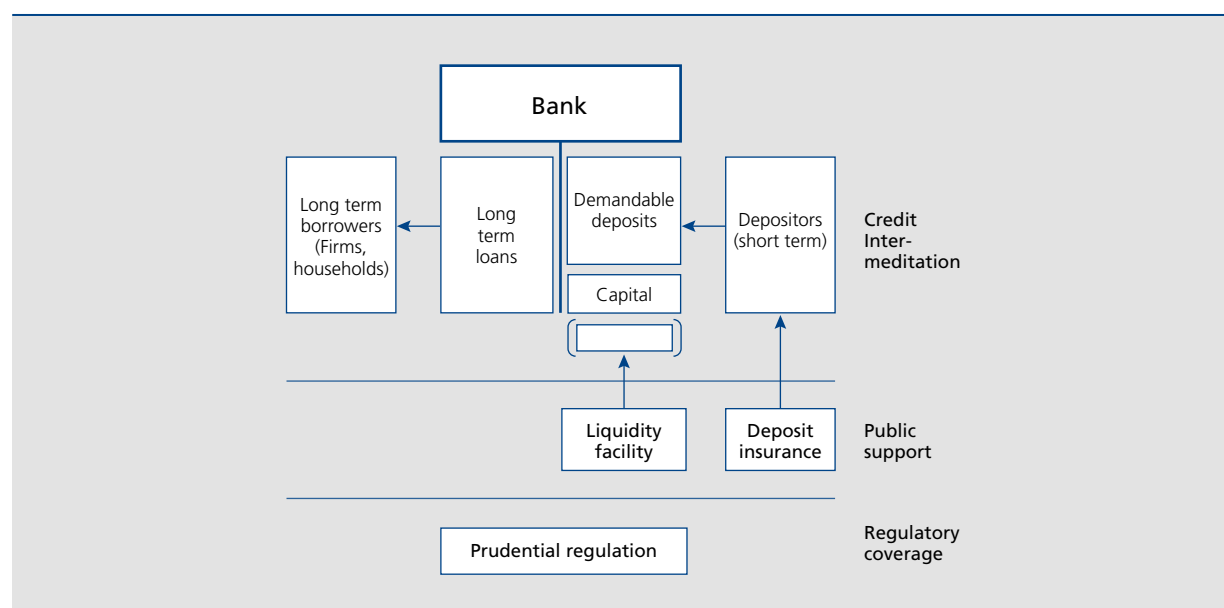
In the following, the three main characteristics of the shadow banking system as mentioned above will be explained in more detail: 1) credit intermediation; 2) systemic and market-based nature; 3) light regulatory framework.

### Credit intermediation

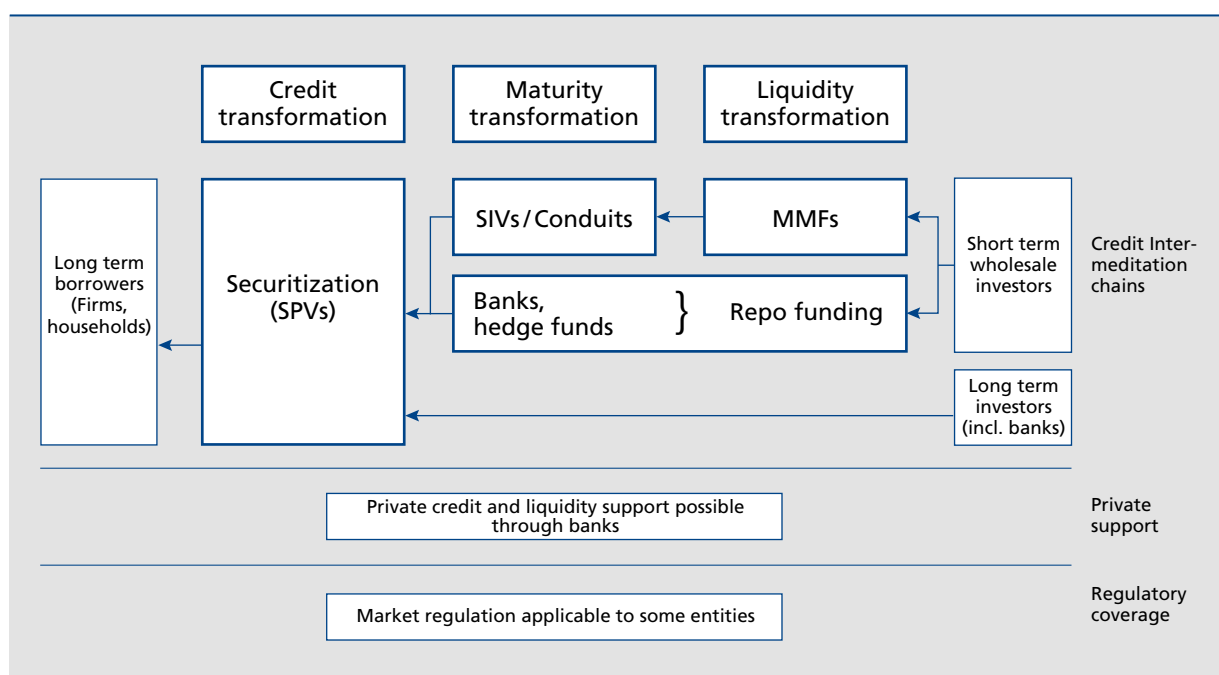
Traditional credit intermediation denotes the transformation of liquid short-term savings or deposits into illiquid loans. A traditional bank typically performs credit intermediation in an integrated way; that is, the bank issues demandable deposits for savers and grants loans

(1) The term “shadow banking system” is not meant to be pejorative. It was coined by Paul McCully in 2007 and has been used since by the supervisory sphere (other terms are the “parallel banking system” or “market-based financing”).

FIGURE 1 TRADITIONAL BANK CREDIT INTERMEDIATION



**FIGURE 2** A STYLIZED SHADOW BANKING SYSTEM



to borrowers, thereby creating liquidity and sustaining a maturity mismatch (“qualitative asset transformation”, Noeth et al, 2011). However, the credit intermediation process may also be “sliced” or “stripped” and performed by different entities. According to Pozsar et al (2010), credit intermediation can be decomposed into the following three functions (and in the following order):

- Credit transformation refers to the issuance of instruments and application of techniques that reallocate credit risk. Examples include the issuance of tranches of securities with a prioritization of claims (senior, mezzanine, equity) against a portfolio of loans (securitization). Credit guarantees, credit default swaps (CDS) and credit insurance are other examples of credit risk transformation.
- Maturity transformation denotes the funding of long-term assets with short-term liabilities by an intermediary. The intermediary (bank, vehicle, conduit) is exposed to risks related to the debt refinancing, namely rollover risks and duration risks. Rollover risk is the risk of not being able to renew funding; duration risk refers to interest fluctuations that have an adverse impact on the difference between the return from the long term assets and the costs of short term funding.
- Liquidity transformation corresponds to the funding of illiquid assets by liquid liabilities. Liquid liabilities can be demandable deposits or rated securities that trade in liquid markets. For instance, a pool of illiquid loans typically trades at a lower price than a rated security issued against the same pool. Demandable deposits are also

highly liquid – MMFs thus also perform some liquidity transformation even though they invest in assets that are highly liquid except during severe crises (such as commercial paper and sovereign bonds).

In a shadow banking system, at least one of these functions is performed by a non-bank entity.<sup>(1)</sup> The degree of fragmentation or dis-intermediation of the credit intermediation may differ between the two extreme cases of possible credit intermediation configurations: the case of “qualitative asset transformation” performed by a traditional bank and the case where credit intermediation is performed solely by non-bank institutions each specializing in one of the different functions. Often, though, credit intermediation involves both banks and non-bank institutions where the latter perform only some of the functions related to credit intermediation as shown in Figure 2.

### Systemic and market-based nature

The shadow banking system in practice is mainly characterized by the involvement of several entities. Many of these entities are non-banks, have a market-based nature and perform several activities of the credit intermediation process (“dis-intermediation” of credit intermediation).

(1) Note that credit rating agencies (CRAs) also played an important role through their ratings of securitized products. The focus here is on financing flows, hence CRAs are not considered explicitly in this article.



Owing to the dis-intermediated nature, there is an additional layer of frictions and asymmetric information problems in comparison with the traditional banking system. For instance, the underwriting standard of mortgage loans that were subsequently securitized and sold to other parties has in some cases been lower (e.g. subprime mortgage loans) than the standard applied to loans that were kept on the balance sheet of banks. Market discipline may in theory limit the adverse consequences of such problems, but in practice market discipline has not proven to be sufficient to alleviate the asymmetric information problems.

The market-based nature of many entities involved in the shadow banking system implies a higher exposure to market price fluctuations. For instance, such an exposure may be due to balance sheet adjustments using mark-to-market techniques. The market-based nature makes credit intermediation through the shadow banking system more volatile than traditional credit intermediation through banks (Adrian et al, 2009). Note that shadow banking system activities may involve banks which then, in turn, are also exposed to market fluctuations. In fact, the exposure of banks to market fluctuations (such as by repos) is indeed a hallmark of the shadow banking system (Turner, 2012).

In general, the shadow banking system tends to increase the degree of interconnectedness of the financial system and can establish linkages between different segments of the financial system (such as between banks and pension funds, for instance – see the next section for a discussion of some activities that create such linkages). Such linkages may give rise to contagion channels in crisis times.

### Light regulatory framework

Over the course of history, an institutional and regulatory arrangement has emerged to safeguard banks and to prevent bank runs. This arrangement grants privileges to banks in the form of a safety net that comprises deposit insurance and central bank liquidity facilities, but also imposes obligations in return in the form of prudent regulation. The safety net implies that bank credit intermediation is “publicly enhanced” through public support.<sup>(1)</sup> This arrangement has generally proved effective in preventing bank runs and protecting depositors.<sup>(2)</sup> Such public support does not apply to the shadow banking system or at least only in an indirect way:

- In terms of the privileges (deposit insurance and liquidity facilities), non-bank entities lack public support and may only benefit from incomplete private support. Specifically, the operations of non-bank entities may

benefit from credit guarantees or liquidity lines typically granted by banks or other financial institutions, though they are often limited in terms of scope and reliability (a bank may be unable to honour its obligations). Hence, such “private enhancement”, if available, is much less powerful in providing a backstop. Shadow banking credit intermediation thus includes all credit intermediation which lacks direct official enhancement (Pozsar et al, 2010);

- In terms of the obligations (regulation), many non-bank entities are not subject to prudential regulation but only to lighter regulation such as market regulation.

It should nevertheless be noted that during the financial crisis of 2007/08, many non-banks in the US received emergency public support in the form of liquidity facilities and credit guarantees that normally only banks would receive.<sup>(3)</sup>

## 2. A review of relevant entities and activities of the shadow banking system

This section describes the main segments of the shadow banking system. Some of them played a major role before the crisis but are now largely dormant; others continue to be active segments. The article follows broadly in this section the FSB’s grouping of the most relevant activities and entities.

One of the objectives of this section is to illustrate the manifold but interrelated manifestations of the shadow banking system. Most often, the shadow banking system comprises activities that involve a chain of different entities (banks and non-banks). Only in some cases, single entities such as MMFs exhibit significant shadow banking features on their own. This requires a systemic perspective to assess credit intermediation chains and also implies that a clear delineation of the shadow banking system is not straightforward. Certain activities, such as the securitization and repo activities comprise a large number of markets, actors and are ultimately a full-fledged banking system. However, many of the segments on their own are also fulfilling various other functions and are only

(1) See the article “The notion of support in bank ratings” in this FSR for an analysis of how public support may lead to an uplift of banks’ standalone ratings (Van Roy et al, 2012).

(2) Instances of bank runs both in Europe and the US are extremely rare after deposit insurance has been introduced. Moreover, in the case where a bank run occurred, depositors have always been compensated by the deposit insurance.

(3) Examples of such public measures that are normally “reserved to banks” (in an emergency situation) include the Asset Backed Commercial Paper Money Market Mutual Fund Liquidity Facility; the Term Securities Lending Facility provided collateral substitution for dealers (\$235bn); as well as guarantees extended by the FDIC to uninsured transaction account deposits; and guarantees to the money market fund industry.

contributing to credit intermediation outside the regular banking system in a remote way.

A second objective is that, most of the time, banks remain embedded in the shadow banking system. In the past, banks were closely linked to the shadow banking system in various functions (e.g. as investors and provider of support) and incurred a large part of the losses. Banks are also involved as counterparties in activities that remain important segments such as repo and securities lending.

## Shadow banking activities

### SECURITIZATION

#### *Definition*

Securitization involves the pooling assets and the subsequent sale to investors of the tranching claims on the cash flows backed by these pools. Securitization is a tool for credit risk transfer and allows thereby the originator of a loan to remove the credit risk from its balance sheet and to shift it to other entities. In order to securitize loans, sponsors and originators of loans typically set up Special Purpose Vehicles (SPVs) as independent legal entities that issue the tranching securities. Such SPVs also issue Collateralized Debt Obligations (CDOs), which is a type of security product with multiple tranches. Closely linked to the securitization activity are also entities such as SIVs and ABCP conduits that invest in the tranches and fund themselves short term.

Securitization was one of the main shadow banking system activities before the crisis. Especially in the US, securitization played an important role as part of the originate-to-distribute business model (In Europe, securitization was often part of an originate-to-hold business strategy).<sup>(1)</sup> In this regard, securitization also “greased” other shadow banking activities (such as repo funding) by providing large amounts of presumable low-risk assets as collateral. Similarly, securitization activity was driven by demand from institutional demand for low risk assets.

#### *Credit intermediation functions*

Securitization comprises mainly credit transformation: special purpose vehicles allow for the issuance of “tranching” securities (senior/AAA, mezzanine, equity) against pools of mortgages (“asset-backed securities”, ABS). Maturity transformation was obtained by the use of conduits and SIVs that invested in the ABS but were funded with short-term debt (due to their close linkages

to securitization, these entities are discussed here as part of the securitization activity).

#### *Involvement of traditional banks*

The securitisation model was built on the idea of transferring credit risk from the balance sheet of banks to the shadow banking system. However, banks remained heavily involved as provider of liquidity and credit lines to the SIVs and ABCP conduits involved in the securitization chain and as investors of securitized products. As investors, banks also refinanced these products by using them as collateral in repo transactions (see Figure 2).

### Repos and securities lending

Repurchase agreements (repo) and securities lending are transactions by which financial institutions obtain funding against collateral (secured lending). From an economic perspective, they are quite similar; they differ, however, in terms of accounting and tax treatment.

### REPOS

#### *Definition*

Repos are used by a wide range of financial institutions, including banks and non-bank financial institutions for funding purposes or to invest cash (in a reverse repo as the mirror case). A repo transaction is characterized by a set of parameters, such as the principal amount, the type of collateral, the interest rate, the haircut applied to the collateral and the maturity. The counterparties thus agree on the exchange of cash (or highly liquid assets) and collateral with the promise to unwind the trade at the specified date. The interest rate reflects the economic value of the funding to the borrower. The haircut denotes the discount that is applied to the value of the collateral and ensures that there is sufficient “overcollateralization” such that the borrower is protected against losses in case of borrower default and the need to sell the collateral.

#### *Credit intermediation functions*

Repo can be considered as shadow banking activities if they give rise to maturity and liquidity transformation and if they involve non-bank institutions. Repos perform maturity transformation if the funding obtained by repo

(1) In the originate-to-distribute business model, mortgage originators had no intention to keep the loans on their balance sheets but relied on reselling those loans to other parties. In the originate-to-hold business model, originators, mainly banks, securitized their loans but retained the tranches on their balance sheets.

is invested with a longer maturity than the repo maturity or when the collateral is of longer maturity than the repo maturity. They perform liquidity transformation because they allow institution to obtain funding for illiquid assets in liquid short term markets.

#### *Involvement of traditional banks*

Banks are active players in various roles in repo markets. They incur counterparty risk if they provide funding and incur rollover risk if they fund themselves by running a maturity mismatch. Through the repo markets, banks interact with non-bank entities on both the borrowing and lending side of a repo. Before the crisis, banks as well as other market participants used securitized products as collateral for repos. In this way, they could finance their holdings of securitized products by short term funding in repo markets (currently, mainly sovereign bonds and other high quality assets are accepted as collateral in repo markets).

### SECURITIES LENDING

#### *Definition*

In the securities lending market, owners of large asset pools such as pension funds, insurance companies and investment funds lend their securities to borrowers in need of specific securities, who in turn provide collateral. The borrowers are mainly proprietary traders and prime brokers who borrow on behalf of their hedge fund clients who need specific securities for short selling, market making and also the facilitation of trade settlements.

Securities lending is often a demand-driven business where borrowers are willing to pay a fee to get access to specific securities to cover short positions or for use as collateral in repo transactions. Some suppliers of assets, however, drive lending transactions in order to obtain cash collateral and to reinvest such cash collateral at a higher risk and return.

#### *Credit intermediation functions*

Because securities are often lent without a fixed maturity date whereby either party can terminate a transaction at any time, the reinvestment of cash may give rise to a maturity mismatch if it is invested in asset of longer maturity. Specifically, the cash may be invested in money market funds, which in turn invest in longer term assets including repos or bank funding instruments (certificates of deposits, etc...) or used to finance repos (accepting securitized products as collateral). In the past, cash has also been directly invested in securitized products (e.g. AIG).

Such activities are an example of active sourcing of cash to finance leveraged investments rather than a passive reinvestment at minimum risk.

In the US markets, securities lending transactions are typically collateralized by cash, and the risks related to securities lending are present. Arguably, this phenomenon may play a lesser role in European markets where non-cash collateral is typically used. However, European institutions may also receive cash when they lend out US securities.

#### *Involvement of traditional banks*

Liquidity swaps are a recent example of banks engaging in securities lending. A liquidity swap is a transaction where a bank borrows highly liquid assets such as government bonds and provides less liquid assets (such as securitized products) as collateral. The bank can in turn use the highly liquid assets to obtain cash in repo markets or to satisfy liquidity regulation.

### Shadow banking entities

Which are the main shadow banking entities? A distinction must be made between entities that exhibit the typical shadow banking functions and entities that are part of shadow banking activities but by themselves are mainly performing functions which are not related to credit intermediation. In this respect, the FSB has for the moment singled out MMFs as shadow banking entities. Whether hedge funds should be considered as shadow banking entities is still subject to discussion – other entities are being considered as candidates or are already being considered as part of shadow banking activities.<sup>(1)</sup>

### MONEY MARKET FUNDS

MMFs are investment funds that offer returns in line with money market rates and provide daily liquidity to investors. MMFs invest in a mix of short- and long-term assets, including commercial paper, certificates of deposits and repo transactions with banks, but also corporate and sovereign debt, and are hence also an important (short-term) funding source for banks.

MMFs were invented in the early 1970s in the US to circumvent caps on deposit rates by banks. They were introduced a decade later in Europe (France) for similar

(1) Exchange traded funds (ETFs) and other investment funds are part of repo and securities lending activities; SPVs, SIVs and AVCP conduits are part of the securitization activity. Credit insurance companies, real estate investment trusts (REITs) and investment companies are entities whose risk potential still needs to be assessed.

reasons (Bengtsson, 2011). They invest mainly in safe or highly rated asset and promise a return that reflects short-term interest rates. They have grown considerably, and before the crisis they had become an important part of the financial system, accounting for 3 trillion EUR of assets under management in the US and 1.5 trillion EUR in Europe. Currently, assets under management of MMFs in Europe amount to 1.1 trillion (mid 2011), with three countries (France, Ireland and Luxembourg) representing an aggregate market share of over 90 %.

#### *Credit intermediation functions*

MMFs perform some degree of maturity and liquidity transformation due to the issuance of demandable deposits and the investment in short and medium term assets. Some types of MMFs<sup>(1)</sup> promise to repay investors at least what they have invested – this feature combined with maturity mismatch gives rise to run risk (if the fund's value falls below par, e.g. through investor redemptions and the sale of assets in illiquid markets, the fund is basically broken; in anticipation, the investors will run and redeem once a fund's asset value comes close to par). MMFs are a good example of shadow banking entities that are similar to banks in their structure, but are not covered by the institutional and regulatory arrangement, i.e. they lack the safety net of deposit insurance and access to central bank refinancing.

#### **HEDGE FUNDS**

There is a debate as to whether hedge funds are part of the shadow banking system or not. At the outset, it can be said that they should not be included per se as entities, since they do not necessarily deal with credit or run a maturity mismatch. However, they may be part of a chain of activities that constitutes a shadow banking system. This shows the difficulty of delineating the shadow banking system. Many non-bank institutions may not be considered as entities forming part of the shadow banking system, but only as individual actors in the chain of several institutions representing a shadow banking activity.

#### *Credit intermediation functions*

Hedge funds can perform credit intermediation functions and be part of a shadow banking system in two different ways: a) credit hedge funds as shadow banking entities; and b) hedging as part of a shadow banking system activity.

*Credit hedge funds.* Credit hedge funds use investment strategies related to credit products, such as capital

structure arbitrage, structured credit (correlation) or long short-credit. They also finance themselves with repos. In the run-up to the financial crisis of 2007/08, those hedge funds played an important role as investors in the securitization markets (such as Bear Stearns' hedge funds that invested heavily in subprime and funded themselves through repos). Hence, they were part of the securitization chain and ran a maturity mismatch through the repo financing. Also, hedge funds performed credit transformation through the buying and selling of CDS. The credit hedge fund market segment remains an active segment. It is difficult to estimate its overall importance. According to some estimates, European credit hedge funds had 8 billion EUR in assets under management and credit hedge funds in offshore centres had 70 billion EUR in assets under management in Q1 2011 (Bouveret, 2011). Other sources estimate that the global hedge fund industry had approximately 1.5 trillion EUR under management at the end of 2011 (Hedge Fund Research); of which 470 billion EUR was managed by credit hedge funds (30 % of total, see AIMA, 2012).

#### *Hedge funds as part of shadow banking system activity.*

Hedge funds may also be linked to the shadow banking system in a more indirect way. For instance, securities lending establishes a possible link between hedge funds' short selling activities and credit intermediation outside the regular banking system. Short selling is a major demand factor for securities lending.<sup>(2)</sup> To the extent that hedge funds provide cash collateral for borrowing securities, a link between hedge fund shorting activities and credit intermediation within the shadow banking system is established when the security lender re-invests the cash collateral in money market funds or uses it as financing for repos. The re-hypothecation of assets that hedge funds provide to their prime brokers as collateral may also establish a link between hedge funds and the shadow banking system (re-hypothecation basically involves the re-use of assets, e.g. for repo financing).

(1) Constant asset net value (CNAV) MMFs

(2) Several hedge fund trading strategies have a short selling component and hence are a source of demand; for example: convertible arbitrage, warrant arbitrage, risk arbitrage, options trading and long/short strategies.

## Box 1 – A Belgian perspective on the shadow banking system

How relevant is shadow banking systems from a Belgian perspective? It is useful to distinguish between shadow banking entities domiciled in Belgium (that is the “Belgian shadow banking system”) and the involvement of Belgian banks in shadow banking activities.

### The potential size of the Belgian shadow banking system entities

An interesting question concerns the size of the “Belgian shadow banking system”, or more precisely the size of Belgium-domiciled entities that can be considered part of the shadow banking system.

Regarding recognized shadow banking entities, there are 16 Belgian MMFs which together account for 1.8 billion EUR of assets under management (AUM) at the end of 2010 (the total AUM of European MMFs amount to 1.1 trillion EUR). The Belgian MMFs are all variable net asset value (VNAV) funds and hence do not exhibit run-prone features (constant net asset value (CNAV) funds are not allowed in Belgium). There are no credit hedge funds active in Belgium.

Regarding entities that warrant monitoring but whose shadow-banking risks are likely to be limited, Belgian real estate investment trusts (REITs) (Sicafis/Bevaks) play a significant role: the combined value of their portfolios amounted to approximately 8.8 billion EUR at the end of 2011.<sup>(1)</sup> There are also credit insurance companies as well as finance companies (i.e. mortgage companies) active in Belgium.

### Belgian banks’ exposure to the (global) shadow banking system

In the financial crisis of 2007/08, a substantial part of the losses that Belgian banks incurred was directly due to exposures to the shadow banking system, most notably to securitization activities.

Fortis incurred losses of 4.8 billion EUR in 2008 on its structured credit portfolio, which contains mainly positions related to securitized products, such as ABS investment and CDOs. Fortis also owns the ABCP conduit Scaldis Capital Limited which invested in securitized products and which was before the crisis one of the largest European conduits with a portfolio amounting to a size of 27 billion EUR.

In terms of exposures to the shadow banking system, Dexia incurred losses associated with its subsidiary Financial Security Assurance (FSA). FSA provided credit insurance and also held a portfolio that included securitized products. Dexia reported total financial crisis losses of 5.9 billion EUR. Of this amount, 3.2 billion EUR were due to FSA. This loss included the loss on the sale of FSA insurance which amounted to 1.6 billion EUR and 676 million on impairments of FSA’s Financial Products segment.

KBC acted as an originator securitized products, mainly CDOs, through its KBC Financial Products subsidiary, for which it also bought credit insurance from the US monoline insurer MBIA. The bank also invested in securitized products, including its own products. In 2008 and 2009 KBC took mark-to-market adjustments on its portfolio that amounted to around 6.1 billion EUR.

The securitization activities in which these losses occurred are mainly dormant now, and the remaining assets have been consolidated on the balance sheet.

### 3. A discussion of risks and benefits of the shadow banking system

Before reviewing the regulatory efforts being undertaken at the international level, it is useful to recall the systemic risk to which the shadow banking system may give rise, and to discuss some demand and supply factors. The stance that policymakers should take in the monitoring and regulation of the shadow banking system should be influenced by such an appraisal.

The financial crisis has demonstrated the potential of the shadow banking system to generate systemic risk. Indeed, the system as it has developed before the crisis revealed significant flaws. The market has reacted and most of the flawed practices have vanished. Arguably the shadow banking is thus currently less risky. However, the innovative nature of the shadow banking system may lead to new developments that may pose a source of systemic risk in the future. Policymakers must thus assess whether the current regulatory framework is adequate and start a regular monitoring of the shadow banking system.

On a general level, a pertinent question is whether there are mainly benign or malign *raisons d'être* of the shadow banking system. With respect to malign factors, history has shown that regulatory arbitrage is an important supply factor and a constant threat; hence authorities must aim at regulating the links between banks and the shadow banking system and to prevent an implicit subsidy to the shadow banking system. Depending on the importance of benign factors, policymakers need to develop appropriate regulation of all relevant activities and entities to address systemic risk concerns. If there are mainly malign *raisons d'être* but shadow banking activities are not avoidable, policymakers may focus on reducing the systemic importance of the shadow banking system, and on separating the banking system from the shadow banking system by making support prohibitively expensive or by restricting the counterparties with which a bank can deal.<sup>(1)</sup>

#### Systemic risk

The credit intermediation which the shadow banking system performs comes with some well-known, interrelated and self-reinforcing risks. Be it performed by traditional banks or by the shadow banking system, credit intermediation may give rise to “run-risk” maturity transformation liquidity risk due to the need to sell assets in illiquid markets at fire-sale prices, and credit risk due to the default of a borrower or counterparty. The most salient materialization of these risks is the classic bank run or, in general, a sudden withdrawal of short-term funding.<sup>(2)</sup>

The systemic nature of the shadow banking system also implies that such materializations of risk involve several institutions and markets.

All these features have been observed in the financial crisis of 2007/2008. The crisis started when market realized that the securitization of loans was subject to flawed incentives and led to low lending standards (e.g. subprime loans). The SIVs and ABCP conduits and other vehicles that bought the securitized products could not rollover their funding and had to be rescued by their sponsors, mainly banks. Credit hedge funds, banks and other institutions who had invested in securitized products incurred large mark-to-market losses. Those hedge funds and banks also funded their investment in securitized products through repos, using these securitized products as collateral. When the value of securitized products, most notable those containing subprime loans, fell, repo counterparties increased the haircuts on collateral (forcing borrowers to provide more collateral) or refused to roll over funding. This contributed to the default of the borrower (such as Lehman) or forced mother institutions to provide massive support (such as Bear Stearns to its hedge funds). Securitization and repo was thus closely linked such that some observers argued that securitization and repo resembled money creation and deposits, respectively and hence resembled a full-fledged banking system on its own (Gorton, 2011).

AIG's losses in its securities lending business (around 4 billion EUR) was an example of the risks associated with securities lending. AIG re-invested the cash collateral it had received from its securities lending business in relatively long maturity instruments, including securitized products, to maximize returns. When the value of such products fell, the market value of AIG's investments dropped below the value of the lent securities. The security borrowers could terminate their transactions at any time, which implied that AIG was running a maturity mismatch and leverage, and led to large losses on AIG when the borrowers did terminate the transactions.

MMFs played also an important role in the securitization chain, for example by investing in ABCP backed by illiquid ABS, and were a key factor in the crisis. A European “enhanced return” MMF that had invested indirectly in (subprime) ABS suspended redemptions in August 2007 and triggered a money market liquidity crisis. Investors became wary of MMFs in general, and withdrew funds regardless of their investment profile. Their sponsors (often banks) had to rescue them. In 2008, the US Primary Reserve Fund

(1) Such measures would be akin to efforts to separate or restrict banking activities as in the UK (Vickers' retail ring-fencing) and the US (Volcker rule).

(2) Diamond and Dybvig (1983) is the seminal model describing financial intermediation and the fragility of banks.



“broke the buck” after the fall of Lehman, which was a catastrophic signal for investors as MMFs were considered to be of extremely low risk. Investors started a run; the Federal Reserve had to provide the MMFs access to the central bank facility and the MMFs’ sponsors (banks) had to inject capital to keep the funds running.

### Demand and supply factors of the shadow banking system

In discussing whether a “raison d’être” exists for the shadow banking system, it is important to analyse the reasons why the shadow banking system has grown so much in the past and whether these reasons are mainly benign or mainly malign. In this respect, this section discusses some demand and supply factors which contributed to the development of the shadow banking system.

#### Supply factors

There are mainly two supply factors: regulatory arbitrage and efficiency gains. If regulatory arbitrage was the main supply factor, the shadow banking system would be undesirable. It is generally accepted that the growth of securitization before the crisis was to a large extent driven by the under-pricing of (systemic) risk (i.e. the AAA ratings of the senior tranches did not reflect real risk), and loopholes in regulation. For instance, the risk arising from banks’ support to SPVs and conduits in the securitization process and from banks’ investment in securitized products was not adequately reflected in the capital requirements of banks. An implication is that regulatory arbitrage-based shadow banking activities ultimately backfire and impose losses on banks when risks materialize.

Some commentators argue, however, that there are some benign supply factors and that the shadow banking system as “parallel” banking” comes with some efficiency gains, such as (see Pozsar, 2010):

- diversification of risk, limiting risk concentration through “real” credit risk transfer (securitization);
- term ABS market that allows for matched funding (to raise long-term, maturity-matched funding);
- realization of economies of scale from loan origination platforms; some specialized finance companies are more efficient than banks in serving certain market segments;
- market discipline through the presence of market-based third party providers.

However, as the crisis has shown, all these factors may also give rise to adverse developments. A quantification of the factors is still lacking and an ultimate judgment

on the overall value of the shadow banking system is not possible. It is certain, though, that regulatory arbitrage remains a constant factor due to the process of regulatory reform and innovative response by financial institutions.

#### Demand factors

There is strong demand from investors for low-risk and risk-free debt. Some argue that the traditional banking system cannot supply such debt (e.g. deposits) in sufficient quantities (see Pozsar, 2011). For instance, the demand for “safe” deposits from large institutional investors with large cash pools goes beyond the amount that banks can offer through deposit insurance protected deposits. The shadow banking system enables the creation of long- and short-term low-risk secured debt (securitized products as examples of the former, money market fund instruments as examples of the latter) and thereby caters to the needs of those institutional investors. However, the question remains whether the shadow banking system is able to “produce” such low-risk debt at true prices. As argued above, the crisis has shown that the low riskiness of, for instance, securitized products and money market fund deposits did not reflect systemic risk.

## 4. Current regulatory efforts

Policy efforts are now underway at the global level to “strengthen the oversight and regulation of the shadow banking system”. Specifically, the Financial Stability Board is coordinating and conducting work at the request of the G 20. Since there is an overall lack of information with respect to shadow banking system activities and entities, the policy efforts do not only focus on improving regulation but also on improving the monitoring of the shadow banking system (FSB, 2011).

It is too early to evaluate the outcome, since the outcome of the efforts will be published in the second half of this year. Do the initial recommendations already provide some view on the overall stance of the FSB, though? As discussed in Section 3, the regulatory stance might reflect a view on the *raisons d’être* of the shadow banking system. The FSB’s recommendations with respect to regulation cover all aspects: They address the linkages between banks and the shadow banking system but also the regulation of the shadow banking system and hence remain broad. It appears thus that the FSB has not yet taken on a stance but retains all options. An assessment of the stance will only be meaningful once the precise regulatory recommendations are finalized.

The set of recommendations that the FSB has developed in both areas are presented below.

### Recommendations for monitoring

Taking into account the difficulties in delineating the shadow banking system and in identifying sources of systemic risk, the FSB proposes a three-stage process to achieve effective monitoring. The first stage reviews all those entities and activities that perform some form of credit intermediation and that are therefore a potential source of systemic risk. The emphasis at this stage is to ensure complete coverage. The second stage aims at narrowing down the set of relevant activities and entities to those where systemic risks really matter. The last stage then allows for an in-depth risk analysis of the identified entities or activities.

It is important to achieve effective monitoring of the shadow banking systems before – and parallel to – developing regulation. For that purpose, the FSB has developed “High level principles for monitoring the shadow banking system” (see the box below).

### Recommendations for regulation

Since a single regulatory approach is not suitable due to the differences between the various shadow banking activities and entities, the FSB has devised some general principles and has also identified some areas for further action and developed some initial recommendations.

The FSB makes some recommendations that apply to the shadow banking system activities and entities discussed above. These recommendations broadly reflect the main

## Box 2 – The FSB’s high-level principles for monitoring the shadow banking system

**Scope:** Authorities should have an appropriate system-wide oversight framework in place, to gain a comprehensive picture of the shadow banking system and of the risks that it poses to the entire financial system.

**Process:** A monitoring framework for the shadow banking system should identify and assess the risks on a regular and continuous basis.

**Data/Information:** In establishing a monitoring framework for the shadow banking system, the relevant authorities should have powers to collect all necessary data and information, as well as the ability to define the regulatory scope of reporting. Various sources of market intelligence and statistical data are complementary and should be combined for their effective use. Information from both macro (system-wide) and micro (entity/activity-based) perspectives should be amalgamated. Information and data should be collected sufficiently frequently to support effective risk-oriented monitoring.

**Innovation/Mutation:** Monitoring of the shadow banking system should be flexible and adaptable to capture innovations and mutations in the financial system which could lead to emerging risks.

**Regulatory arbitrage:** In monitoring the shadow banking system, authorities need to be mindful of the incentives to expand shadow banking, created by changes in regulations.

**Jurisdiction-specific features:** In developing a monitoring framework, authorities should take into account the structure of financial markets and regulatory frameworks within their jurisdiction as well as their international connections.

**Information exchange:** Authorities should exchange appropriate information both within and across the relevant jurisdictions on a regular basis, to be able to assess the risks posed by the shadow banking system. Assessing the potential for cross-border spillover and contagion of risks, and obtaining a view on the interconnections at the global level, are especially important for cross-border information exchange.



concerns as identified in the previous sections and also take into account the significant linkages between banks and the shadow banking system. Specifically, the FSB recommends further enhancement of the regulation of MMFs; the regulation of repos and securities lending should be assessed carefully and further enhanced from the prudential perspective as necessary; incentives associated with securitization should be adequately addressed, e.g. by risk retention on the part of the suppliers of

securitization, and more transparency and standardization. Importantly, the FSB also makes specific recommendations on the involvement of banks in the shadow banking system. In this respect, the FSB recommends adequate consolidation rules, and limits on exposure to shadow banking entities.

The complete set of recommendations is shown in the box below.

### Box 3 – The 11 FSB recommendations with respect to the regulatory measures to be examined by authorities

#### The regulation of banks' interactions with shadow banking entities (indirect regulation):

- **Recommendation 1:** Consolidation rules should ensure that any shadow banking entities that the bank sponsors are included on its balance sheet for prudential purposes (for example in the calculation of risk-based capital and leverage ratios as well as liquidity ratios). Such rules should be applied in an internationally consistent manner.
- **Recommendation 2:** Limits on the size and nature of a bank's exposures to shadow banking entities should be enhanced (e.g. limits on large exposures to connected entities, individually or in aggregate).
- **Recommendation 3:** The risk-based capital requirements for banks' exposures to shadow banking entities should be reviewed to ensure that such risks are adequately captured.
- **Recommendation 4:** Restrict banks' ability to stand behind any entities that are not consolidated following the application of more rigorous consolidation rules by applying stricter regulatory treatment of "implicit support".

#### The regulatory reform of money market funds (MMFs).

- **Recommendation 5:** Regulatory reform of money market funds (MMFs) should be further enhanced.

#### The regulation of other shadow banking entities.

- **Recommendation 6:** Regulation of other shadow banking entities should be assessed and further enhanced from prudential point of view (e.g. capital and liquidity regulation).

#### The regulation of securitisation.

- **Recommendation 7:** Incentives associated with securitization should be adequately addressed. In particular, the following issues warrant further attention: a) Requirements to give suppliers of securitization (e.g. originators, sponsors) an incentive to retain part of the risks associated with securitization (i.e. retention requirements); and b) Transparency and standardization of securitization products.



### The regulation of securities lending and repos.

- **Recommendation 8:** Regulation of secured funding markets, in particular repos (repurchase agreements) and securities lending should be assessed carefully and further enhanced from the prudential perspective as necessary.

### Other recommendations on which implementation of existing initiatives will be monitored.

- **Recommendation 9:** The transparency and reporting of information should continue to be improved as appropriate. Following the recommendations on the monitoring framework for the shadow banking system, authorities should require additional reporting or disclosure as deemed necessary for those entities and activities falling under the definition of shadow banking.
- **Recommendation 10:** The underwriting standards for all relevant financial institutions should be rigorous, and should continue to be improved as appropriate.
- **Recommendation 11:** The role of Credit Rating Agencies (CRAs) in facilitating shadow banking activities should continue to be reduced as appropriate.

## 5. Conclusion

Global policymakers are currently concentrating efforts on strengthening the supervision and regulation of the shadow banking system. These efforts are timely – as the financial crisis of 2007/2008 showed, the global shadow banking system inflicted large losses on the whole financial system. The shadow banking system continues to play an important role; although many of the pre-crisis practices vanished from the markets, innovative practices may spur the growth of the shadow banking system in the future. It is vital that supervisors strengthen the monitoring of the shadow banking system and assess the adequacy of the existing regulations.

This article describes the shadow banking system from an economic perspective and thus provides some means of understanding its various manifestations and identifying relevant activities and entities that form part of the shadow banking system.

One message of the article is that the shadow banking system comprises mainly activities that involve several actors, and that a systemic view is therefore necessary to identify the interconnectedness to which such activities give rise, and also to identify the systemic risks which may build up over a chain of actors.

Another important message concerns the significant linkage between banks and shadow banking system activities. This is likely to persist in the future, as stricter regulation of banks may shift certain activities from banks to the shadow banking system. Policymakers need to ensure that the risks associated with such linkages are taken into account by regulation. In addition, structural reforms, such as prohibiting banks from conducting certain activities or from separating core banking activities and non-banking activities, may also create scope for new shadow banking system activities and change the type of linkages between banks and the shadow banking system.

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