B. Macroprudential policy

The purpose of the Bank's activities in performing its macroprudential mandate is to safeguard overall financial stability. The Bank fulfils part of that responsibility jointly with the ECB, which was given a number of powers concerning macroprudential policy under the single supervisory mechanism (SSM).

During the year under review, the Bank maintained its watch on the risks concerning residential real estate and developed new measures to address the vulnerabilities found. The Bank also has to take a number of recurrent macroprudential decisions. That concerns the quarterly fixing of the countercyclical capital buffer rate applicable to credit exposures in Belgium, and the annual preparation of the list of domestic systemically important banks. Furthermore, in 2017, a new macroprudential instrument was added to the list of instruments available to the Bank in connection with its mission of contributing to the stability of the financial system.

In regard to the extension of the macroprudential framework, during the period under review, the Bank continued to develop its risk assessment framework in order to strengthen the link between the wide range of data used in risk analysis and the available macroprudential policy options. In addition, analyses of broader risk developments in the financial system gave rise to a report on asset management and the shadow banking system in Belgium, and a report describing the use of financial derivatives by Belgian banks and insurers, the resulting risks and the regulations on the subject. Finally, during the year under review, the Bank also monitored the risks connected with climate change and the transition to a low-carbon economy.

1. Residential real estate

In recent years, the Bank has kept a close eye on the risks associated with developments on the Belgian housing market and those relating to the banks' mortgage loan portfolios, more especially in the riskier sub-segments. In its analyses, the Bank noted in particular the sustained growth of mortgage lending, the growing debt of Belgian households, some (as yet moderate) signs of a potential overvaluation of property prices, and some relaxation of the lending criteria. In their analyses of the risks to financial stability in Belgium, the Organisation for Economic Cooperation and Development (OECD), the IMF, the ECB and the European Systemic Risk Board (ESRB) also drew attention to developments on the Belgian housing market. At the end of 2016, the ESRB issued a warning to eight Member States, including Belgium, on the basis of an analysis of the medium-term risks.

In 2016, the Bank had extended by one year a macroprudential measure adopted in 2013 [1]. That measure, in force until 27 May 2017, provided for a flat-rate, 5 percentage point increase in the risk-weighting coefficients applicable to Belgian mortgage loans for which the own funds requirements are calculated using internal models.

In the first half of 2017, in view of the persistence of the various vulnerabilities, the Bank had wanted to take a new measure to ensure continuity with the previous measure which had meanwhile expired, while also targeting the riskier sub-segments. The aims of this measure were twofold: to strengthen the resilience of the banking sector in the face of any shocks on the mortgage market, and to discourage excessive risk-taking, because if the

(1) This measure originally entered into force via a Bank Regulation approved by the Royal Decree of 8 December 2013, then implemented in 2014 for a two-year period pursuant to Article 458 of the CRR.

Belgian housing market were to take a less favourable turn, the riskier segments of the mortgage loan portfolios could become a source of heavier-than-expected loan losses for the banks.

The government did not approve this Bank proposal by Royal Decree, but in June it asked the Bank to conduct a new risk assessment and, at the same time, to extend the measure that had expired in May. The Bank therefore issued a recommendation to the banks concerned so that they would continue to apply that measure, and undertook to produce a new analysis of the housing market by the end of October.

That analysis showed that the vulnerabilities evident in the past had not been resolved (see section 3.3. of the "Economic and financial developments" part of the Report). Mortgage lending has continued to grow by more than 5 % per annum since July 2015, and consequently the household debt ratio was in the region of 60 % of GDP in 2017, a level which now exceeds the euro area average. The rise in house prices seen in recent decades is still persisting and various indicators suggest some overvaluation of the housing market. In particular, the strong growth of mortgage debt reflected the large proportion of recent mortgage loans with a high loan-to-value ratio, i.e. the amount of the mortgage loan in relation to the value of the property being financed, and a high debt-service-to-income ratio, i.e. the monthly debt repayment in relation to the borrower's income. In addition, the favourable developments seen in the past as regards tighter lending conditions seem to have come to an end, and a new easing of those conditions has actually been observed recently. Finally, the banks' commercial margins continue to diminish, possibly indicating that competition on the market is driving them to take insufficient account of the aforesaid risks in setting their rates.

On the basis of that analysis, the Bank therefore considers that there is still a need for a new, stricter, more targeted measure than the one which has expired, both to maintain the banks' resilience and to limit the excessive accumulation of systemic risks. In the Bank's opinion, the Belgian banks should mobilise capital amounting to around € 1.4 billion to enable them to absorb potential significant shocks on the Belgian residential property market.

The Bank examined various options and decided on a two-pronged measure (1). The new proposed measure would first comprise a linear component, i.e. one targeting all loans in the same way, thus ensuring continuity with the previous measure. This linear component would correspond to a 5 percentage point surcharge in the risk weighting calculated in accordance with internal models. A second, more targeted, component would apply according to the average risk of each bank's portfolio, using a multiplier. In this case, the initial (microprudential) risk weighting would be multiplied by a factor of 1.33. This means that banks holding a riskier mortgage loan portfolio and therefore contributing more to systemic risk would be subject to a proportionately higher capital requirement.

Taken together, the two components would result in the creation of a buffer amounting to around € 1 500 million consisting of common equity Tier 1 capital (CET1). That would correspond to an increase in the average risk weighting of Belgian mortgage loans from 10 % to 18 % (5 % increase due to the first component and 3 % due to the second component), a ratio which would be slightly higher than the European average.

This measure was submitted to the ECB under Article 5 of the Single Supervisory Mechanism Regulation (SSM Regulation (2)), and the procedure in the various competent European institutions, stipulated by Article 458 of the Capital Requirements Regulation (CRR (3)), is currently ongoing. If the European institutions raise no objections, the measure will enter into force in the second quarter of 2018, once the Belgian government has approved a new Royal Decree.

2. Countercyclical capital buffer

Once a quarter, the Bank has to set the countercyclical capital buffer (CCyB) rate applicable to credit exposures on counterparties located in Belgian territory. The aim of the CCyB is to support sustained lending throughout the cycle by strengthening the banks' resilience in the event of an increase in the cyclical systemic risks (e.g. in the case of excessive credit growth). It uses a wide range of information, including a vast array of indicators considered relevant for signalling the rise in cyclical systemic risks (4). However, neither the credit developments – although they bear witness to some dynamism in lending to non-financial corporations and Belgian

(1) See the Bank's press release dated 21 November: "The National Bank intends to strengthen the resilience of Belgian banks to any problems relating to mortgage loans and property shocks".
(2) Council Regulation (EU) No. 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions.
(3) Regulation (EU) No. 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No. 648/2012.
(4) See "Setting the countercyclical buffer rate in Belgium: A policy strategy" (www.nbb.be).

TABLE 21 COUNTERCYCLICAL BUFFER RATES IMPOSED BY FOREIGN AUTHORITIES
(in %)

Country	Current buffer rate		Future buffer rate	
	Percentage	Entry into force	Percentage	Entry into force
Hong Kong	1.875	01-01-2018	2.50	01-01-2019
Iceland	1.25	01-11-2017	unchanged	
Lithuania			0.50	31-12-2018
Norway	2.00	31-12-2017	unchanged	
United Kingdom			0.50	27-06-2018
			1.00	28-11-2018
Slovakia	0.50	01-08-2017	1.25	01-08-2018
Sweden	2.00	19-03-2017	unchanged	
Czech Republic	0.50	01-01-2017	1.00	01-07-2018
			1.25	01-01-2019

Sources: BIS, ESRB.

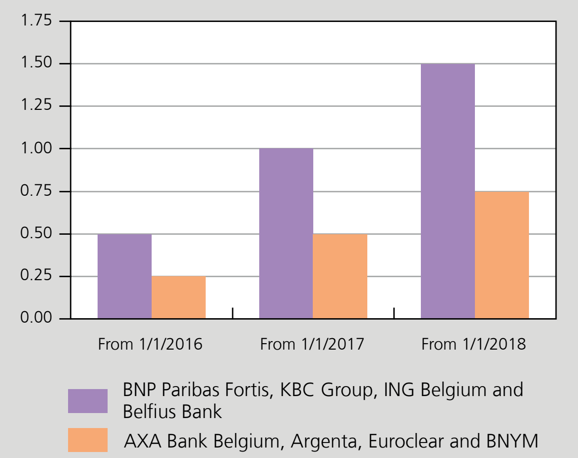
households – nor the other indicators used pointed to any increase in systemic risks during the year under review. The countercyclical buffer rate applicable to credit exposures on counterparties located in Belgium was therefore held at 0 % throughout that period. Each decision on the countercyclical buffer rate is submitted to the ECB and published every quarter on the Bank's website together with a selection of key indicators.

Belgian banks also have to apply the buffer rates imposed by foreign authorities on their credit exposures in those countries. The table below gives an overview of the current and future countercyclical buffer rates. During the year under review, in response to the ESRB's Recommendation on recognising and setting countercyclical buffer rates for third-country exposures, the Bank identified three third countries where those exposures were material (the United States, Switzerland and Turkey) and defined a framework for monitoring cyclical systemic risks in those countries.

3. Domestic systemically important banks

In the fourth quarter of the year under review, on the basis of the methodology of the European Banking Authority (EBA), the Bank confirmed the list of eight Belgian domestic systemically important banks (D-SIBs or "O-SIIs")(1) drawn up in 2016. BNP Paribas Fortis, KBC Group, Belfius Bank, ING Belgium, Euroclear, Bank of New York Mellon (BNYM), Argenta and AXA Bank Belgium therefore retain their status as O-SIIs.

CHART 86 LEVEL OF THE CAPITAL SURCHARGE FOR BELGIAN O-SIIS
(in % of the risk-weighted assets)



Source: NBB.

(1) In EU legislation, D-SIBs are called other systemically important institutions (O-SIIs).

The first six banks were automatically designated as O-SIIs on the basis of their quantitative systemic importance score[1]. Argenta and AXA Bank Belgium were classified as O-SIIs according to information obtained from supplementary indicators. The supplementary indicators taken into account are the banks' shares in deposits and loans in Belgium. The choice of these supplementary indicators is justified because indicators which are national in scope are considered more appropriate for designating domestic systemically important institutions than European or global indicators.

The capital surcharges announced in 2015 for these O-SIIs still apply[2]. The high economic and social costs that failure of these institutions would entail are the reason for boosting their resilience by means of additional capital requirements. In 2018, the capital surcharge is 0.75 % of the risk-weighted assets for Argenta, AXA Bank Belgium, BNYM and Euroclear, and 1.5 % for Belfius Bank, BNP Paribas Fortis, ING Belgium and KBC Group[3].

4. Macroprudential instrument concerning a funding requirement

During the year under review, a new macroprudential instrument was added to the arsenal available to the Bank for performing its mission of contributing to the stability of the financial system. This new macroprudential instrument should be considered in the context of the Bank Resolution and Recovery Directive (BRRD)[4] and fulfils the need to be able to apply a bail-in[5] to an entity undergoing resolution without jeopardising the stability of the financial system.

Every institution must meet a minimum requirement for own funds and eligible liabilities (MREL) in order to be able to absorb losses and effect a recapitalisation if a bail-in is applied. This minimum requirement is fixed by the resolution authority and must comprise an amount sufficient to be used for the bail-in, enabling the institution to remain in business, if appropriate, and maintaining market confidence in the institution. In any event, the MREL must be at least equal to 8 % of the total liabilities to qualify for recourse to a resolution fund or the use of public financial stabilisation instruments.

It is also necessary to ensure, especially in the case of systemic events, that the bail-in can be applied without compromising confidence in the banking sector, if financial stability is to be preserved. The bail-in of eligible debts will take place with due regard for the ranking of claims. Confidence in the banking sector could be eroded if deposits were to be affected by the bail-in. Since the principle of equal treatment for creditors of equal rank must be respected, deposits can only be excluded from the scope of the bail-in if institutions have a sufficient quantity of lower level instruments which can be used before others to cover losses.

The addition of a new macroprudential instrument enables the Bank to oblige institutions to hold sufficient lower ranking instruments, as the Bank now has the power, as the macroprudential authority, to impose a funding requirement comprising a) common equity Tier 1 (CET1) or additional Tier 1 or Tier 2 capital, b) subordinated debts, c) claims such as those referred to in Article 389/1, 2°, of the Law of 25 April 2014, namely Non-Preferred Senior claims (see chapter C below) and if appropriate d) other debt eligible for application of the bail-in. This requirement can be imposed individually for all credit institutions or investment firms, or for a sub-category of them, and on an individual or consolidated basis for financial holding companies, mixed financial holding companies or mixed holding companies. As the macroprudential authority, the Bank can also determine the method of calculating the minimum funding requirement and the respective shares of the funding sources in that minimum requirement referred to in a) to d).

This macroprudential instrument does not in any way replace the microprudential MREL imposed on institutions; instead, it supplements that. If the Bank were to decide to activate this new instrument, it would in all cases need to notify the ESRB and the ECB before adopting the measure, in the same way as when applying other macroprudential instruments.

5. Extension of the macroprudential framework

In the first quarter of the year under review, the ESRB published a report on the way in which the Member States had complied with its Recommendation of

(1) That score is calculated as an aggregate of the mandatory indicators relating to the size, complexity, interdependence and substitutability of the banks, the indicators being assigned fixed weighting factors. When a bank's systemic importance score exceeds a certain threshold, the institution is automatically classified as an O-SII. Nevertheless, the authorities can use other indicators or apply different weighting factors to the indicators stipulated by the EBA to designate additional banks as O-SIIs.

(2) See the "Annual disclosure regarding the designation of and capital surcharges on Belgian O-SIIs (1 December 2017)". (www.nbb.be).

(3) Without prejudice to the ceilings provided for in Article 14 §5 of Annex IV to the Belgian Banking Law.

(4) Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No. 1093/2010 and (EU) No. 648/2012, of the European Parliament and of the Council.

(5) The bail-in instrument comprises a mechanism for absorbing the losses of an institution in the process of resolution, the institution then being recapitalised by the write-down or conversion of equity instruments or other eligible liabilities. The write-down and/or conversion is carried out as far as possible in accordance with the ranking specified by the usual insolvency procedures. The losses must be borne first by the shareholders, followed by the holders of additional Tier 1 equity, then Tier 2 equity, other subordinated creditors and, finally, the creditors of other eligible liabilities.

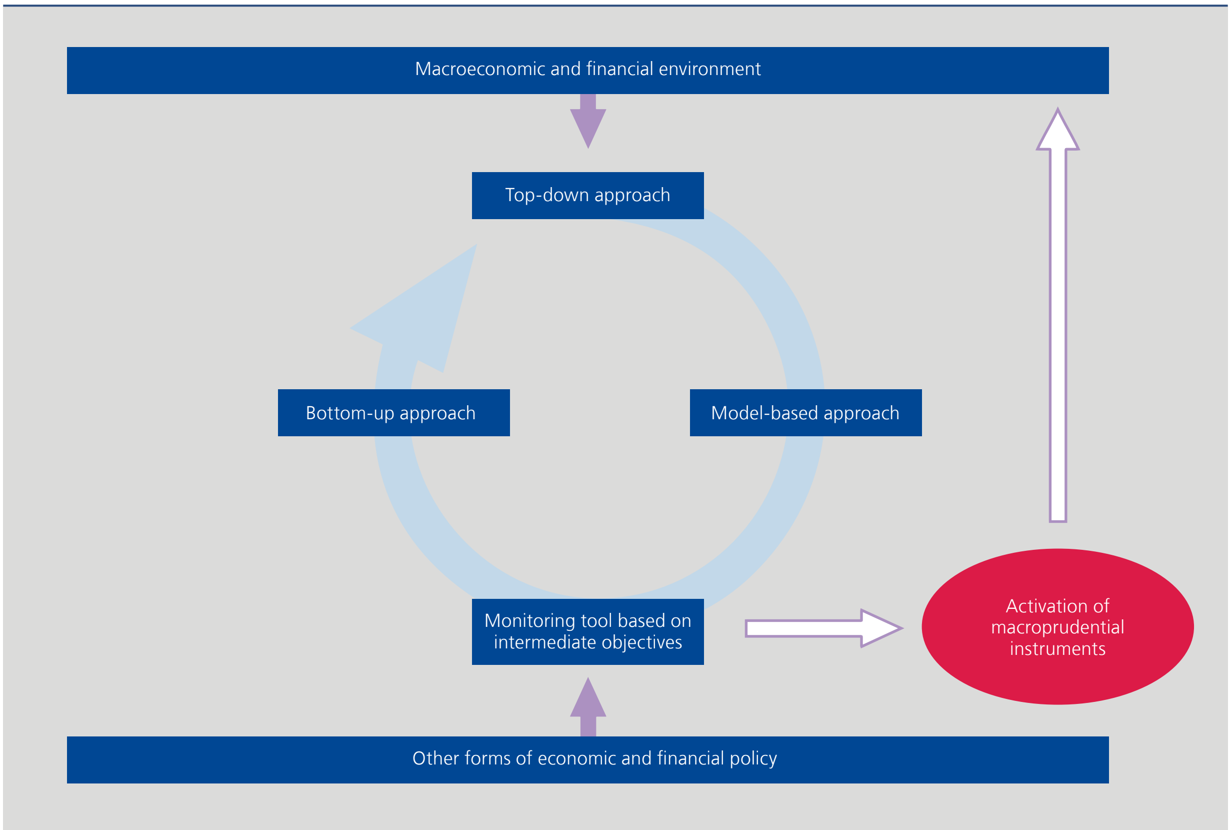
4 April 2013 on intermediate objectives and instruments of macroprudential policy [1]. In that Recommendation, the ESRB lists four intermediate objectives for macroprudential policy in the banking sector. Those intermediate objectives serve as quantifiable, operational specifications for the mission of maintaining financial stability as the ultimate aim of macroprudential policy. The Bank's macroprudential framework was judged fully compliant with the Recommendation.

Nevertheless, the Bank continued to develop its risk assessment framework during the year under review. More specifically, on the basis of the data used for risk assessment [2], a list of indicators was drawn up for the four intermediate objectives of macroprudential policy in the banking sector. The indicators cover the accumulation of risks in financial institutions (banks, insurers and other financial institutions), the non-financial private sector (households and non-financial corporations), financial markets and the property market. In addition, for each intermediate objective, indicators were listed which can warn of the materialisation of such risks and, if appropriate, indicate the need to release certain macroprudential measures.

The aim of this extension of the risk assessment framework is to strengthen the link between the wide range of data used in the risk analysis and the macroprudential policy options available to the Bank. More specifically, the monitoring tool based on the intermediate objectives makes it easier to identify the appropriate policy options for reducing the risks detected. In order to choose the most appropriate instruments, it is necessary to link the instruments and their expected transmission mechanism to the underlying risks and the macroprudential policy objectives [3].

(1) See "ESRB Recommendations on intermediate objectives and instruments of macroprudential policy (ESRB/2013/1)" and "ESRB Recommendation on intermediate objectives and instruments of macroprudential policy (ESRB/2013/1): Follow-up – Summary Compliance Report" (www.esrb.europa.eu).
(2) The Bank's macroprudential risk analyses are based on a top-down approach, a bottom-up approach, and a model-based approach (see the Bank's Macroprudential Report 2016).
(3) See "The Belgian macroprudential policy framework in the banking sector" (www.nbb.be).

CHART 87 EXTENSION OF THE BANK'S MACROPRUDENTIAL RISK ASSESSMENT FRAMEWORK



Source: NBB.

TABLE 22 INTERMEDIATE OBJECTIVES OF MACROPRUDENTIAL POLICY IN THE BANKING SECTOR AND MACROPRUDENTIAL INSTRUMENTS AVAILABLE TO THE BANK [1]

Intermediate objective	Category	Instruments
Mitigate and prevent excessive credit growth and leverage	Capital	Countercyclical capital buffer, sectoral capital requirements (real estate, exposures within the financial sector), systemic risk buffer, leverage ratio
	Lending limits	Recommendation on loan-to-value and debt-service-to-income limits, restrictions on large exposures
Mitigate and prevent excessive maturity and liquidity transformation (maturity mismatch and market illiquidity)	Liquidity	Net stable funding ratio, liquidity coverage ratio
Limit the concentration of direct and indirect exposures	Capital	Sectoral capital requirements (real estate, exposures within the financial sector), systemic risk buffer, leverage ratio
	Lending limits	Recommendation on loan-to-value and debt-service-to-income limits, restrictions on large exposures
Limit the systemic impact of misaligned incentives in order to reduce moral hazard	Capital	Capital buffer for global systemically important institutions and other systemically important institutions, systemic risk buffer, leverage ratio
	Liquidity	Net stable funding ratio, liquidity coverage ratio

Source: NBB.
(1) The table shows only the Bank's main instruments in the various categories. A number of instruments (e.g. the sectoral capital requirements, the systemic risk buffer) can be used for more than one intermediate objective.

6. Monitoring of the shadow banking sector and asset management

The 2016 report by the High-Level Expert Group (HLEG) on the future of the Belgian financial sector [1] makes a series of recommendations aimed at strengthening the resilience and competitiveness of the Belgian financial sector, to enable it to continue contributing to the sustainable growth of the Belgian economy. That is the background to the request made to the Belgian supervisory authorities to submit a report in 2017 to the Minister of Finance on the risks associated with the shadow banking sector and its interconnections with other (financial) sectors in Belgium, and in particular the systemic risks associated with development of the asset management sector in Belgium.

In the third quarter of the year under review, in response to that request, the Bank and the FSMA presented and then published a joint report on asset management and the shadow banking system in Belgium [2]. The size of these different but overlapping sectors in Belgium can be defined and measured in various ways. A first key aim of the report is therefore to define the concept of shadow banking, to mark the dividing line between that shadow banking sector and the asset management sector in Belgium, and then to clarify the mutual relationship between the two.

Asset management refers to the part of the financial system that manages financial assets for investors, either via the collective management of investment funds or by discretionary management of individual investors' portfolios, or by providing investment advice. The size of this sector may be described in a number of ways, depending on which activities are considered to be Belgian. For instance, at the end of 2016, the net asset value of Belgian investment funds totalled € 144 billion, and Belgians owned units in foreign investment funds amounting to € 189 billion. Belgian asset managers managed assets totalling € 248 billion, both on a collective basis (Belgian and foreign funds) and on a discretionary basis. Finally, Belgian banks were active in

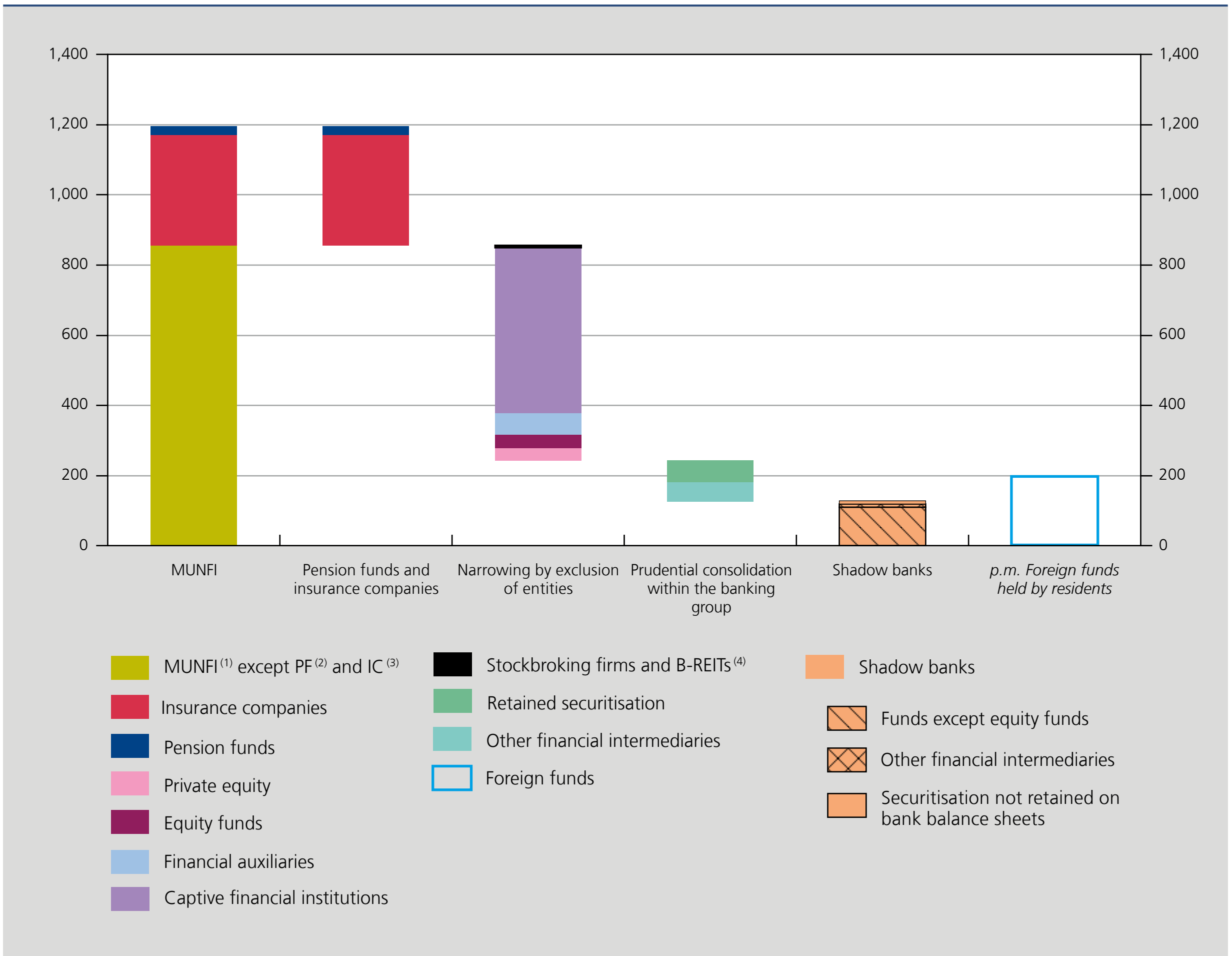
(1) "The future of the Belgian financial sector". Report of the High-Level Expert Group (HLEG) established on the initiative of the Belgian Minister of Finance, 13 January 2016.
(2) "Report on Asset management and Shadow banking", September 2017 (www.nbb.be).

the sector for a sum of € 531 billion, both in managing their own assets (via a Belgian or foreign asset management company which they owned, or via their own private and institutional banking activities) and in the marketing of third party funds.

Shadow banking refers to a form of credit intermediation without the participation of ordinary banking system entities and activities. In the report, this sector is defined for Belgium according to two different methodologies, namely the Financial Stability Board (FSB) method and the EBA method. The narrow FSB measure starts with non-bank financial intermediation in general, and then reduces it to non-bank financial intermediation effected by entities outside the prudential consolidation scope of a banking group and posing bank-like risks for the financial system. This narrow definition results in a figure of € 128 billion (30 % of GDP), comprising money market and other funds excluding equity funds (€ 111 billion overlap with the asset management sector), other financial intermediaries such as leasing and factoring companies, and commercial credit companies and mortgage lenders with the exception of those consolidated in a banking group (€ 7 billion), and securitisation vehicles except for securitisation retained on the balance sheets of Belgian banks (€ 10 billion). According to the EBA methodology, the overlap between the asset management sector and the shadow banking sector is considerably smaller, since that methodology considers that shadow banking entities include only money market

CHART 88 **DEFINITION OF THE BELGIAN SHADOW BANKING SECTOR ACCORDING TO THE NARROW FSB CRITERION**

(at the end of 2016, in € billion)



Source: NBB.
(1) MUNFI (Monitoring Universe of Non-bank Financial Intermediation).
(2) PF: pension funds.
(3) IC: insurance companies.
(4) B-REITs: Belgian real estate investment trusts.

funds and alternative investment funds (AIFs)[1] providing leverage of more than 300 %, or granting or buying loans. According to this approach, the Belgian shadow banking sector only represents a total of € 19.4 billion (5 % of GDP).

The asset management sector and the shadow banking sector form part of a more market-oriented financial system, where part of the financial intermediation takes place outside the banking sector. This funding arrangement offers a valuable alternative to bank finance and thus widens the diversity of credit sources and investment options for investors. On the other hand, it may engender systemic risks, particularly if it is linked to banking activities such as liquidity transformation and maturity transformation and / or the creation of credit and leverage, and may give rise to points for attention concerning investor protection.

For the part of the shadow banking sector that overlaps with the asset management sector, the main risk is the liquidity risk, and in particular the risk of sudden, large-scale redemptions. However, that risk – which arises because most of these funds are open-ended and therefore comprise a variable number of units[2] – is already partly absorbed by the current regulations and the regulations being prepared on various subjects, including the diversification of assets and liabilities and liquidity management instruments. In this context, it should be noted that the asset management sector and the shadow banking sector, contrary to their sometimes negative connotations and the idea that they avoid any regulatory framework, are duly subject to regulatory requirements, although the details differ from the regime applicable to financial institutions such as banks.

In addition to the direct risks, the asset management sector and the shadow banking sector may also generate (systemic) risks indirectly, in particular via their interconnections with other financial institutions and the real economy. Those interconnections, which may take the form of both contractual and non-contractual debts and claims, tend to be limited for households and non-financial corporations (e.g. investment in funds). However, for financial institutions, they are more significant and more complex, particularly in the case of interconnections between conglomerates. Nonetheless, it should also be noted that, in the specific case of Belgium, no systemic points for attention were found apart from those already identified at international level.

On the basis of the analyses conducted, the HLEG report makes a series of recommendations on policies to be adopted for monitoring systemic risks in the asset management sector and the shadow banking sector. First, there is a need for a greater exchange of information between the competent authorities and initiatives to improve reporting by the shadow banking entities concerned, so that this sector can be defined and supervised in a more appropriate way. Next, it is necessary to introduce periodic monitoring of the Belgian shadow banking sector. In this context, the Bank and the FSMA undertake to update the statistics annually and, as far as possible, to add new and more refined data and risk analyses. As the shadow banking sector is international in character, that exercise will also be in line with the activities of the international authorities (such as the FSB and IOSCO : the International Organisation of Securities Commissions) concerning monitoring, risk assessment and policy implementation. The Bank and the FSMA will thus continue to contribute to these international activities.

In addition, two more specific recommendations were made on the subject of the two principal risks detected in the HLEG report. In regard to the liquidity risk of open-ended funds, the FSMA will maintain its efforts to ensure that fund managers keep a proper watch over their liquidity risks, and will make liquidity risk management tools available to all Belgian investment funds. In the case of the risks relating to interconnections between conglomerates, and more particularly those resulting from non-contractual obligations (step-in risk), supervision over the adequacy of the risk management within financial conglomerates needs to be further reinforced and extended.

7. Report on derivatives

In the aforesaid HLEG report on the future of the Belgian financial sector, the Belgian supervisory authorities were also asked to present to the government, before the end of the year under review, a report on developments in the use of financial derivatives in the Belgian financial system and the resulting systemic risks. In December of the year under review, the Bank thus submitted its report to the Minister of Finance, comprising an analysis of the use of financial derivatives by Belgian banks and insurance companies, and the associated risks, together with a review of the new regulatory framework introduced after the financial crisis.

(1) Alternative investment funds are funds which are not covered by the European rules on UCITS (undertakings for collective investment in transferable securities). They are generally funds that invest in alternative strategies, such as hedge funds, private equity funds and property funds.
(2) An open-ended fund is an investment fund that offers the possibility of issuing or redeeming shares. People investing in these funds can easily enter or leave, and many open-ended funds permit daily redemptions.

The report begins with a general description of the characteristics of the various types of financial derivatives and the purposes for which they can be used by financial institutions. More specifically, financial derivatives can be used for risk-hedging, for market-making activities and providing services to customers, and to take positions in order to benefit from existing or expected differences between buying and selling prices or other fluctuations in prices or interest rates. The report then proceeds to explain the mechanisms whereby the use of derivatives may generate systemic risks. Derivatives may expose the counterparties to a wide range of risks, even if they are used for hedging. Systemic risks relating to the use of derivatives may result, in particular, from the sectoral concentration of positions held by a number of financial institutions via derivatives, and from the interdependence between financial institutions resulting from their mutual transactions in derivatives.

Next, the report describes the changes introduced in the regulatory framework in the wake of the financial crisis which directly or indirectly concern derivatives : the adjustments to the Basel III regulatory framework, the adoption of the Solvency II framework for insurance companies, the entry into force of the European Regulation on over-the-counter derivatives, central counterparties and trade repositories (European Market Infrastructure Regulation : EMIR), the proposal for an EU Regulation on the recovery and resolution of central counterparties (CCPs), and the BRRD.

Finally, the report draws on the data given to the supervisory authority to analyse the developments in the use of derivatives by Belgian banks and insurance companies. As regards the nature of the products, it is interest rate swaps that predominate among the financial derivatives used, in the case of both banks and insurance companies in Belgium. The analysis also shows that the Belgian banking sector's exposures to derivatives have declined sharply since the financial crisis. At the same time, the fall in interest rates since the crisis has had a substantial negative impact on the market value of the Belgian banks' exposures to derivatives and on the net interest income from derivatives [1]. In general, insurance companies make far less use of derivatives than banks.

While the analysis of the data collected by the supervisory authority reveals certain trends in the activities of banks and insurance companies concerning derivatives, the limitations inherent in those data nevertheless make it impossible to discern all the key developments. For one thing, the detailed data on derivatives at transaction level, which must now be reported pursuant to the EMIR legislation, and which could supply information on many aspects of activities concerning derivatives, cannot yet be fully utilised. Also, as a large proportion of transactions in derivatives are now cleared by central counterparties, the availability of detailed data still does not mean that the authorities are able to gain from the system a full impression of all the counterparties on both sides of the centrally cleared transactions. The central counterparties' systemic importance, which arises naturally from the EMIR requirement concerning central clearing for standardised derivatives, highlights the need to establish an effective recovery and resolution framework for those central counterparties, as is currently being discussed in Europe.

The report reveals some important points for attention concerning the policies to be adopted. First, although the use of derivatives has declined and the hedging of some risks by derivatives may reduce those risks, their use may also lead to new risks and wide fluctuations in the income of financial institutions. In view of the very complex and technical nature of derivatives, it is also important for financial institutions to have adequate risk management structures so that the governing bodies of those institutions can gain a general idea of the use of financial derivatives within the institution and thus make an accurate assessment of the associated risks.

8. Risks relating to climate change and the transition to a low-carbon economy

The international agreement reached at the Paris Climate Change Conference (COP21) is among the reasons for the recent increase in attention to the potential impact on financial stability of climate change and the eventual transition to a low-carbon economy. In a 2017 report, the FSB mentioned that the amount of financial assets subject to direct climate risks or transition risks came to between $ 4 000 and 43 000 billion, according to various studies. While these estimates are still imprecise, particularly in view of the long time-scale to be considered, they nevertheless indicate the potential importance of these risks.

The classification of the various risks confronting the financial sector in view of climate change and the transition to a low-carbon economy is generally accepted at international level. The direct risks mainly concern the liabilities of non-life insurers and the potential increase in the claims burden resulting from extreme climatic conditions, but also exposures to counterparties located in

(1) The reason is that the maturities of investment on the assets side of the bank balance sheet are longer than the maturities of the funding on the bank's liabilities side. Since a number of banks generally hedged themselves against interest rate increases, the steep decline in interest rates over recent years led to losses on derivatives (interest rate swaps) used to hedge that risk.

regions of the world considered the most vulnerable to climate change. The transition risks concern among other things the exposures to the sectors that are the heaviest consumers of fossil fuels and/or the most vulnerable in the event of a sudden energy transition, including the real estate sector. The transition to a low-carbon economy also leads to the development of green finance. These instruments may likewise present credit risks, particularly in view of the relatively innovative nature of the activities concerned and the long-term character of the investment funded, or reputation risks (e.g. in the event of failure to respect the commitments concerning the green nature of the project) when these products are issued or marketed by financial institutions.

The monitoring of the various financial risks associated with climate change, and particularly their potential impact on financial stability, is an important attention point for the Bank. The Belgian financial sector's exposures to the direct risks are relatively minor, except for the non-life insurance sector. The indirect risks could prove more significant. However, a more accurate measure of those exposures requires a more refined analysis framework than the currently available data permit. That framework will need to be developed in the near future on the basis of the methodology devised and approved at international level. Apart from the efforts to be made by the supervisory authorities, it is desirable for all the players concerned, including non-financial entities, to give more publicity to the aforesaid risk exposures. Initiatives such as those of the FSB via its Task Force on Climate-related Financial Disclosures should be encouraged.

In any case, it is not desirable to influence – via legislation – the strategic choices of financial institutions concerning climate or energy, e.g. by means of higher or lower capital requirements for certain types of exposures. Nonetheless, the Bank's macroprudential mandate is to guarantee continued financial stability in Belgium, and it is therefore the Bank's duty to monitor any excessive systemic risks that arise, whether they be due to climate change or any other factor.