Autumn 2015

Overview of Financial Stability

DeNederlandscheBank

EUROSYSTEEM

De Nederlandsche Bank
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Introduction

DNB guards over financial stability in the Netherlands. In this role, DNB expressly considers the interaction between financial institutions and their environment: other institutions, financial markets, and financial infrastructure. As part of its task, DNB publishes the Overview of Financial Stability (OFS) twice a year.

The OFS outlines risks that affect groups of institutions or entire sectors as well as the Dutch financial system, and which may eventually disrupt the economy. DNB writes the OFS to raise awareness of these risks among stakeholders – financial institutions, policy-makers and the general public. The first chapter summarises the principal risks to financial stability in the Netherlands. The following three thematic chapters analyse relevant topics in more detail.

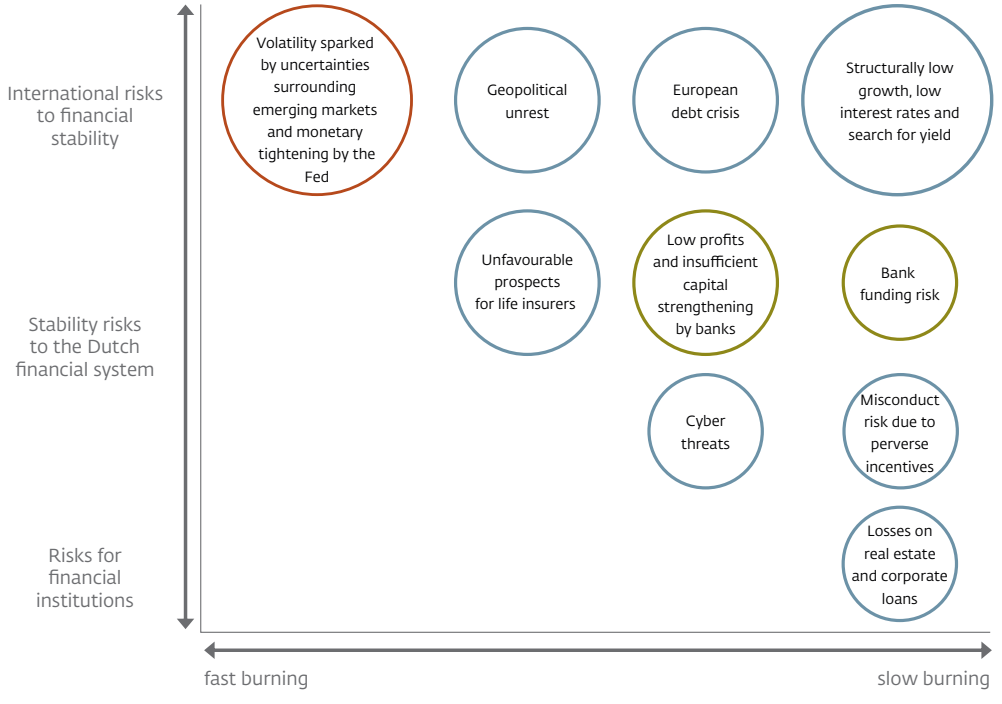
The OFS does not provide forecasts, but instead analyses scenarios. DNB aims to present the best possible risk assessment of potential future threats to the financial system based on current knowledge. Where possible, DNB proposes risk-mitigating policies. The assessments and recommendations made in the OFS present institutions and policy-makers with an understanding of how to reduce both the risk and impact of shocks in the financial system.

1 Overview of Financial Stability

Priorities and recommendations

- Volatility in financial markets has recently increased. The increase follows on a period with exceptionally low volatility and can therefore be considered partly as an adjustment to that situation. The rising concerns about the effects of the economic slowdown in China are also playing a role. As yet, there has not been wide contagion of the financial system, but further accelerating volatility in the financial markets may present risks to financial stability. After all, global accommodative monetary policy has fuelled investors' risk appetite and has induced a search for yield in the financial markets. There are also signs of market liquidity having deteriorated in some segments. Against this backdrop the anticipated monetary tightening in the United States and a rekindling of the European debt crisis may induce large price adjustments in the financial markets and thereby create risks to financial stability.
- Diminished market liquidity aggravates volatility in financial markets. Financial institutions should take this into account in their risk management. If financial institutions are not well prepared for situations in which market liquidity suddenly dries up completely, this may induce significant losses and funding risks, and this may impact financial stability. This applies in particular to investment funds, which are very vulnerable to a drying up of market liquidity due to their business models. This sector has grown rapidly in the past few years (Section 2).
- On average prices in the office and retail market are stabilising. Yet, this trend masks large differences between markets; prices at attractive locations are rising partly due to the search for yield, but those at less attractive locations are lagging behind. The outlook for the office and retail market remains unfavourable: the decline in occupation of office space per office worker, and the increase in online shopping may put further pressure on demand for office and retail space. Although banks have reduced their vulnerability to losses since the asset quality reviews of commercial real estate, these trends may cause new risks to build up.
- Supervisory regulations for banks include preferential treatment of sovereign exposures. This has contributed to the European debt crisis as it increases the interconnectedness between governments and banks and undermines market discipline for governments. Phasing out this preferential treatment at the global and European level would promote financial stability. To avoid shocks, a sufficiently long transition period is advisable (Section 4).

Risk map



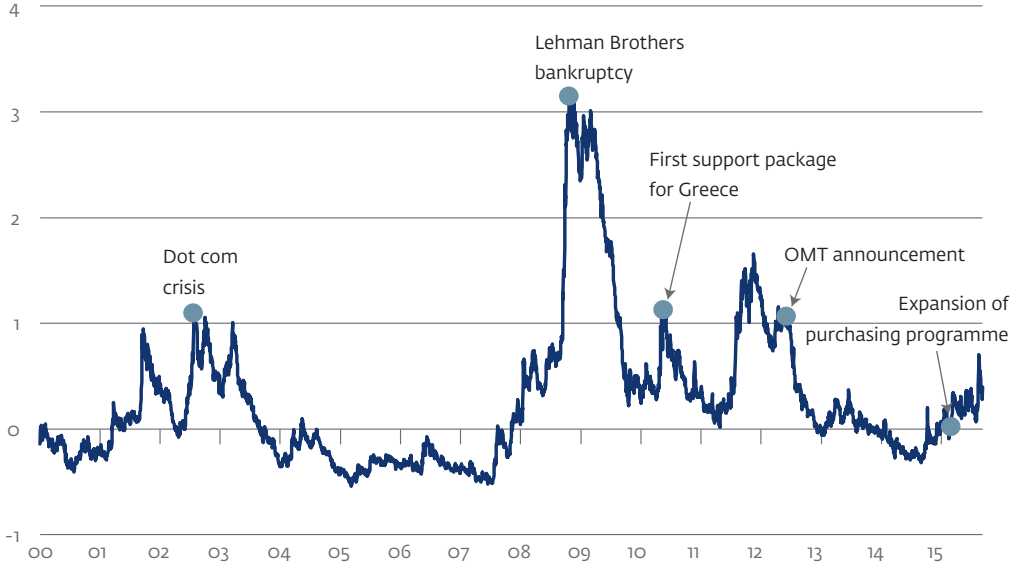
This risk map provides a schematic overview of the key risks to financial stability. The size of the circle reflects the magnitude of the risk. The colour of the circle reflects whether, viewed over the medium term, a risk is increasing (red), is decreasing (green) or remains unchanged (grey).

International environment

Some financial markets saw sharp price adjustments in the past months. Between early May and the end of August the Shanghai stock market lost 43%, and the S&P commodities index fell 27%. In addition, the Russian rouble has lost 25% since May and the Turkish lira depreciated by 24% since early 2015. Several specific markets saw extreme price movements during short periods of time. On 7 May, the difference between the highest and lowest German 10-year yields reached a full 22 basis points. Volatility in the financial markets important to the Netherlands also increased (Chart 1), e.g. the Amsterdam stock exchange, and the euro forex market.

Chart 1 - Financial stress index

Stress index, based on indicators of equity, bond and forex markets relevant to the Netherlands and a health index of financial institutions.

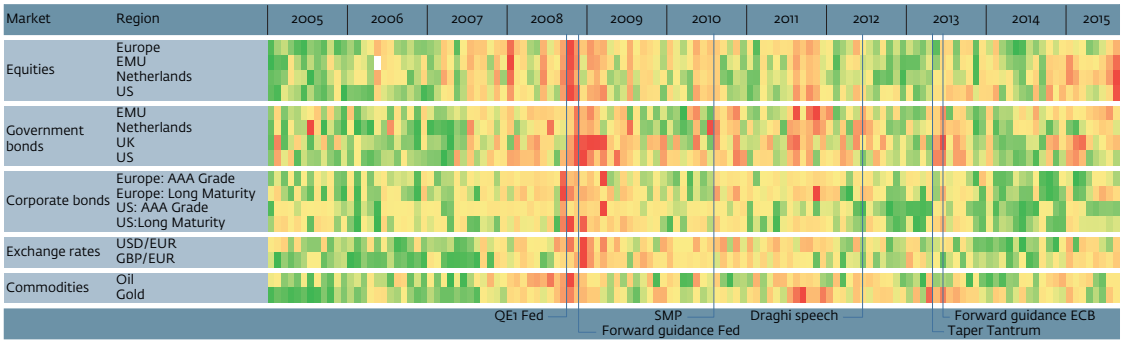


Source: DNB.

The increased volatility in the financial markets follows on a period of exceptionally low volatility, partly as a result of the monetary policy pursued by central banks (Chart 2). During the crisis, Western central banks increasingly eased monetary policy and thus financial conditions. Policy rates were reduced to exceptionally low levels and targeted communication provided forward guidance on the path of future policy rates. Unconventional monetary policy measures were introduced, such as long-term refinancing operations for banks and large-scale purchase programmes in the bond markets. These measures support economic recovery. At the same time, central banks have dampened unrest in the financial markets by creating very accommodative monetary conditions. A side-effect of this is that central banks were increasingly considered market makers of last resort, at all times prepared to support the functioning of the financial markets by providing additional liquidity. As a result, liquidity premiums fell to extremely low levels and volatility in a large number of financial markets was very low until mid-May 2014.

A part of the increased volatility in the financial markets is explained by a correction of underlying tensions. Previous issues of the OFS have already reported indications of prices of some financial assets deviating from economic fundamentals. As these monetary policies depress risk-free returns, investors have embarked on a search for yield, which includes financial risks. Risk appetite in the real economic context lagged behind in the past years as households,

Chart 2 - Increasing volatility from sustained low levels



Lowest value
Average value
Highest value

Volatility is calculated based on daily price data (non-overlapping monthly sample).
The colours indicate periods with high (red), medium (orange) and low volatility (green).

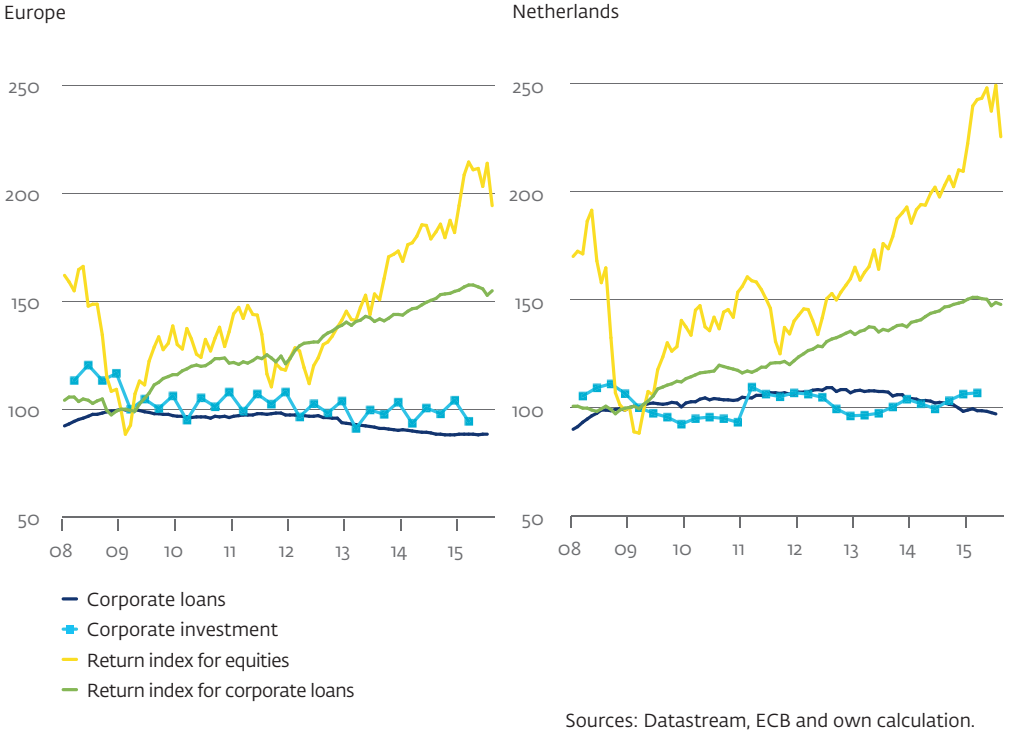
enterprises, banks and governments tried to reduce their debts. This caused sharply diverging trends in the financial markets and the real economy in the past years. On the whole, prices of financial assets have risen rapidly, whereas investments and credit growth have only shown modest signs of revival (Chart 3). There is a danger that markets have anticipated a robust economic recovery too much.

Disappointing economic developments, especially in China, fuel unrest in the financial markets. At present, China accounts for 15% of the world economy, and has a major influence on commodity prices and exchange rates. The country faces several challenges: gradually bringing its economy towards a sustainable growth path with increased attention for the domestic economy, the transition towards a market economy and reducing some major imbalances. The latter mainly concern the rapid credit expansion in the past years together with bubbles in the real estate markets. The direct exposure of the global financial sector to Chinese banks and enterprises has soared over the past few years. Dutch banks currently have some EUR 20 billion in claims on China. This is still less than 1% of their balance sheet total, which makes possible losses easy to bear. Yet, increasing turbulence in China may also have a substantial impact on Dutch banks through indirect channels, e.g. through losses of other systemic banks and through exposures to countries that strongly depend on China.

Further increasing market volatility cannot be excluded, and the reduced resilience of some markets may exacerbate downward price movements. There are signs of higher volatility in the financial markets being partly caused by reduced liquidity in some secondary markets. The contagion risks in the financial markets also seem to have increased in the past years,

Chart 3 - Dichotomy between real and financial developments

Index 1 Jan. 2009=100.



Sources: Datastream, ECB and own calculation.

Note: Return index is the total return index (price gains plus re-invested dividends). The return indices for equities are the Euro Stoxx 50 for Europe and the AEX for the Netherlands. The return indices for corporate loans are the iBoxx euro corporates (Europe) and the Barclays Netherlands corporate issuers (Netherlands).

due to increased correlation between different asset prices (Section 2). In this environment, shocks may quickly result in sharp price corrections in the financial markets, the more so if the prices of financial assets are not in line with economic fundamentals.

The expected tightening of the accommodative US monetary policy may spark fresh unrest in the financial markets. A possible interest rate hike in the United States will increase the upward interest rate risk, also outside the US; bond yields may rise worldwide in the wake of a US rate hike. Anticipation of monetary tightening in 2013 already led to market unrest, especially in emerging market economies. Normalisation of policy rates in the US continues to hang over the market. Earlier this year, a hike seemed imminent, but the recent global financial and economic developments have prompted the Fed to be more cautious. This has fuelled uncertainty.

In the euro area, the situation in Greece has retained the attention of market participants and policy makers alike. Unrest in the financial markets – especially those for peripheral government bonds – flared up briefly in July after Greece was unable to meet its payment obligations. On 12 July, euro area government leaders approved a third support programme for Greece. Thanks to the programme it was able to start loosening capital restrictions and to begin reducing its payment arrears with the IMF. The question remains, however, whether the Greek public finances are sufficiently sustainable. Sustainability may be increased by debt relief, or by attaching highly favourable conditions in terms of interest rates and repayment periods to the current loans. European countries will demand to see first if Greece is really willing and able to implement the stringent but unavoidable measures of the support programme. Implementing these measures is essential to generate the economic growth that Greece needs to function, in time, without financial support. Since the country called new elections at the end of August, uncertainty has again increased.

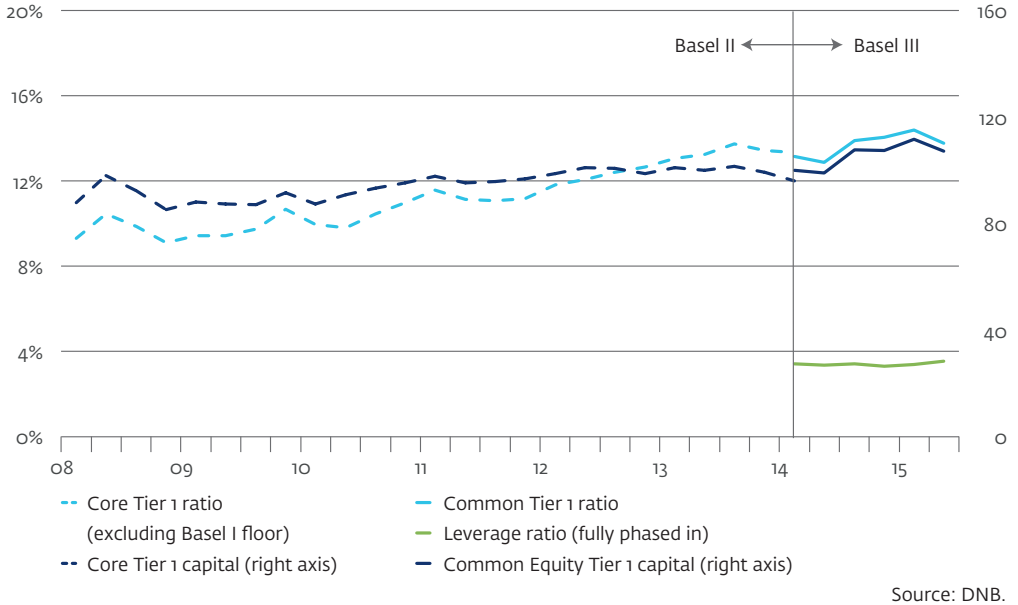
Financial stability in the Netherlands

The current period of low interest rates also has consequences for the resilience of financial institutions and the financial system, especially for life insurers and pension funds. The situation in the insurance sector continues to give cause for worry: in contrast to pension funds, insurance companies have relatively limited options for recovery, and their profitability is under pressure due to the declining demand for life insurance products. The effect of low interest rates on insurance companies and pension funds is only partly reflected in financial reporting, due to the use of the ultimate forward rate (UFR) which values liabilities with maturities over 20 years based on a yield curve that converges towards a fixed level. The UFR for insurers is determined by the European Insurance and Occupational Pensions Authority (EIOPA). For pension funds DNB revised the UFR system in July 2015 in line with the advice issued by the UFR commission, in order for it to take more account of relevant market developments. The new calculation method yields a current UFR of 3.3%, lower than the 4.2% calculated under the former system. This narrows the gap between the UFR and the currently observed long-term interest rates.

The resilience of the Dutch banking sector has increased steadily since the outbreak of the crisis (Chart 4). The sector has made progress in the phasing in of the higher capital requirements that will apply from 2019 as part of the Basel III supervisory framework. At the start of 2015, the sector needed to raise only a relatively small amount of EUR 2.6 billion in core capital in order to comply with these rules. There was also a EUR 12 billion deficit in hybrid debt instruments, which under the supervisory regulations qualify as supplementary capital. This mainly concerns additional Tier 1 capital (AT1), which is necessary to comply with both the risk-weighted requirements and the requirement of a 4% leverage ratio. Banks can address the remaining deficits by issuing new instruments in the years ahead, or by rolling over the current non-qualifying instruments with instruments qualifying under the new rules. Several large Dutch banks launched successful AT1 issues in the course of 2015.

Chart 4 - Capital ratios for the Dutch banking sector

Ratios in %, capital in EUR billion.



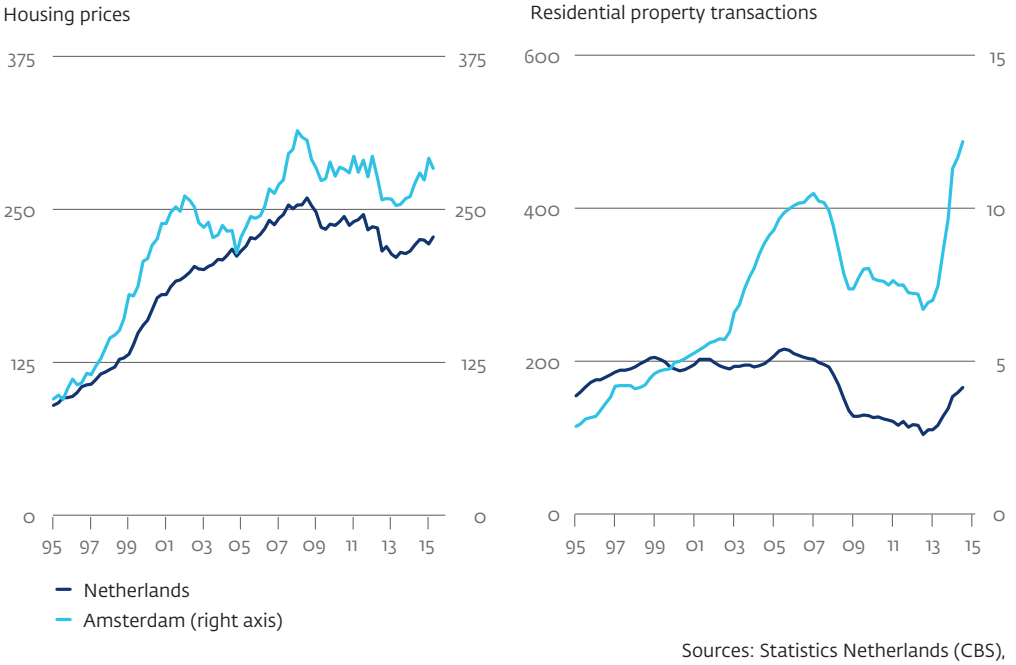
Source: DNB.

In addition to the tightened capital requirements, the large banks will also be confronted with requirements that make bail-in possible. The European minimum requirement for own funds and eligible liabilities (MREL) should be established this year for all European banks, with the magnitude depending on the level of systemic relevance. The global total loss absorbing capacity (TLAC) will be determined this year and will for now only apply to global systemically relevant banks, such as ING. Both MREL and TLAC are forms of financing that explicitly qualify for bail-in when a bank fails.

The Dutch economy has moved into a higher gear and the housing market continues to recover. The housing market recovery is being underpinned by growing confidence and low interest rates, which increase buyers' borrowing capacity and depress financing costs. Relative to the 2013 low, housing prices have risen 6%, and the number of residential property sales has increased, although there continue to be large regional differences. The housing market in Amsterdam is showing signs of overheating: one third of properties within the ring road around the city is being sold at prices above the asking price. Outside of Amsterdam, the recovery is far slower in getting off the ground (Chart 5). Despite the budding recovery, the housing market still shows vulnerabilities. At over 95% of GDP, the total mortgage debt of Dutch households is still among the highest in the world. In addition, at the end of the first quarter of 2015, 61% of home-owners between the age of 30 and 40 was underwater. The financial buffers of these households are generally insufficient to pay off any residual debts, which may frustrate

Chart 5 - Housing market mainly accelerating in large cities like Amsterdam

Housing prices (EUR 1,000). Residential property transactions based on annual total (1,000 sales).



Sources: Statistics Netherlands (CBS), NVM property agents' association.

their financial planning, or their plans to move house. Partly owing to the rising house prices, the problems with underwater mortgages have waned somewhat since the start of 2015. But DNB's calculations show that even with house prices rising, a proportion of the mortgage supply will remain underwater for some time to come. If house prices continue to rise in the years ahead by between 2 and 3% annually, by 2020 between 250,000 and 350,000 of these mortgage loans will still be underwater. Voluntary repayments have so far played a fairly insignificant role in reducing the underwater problem: only 11% of underwater home-owners managed to 'resurface' as a result of voluntary repayments.

Macroprudential policy

DNB can deploy a number of macroprudential instruments in order to control risks to financial stability. Based on the risk outlook as part of the Overview of Financial Stability and an assessment of the financial cycle, DNB decides twice a year whether it should activate or adjust the macroprudential instruments that it directly controls. DNB contributes policy views to the

Financial Stability Committee on instruments that it has no direct authority over, such as the LTV limit. Table 1 depicts the current use of macroprudential instruments

From next year, DNB will take a decision on the level of the countercyclical capital buffer every three months. This capital buffer can be activated during periods of excessive credit growth. Combined with sharply rising asset prices, such excesses have, in the past, often foreshadowed financial crisis. There is currently no cause for activating the capital buffer: total lending in the Netherlands is growing modestly. For now this is also the case for lending to households, which is dominated by mortgage lending. Other indicators of cyclical risks do not point towards excessive lending, either (Annex 1).

Further reduction of the LTV limit for residential mortgage loans after 2018 is advisable.
The Financial Stability Committee advises future governments to continue lowering the LTV limit for mortgage loans to 90% after 2018, by keeping up the current pace of reduction of one percentage point per year. Lowering the limit for residential mortgage loans will make the financial position of young home owners, in particular, more resilient. In addition, it will make the housing market and the overall economy more stable and banks' market funding less vulnerable. If the LTV limit is reduced to 90%, first-time buyers are estimated to have to save up for three more years compared with an LTV limit of 100%. In addition, the FSC finds supplementary measures necessary to secure access to the rental market. The IMF recently advised the Netherlands to reduce the LTV limit faster and further than foreseen in the FSC's advice.[1]

The LTV limit is part of a broader issue: the unbalanced wealth accumulation of households.
DNB recently pointed out that Dutch households not only borrow a lot, but also save a lot.[2]

Table 1: Current use of the main macroprudential instruments

Instrument	Status	Comment
Capital buffer requirements for systemic banks	Gradual phasing in 2016-2019	Applicable to Rabobank, ING, ABN AMRO (all 3%) and SNS (1%)
Countercyclical capital buffer	Decision on level from 2016 onwards	No reason to activate this at the moment
LTV limit	Phased reduction to 100% in 2018	FSC advises further gradual reduction to 90% after 2018

1 See http://www.imf.org/external/np/ms/2015/061515.htm
2 See DNBulletin 'Economy to benefit from fewer tax incentives to save and borrow' published on 20 February 2015.

For a large part this can be attributed to obligatory pension saving, which is stimulated by favourable tax treatment. This leaves relatively low freely disposable financial assets, especially for young households. In addition to pension saving, first-time buyers also accumulate wealth in the form of their house, as tax deduction is linked up with full repayment of the mortgage loan. This limits their freedom to spend and makes it more difficult for them to build up a financial buffer. An integral approach to this issue demands reducing distorting tax incentives, both in borrowing and in saving. Here one may think of a further reduction in mortgage interest tax relief, further tightening of the Witteveen framework, and introducing a certain degree of choice in making pension contributions. Incidentally, the latter will not be fully possible until the distorting average pension contribution system is abolished.[3]

3 See 'DNB Position paper in support of the national pension dialogue', published on 15 January 2015.

2 Financial market liquidity

Despite the fact that central banks have created exceptionally accommodative monetary conditions there are signs of deteriorating market liquidity in some financial markets. Diminished liquidity aggravates volatility in financial markets. Financial institutions should take this into account in their risk management. If financial institutions are not well prepared for situations in which market liquidity suddenly dries up, this may induce significant losses and funding risks, and this may impact financial stability. This applies in particular to investment funds, which are very vulnerable to a drying up of market liquidity due to their business models. This sector has grown rapidly in the past few years. Partly due to this, these funds may further increase volatility in financial markets in times of market stress.

A liquid financial market is characterised by a strong absorptive capacity, enabling investors to execute large transactions without significant price consequences. Various factors determine the liquidity of financial markets, such as how willing market makers are to take up buying and selling positions, and the effectiveness and speed with which orders can be processed. Equity and forex markets are usually seen as the most liquid, while corporate bond markets are traditionally less liquid. This is because that market is less standardised.

Concerns that the resilience of markets has structurally deteriorated due to reduced liquidity have increased recently. Events such as the Treasury bond flash crash of October 2014 and the Bund tantrum of April and May 2015 show that liquid markets cannot be taken for granted. Often it is not until a period of elevated stress arrives that the resilience of a financial market becomes clear. A drying up of market liquidity may be accompanied by large price fluctuations.

There are indications that the liquidity in the corporate bond market and in particular segments of the government bond market has indeed decreased as compared to the pre-crisis period. Although there is not a universal yardstick for market liquidity, various aspects of pricing and transactions may be studied in order to get an impression of how liquidity has developed. Examples include the cost of trading assets (bid-ask spreads), the size of transactions in a market (depth) and the ease with which large transactions may be executed without prices being affected to a significant extent.[4] Especially these last two aspects suggest that liquidity in the European bond markets has deteriorated. For instance, turnover in German sovereign bonds is over a third lower than before the crisis, and the average size of transactions in the European corporate debt market has fallen by over 15%. Another indication is the intra-day movements of government bonds relative to their trading volume, which during the Bund tantrum rose to a level comparable to that during the crisis.

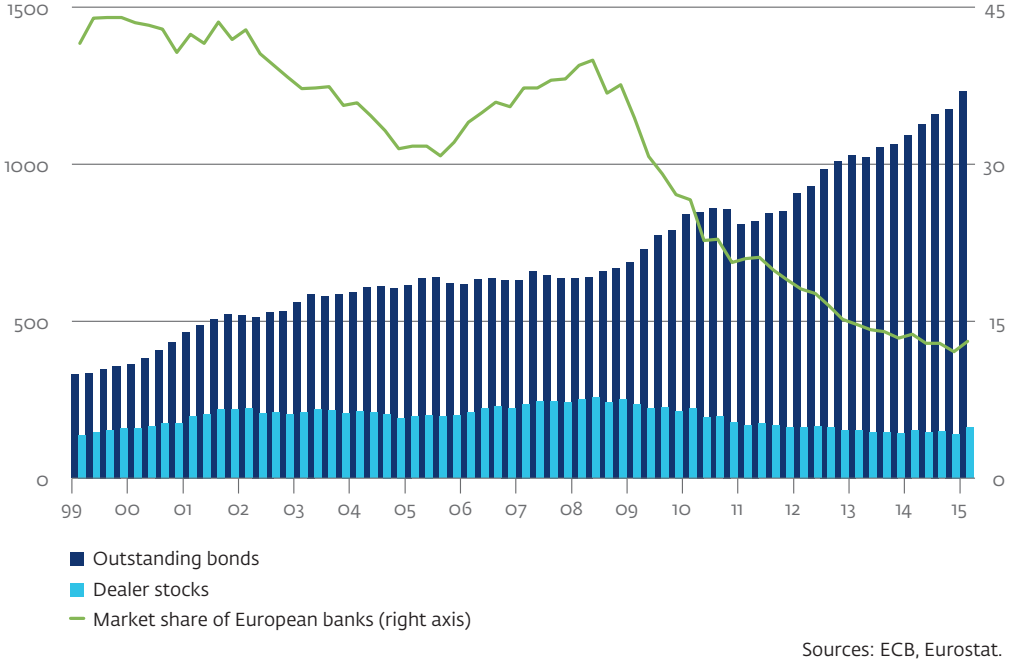
4 Sarr & Lybek, (2002), 'Measuring liquidity in financial markets', IMF Working Paper, No. 232.

One important cause for reduced liquidity is that banks are scaling back their market making activities. Whereas before the crisis, banks were accustomed to holding ample stocks of different types of bonds in order make an lively market for buyers and sellers, they are now much less inclined to do so (Chart 6). In addition, they are limiting these activities to the most liquid bonds. The stocks held by US primary dealers for instance include an ever growing proportion of government bonds, while the contribution of corporate bonds is decreasing. These developments have made it more difficult to bring together buyers and sellers, especially on the traditionally less liquid markets. This leads to higher intermediation costs and lower market liquidity.[5]

The fact that banks have reduced their market making activities is partly attributable to new regulation. New regulations for banks, such as increased capital requirements for trading activities and stronger liquidity requirements, have structurally strengthened the financial system, and have made banks more resilient to large liquidity shocks. That said, this has also

Chart 6 - European banks have reduced their holdings of corporate bonds, while the market is growing

Outstanding bonds and dealer stocks (EUR billion). Market share of European banks (as a %).



Sources: ECB, Eurostat.

5 BIS (2015), 85th Annual Report.

made it more expensive for banks to engage in trading activities. Also due to the changes made to bank business models, resulting in banks concentrating to a lesser extent on securities trading, market making activities are not expected to return to their pre-crisis levels. The changes are partly prompted by structural reforms, such as the prohibition of proprietary trading or separation of proprietary trading from traditional activities (Volcker Rule in the US; Vickers in the UK). The banks' capacity to stabilise markets is likely to have permanently decreased as a result of these structural factors.

Other new regulations, including EMIR, the new European regulations for the international derivatives market, are also having an impact on market liquidity. EMIR among other things requires that standard derivatives contracts must be settled with what are known as central counter parties (CCPs). This centralisation reduces the interconnectedness in the financial system and as a result financial stability improves, but in order to allow CCPs to operate safely, participants are required to structurally free up more collateral than previously. This reduces the quantity of freely available securities, which may have an adverse effect on the depth of markets.

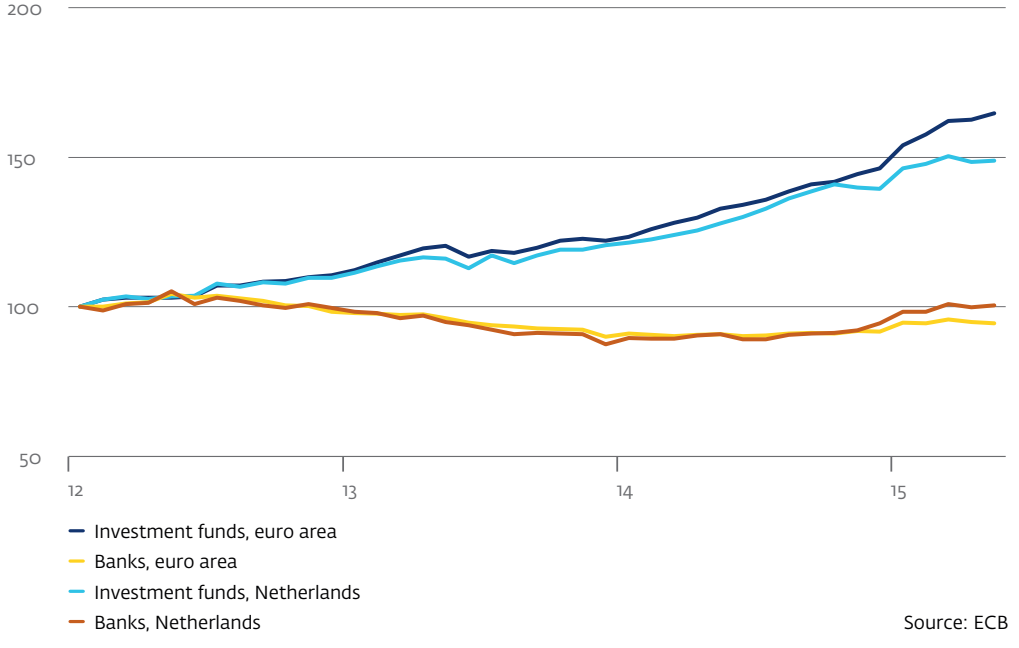
The purchases of government bonds by the central banks as part of quantitative easing may also affect market liquidity. Central banks are buying up government bonds in order to lift inflation to its targeted level and to support the economy and, ultimately, financial stability. These purchases increase the quantity of money in the economy, but reduce the number of government bonds freely available for trading. In the short term, the fact that central banks are operating as new buyers in the market make it easier for sellers to find counterparties. This reduces the liquidity risks for these securities, which may stimulate banks to take up larger positions or take a more active market making role. The central bank purchases may, however, lead to scarcity and declining market liquidity in the longer run.[6]

Declining market liquidity coincides with a remarkable growth of investment funds, a development also seen in the Netherlands (Chart 7). The perceived growth in this sector is partly attributable to the rising value of their investments. Adjusted for these valuation effects the ECB estimated that the investment funds' assets in the euro area have grown by over 30% relative to 2010. These investment funds have a big impact on financial markets, as they hold an ever larger proportion of assets. In the first quarter of 2015, investment funds based in the euro area held almost one quarter of the corporate bonds issued in the euro area (Chart 8). The business model of investment funds is vulnerable to a drying up of market liquidity and may exacerbate price corrections in financial markets in times of stress. In what are known as open-ended funds investors are allowed to liquidate their investments at short notice. If they were to suddenly demand their money back, this may lead to fire sales of assets in illiquid

6 To prevent government bond purchases by central banks from inducing scarcity of individual securities, a securities lending programme was launched, under which purchased bonds are made available for securities lending.

Chart 7 - Sharp growth of investment institutions, while the banking sector is at a virtual standstill

Balance sheet total Index Jan. 2012 =100.

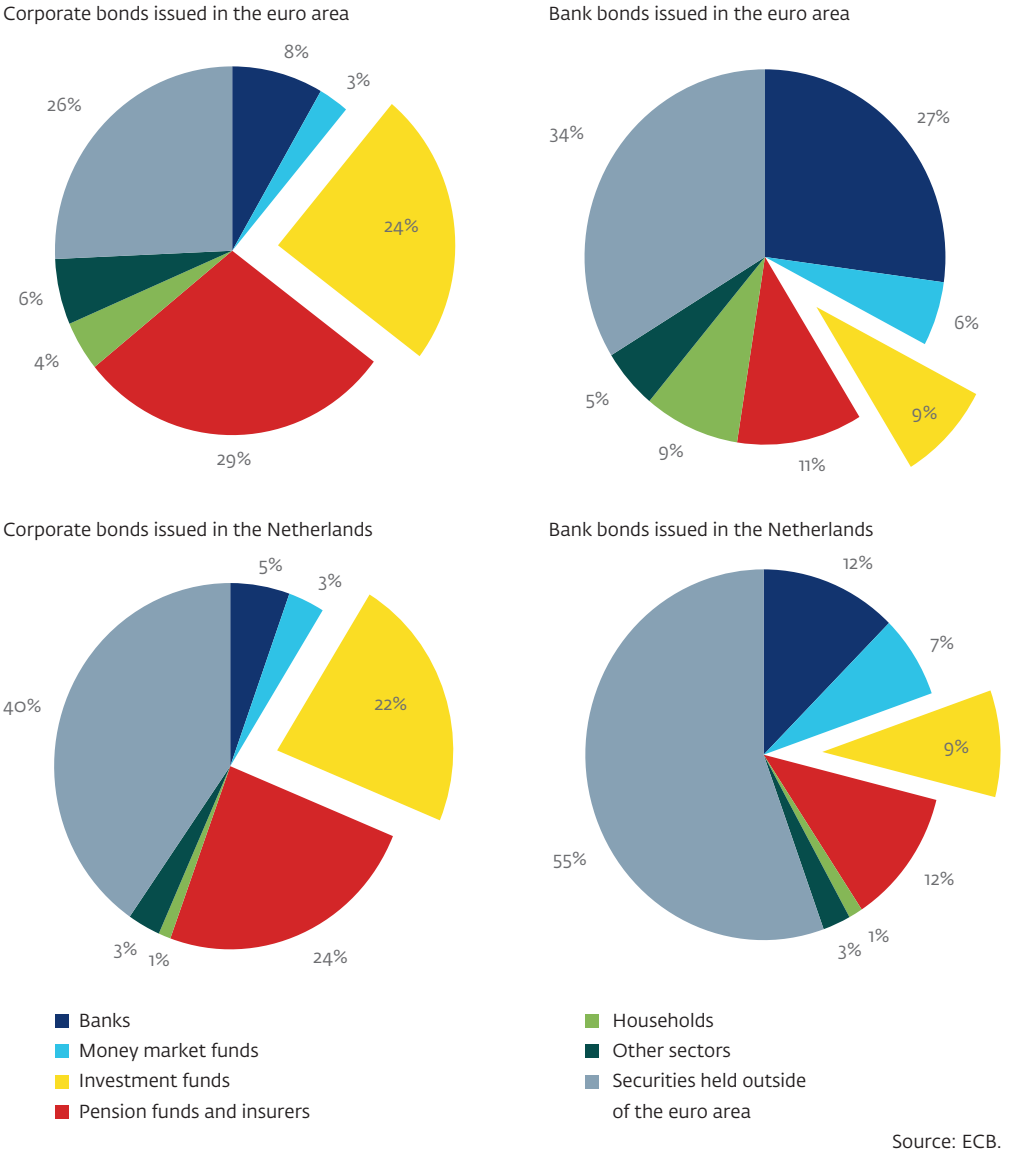


Source: ECB

markets. This would further amplify the induced price corrections, which may in turn prompt other investors to ask their money back.

Chart 8 - Euro area investment funds hold a substantial proportion of corporate and bank bonds issued in the euro area and the Netherlands

Proportion of securities holdings per sector as a percentage of securities outstanding in 2015 Q1.

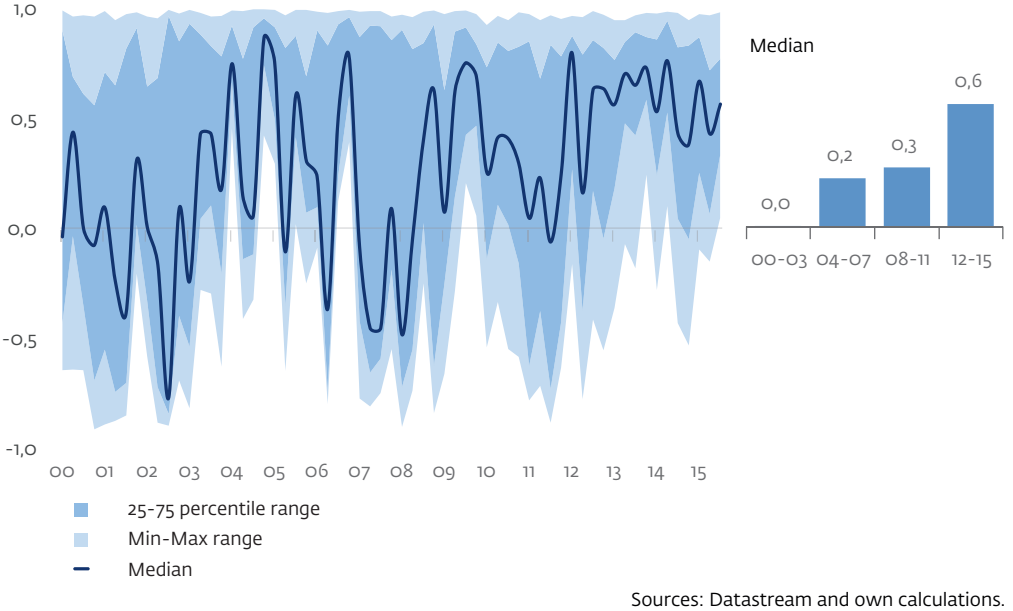


Source: ECB.

Impact on financial stability

Reduced market liquidity exacerbates volatility in financial markets and increases the likelihood of contagion effects between financial markets. Empirical research by DNB has shown that less liquid bonds with higher bid-ask spreads showed more pronounced price movements during the Bund tantrum than their more liquid counterparts.[7] Lower market liquidity also increases the likelihood of contagion effects between financial markets.[8] This means that sharp price drops in the less liquid corporate bond markets may also induce price drops in other financial markets. Contagion risks between financial markets seem to have increased during the past years. This is illustrated, for instance, by a growing correlation between financial markets (Chart 9).

Chart 9 - Higher correlation between securities increases contagion risks between financial markets



Sources: Datastream and own calculations.

Note: Average and spread of correlations (3-month rolling windows) calculated in pairs between 3 MSCI stock indices (Netherlands, Euro Area, World) and 4 bond market indices (Euro corporate, Euro High Yield, EMU government and Dutch 10+ government).

7 Steins Bisschop, Frost & Boermans (2015), as yet unpublished. The finding that less liquid securities show larger price corrections during times of market stress is confirmed in several other studies.

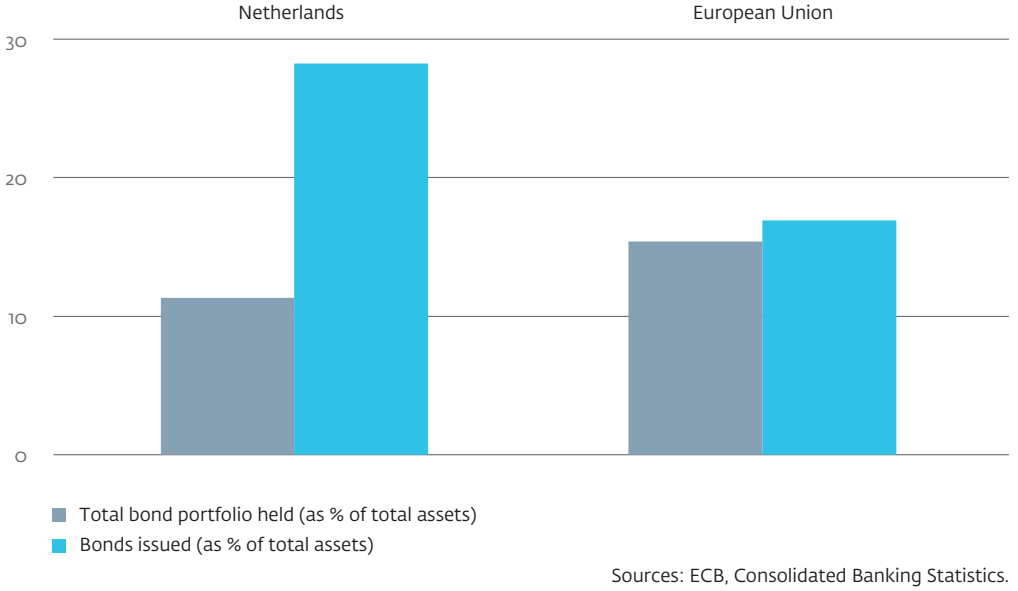
8 IMF, Global Financial Stability Report, April 2015.

Financial institutions may be affected by these market shocks on both sides of their balance sheet. On the asset side, financial institutions have direct investments in equities and bonds, on which they are exposed to losses. Dutch banks have limited direct exposure to financial markets: only 12% of total assets of Dutch banks consist of equities and bonds. Dutch pension funds and insurance companies on the other hand do have substantial investment portfolios. The liabilities side of the balance sheet of financial institutions may also be hurt by market shocks as these may lead to higher funding costs in case of refinancing or taking on extra debt. Consequently, market illiquidity may lead to funding risks.[9] This channel is especially relevant for banks. Despite the sharp narrowing of the deposit funding gap in the past few years, Dutch banks are still strongly dependent on market funding (Chart 10). Insurance companies and pension funds attract hardly any or no market funding.

Price movements in financial markets also influence the market value of derivatives portfolios. This may lead to additional margin or collateral requirements. When financial institutions do not have sufficient liquid funds to meet these additional margin or collateral requirements, they may have to sell other assets, and may incur losses in case of negative price shocks.

Chart 10 - Dutch banks depend relatively heavily on market funding

As at year-end 2014



Sources: ECB, Consolidated Banking Statistics.

9 Research has shown that market liquidity risk and funding risk are linked: deteriorating market liquidity leads to deteriorating funding liquidity and vice versa (see Brunnermeier & Pedersen (2009), 'Market liquidity and funding liquidity', Review of Financial Studies, vol. 22(6), pages 2201-2238, June).

This risk is becoming more prominent, due to the increasing use of CCPs. These have relatively higher collateral requirements relative to the bilateral collateral agreements that market players used among themselves before the reform of the derivatives market. After negative market shocks, investors are now more often obliged to provide additional collateral.

Policy measures

Financial institutions themselves are primarily responsible for taking decreased market liquidity and increased volatility of financial markets into account in their risk management. Institutions with large investment or derivatives portfolios may incur heavy losses if they have substantial exposures to markets that are hit by negative shocks. They can perform in-house liquidity stress tests in order to assess the consequences of market illiquidity.

A worrisome scenario from the perspective of financial stability would be if liquidity were to dry up in several markets at the same time and for longer periods of time, and if this would induce funding risks. A liquidity crisis of this kind in 2008 and 2009 caused large-scale problems at banks and other financial institutions. This shows that systemic risks develop in such an environment. The danger of this scenario materialising may have grown as a consequence of deteriorating market liquidity and increasing correlations between financial markets.

Since the crisis, much more attention has been given to adequate control of funding risks by banks. New regulations have been implemented, which make banks less dependent on short-term market funding and prevent banks from running into trouble immediately in times of stress. Under Basel III, international requirements for banks have been developed that guarantee that banks build up sufficient liquid assets to withstand market stress. These requirements will be implemented in stages in the years ahead. The liquidity coverage ratio (LCR) has come into force on 1 October 2015, and the net stable funding ratio (NSFR) will be implemented in 2018.[10] DNB has determined that Dutch banks must satisfy the eventual 100% LCR requirement immediately.[11] In 2011, DNB had already required the banks to produce an assessment of their liquidity plan (ILAAP), detailing how they will deal with periods of market stress. Finally, whether the banks' liquidity frameworks are satisfactory and whether they are able to respond adequately to a sharp decline in market liquidity is evaluated by means of regular liquidity stress tests.

10 The LCR reflects the ratio between the available liquidity and the required liquidity over a thirty-day horizon. European regulations demand that by 1 January 2018, the LCR must be at a minimum of 100%, but member states were given the option to set a higher LCR during the phase-in period. The NSFR reflects the ratio between the available long-term assets and the required stable long-term funding. From 1 January 2018 onwards, banks are required to have an NSFR of at least 100%.

11 See http://www.toezicht.dnb.nl/en/7/51-232882.jsp.

International research is under way into how investment funds may be made more resilient against acute market stress. Investment funds already have various instruments at their disposal to mitigate risks, and the regulations applying to these funds have been tightened.[12] At the same time, the current low level of interest rates is fuelling the search for yield by investment funds, due to which the portfolios of some of these funds increasingly include higher yielding but less liquid assets. Partly due to the sharp growth of the sector, the Financial Stability Board is evaluating how investment funds would deal with acute market stress and how they can be made less vulnerable to a sudden outflow of entrusted funds.

12 On 22 July 2013, the Alternative Investment Fund Managers Directive (AIFMD) came into force, a European directive with harmonised rules that managers of alternative investment institutions are required to comply with. The Undertaking for Collective Investment in Transferable Securities (UCITS) Directive was last revised in 2011.

3 Commercial real estate: office and retail market

On average prices in the office and retail market are stabilising. Yet, this trend masks large differences between markets: prices in attractive locations are rising partly due to the search for yield, but those at less attractive locations are lagging behind. The outlook for the office and retail market remains unfavourable: the decline in occupation of office space per office worker, and the increase in online shopping may put further pressure on the demand for office and retail space. Although banks have reduced their vulnerabilities to losses since the asset quality reviews of commercial real estate, these trends may cause new risks to build.

The recent crisis has made clear that systemically relevant financial institutions may run into trouble if they incur big losses on commercial real estate. This type of real estate has therefore been the subject of close attention for supervisors in a national and European context. In the Netherlands DNB and AFM found that the quality of appraisals of this type or real estate was below par. DNB, AFM and the sector then evaluated how these appraisals can be improved. These evaluations resulted, among other things, in 28 recommendations of the Platform for Valuers and Auditors (PTA) in order to improve the quality of appraisals. This year, these recommendations were largely translated into occupational and behavioural codes of conduct. The foundation for improved appraisals has been laid; it is now up to the sector to take heed of these codes. In addition, DNB in 2013 performed an asset quality review into commercial real estate that scrutinised the lending portfolios of Dutch banks. The valuations of collateral were reviewed and the implications of a stress scenario were assessed. The results of this exercise gave cause for adjusting provisions and demanding additional capital requirements to the amount of over EUR 650 million. The ECB asset quality review and the European stress test that followed in 2014 have endorsed the findings of DNB's asset quality review of the commercial real estate sector.

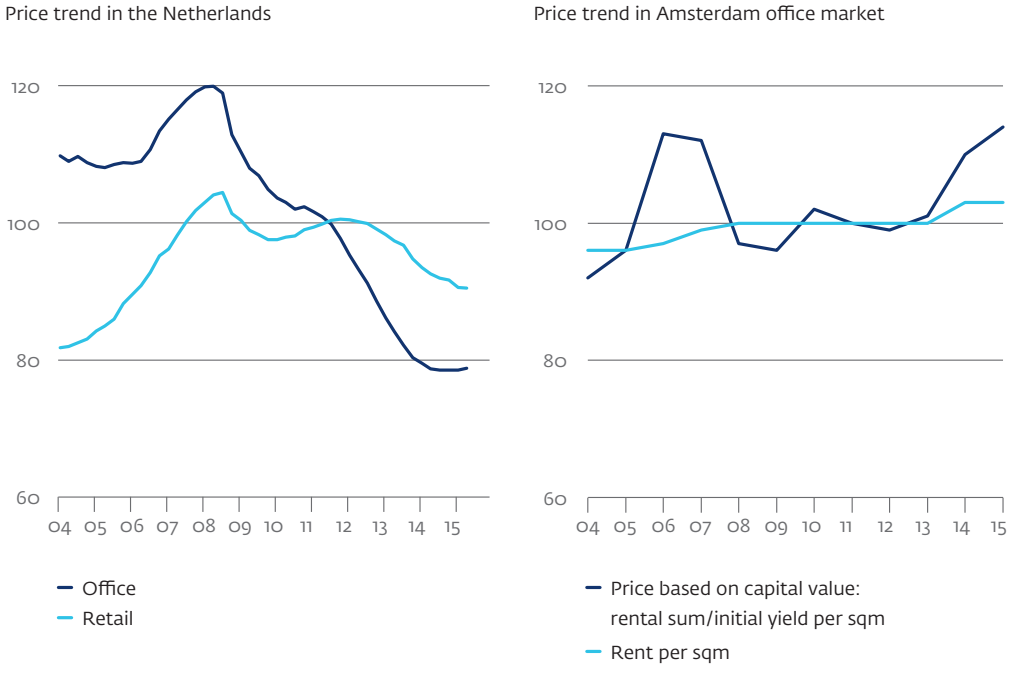
These asset quality reviews have made banks less vulnerable to losses on commercial real estate. The commercial real estate market is strongly influenced by the development of structural trends such as more efficient use of floor space and growing online purchases. This section therefore looks ahead at the consequences of these structural trends for the office and retail market in the Netherlands, based on scenario analyses.

Current market situation

On average prices in the office and retail market are stabilising (Chart 11). This average price trend, however, harbours large differences between these markets. At prime A locations (such as the Amsterdam Zuidas business district) prices are rising sharply, especially in the office market. Prime A locations, however, account only for between 5 and 10% of the market; the volume of office floor space at secondary B and C locations is much bigger, and these locations are suffering from price drops.

Chart 11 - Prices are stabilising; prices in Amsterdam are rising

Index 2011=100.



Sources: MSCI and Jones Lang LaSalle.

The relevant price trends are based on a sample survey of the office and retail market. This is emblematic for commercial real estate figures, which often only relate to a small proportion of the market, with data on prime locations being the best available. In order to get a bigger picture of the trends and risks in the commercial real estate market, more and better data should become available.

Rents at prime locations, such as the Amsterdam office market, have hardly moved in line with price rises (Chart 11, right hand panel), which means that yields are falling. This is partly due to the fact that commercial real estate has become more attractive for foreign investors as a result of the search for yield. (See Section 1 and the autumn 2014 issue of the OFS). London and Paris have already seen prices surge as a result of increasing interest from investors. It looks as though Amsterdam is next: prices for office space have already risen above their 2007 peak. The risks of this trend for Dutch financial institutions seem limited; recent investments at prime A locations are being financed by foreign equity more so than before the crisis.

Contrary to prime locations, B and C locations in the office and retail market are seeing increasing vacancy rates and often declining prices. The current average vacancy rates are around 17% in the office market and around 9% in the retail market (Chart 12). At some B and C locations, vacancy rates have, however, risen to 40% for offices and 20% for retail premises. The office market also has hidden vacancies that are not reflected in the official vacancy rates. This primarily concerns premises that are still covered by rental contracts, but are no longer, or only partly, occupied. Estimates of hidden vacancies vary between 5 and 15% of supply,[13] which brings the total vacancy rate in the office market to between 20% and 30%.

Structural changes are among the root causes for the increasing vacancy. Since the nineties, the supply of offices has grown to some 50 million square metres. This growth has been caused by large-scale construction (Chart 13). At the same time, the demand for office space has remained virtually unchanged in the past fifteen years, which has caused vacancy rates to continue rising in the past fifteen years. The rise in vacancy rates in the retail market is more

Chart 12 - Rising vacancy in the office market illustrates the influence of structural trends

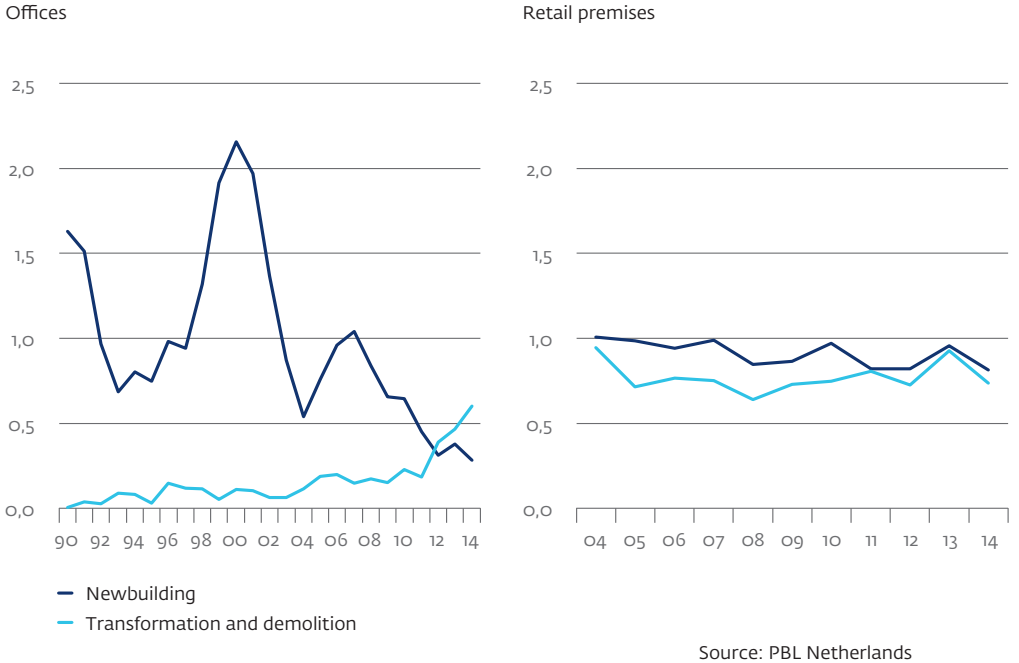
Vacancy as a percentage of total supply.

Retail Source: PBL Netherlands Environmental Assessment Agency.

13 Geophy (2015). Groot en groeiend structureel overschot kantorenmarkt (in Dutch); Colliers International (2015). 10% verborgen leegstand in de kantorenmarkt (in Dutch).

Chart 13 - Strong growth in supply of office space; retail premises supply remains stable

Construction, transformation and demolition in millions of square metres.



Source: PBL Netherlands Environmental Assessment Agency.

recent and is primarily related to the declining demand for retail space, whereas the supply has remained virtually stable at 30 million square metres in the past years. In addition to the slump in consumption since the crisis, the declining demand is also attributable to structural trends such as the shrinking population in the peripheral regions and rising online sales.

Scenario-analyses

Trends such as more efficient use of space and growing online sales are expected to continue, and demand for real estate will therefore continue to decline. In order to learn more about the possible impact of these trends, DNB has made scenario analyses for the period to 2030.[14] The scenarios have been calculated based on a model and a dataset that covers the bulk of

14 For further details of the model and infographics, we refer you to http://dashboard.geophy.com/research/structural-surplus-office-space-mapview and http://dashboard.geophy.com/onderzoek/overschot-retail-kaartweergave?lang=nl

the Dutch office and retail market. The developments in macro-economic variables like GDP, consumption, the labour force, the participation rate, and unemployment have been derived from recent DNB projections. Demographic trends are based on Statistics Netherlands (CBS) projections. The results of these analysis are of course sensitive to the specific model used and the underlying assumptions.

The decisive factor for the development in demand for offices is the usage of space per employee, which has been declining for years. Assuming a current usage per employee of 16 square metres, a further reduction to 14 square metres by 2030 would cause the vacancy rate to rise by seven percentage points. This baseline scenario is relatively modest, however, as new contracts for larger floor spaces are already assuming a usage of space per employee of between 10 and 12 square metres. In an alternative scenario with 12 square metres per office worker taken as the standard, vacancy rates will increase by 15 percentage points. Vacancy rates at B and C office locations in the urbanised western part of the Netherlands (Randstad) are the highest (Figure 1).

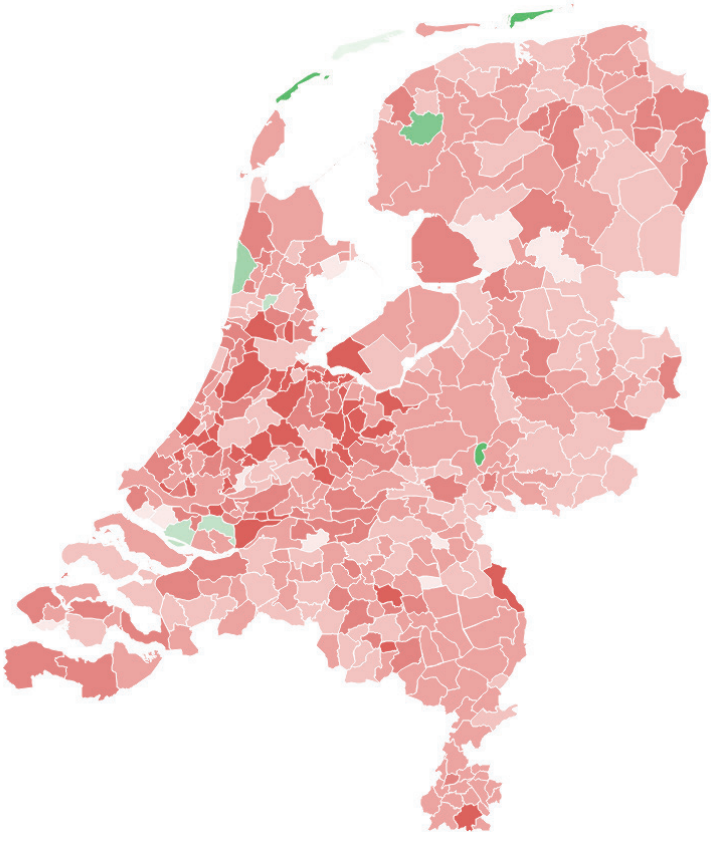
The increasing popularity of online shopping is an important determinant of the trend in the demand for retail space. At present, online retail sales account for some 10% of retail sales. This will rise to 25% in 2030 in the baseline scenario, in line with expert projections expect. At the same time, consumption is also set to rise in the base scenario, pushing up total retail sales. This increase will be accounted for in particular by online sales: traditional (non-online) retail sales are projected to rise only modestly. At national level, the current supply of retail space is in line with the projected sales trend. The local picture is different though, almost 50% of retailers will see their sales decline. The increase in online sales is expected to be accompanied by further concentration of traditional sales in high streets and large shopping centres, which are mainly located in larger towns and cities. In addition to online sales, the diverging trend in retail sales is also explained by demographic factors: the population in the larger cities is growing faster (Figure 2). The projected proportion of 25% online sales by 2030 is surrounded by a large degree of uncertainty: in a more extreme scenario, online sales may jump to 40% by 2030. If this happens, traditional retail sales will fall by over 15% at national level, and almost all retailers will see their sales decline.

The expected slump in local traditional retail sales is expected to translate into rising vacancy rates. The exact impact of this development is impossible to determine, as the relationship between declining sales and retail vacancies is ambiguous. Declining sales may for instance also mean that retailers decide to cut costs in order to sustain their current use of space. In addition, traditional retailers are selling products more and more through online channels. If these products are collected in stores, some retail space will be needed, which may dampen the impact on retail vacancy rates.

The scenarios discussed above assume that the supply and rents of office and retail space will remain unchanged. However, the supply of office and retail space is expected to decline

Figure 1 - Office vacancy is increasing and is concentrated in the urbanised western conurbation

Vacancy in 2030 amid use of 14 square metres per person.



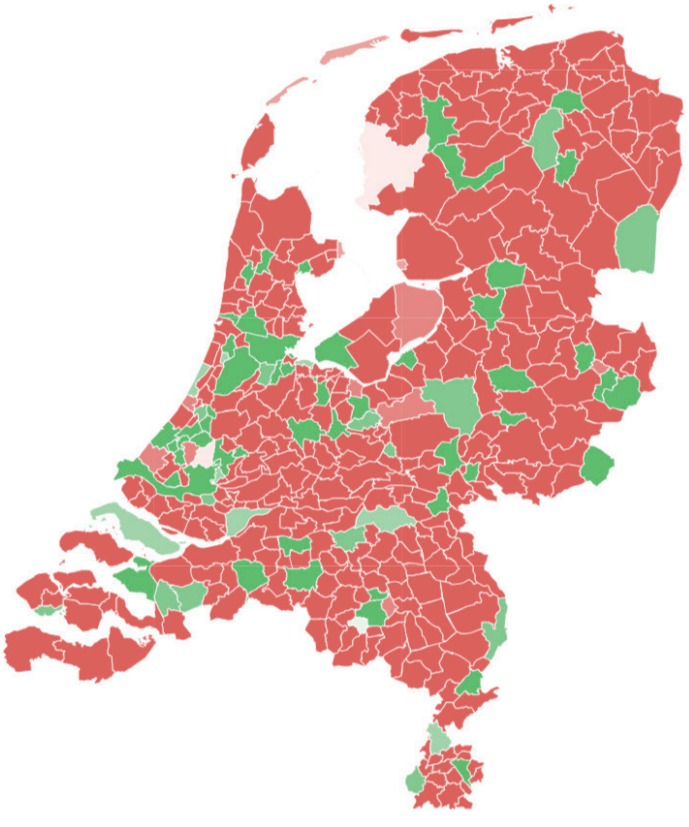
Source: Geophy.

in response to increasing vacancy rates. Recently this has become visible in the office market where demolition and transformation of offices into homes or hotels are already outpacing new construction (Chart 3). A decline in supply may mitigate increasing vacancies, which will provide for a more balanced market.

Transformation alone is not sufficient, however, to prevent increasing vacancy rates. Demolition is also necessary as not all premises lend themselves to transformation. Transformation potential is determined by location, quality, and size. Offices are for instance often found in locations unsuitable for transformation into homes or hotels, such as business parks. Deloitte and Geophy estimate the transformation potential of offices at between 35%

Figure 2 - Traditional retail sales are set to rise in large cities and fall in the peripheral areas

Sales trend in traditional retail sales in 2030 relative to 2015 in a scenario with 25% online sales.



Decrease in sales | Increase in sales

>10%	5%-10%	1%-5%	0%-1%	0%-1%	1%-5%	5%-10%	>10%

Source: Geophy.

to 40%, precisely because of these limiting factors.[15] Transformation of shops into homes is most likely to succeed in medium-sized cities. Regions with demographic ageing have a smaller transformation potential as demand for housing is declining in these areas. Owners of real estate will often be forced to take a loss when their premises are transformed; the current book value of real estate typically surpasses the value after transformation or demolition.

15 Deloitte (2015). Een derde van lege kantoren kan getransformeerd worden naar woningen (in Dutch); Geophy (2015). Kansrijk versus kansloos (in Dutch).

In addition to adjustments being made to supply, rents likely will be reduced in line with the rising vacancy rate. These adjustments are already under way: rents in the office and retail market have fallen by between 10 and 15% over the last four years. Downward rent adjustments may improve the rentability of the premises concerned and dampen the rising vacancy rate, but they often result in declining values and financial losses for real estate owners.

Influence on financial stability

The increasing vacancy rate and rent drops may lead to substantial losses for real estate owners, and their financiers after them. The divergence in vacancy trends also causes losses to diverge; losses will be concentrated in those locations that are experiencing sharp price drops. Real estate investors with portfolios concentrated in B and especially C locations will consequently be the most vulnerable to losses.

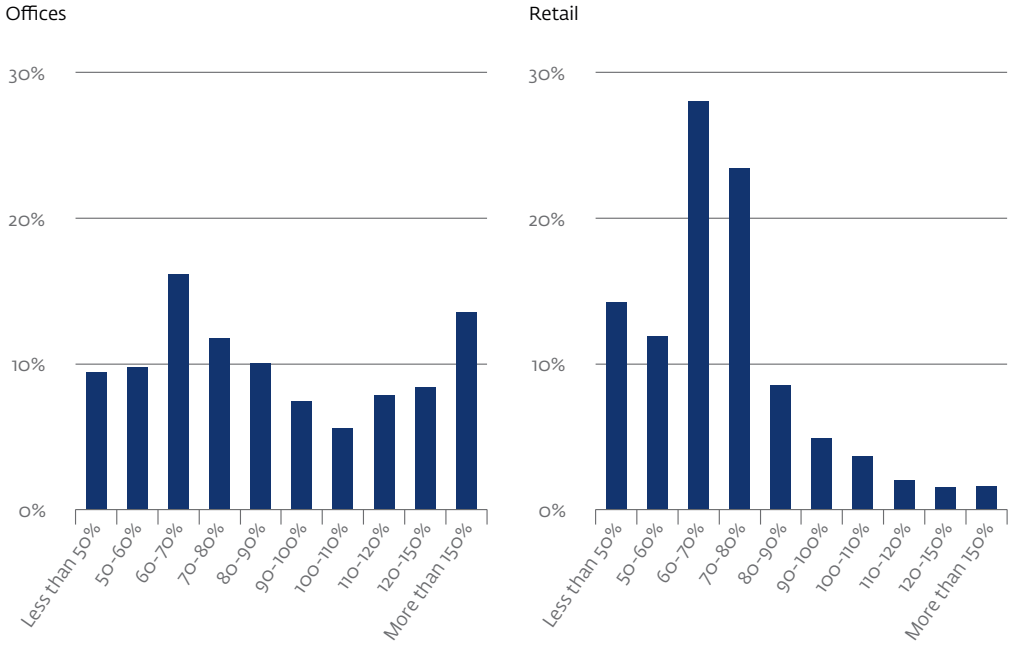
Insurance companies and pension funds often own commercial real estate. The exposure of insurance companies and pension funds does not seem to pose a risk to financial stability as their investments in commercial real estate in the Netherlands are relatively modest at EUR 5 and 25 billion respectively. In addition, most insurers and pension funds have relatively diversified real estate investment portfolios.

Banks lend money to real estate owners. Despite the fact that one-fifth of these loans is currently still under special asset management, banks are currently less vulnerable to developments on the commercial real estate market than they were several years ago. First of all, they have adjusted their provisions and capital as a result of the recent balance sheet reviews. In addition, they have disposed of portfolios, especially poorly performing ones. On balance, our calculations show that the banks' exposure to commercial real estate in the Netherlands has been reduced by over 10% in the past 18 months.

The abovementioned structural trends may, however cause new credit risks for banks to build up. This may affect financial stability as banks, despite their recent reduction of their real estate portfolios, still have a significant exposure to commercial real estate in the Netherlands. In total, Dutch banks have loans outstanding to the amount of EUR 68 billion (67% of their common tier 1 equity). EUR 16 billion is outstanding on the office market and EUR 18 billion on the retail market. In addition, these real estate loans are relatively risky as the collateral underlying them is mostly located at B and C locations. If real estate prices continue to drop, both the likelihood of real estate players going underwater and the risk of them being unable to meet their financial obligations due to disappointing rental income increases. The heterogeneity of the market also increases the likelihood that banks will suffer considerable losses on non-performing loans that they will be unable to offset by profits on well performing ones as they do not share in possible price rises at good locations.

Chart 14 - LTVs on offices higher than those on retail premises

Commercial real estate loans of Dutch large banks according to LTV category.



Source: DNB.

Banks also seem to be running more risks on their exposure to the office market than on their exposure to the retail market. Currently, 43% of all office-related loans have an LTV ratio of more than 90%, whereas at 14% this is significantly lower for loans relating to the retail market. (Chart 14). LTV ratios in both markets may climb further as a consequence of the anticipated price drops. The bigger risks on the office market are also attributable to the remaining life of rental contracts: a longer remaining term to maturity provides more certainty about future rental income. In the office market, 65% or rental contracts will expire before 2020, whereas this is 47% for the retail market. It should be noted, however, that rents may be renegotiated before contracts mature; the recent negotiations about rent reductions initiated by the Dutch retail chain V&D are a case in point.

Policy conclusions

Prices in the office and retail market are stabilising partly due to the search for yield. The structural prospects are, however, unfavourable. The decreasing occupancy rate per office worker, and rising online sales are expected to lead to further declines in prices and demand on the office and retail market. Scenario analyses show that these trends have a potentially

large impact and are strongly dependent on location. This means that price rises at prime locations are increasingly being accompanied by price drops at B and C locations. This uneven impact leads to increasing vulnerability for financial institutions with large concentrations of exposures to B and C locations.

The exposures of banks to the office and retail real estate markets are especially relevant to financial stability. Recently, the Dutch banks have improved their resilience to credit risks on commercial real estate by improving their provisions and increasing capital, and by shrinking their portfolios. The depicted structural trends may, however, cause new risks to build up. Banks seem to be more vulnerable to developments in the office market than to those in the retail market.

Continuation of the current policy of improving appraisals is a necessary, but insufficient condition for achieving prudent valuations of real estate at financial institutions. For appraisals aim to determine the current market value: the value at which real estate may be traded in the market at the time of the appraisal. Given the relatively long maturities of financing arrangements of between five and ten years, surveyors and banks should take heed of the structural trends depicted here when appraising real estate. In addition, risk management at financial institutions should take sufficient account of the increasing regional differences in the office and retail real estate market.

4 Preferential treatment of government debt

Supervisory regulations for banks include preferential treatment of sovereign exposures. This increases the interconnectedness between governments and banks, undermines market discipline and thus financial stability. Phasing out this preferential treatment at the global and European level would promote financial stability. In order to prevent shocks a sufficiently long transition period is advisable.

Government debt has preferential treatment in supervisory rules. Global agreements (such as Basel III) and European supervisory regulations include incentives for banks to hold government debt. Often government debt is even explicitly exempted from prudential rules. For banks in the EU and many other countries there is no capital requirement for exposure to government debt issued in domestic currency. And, whereas banks are required to limit their exposure to private debt to 25% of equity, no limits have been imposed on the exposure to government debt. In addition, liquidity regulations treat the majority of government bonds as liquid assets. In the monetary transactions of the Eurosystem and other central banks, lower haircuts are usually applied to collateral in the form government debt than to other assets. Table 3 depicts the main examples of preferential treatment of government debt in supervisory regulations for banks.

Many rules are based on the assumption that government debt is risk-free. Government debt restructuring, such as those in Greece, Ukraine, and Puerto Rico, and market turmoil during the European debt crisis have proved that this assumption is incorrect. The restructuring of Greek government debt in 2012 culminated in dramatic losses for Greek and Cypriot banks. These banks then had to be recapitalised by the government. Government debt is often also considered highly liquid, but liquidity in government bond markets can also dry up suddenly (see Section 2). In addition, at the root of these rules there is a conflict of interests: governments decide on these prudential rules and can shape them so that the financial sector provides funding to the public sector at low cost.

Supervisors may of course impose additional requirements on financial institutions. The ECB, in an SSM context, has attached requirements to holdings of short-term government debt by Greek banks. Moreover, many banks (also in the Netherlands) are in fact holding capital for exposures on some governments. The unweighted leverage ratio requirement in fact also induces banks to hold a certain amount of capital for exposures to governments. However, the large holdings to the domestic government by banking sectors in many European countries prove that banks are still widely using the discretion that the existing regulations allow, and that supervisory authorities often do little about this.

Regulation has even contributed to the recent increase in the banks' exposure to their own governments' debt. After the introduction of the euro, banks initially reduced their exposure to their own governments' debt, replacing holdings by private party assets or bonds issued by other euro area countries. However, since the crisis, exposures to own government debt have soared again, in particular in peripheral euro area countries (Chart 15). The shift is partly

Table 3: Preferential treatment of government debt in regulations for banks

Framework for banks	Description
- Capital framework	CRD IV: Banks are allowed to apply 0% risk weights to their exposure to government debt in local currency under the standardised approach and in the internal ratings-based approach (through 'permanent partial use') CRD IV: deferred tax assets may be counted towards capital until 2019
- Liquidity framework	CRD IV: Government bonds are considered high-quality liquid assets with a 0% haircut, and they are exempt from the diversification requirements in liquidity buffers (LCR and NSFR)
- Concentration limits	CRD IV: Governments are explicitly exempted from concentration limits in the large exposure rule.
- Monetary operations	Eurosystem: lower required haircuts on government bonds as collateral than on other collateral assets.
- Structural bank reform	EU proposal: government bond transactions explicitly exempt from requirements for the separation of trading activities.
Other relevant frameworks	
- Securities financing transactions	FSB framework for numerical haircut floors: government bonds are explicitly exempted from haircut floors.
- Financial transaction tax	EU proposal: government bonds explicitly exempt from taxes

CRD IV = Capital Requirements Directive IV (EU capital directive for banks),
LCR = Liquidity Coverage Ratio (short-term liquidity requirement for banks),
NSFR = Net Stable Funding Ratio (long-term liquidity requirement for banks),
FSB = Financial Stability Board (global regulatory body for financial stability).

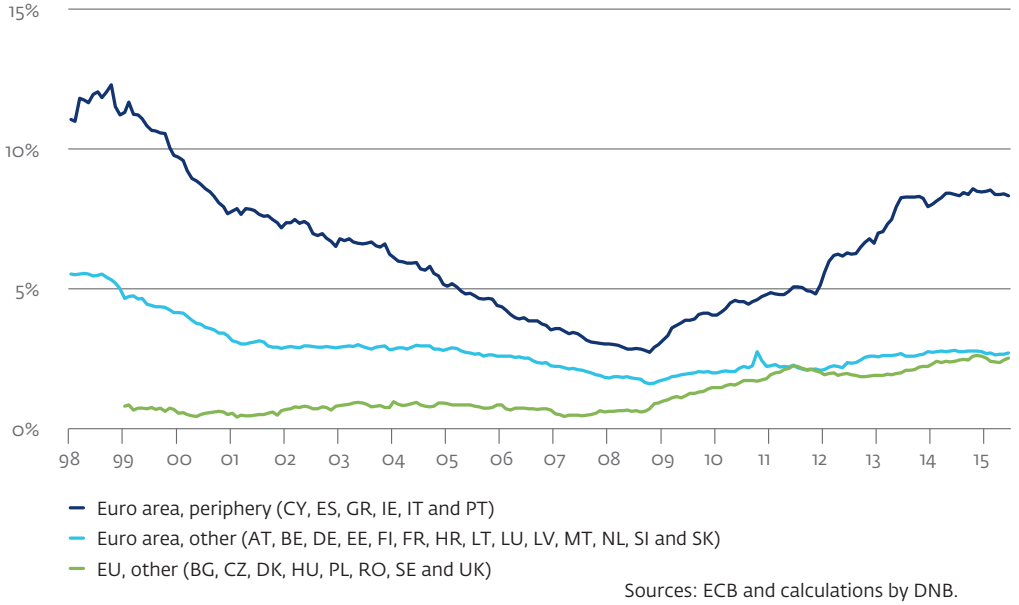
attributable to low credit demand during the crisis.[16] In addition, banks have the option of using government bonds as collateral with the Eurosystem in order to attract funding at low interest rates, and can use this to buy more of the same government bonds (at higher interest rates), a form of carry trade.[17] In this way a large amount of leveraged financing may be built up in the financial system. And finally, there is a danger that banks that already have excessive

16 Christian Castro & Javier Mencía (2014), 'Sovereign Risk and Financial Stability', Estabilidad Financiera, 26: 73-108

17 Viral V. Acharya and Sascha Steffen (2013), 'The "Greatest" Carry Trade Ever? Understanding Eurozone Bank Risks', NBER Working Paper No. 19039.

Chart 15: EU banks' exposure to their own governments' debt is increasing again

as a % of bank balance sheets.



Sources: ECB and calculations by DNB.
Figures concern bank's domestic operations.

holdings of their own governments' debt will not include the risks of additional government bond holdings in their decision-making process, as they would be bankrupt anyway if the government defaults.

Impact on financial stability

The preferential treatment of government debt provides distorted incentives and creates several systemic risks. First of all, it amplifies the interconnectedness between governments and banks. This undermines the solvency of both governments and banks and was an important driver of the European debt crisis. Empirical analysis shows that the banks' holdings of government debt are closely related to the high correlations between the risk premiums of governments and banks. (Box 1). This increases the impact of shocks to the government on the banking sector.

Secondly, the preferential treatment also undermines market discipline, which increases the likelihood of crises. The artificially high demand of banks for government debt means that the risks attached to government bonds are not sufficiently priced in. It weakens the

incentive for governments to pursue healthy budgetary policies.[18] If government debt becomes unsustainable, risk premiums may rise suddenly. If this happens, it is much more difficult to restructure debt as such a restructuring would also destabilise the banking system. This means that eventual restructuring is much more harmful to financial stability and the broader economy.[19]

Box 1: The hazardous tango between banks and governments

The correlation between risk premiums of European banks and governments has been growing since 2008. This correlation (Chart 16) is a gauge for the market perception of the interconnectedness between banks and governments. During the European sovereign debt crisis in 2011, correlations rose to over 60% in many European countries, and remained

Chart 16 - Correlation of CDS premiums between EU governments and banks rose during the crisis

Spearman correlation (%).

Sources: Datastream and calculations by DNB.
CDS premiums are those for largest banks and governments.

18 Tamon Asonuma, Saïd Bakhache & Heiko Hesse (2015), 'Is Banks' Home Bias Good or Bad for Public Debt Sustainability?', IMF Working Paper WP/15/44.

19 Nicola Gennaioli, Alberto Martin and Stefano Rossi (2014), 'Sovereign Default, Domestic Banks, and Financial Institutions', The Journal of Finance, 69(2): pp. 819-866

high for peripheral euro countries, while those in the rest of the euro area and the EU have declined again.

Exposures to government debt may explain the high correlations. We examined for 23 countries which factors may explain the correlation in risk premiums between 2006 and 2015. Table 4 shows the results of a panel regression analysis. The exposure of banks to governments is a statistically significant factor. As expected, the size of the banking sector, inflation, and volatility in the financial markets also contribute to a higher degree of correlation, while higher GDP growth, a current account surplus, and higher ratings for banks contribute to lowering the correlation.

Table 4: Regression analysis for correlation in CDS premiums

Variables	Coefficients
Exposures of banks to governments (in % GDP)	0.010***
Size banking sector (in % GDP)	0.074***
Inflation (in %)	0.011**
Current account (in % GDP)	-0.008***
Government debt (in % GDP)	0.002*
GDP growth (in % GDP)	-0.005*
Average rating banks	-0.010***
Volatility on financial markets (VIX)	0.007***
Constant	0.507***
Number of observations	709

Coefficients in a statistical panel regression analysis, estimated with ordinary least squares based on quarterly data of 23 countries between 2006 and 2015. The number of asterisks indicates the statistical significance (* bis the 90% confidence level, ** 95%, and *** 99%). Country-specific characteristics are controlled for with country fixed effects. A Levin-Lin-Chu-test shows that all variables are stationary at the 95% confidence level, except for the exposure of banks to government debt, which are stationary at the 90% confidence level. Data source: IMF, BIS and Datastream.

And thirdly, investments in government debt suppress lending to private parties. The banks' heavy holdings of government debt reduce the scope on their balance sheets to extend loans to businesses and households. Especially in periods of weak economic growth, this 'crowding out' effect may hamper economic recovery.

The European banking union has provided for a joint supervisory and resolution mechanism, which makes is less likely that banks will have to rely on their own government for support. But as long as governments continue to rely on their own banking sectors for funding, the interconnectedness between banks and governments will not be resolved.

Policy conclusions

Phasing out the preferential treatment of government debt at the global and European level would promote financial stability. As government debt is not risk-free, it is first of all advisable for banks to maintain capital to cover the credit risks that they run, also on their exposure to their own government. This will enhance the incentives for banks and the allocation of capital in a broader sense. Concentration limits may further reduce the exposure of banks to their governments. These impose an upper limit on the interconnectedness between governments and banks, and improve the banking sector's resilience. It would be beneficial to financial stability if banks not only held debt issued by their own governments, but diversify into that of other governments. If haircuts on collateral for government bonds are brought more into line with risks, synthetic demand for government bonds as collateral will be further reduced.

Liquidity requirements could also be reviewed. Banks now use government bonds for their liquidity buffers, whereas before the crisis they often used private assets. In addition to debt issued by governments of other countries, the banks' liquidity buffers ought to include more high-quality private assets, providing banks with more alternatives for government debt.

Such reforms may have a substantial impact on the banks' current balance sheets. As an illustration: the weighted capital ratios of the largest banks in the EU would fall by 0.35 percentage points if the risk weights for governments bonds were to increase by 10 percentage points (Chart 17). This would depress the solvency of banks, but would also bring it more into line with reality. A concentration limit of 25% of equity, as is common for private debtors, would mean that the largest European banks have a total excess of EUR 1,291 billion in government bonds on their balance sheets (Chart 18). A limit of 50% of bank equity would lead to a surplus of EUR 875 billion and 100% would reduce this to EUR 516 billion. Most banks would be able to comply with such a limit by selling a portion of the bonds issued by their own governments to banks in other European countries, and by buying up the debt of other governments. Banks in the EU would then hold more diversified government bond portfolios.

The impact of such reforms must be thoroughly evaluated. They may also have consequences for the implementation of monetary policy. This is because open market transactions are often conducted with government bonds as collateral, and because regulations may influence the role that banks play in the government bond markets. Supervision of pension funds and insurance companies must also take account of the consequences that reforms of banking

Chart 17 - Impact of risk weights on government bonds is diverse in the EU

Current Tier 1 capital ratios (end 2014) and impact of a 10 percentage point rise (%).
Figures at year-end 2013.

Sources: EBA and calculations by DNB.

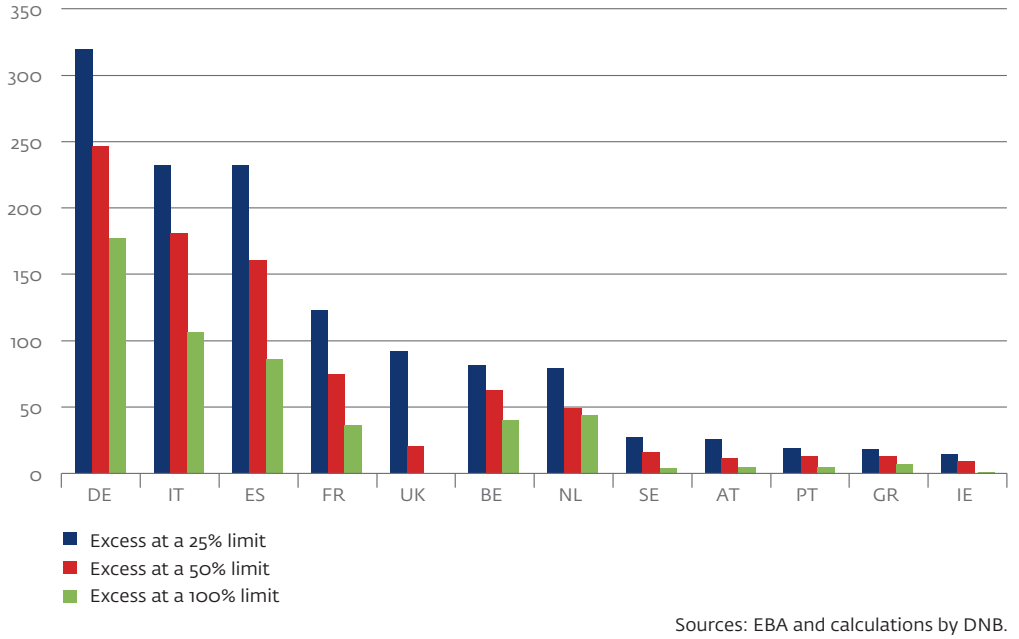
regulations may have. These reforms may prompt pension funds and insurance companies to themselves start building up excessive concentrations of government debt.

A phased introduction of new rules may help to prevent shocks. The implementation of Basel III has shown that such a phased introduction is effective. Creditors of banks are aware that the new requirements will apply in the future but will be introduced gradually. Risk weights on government debt may be increased in stages during a prolonged transition period. Concentration limits may be relatively lenient at the start and reduced gradually. Banks may also be required to maintain capital for concentrated holdings of debt of a particular government above a given threshold — a kind of 'soft' concentration limit.

Given the Eurosystem's accommodative monetary policy, banks and governments are able to attract funding at low interest rates, and the likelihood of sudden market shocks during this process has fallen. Owing to the launch of the SSM, reforms at European level can be introduced more readily and more consistently. This makes the current period an excellent moment to start this long-term project in order to structurally underpin the resilience of the European banking sector and the European economy.

Chart 18 - EU banks would be forced to sell government bonds if a concentration limit were to be imposed

Excess government bonds of the largest banks, in EUR billion at year-end 2013.



Sources: EBA and calculations by DNB.

Annex 1: Macro-prudential indicators

	Most recent observation	Trend after 1998 Min.	Max.	Av.	Period under review
Credit conditions					
Trend deviation credit/GDP ratio [1]	-17.5	-19.6	18.5	1.1	1998Q1-2015Q1
Growth in household lending (y-o-y)	0.3	-2.1	17.1	7.1	1998Q1-2015Q1
Growth in non-financial companies lending (y-o-y)	1.7	-7.8	16.8	4.8	1998Q1-2015Q1
Growth in house prices (y-o-y)	2.7	-9.9	20.0	3.9	1998Jan-2015Jul
Growth in commercial property prices (y-o-y)	0.7	-7.8	9.2	1.4	1999Q4-2015Q2
Loan-to-value ratio first-time buyers [2]	92.2	92.2	101.6	97.6	1999-2014Q1
Loan-to-income ratio first-time buyers (ratio) [3]	4.4	4.0	4.9	4.5	1999-2014Q1
Long-term interest rates (bp) [4]	85.3	31.4	566.6	361.5	1998Jan-2015Aug
BBB-AAA risk premium (bp) [5]	86.0	53.0	509.0	153.7	2001Jan-2015Aug
Bank solvency					
Leverage ratio CRD IV, fully loaded [6]	3.5	3.3	3.5	3.4	2014Q1-2015Q2
Tier 1-capital/balance sheet total of the banking sector (up to 2013 Q4)	5.0	3.0	5.0	3.9	1998Q1-2013Q4
CET1-ratio of banks and CRD IV, based on transition rules	13.8	12.9	14.4	13.7	2014Q1-2015Q2
Tier 1-ratio of banks based on CRD III (up to 2013 Q4) [7]	12.5	8.2	12.8	10.0	1998Q1-2013Q4
Bank liquidity					
Loan-to-deposit ratio [8]	158.4	157.1	198.2	178.7	1998Q4-2015Q2
Proportion of market funding with maturities < 1 year	31.3	16.6	38.3	29.7	2003Aug-2015Jul
Risk premium in money market (bp) [9]	10.7	1.2	186.0	22.9	1999Jan-2015Aug
Risk premium on senior unsecured bank bonds (bp) [10]	81.7	12.6	321.5	85.8	1999Jan-2015Aug
Systemic importance					
Size of bank balance sheets as a percentage of GDP	382.1	306.5	562.5	419.5	1998Q1-2015Q2
Share of G5-banks in balance sheet total of the banking sector [11]	84.9	79.9	90.3	87.0	1998Q1-2015Q2
Rating uplift of systemically important banks (in steps) [12]	2.2	2.2	2.3	2.3	2012-2015

Concentration of exposures of Dutch banks [13]	Netherlands	Abroad	2015Q2
Total of debt securities and loans	52.8	47.2	
Central bank	0.9	0.5	
Governments	7.3	3.3	
Credit institutions	1.5	13.1	
Other financial institutions	2.8	6.9	
Non-financial institutions	12.0	15.3	
Of which: Small and medium-sized enterprises	2.4	2.9	
Of which: Commercial property	4.4	2.1	
Households	28.4	8.0	
Of which: Mortgage loans	27.0	7.0	
Of which: Consumer credit	0.9	0.4	

Sources: CBS, BIS, IPD, Thomson Reuters Datastream, Bloomberg, Moody's, DNB.
Figures are in (%) unless otherwise indicated. Bp = basis points.

1 The difference between a) the ratio of loans extended to the non-financial private sector to Dutch GDP and b) the long-term trend of this ratio as calculated in ESRB Occasional Paper No. 5: Operationalising the countercyclical capital buffer: indicator selection, threshold identification and calibration options.
2 The ratio of the amount of the mortgage to the value of the property at the time the mortgage is taken out. First-time buyers are defined as individuals younger than thirty at time the mortgage is taken out. DNB estimates based on a sample of Dutch mortgages.
3 The ratio of the amount of the mortgage to the income of the borrower at the time the mortgage is taken out. First-time buyers are defined as individuals younger than thirty at the time the mortgage is taken out. DNB estimates based on a sample of Dutch mortgages.
4 Yields on Dutch government bonds with ten-year maturities.
5 The yield differential between international BBB-rated corporate bonds and international AAA-rated corporate bonds.
6 Calculated based on the most recent definition of the leverage ratio as agreed by the Basel Committee in January 2014.
7 The Tier 1 ratio reported here includes the Basel I floor.
8 The ratio of loans (including securitised loans) to deposits made by the domestic non-financial private sector.
9 The difference between three-month EURIBOR interest rates and the three-month EONIA swap-index.
10 The yield differential between European senior unsecured bank bonds and five-year swap rates.
11 The five largest Dutch banks' assets (ABN AMRO, ING, Rabobank, SNS Bank and BNG), as a percentage of the Dutch banking sector's total assets.
12 The difference between credit ratings including and excluding government support, based on Moody's methodology. This is an average of ABN AMRO, ING, Rabobank and SNS Bank, weighted by balance sheet total.
13 The share of Dutch and foreign counter sectors in the exposure of all Dutch banks, based on reported consolidated figures for supervision purposes.

Annex 2: Review of DNB actions resulting from the OFS

It is important that the macro risks identified by the OFS are effectively mitigated. The spring 2015 OFS includes a retrospective of the follow-up on the recommendations made in the OFS from 2011 onwards. This retrospective will be continued.

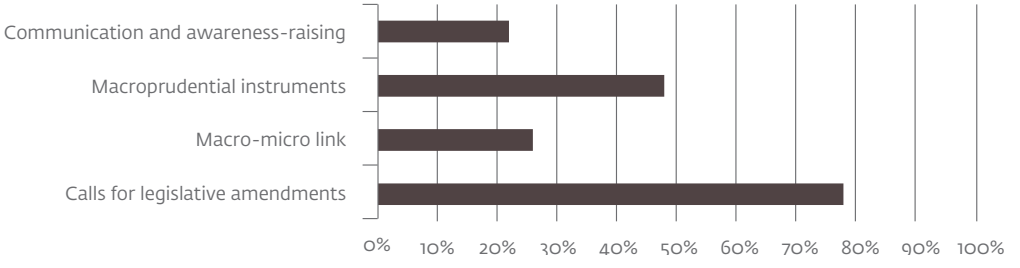
Starting this issue of the OFS, the follow up of risks and recommendations discussed in the OFS will be monitored at regular intervals. Our purpose is to be transparent about the pursued actions, and to keep abreast of the progress made. This annex describes which actions have been taken and whether the identified risks are actually moving in the right direction.

1. Mitigation of macro risk

Macro risks identified in the OFS are mitigated in various ways. Figure 1 presents an overview of the degree to which the various channels are used. First, the OFS identifies relevant developments in order to alert the sector in time to the possible risks deriving from these developments, in order to enable institutions to take mitigating measures themselves. A retrospective look at the past years tells us that this channel was relatively most often used to mitigate the identified risks (in over 75% of cases).

DNB also takes measures itself. In its capacity of macroprudential authority, DNB has various instruments at its disposal to mitigate risks at macro level. These instruments for instance include imposing extra capital buffers on systemically relevant institutions, determining the countercyclical capital buffer, or performing stress tests. Risks are mitigated by means of these types of macroprudential instruments in about 25% of cases. Another important channel for supervision is that DNB translates macro risks to microprudential supervision. This is effected by means of the micro-macro link, with the help of concrete indicators for supervision of individual institutions. This is done in about 50% of cases. And finally, the OFS in one-fifth of cases calls for adjustment of regulations in order to mitigate risks.

Figure 1 - Mitigation of macroprudential risks



2. Follow-up and status of macro risks

Table 1 presents an overview of the actions that DNB has undertaken and the trend in risks since their first mention in the OFS. The list shows that DNB followed up on the identified risks in all cases by closely monitoring the identified risks, or by taking action to mitigate risks itself, or urge institutions to do so themselves.

In most cases, the envisaged objective to effectively reduce the identified macro risks was achieved. Capital and liquidity buffers were for instance reinforced, specific vulnerabilities were addressed and various legislative changes were implemented. At the same time, external, macro-economic developments have caused certain macro risks to be remain topical. This especially concerns the search for yield and the risk of bubble formation (see also Section 1), which are increasingly significant in the current economic situation. Some risks are also demanding long-term attention, such as the risk of cybercrime, or emanate from structural developments such as the changes in the insurance sector and the sustainability of the pension system. These risks will continue to demand our attention and require specific additional steps in the time to come.

Table 1: Overview of OFS risks and recommendations: follow-up and current status

Risks and recommendations (first citation in the OFS)	Relevant (actions taken by DNB)	Status (since since first citation in the OFS)
Banks		
1. Insufficient capital reinforcement: banks should strengthen their capital positions (autumn 2011)	DNB supervises accelerated movement towards Basel III capital requirements. Extra capital buffers imposed.	Capital buffers reinforced. Systemically relevant banksbuild up extra buffers.
2. Funding risk: exercise caution with respect to secured funding (autumn 2011); reduce dependence on market financing (spring 2012)	DNB supervises accelerated movement towards Basel III capital requirements. Extra capital buffers imposed.	Virtually all banks currently comply with the LCR/NSFR requirements. The deposit funding gap has narrowed.
3. Commercial real estate: valuation should be current and realistic (autumn 2012)	Asset Quality Review (AQR) and stress test performed.	The AQR showed that banks at year-end 2013 had sufficient provisions and capital on their balance sheets. Section 3 of the current issue discusses new risks with respect to structural developments.
4. Upward interest rate shock: ensure adequate management of risks of interest shock (spring 2013)	Examination into quality of interest rate risk management DNB includes risks of interest rate shock in stress tests.	The current macro-economic situation demands ongoing alertness from institutions (also see Section 1).
5. Ineffective bail-in: embed bail-in in European legislation (autumn 2013); sufficient bail-in buffers (spring 2015)	Implementation of European resolution directive and launch of national resolution authority. Attention is now focused on the level and quality of the bail-in layer.	Implementation of Bank Recovery and Resolution Directive envisaged for end 2015. National resolution authority launched on 1 January 2015. Sufficient bail-in layer still to be built up.

Table 1: Overview of OFS risks and recommendations: follow-up and current status (continued)

Insurance companies		
6. Sustainability of business models of life insurers: reduce costs (autumn 2011); work towards sustainable business model (autumn 2014). Take account of a situation in which solvency may inadvertently prove to be inadequate (spring 2015)	DNB performed examinations and made recommendations to the sector to reduce costs and increase profitability.	The sector continues to be under pressure. The sustainability of business models remains an important component of ongoing supervision.
7. Unit-linked insurance: seek solutions to breach of duty of care (autumn 2011)	Together with the Ministry of Finance and DNB, the AFM monitors follow-up actions by insurance companies (activating customers).	Ongoing monitoring is important. Formulated target figures for follow-up action and activating of customers are embedded in law.
8. Guaranteed returns: exercise caution with respect to return guarantees (autumn 2013)	DNB monitors adequate valuation of guarantees and that institutions proceed with care where issuing of new return guarantees is concerned.	Identified risk remains topical, and it is included as a component of ongoing supervision on the sustainability of the business model.
Pension funds		
9. Sustainability of the pension system: pension funds should increase their buffers (autumn 2011); pensionable age should be raised (spring 2012)	DNB issues advice for the purpose of the Pension Fund (Financial Assessment Framework) and provides input for the debate about the future of the pension system.	Pension Fund Financial Assessment Framework becomes operational; pensionable age increased. A fundamental debate is held about the future of the pension system.
System-wide		
10. Risks on the housing market: reduce the LTV limit (autumn 2011); curb tax incentives (autumn 2011)	The Financial Stability Committee issues advice on lowering of the LTV limit and curbing of tax incentives.	LTV limit and mortgage interest tax relief to be reduced in stages. No decision yet on further steps after 2018.
11. Cyber threats: financial institutions should increase their resilience (autumn 2013)	DNB explores measures to increase the resilience of financial institutions.	Risk remains topical and warrants long-term attention of institutions and DNB in order to prevent incidents and distortions (component of ongoing supervision).

Table 1: Overview of OFS risks and recommendations: follow-up and current status (continued)

12. Vulnerability of derivatives positions: improve the solidity of central counterparties (spring 2014); reduce the impact of defaulting (spring 2014); reduce pro-cyclical elements (spring 2014)	DNB supervises compliance with EMIR and publishes research into its impact and focal points for implementation.	Important component parts with respect to risk mitigation and reporting requirements enter into force. Further implementation and introduction of central clearing obligation is now important.
13. Search for yield and bubble formation: formulate realistic return targets (autumn 2014)	DNB performs examinations and urges financial institutions to be prudent.	Risk remains topical in the current economic situation. This requires increasing alertness from DNB and the institutions.
14. Governance and variable remuneration policies: foster structural change in culture (spring 2015); avoid incentives for excessive risk-seeking (spring 2015)	DNB supervises compliance with the Regulation on Sound Remuneration Policies.	Awareness is increasing. Cultural change has some way to go.

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