2 THE REAL ECONOMY

2.1 THE MACROECONOMIC ENVIRONMENT

The optimistic expectations of a recovery in advanced countries failed to materialise in 2012. The euro area recorded a contraction in economic activity, accompanied in some countries by worse credit availability for the private sector. Very easy monetary policies, which are reducing debt servicing costs via low interest rates, are helping to resolve the adverse income situation of non-financial corporations and households. Very low short-term rates may, however, encourage some financial market segments in some economies to take excessive risks. The Czech economy also saw quite a noticeable fall in economic activity in 2012, and its economic prospects for 2013 remain unfavourable as well. Given the stability of the banking sector, however, there is no danger of reduced loan availability, and the easy interest rate component of the credit conditions will continue to dampen growth in credit risk, which is being strengthened by the continuing recession. Conditions for a deeper balance-sheet recession process are not materialising in the Czech Republic either. The main risk to the Czech economy thus remains a further economic slowdown in Germany and other countries that are major trading partners of Czech corporations as a result of continuing problems in the euro area.

The optimistic expectations of a global economic recovery failed to materialise

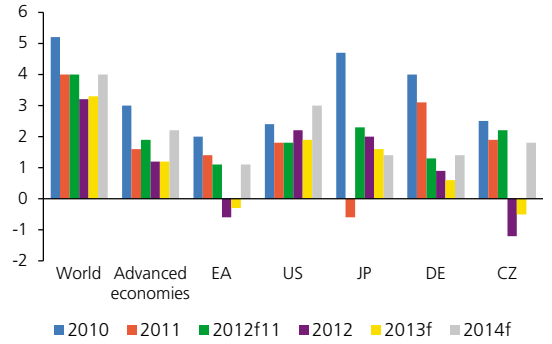
Economic activity in advanced economies was flat in 2012, remaining below the original forecasts (see Chart II.1). The emerging economies also recorded worse-than-expected results – they continued to show dynamic growth, but the growth slowed year on year (see Chart II.2). The USA was the only major advanced economy to post a better-than-forecasted recovery for 2012 and show robust signs of improvement. By contrast, the euro area economy continued to contract gradually.

The forecasts for this year expect a continued contraction in euro area real GDP, and the longer-term outlook is very uncertain

The late 2012/early 2013 forecasts expect the global economy to recover partially in 2013. The renewed growth should be driven mainly by emerging economies (the yellow and grey columns in Charts II.1 and II.2). By contrast, economic activity in the euro area is expected to decline slightly further, with a possible recovery at the end of 2013 at the earliest. The prevailing optimistic expectations about the economic situation in Germany boded well for the Czech economy, but the April business conditions survey results shifted these expectations to a more pessimistic level. Leading indicators of economic activity and confidence indicators in advanced countries remain well below the levels usually seen before the onset of a recovery. The labour market situation in Europe remains very tense, as evidenced by a still rising unemployment rate. Growth in real GDP is expected for 2014 in virtually all regions of the world economy. Export-oriented countries should benefit the most from this. However, the forecasts for 2014 may again prove to be too optimistic. The global recovery will be hampered by high government and

CHART II.1

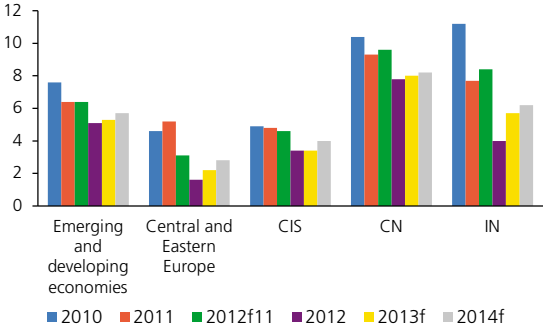
Economic growth worldwide and in the advanced economies
(year-on-year growth in %; outturns and October 2011 and April 2013 forecasts)



Source: IMF (World Economic Outlook, April 2013) and CNB (May 2013 macroeconomic forecast)
Note: 2012f11 is the October 2011/November 2011 forecast for 2012.

CHART II.2

Economic growth in emerging and developing countries
(year-on-year growth in %; outturns and October 2011 and April 2013 forecasts)



Source: IMF (World Economic Outlook, April 2013)
Note: 2012f11 is the October 2011/November 2011 forecast for 2012.

private sector debt in advanced economies, accompanied by rising debt in emerging economies.

The Czech economy remains in recession

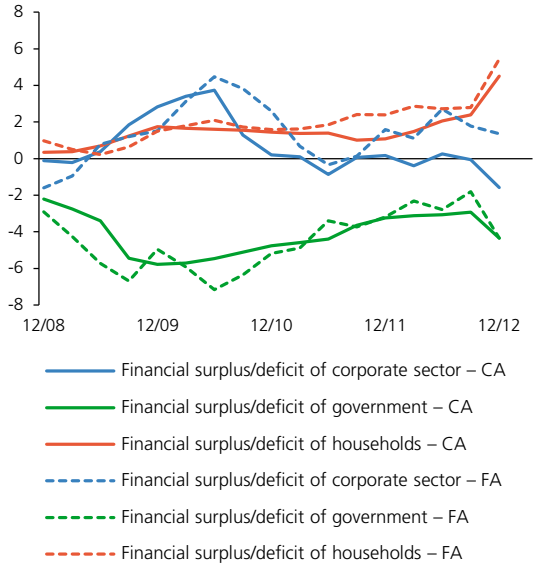
Czech real GDP fell by 1.2% in 2012. The decline deepened year on year in each successive quarter. Net exports were the only positive contributor to real GDP growth. By contrast, the demand side of the economy was dampened most strongly by household consumption (see section 2.3). In addition to the adverse income situation, the factors behind the contraction in domestic demand in 2012 included prevailing pessimism and a rising saving rate. An increase in the reduced VAT rate (and expectations of an increase in both VAT rates in January 2013) and a fall in government investment also adversely affected demand. The current CNB forecast, issued in May 2013, expects a further modest contraction in real GDP this year, replaced in 2014 by a relatively robust recovery in line with developments in the euro area. Given the present situation in the euro area, however, the risk of the Czech economy remaining in recession for a longer time needs to be taken into account. A stress scenario entitled *Protracted Depression* was defined on the basis of this risk.

The risks associated with balance-sheet recession are not materialising so far in the Czech Republic

A balance-sheet recession[1] is a process arising as a result of the bursting of a debt-financed bubble on the asset market and a subsequent deterioration of the ratio between the market prices of assets and liabilities. Economic agents react to this by trying to repair their balance sheets by rapidly paying down debt (the increased supply of financial surpluses is not accompanied by a commensurate increase in investment demand). This effort is usually long-term in nature and can lead to a protracted recession accompanied by deflationary pressures. Although no major bubble formed on the property or other asset markets in the domestic economy in the pre-crisis years, in light of external developments it is necessary to check whether the economy is showing any signs of a more moderate form of balance-sheet recession, which can be described as a deterioration in the expected ratio of the discounted value of future income to debt payments. The national accounts data on the financial surpluses/deficits of individual sectors can be used to do this.[2]

CHART II.3

Financial surpluses/deficits by sector
(annual moving totals as a ratio to GDP, %)



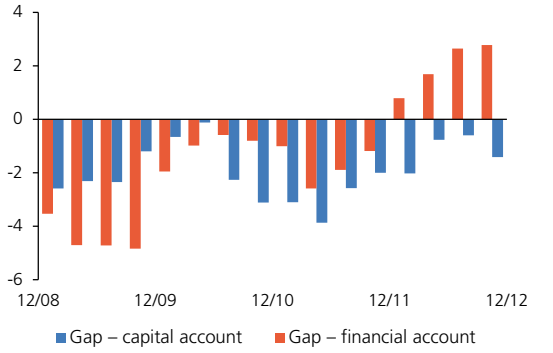
Source: CNB, CZSO
Note: FA and CA refer to the balancing items of the financial account and capital account respectively. The two balancing items measure the sector's financial surpluses/deficits and should be equal in theory. The differences in the indicators are due to measurement errors and statistical discrepancies.

1 Balance-sheet recession is one of the most frequently discussed pessimistic scenarios for future development in recent years. The balance-sheet recession concept was explained and analysed in more detail in Box 1 in FSR 2011/2012.

2 The economic term financial surplus/deficit is used as an equivalent to item B.9 *Net lending/borrowing*, which is a balancing item of the capital account and simultaneously a balancing item of the financial account. Although the balancing items of the two accounts should be equal in theory, they are not the same in practice due to statistical discrepancies and data mismatches. The general government deficit measured by net borrowing is not identical to the officially reported government deficit (EDP) because of a slightly different definition of the financial instruments included in the relevant deficit.

CHART II.4

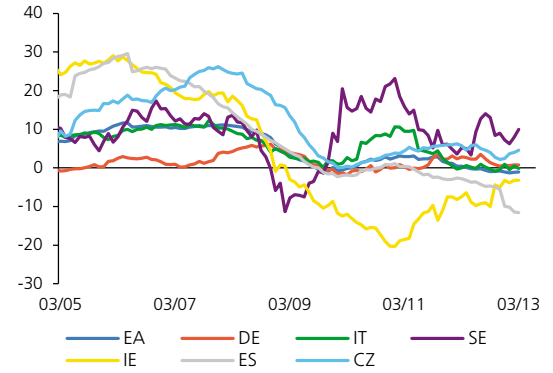
Gap between private sector surpluses and the government financial deficit
(as % of GDP)



Source: CZSO (capital account), CNB (financial account)
Note: The gap is calculated as the difference between the financial surpluses of the private sector (households + corporate sector) and the general government deficit.

CHART II.5

Year-on-year growth in loans to the private sector
(%)



Source: Thomson Datastream, CNB

Some signs of a balance-sheet recession scenario can be seen for households, where the ratio of financial surpluses to GDP rose by more than 3 pp last year (see Chart II.3). Such a rise in the time series is very unusual and may represent a real change in households' behaviour. By contrast, the current indicators for the corporate sector (non-financial corporations and financial institutions) – despite growing differences in the available statistics – are not signalling the presence of previously unobserved changes in behaviour going beyond a standard cyclical recession. The overall evaluation of the risk of balance-sheet recession is ambiguous due to incompatible data sources (see Chart II.4). Despite this, it can be concluded that the aforementioned data cannot for now be interpreted as meaning the materialisation of a balance-sheet recession, especially in light of the capital account data (which are probably more reliable in this case). These data show that households' surpluses were spent on an increased deficit of general government, which recorded a widening financial deficit in 2012 Q4. This can be interpreted as meaning that there is currently no major fall in domestic demand hindering the use of surpluses abroad and that household surpluses were sufficiently employed by general government.

The monetary policies of advanced economies remain easy

The key central banks continued to pursue supportive policies and in some cases extended those policies further. The European Central Bank (ECB) launched a programme of Outright Monetary Transactions (OMTs), declaring its readiness to purchase bonds of problem euro area countries in secondary markets on request provided that the countries concerned undertake to take remedial measures (see section 3.1). The ECB also relaxed some of its collateral eligibility rules for monetary operations. However, the ECB's active stance has given rise to expectations that this institution is the key to solving most of the euro area's problems. This is reducing the pressure on political bodies to implement radical stabilisation measures and structural reforms. The Federal Reserve reacted in a similar way to the ECB, first extending its Twist programme for long-term bond purchases financed by sales of shorter-term securities and then replacing the Twist programme with direct asset purchases. The Bank of Japan also announced a further series of supportive operations in spring 2013 directed at increasing the very low level of inflation in Japan. The Bank of England extended its Funding for Lending programme focused on providing advantageous loans to the private sector with the aim of providing more support to small and medium-sized enterprises.

The euro area financial environment is fragmented

The fragmentation of some segments of the euro area financial market and of the EU as a whole increased further in 2012. Despite the single monetary policy, corporations in different euro area countries are able to obtain loans at very different interest rates. As a result of a crisis of confidence, banks in some countries are facing higher financing costs, which they are passing on to corporate borrowers. Those borrowers are then at greater risk of failure due not only to lower economic activity, but also to higher debt service costs. Bank lending surveys in euro area countries are indicating considerably tighter lending conditions for small

and medium-sized enterprises than for large enterprises. The government bond market also remains fragmented, as public debt financing is very cheap in some euro area countries, but quite expensive in others (see section 3.1). However, the differences in demanded yields are not always fully explained by the public debt-to-GDP ratio and other sovereign risk determinants.

Lending is strongly impaired in part of the euro area

Despite the ECB's supportive policy and very low money market interest rates, loans to the private sector are very slowly decreasing in the euro area as a whole. In some countries the fall in loans is quite pronounced (see Chart II.5). The causes of the stagnation of lending can be found on both the demand side and the supply side. According to the Bank Lending Survey, the main wave of tightening took place in early 2012, but some tightening is still going on (see Chart II.6). The growth in lending in advanced non-euro area European countries is also highly heterogeneous, but it is mostly positive and no major supply-side constraints are being observed.

The credit market situation in the Czech Republic is favourable

According to the Bank Lending Survey (BLS), the credit conditions for non-financial corporations in the domestic economy also tightened slightly in 2012. However, corporate demand for loans still increased modestly. A similar trend in the credit conditions was seen in 2013 Q1. Households' demand for loans did not increase in 2012 and a moderate rise was recorded only in early 2013. An asymmetric phenomenon is an easing of the credit conditions for house purchase loans in both 2012 and 2013. This is probably due to competition between providers of this type of loan (see Chart II.7).

Income growth remains very subdued in the Czech Republic

The macroeconomic situation is not conducive to a credit market recovery and a reduction in credit risk. Nominal income growth is lagging well behind pre-crisis expectations, which reflected the nominal GDP growth rates seen at that time (see Chart II.8). Whereas non-financial corporations were able to partially offset the falling or weakly rising income by cutting labour costs as early as 2011, and are thus often maintaining a sufficient level of profits, households have fewer ways to adjust and are being hit much harder by the above developments. The situation of households will probably worsen further in 2013. The CNB's May 2013 forecast expects households' gross disposable income to fall by 0.5% on average in 2013 and 2014 amid growth in the unemployment rate (of 1.4 pp between 2012 and 2014). This will probably affect low-income households the most (see section 2.3). If the assumptions of the *Protracted Depression* scenario materialise, the fall will be much stronger (the violet columns in Chart II.9).

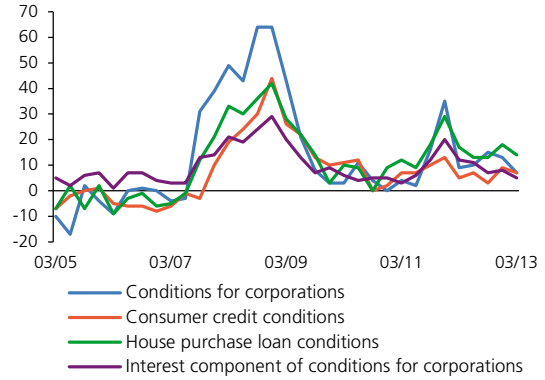
Low interest rates are favourably affecting debt servicing costs

Debt servicing costs went down in 2012 for both loans to corporations and loans to households in the Czech Republic and in most euro area countries. Both existing loans (see Chart II.10) and new loans (see Chart II.11) recorded a decline in such costs, thanks to easy

CHART II.6

Lending conditions in the euro area according to the Bank Lending Survey

(differences in market share of banks in pp)

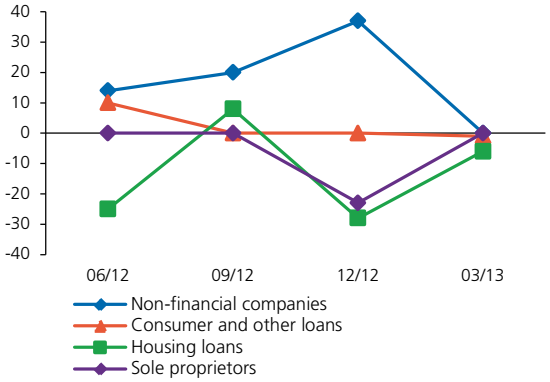


Source: ECB, Thomson Datastream
Note: The data represent the difference between the market share of banks which reported a tightening of the credit conditions and banks that reported an easing of the credit conditions in the past three months.

CHART II.7

General lending conditions in the Czech Republic

(differences in market share of banks in pp)

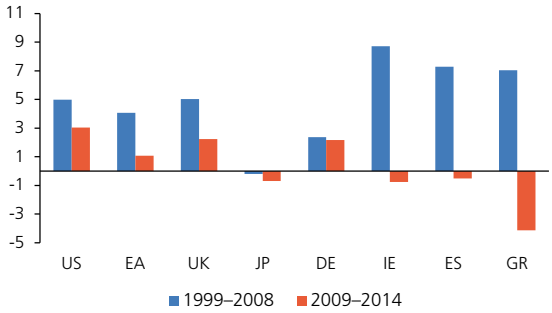


Source: CNB
Note: The data represent the difference between the market share of banks which reported a tightening of the credit conditions and banks that reported an easing of the credit conditions in the past three months. More details on the indicator methodology can be found on the CNB website.

CHART II.8

Nominal GDP and nominal GDP forecasts for selected countries

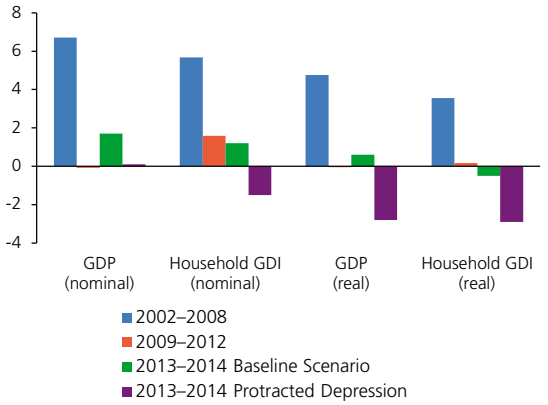
(average year-on-year growth in %)



Source: OECD

CHART II.9

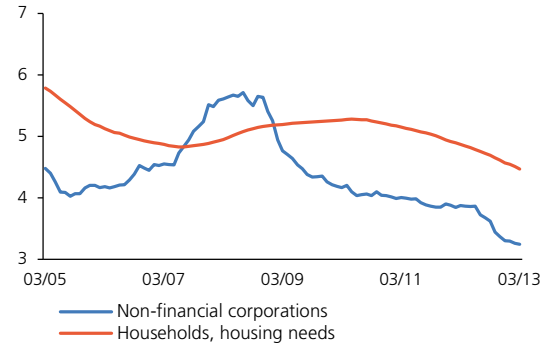
Macroeconomic income aggregates in the Czech Republic in reaction to different scenarios
(average year-on-year growth in %)



Source: CZSO and CNB forecast
Note: GDP – gross domestic product, GDI – gross disposable income.

CHART II.10

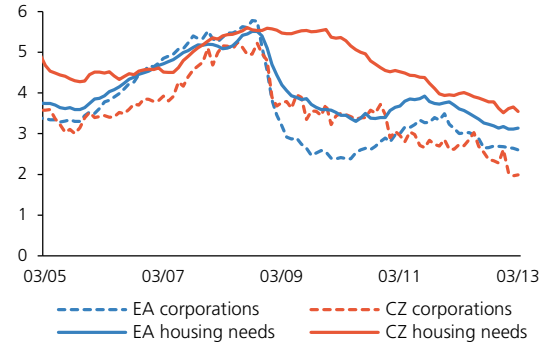
Interest rates on loans
(% p.a. on total stock of loans)



Source: CNB

CHART II.11

Interest rates on new loans in the Czech Republic and the euro area
(% p.a.)



Source: ECB, CNB
Note: Bank overdrafts and revolving loans are excluded.

monetary policies and an ample supply of savings. One possible risk of the current favourable interest rate conditions – even though they are consistent with present inflation and economic activity – is that of nominal illusion leading to a situation where debtors overestimate their own borrowing capacity. This risk applies not only to corporations and households, but also to governments (see section 3.1).

The net external debt of the government is continuing to rise

The Czech Republic's external balance developed quite favourably in 2012. The coverage of external debt by banks' external assets improved from 53% to 59%. The ratio of net external assets to external debt increased as well, from 68% to 71% (see Chart II.12). The net investment position improved slightly, and the net investment position excluding foreign direct investment and government external debt in fact saw a significant improvement. At the same time, the net debtor position of non-financial corporations continued to fall and the net creditor position of the banking sector continued to improve (the net debtor position of banks has improved by more than CZK 100 billion in the last six quarters). By contrast, government net external debt continued to trend up for the fourth consecutive year (from CZK 291 billion in 2008 to CZK 548 billion in 2012; see Chart II.13). From the long-term perspective, the rise in government net external debt could become a source of systemic risk (see also section 3.1 and the thematic article *Fiscal Sustainability and Financial Stability*).

Government debt in the Czech Republic is rising only slowly…

Rising government debt is still one of the main threats to financial stability in Europe. The Czech economy currently has a favourable level and rate of growth of government debt among the advanced European countries. Its ratio of short-term debt, which is generally considered more difficult to refinance than long-term debt, also remains low. Thanks to measures taken on both the revenue and expenditure sides of public budgets, the government deficit is relatively low. Continued fiscal consolidation should ensure that it falls to 2.9% of GDP in 2013 according to the CNB's May forecast. The deficit should decrease slightly further in 2014 and 2015. However, the true rate of growth of government debt is better illustrated by the structural deficit, i.e. the deficit adjusted for the business cycle, than by the current fiscal deficit. Despite the government's consolidation efforts, the structural deficit should stay at about 2% of GDP at least until 2015. The government debt-to-GDP ratio can be expected to exceed 48% of GDP at the end of 2015 (see Chart II.13). The government debt will thus start to approach levels at which doubts may arise about its sustainability in certain circumstances (see the thematic article *Fiscal Sustainability and Financial Stability*). However, the structural characteristics of the Czech government debt reduce this risk significantly.

… and the Czech Republic's fiscal situation is assessed as stable

The Czech Republic's current fiscal situation is regarded as stable. The gross government borrowing need in 2012 was CZK 309 billion.[3] This represents a rise of about 20% on 2011. However, the increase was due among other things to the creation of a debt reserve[4], which should fall back below the 2011 level in 2013–2015 according to Czech Ministry of Finance estimates. Although the foreign currency exposure of Czech public debt is more than double the pre-crisis level, it is still low compared to other European countries (the Ministry of Finance estimate for the end of 2012 is 10% and the debt strategy sets an suitably strict ceiling of 15%). As mentioned above, future efforts to raise considerably more funds for government debt financing on foreign markets may pose a risk to financial stability.

Euro area public finances remain a strong source of uncertainty

The public finance situation in the euro area is not creating the necessary conditions for the debt crisis to end quickly. Similarly, the plan to break the vicious circle between the public finances of national governments and national banking sectors by establishing a euro area banking union has not gained sufficient credibility (see Box 1 in section 4 and Box 2 in section 5), mainly because of disputes and doubts over some of its key elements. Although euro area countries, like other advanced economies, are vowing to continue their consolidation efforts in the years ahead, the current IMF forecast indicates[5] that their government debt-to-GDP ratios will generally rise further.[6] This trend may be bolstered to some extent by the current pressures to adjust fiscal plans towards "growth-friendly consolidation", which will be difficult to implement without increased debt-financed government expenditure. In such a situation, some economies may experience a renewed adverse reaction by the financial markets and thus also show signs of a debt crisis (see section 3.1).

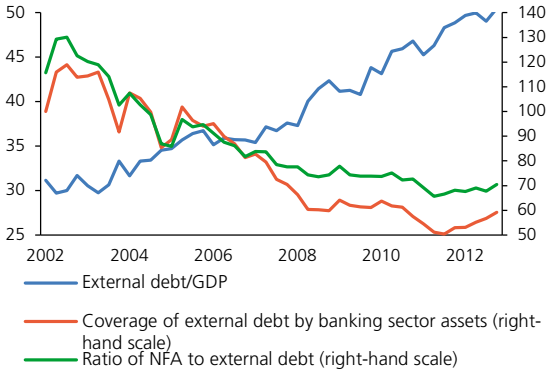
Alternative economic scenarios

Alternative economic scenarios were defined on the basis of potential alternative future macroeconomic trends along with the risks identified. These scenarios are used mainly in section 4.2 to test the resilience of the Czech financial sector. The paths of key variables in each scenario are shown in Charts II.14 a–d.[7] The evolution of other variables relevant to the stress tests in relation to the evolution of the macroeconomic environment (credit growth, the default rate, the NPL ratio[8] and property prices) is presented in the following sections.

3 Czech Ministry of Finance, *Funding and Debt Management Strategy for 2013*.
4 Its effect was 1.8% of GDP.
5 International Monetary Fund, *Fiscal Monitor*, April 2013.
6 Germany will be the exception according to the above forecast, as its budget was in surplus already in 2012.
7 The paths for the *Baseline Scenario* in the first two years are based on the CNB's official prediction. Beyond this horizon they are extrapolated towards the expected long-term equilibrium values.
8 The default rate and the NPL ratio relate to an identical event, i.e. a breakdown in a debtor's payment discipline. Whereas the default rate is a (usually forward-looking) flow indicator focused on a particular time interval (see the *Glossary*), the NPL ratio is a stock indicator describing the level of NPLs at a given point in time.

CHART II.12

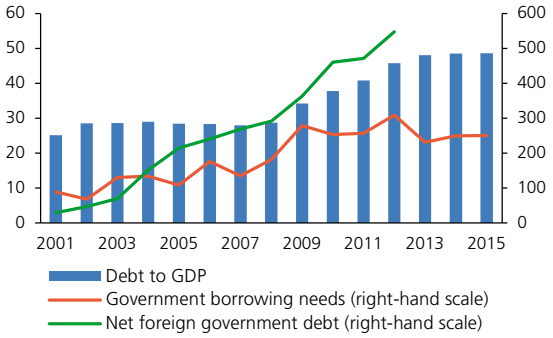
Ratio of the gross external debt of the Czech Republic to GDP and its coverage by the external assets of financial institutions
(%)



Source: CNB
Note: External assets of the banking sector (including the CNB) from the balance of payments statistics and net external assets of MFIs from the monetary survey.

CHART II.13

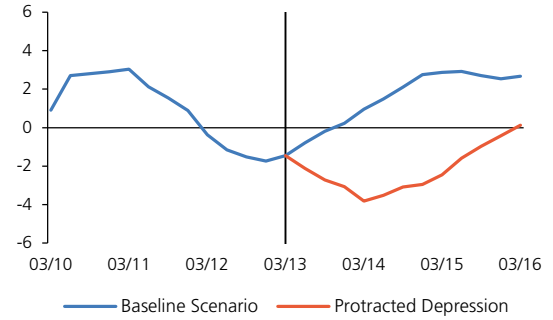
Government debt-to-GDP ratio and gross government borrowing needs
(% on left-hand scale; CZK billions on right-hand scale)



Source: CZSO, CNB, MF CR
Note: CNB estimates used for the debt-to-GDP ratio for 2013–2015 and MF CR estimates used for central government borrowing needs.

CHART II.14A

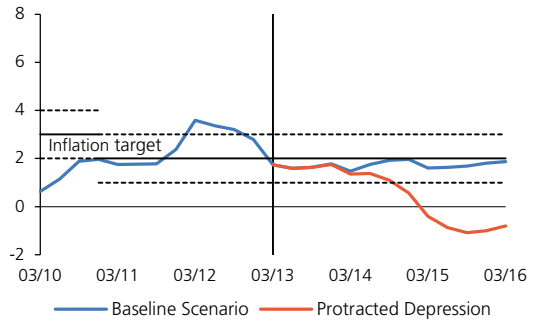
Alternative scenarios: real GDP growth
(year on year, %)



Source: CNB

CHART II.14B

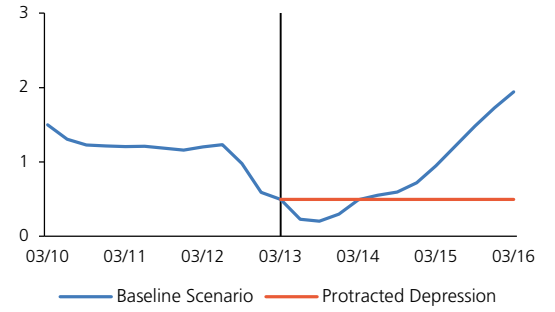
Alternative scenarios: inflation
(year on year, %)



Source: CNB

CHART II.14C

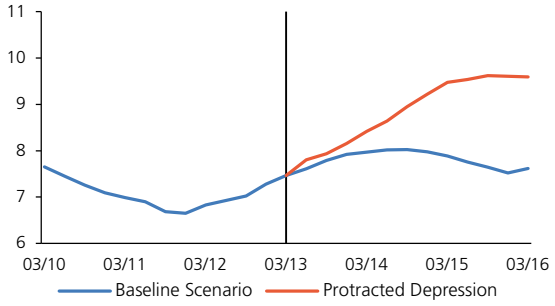
Alternative scenarios: 3M PRIBOR
(%)



Source: CNB

CHART II.14D

Alternative scenarios: unemployment
(%)



Source: CNB

The ***Baseline Scenario*** is based on the CNB's official May macroeconomic forecast published in Inflation Report II/2013 and assumes a decline in economic activity this year due to generally weak domestic demand and only moderately recovering external demand. The previous year's dampening factors are expected to subside in 2014 and the economy will return to relatively robust growth. The general unemployment rate will continue to rise in 2013 and will remain at an elevated level of around 8% until the end of 2014. The forecast also expects inflation to stay below the CNB's 2% target despite an increase in indirect taxes. Consistent with the forecast is a slight decline in market interest rates, followed by a rise in rates as from the end of 2013. The koruna-euro exchange rate will appreciate very slowly over the forecast horizon from a weak initial level.

The ***Protracted Depression*** stress scenario assumes a long-lasting and pronounced decline in domestic economic activity caused by low external demand and falling domestic consumption and investment. This is associated with persisting uncertainty regarding the resolution of the euro area debt crisis and with a loss of confidence in the authorities' ability to deliver an economic recovery by means of economic policy. The continuing elevated uncertainty is reflected in an increase in the negative expectations of the private sector. This leads to high risk aversion among households and efforts by households to create precautionary savings, and to further deferral of corporate investment. The combination of low external and domestic demand in turn will cause a significant contraction in economic activity in the Czech Republic, which will further affect the household sector through rising unemployment and falling wages. The long-lasting adverse economic situation will erode the resources of households and non-financial corporations and cause a significant deterioration in their ability to repay their debts, leading to high credit losses in the banking sector. The situation will improve again in 2016, when economic growth will rebound. Monetary policy remains easy and the three-month PRIBOR stays constant over the entire test horizon. No foreign exchange interventions are assumed.

The *Protracted Depression* stress scenario is complemented by sensitivity analyses that extend the range of risks tested and illustrate the resilience of selected segments of the financial sector (banks, insurance companies and pension funds) to alternative adverse developments. The sensitivity analyses, predicting a loss of investor confidence in the Czech economy, a write-off of part of the banking sector's exposures to indebted EU countries and a strengthened variant of *Protracted Depression*, are presented in section 4.2.

2.2 NON-FINANCIAL CORPORATIONS

The adverse economic situation was reflected in worsening corporate financial results and represents the main risk to the financial stability of corporations in the period ahead. Negative signals are also starting to emerge in industries that were previously drivers of the economy. As the period of adverse developments lengthens, a further increase in risks and a shift towards risk materialisation can be expected. Credit risk was at an acceptable level in 2012, but leading indicators are showing a future increase. This may be amplified by some forms of credit risk undervaluation across the banking system and by the materialisation of the assumptions of the Protracted Depression stress scenario. Limited investment opportunities led to subdued growth in total debt and slower credit growth. Low interest rates helped improve the debt sustainability indicators and prevented the credit problems of corporations from escalating. Given the sector's increasing dependence on exports, further developments will be affected largely by the situation in trading partner countries.

The decline in economic activity is negatively affecting the sector's financial results…

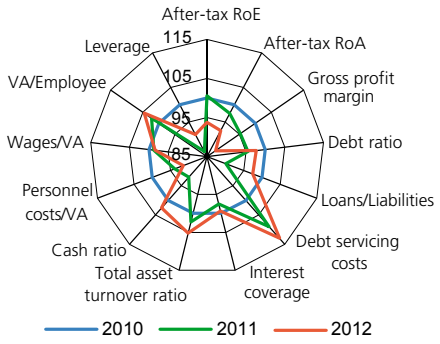
The renewed recession resulted in a deterioration of performance indicators in non-financial corporations. Weakening domestic demand and slowing net exports reduced margins, thereby curtailing the profit potential of the sector and leading to a decline in return on equity and return on assets (see Chart II.15). The falling values of the business confidence indicator suggest that corporations do not expect the situation to improve in 2013, so the financial stress will probably increase. The lengthening time for which the sector has remained exposed to adverse conditions may accelerate the materialisation of accumulated risks and endanger small and medium-sized enterprises in particular. In line with these developments, the results of the survey of non-financial corporations indicate a decline in investment expenditure, limited wage growth and an overall decrease in employment this year.

The nature of the risks themselves is little changed from the previous year, and adverse economic developments are still the main risk to the sector's financial stability. However, the duration of the recession is shifting the risk level upwards and, given the non-linear relationship between the sector's financial soundness and the accumulated risks, corporate balance sheets may worsen quickly and sharply if the adverse developments continue. According to the assumptions of the *Baseline Scenario*, the situation of corporations will not improve until 2014. This improvement will be fostered by a gradual recovery in external demand in 2013 H2. However, given the current situation in the euro area, this forecast is subject to considerable uncertainty. The outlook for domestic demand, which is affected by difficult-to-predict consumer sentiment in addition to the income situation of households, is also uncertain (see sections 2.1 and 2.3).

On the other hand, the fall in the performance of the sector dampened credit growth and fostered subdued growth in total debt. An escalation

CHART II.15

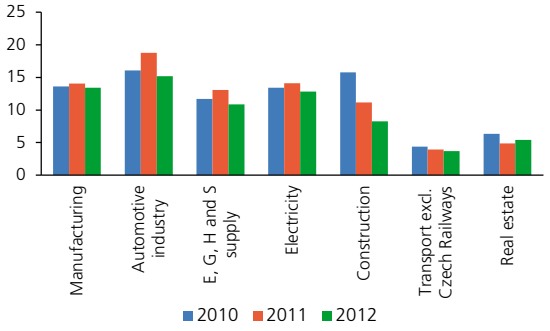
Key financial indicators for non-financial corporations
(2010 = 100; increase in index means improvement)



Source: CZSO, CNB
Note: The results are based on a sample of corporations.

CHART II.16

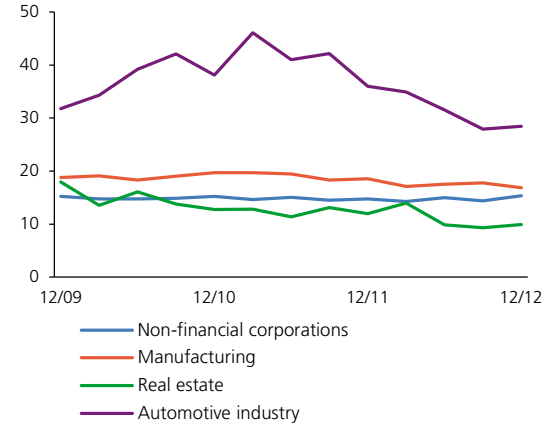
After-tax RoE in selected branches of activity
(%)



Source: CZSO, CNB
Note: E, G, H and S are electricity, gas, heat and sewerage. The results are based on a sample of corporations. Property development projects are included under construction. The automotive industry contains companies in NACE 29.

CHART II.17

Margins on sales in selected branches of activity
(as % of sales)



Source: CZSO
Note: The results are based on a sample of corporations. The automotive industry comprises companies in NACE 29.

of the credit problems was prevented mainly by low interest rates, which helped improve the (short-term) debt sustainability indicators (see Chart II.15). Thanks to the lower interest rates, non-financial corporations recorded savings of more than CZK 3.5 billion compared to 2011 and the ability of Czech firms to service their debt is also favourable by international comparison (see also line NC.7 in the Table of Indicators). The loss of investment opportunities led partly to an accumulation of funds, reflected in an increase in total liquidity.

… in addition to construction, industries that were drivers of the economy in previous years are also at risk of decline

Although the situation differed across segments, the economic decline affected profitability in almost all industries (see Chart II.16). A significant decrease was again recorded by the construction industry, which has been facing a shortage of orders for several years now, especially in civil engineering and building construction. A change for the better is unlikely to occur in the near future, as the relevant statistics for this segment are showing no signs of recovery. Moreover, unlike in other industries, where cutting working hours is preferred, the developments in construction are associated with significant job cuts. Like construction, the services segment is facing sustained problems and its value added has been falling continuously since 2009.

The end-2012 results indicate that previously strongly growing industries, including manufacturing, are also entering a downward phase owing to the continuing recession. From the structural point of view, the high sensitivity of the Czech economy to the automotive industry seems risky for the period ahead. Although car manufacturing posted slight growth for 2012 as a whole, it recorded the largest fall within industry overall in 2012 Q4. This was due to adverse conditions on foreign car markets, reflected in a sharp fall in foreign orders in 2012 H2 and a subsequent decline in the value of exports. However, signs of a slowdown are also emerging on the domestic market, as evidenced by a significant fall in the number of cars produced, sold and registered in the Czech Republic in the first few months of 2013. Moreover, sales of cars and their accessories are currently being stimulated at the expense of decreasing margins and favourable price conditions for end-consumers. Although margins remain high compared to other industries and there is some room for them to fall further, sellers may hit their limits in the near future (see Chart II.17). Given the strong orientation of Czech industry towards this branch of activity, an escalation of difficulties would lead to a protracted stagnation of the sector and large losses for related industries.[9] In connection with the situation in the automotive industry, a decline in production is now also apparent in the plastics and rubber industry.

9 The car industry accounts for almost 10% of the sector's total value added and more than 50% of exports of industrial products.

Credit risk indicators are not showing any major deterioration so far, but will rise in the future

Despite the difficult economic situation, credit risk was relatively favourable, although the current tendencies in the monitored indicators should not be overestimated. The NPL ratio fell further in 2012 (see Chart II.18), although this was due mainly to write-offs from bank balance sheets rather than lower materialisation of credit risk (for details see section 4.1). A weakening ability to repay loans is indicated by the 12-month default rate, whose latest (partially estimated) values suggest a slight rise in credit risk in the corporate sector (see Chart II.19). This is being accompanied by an increase in the number of loans 1–30 days past due (see Chart V.10). In the pre-crisis period, this indicator indicated rising tension in corporate balance sheets[10] and presaged the future rise in NPLs by more than a year. The rising tension is also reflected in continued growth in the number of insolvency petitions and bankruptcy declarations.

An increase in all the monitored indicators and a further shift towards credit risk materialisation can be expected during 2013. Despite the adverse conditions, however, the deterioration should be gradual and not very strong under the *Baseline Scenario*. By contrast, should the conditions of the *Protracted Depression* scenario materialise, the loan repayment problems in the sector would intensify and credit risk would start to rise significantly. The adverse trend would reverse in late 2014 as a result of a gradual economic recovery. However, credit risk would remain high over the following two years.

The overall credit risk level still masks differences in performance across industries (see Chart II.20). Owing to low demand, shrinking margins and rising input prices, construction (including property development) is one of the most at-risk industries in the long run. However, large and well-capitalised banks, which have a better capacity to absorb any rise in risks, have the largest exposures to this segment. Unlike in the previous two years, the differences between industries did not widen in 2012 and the heterogeneity of the sector remained broadly unchanged in terms of credit risk.

Some bank loans provided to corporations may have a higher-than-declared level of risk

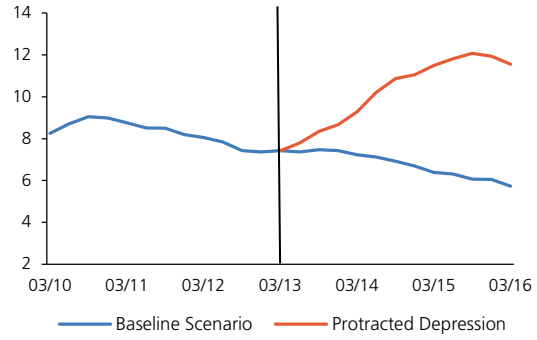
The overall level of credit risk may be underestimated due to different strictness of loan classification criteria across banks, suggesting increasing differentiation in their prudential behaviour (see also section 4.1). Although all loans to a single client within a single bank are categorised as NPLs if problems arise with any of them, this is not always the case across banks and a client may be assessed differently in terms of riskiness in two different banks. Data from the Central Credit Register indicate

10 As only the number, and not the volume, of NPLs has been rising significantly, it is reasonable to assume that it is mainly smaller corporations, which generally take out lower-value loans, that have been getting into difficulty so far.

CHART II.18

NPL ratio for bank loans in the non-financial corporations sector

(%)

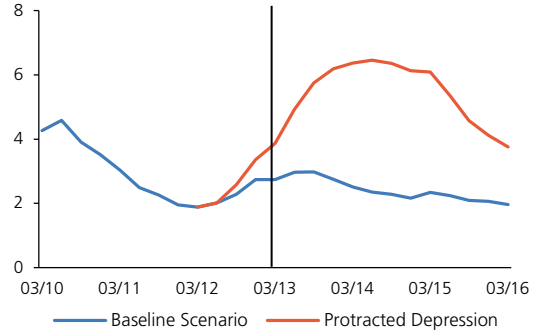


Source: CNB

CHART II.19

12-month default rate on bank loans to non-financial corporations

(%)

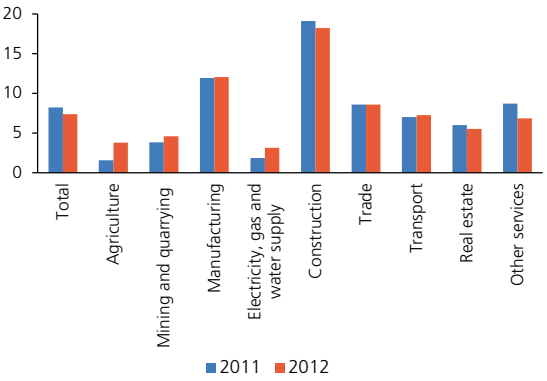


Source: CNB

CHART II.20

NPL ratios in selected branches of activity

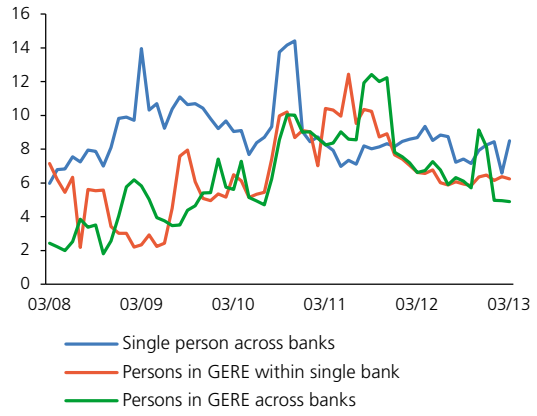
(%)



Source: CNB

CHART II.21

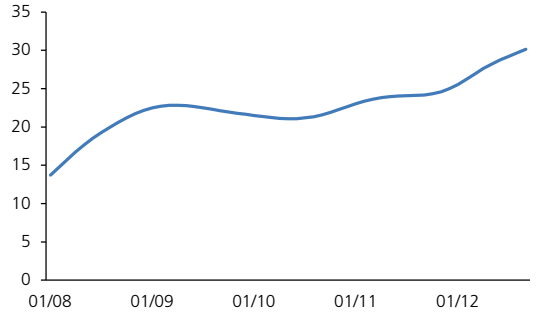
Value of loans at risk of early reclassification as NPLs
(CZK billions)



Source: CNB
Note: GERE stands for "group of economically related entities".

CHART II.22

Bank loans classified as standard for which repayments do not even cover interest
(CZK billions)



Source: CNB
Note: Adjusted using the non-parametric trend function.

that the banking system currently contains 8.5 billion standard (problem-free) loans provided to clients that have at least one NPL with one bank (see the blue line in Chart II.21). This may also be reflected with a lag in the quality of the loan portfolio of the rest of the banking sector, as this set of loans is at risk of being transferred to the NPL category in the near future because of debtor problems.

The total volume of loans at risk of early reclassification to the NPL category will increase further if the differences in perceived riskiness are assessed at the level of loans provided to groups of economically related entities rather than at the level of individual clients. These groups[11] pool persons with close economic or asset links into larger economic units. If a client that belongs to a defined group gets into credit difficulties, loans to the group will not have the same risk classification either across banks or within individual banks. There is therefore again a risk that some loans perceived as problem-free will have to be reclassified as NPLs in the future due to strong links between corporations and to problems in some of them. Although the total amount of these loans has been falling recently, it is still above CZK 11 billion[12] (see Chart II.21). A closer analysis of the data reveals that loans to firms founded for specific property development projects and belonging to larger groups of developers may not have a sufficiently strict classification.

In the hypothetical situation of the entire amount of the above loans (CZK 8.5 billion + CZK 11 billion) being reclassified as NPLs, the NPL ratio would increase by more than 2 pp. Although this risk scenario is implausible and banks would be able to absorb an increase of this size without any dramatic consequences for the financial sector, the data on different risk classification of loans in the banking sector are an important source of information and the CNB will deal with this issue in more detail in the future.

In addition to signs of credit risk undervaluation, growth in some forms of forbearance towards clients can also be observed among banks. This practice is suggested by a gradual increase in the amount of loans that are assessed as problem-free even though total repayment in the past four months does not even cover the interest on the loan (see Chart II.22). Although a large proportion of these loans are "balloon" or "bullet" loans (a special type of loan for which these conditions are laid down directly in the credit agreement), a further

11 The list of groups was drawn up by the banks themselves for credit risk analysis purposes and may not be complete. The results presented below should therefore be viewed as tentative. A group of economically related entities can consist of firms with a holding structure, firms with the same owner, or firms with significant client-supplier links. Information about the allocation of clients to groups is available in the Central Credit Register.

12 This is the sum of loans at risk of reclassification as NPLs provided to entities in a group of economically related entities within one bank and across banks. The total value may be undervalued, as the list of groups of economically related entities is not complete and may not include all the clients that belong to the group. Conversely, the total amount may be overvalued, as relations between entities in a group will not necessarily cause problems in one firm to spread to the rest.

acceleration of this upward trend and an increasing share of such loans in total loans to non-financial corporations may give rise to certain risks.[13] Accordingly, the average time between classification as a watch loan and reclassification as an NPL is increasing. On the one hand, this may foster better anticipation of the future credit risk of corporations and enable banks to prepare better for possible default. On the other hand, it may signal a risk of deferral of the classification of bad loans that should already have been reclassified as NPLs (see also section 4.1). The average time between classification as a watch loan and subsequent reclassification as an NPL has almost doubled in the past five years (see Chart II.23).

The total debt level and the debt structure do not represent a risk to the sector…

Owing to the weak credit activity, the sector's total debt remained essentially unchanged year on year and still seems sustainable thanks to low interest expenses. The debt maturity profile is strongly dominated by long-maturity loans, which allow for more stable and safer financing. There was a partial shift towards debt security financing during the year[14] (see Chart II.24). The largest Czech corporations managed to issue bonds on the market under advantageous interest conditions, and this in turn contributed to the optimisation of debt servicing costs. However, the set of bond issuers is limited and the capital market plays a minor role compared to loan financing. As regards the sector structure of loans received, loans provided by the banking sector have long dominated, as they generally represent a cheaper alternative to non-bank financial corporations and are also better monitored.

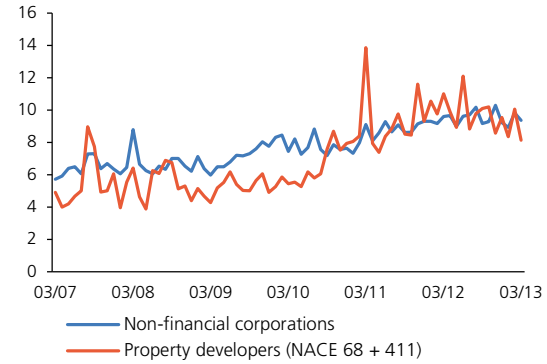
… and credit growth is flat despite the low interest rates

Although interest rates applying to non-financial corporations recorded a further decline to historical lows, this did not provide a sufficient stimulus for a recovery in credit growth in the continuing recession (see Chart II.25). The results of a survey of non-financial corporations reveal that the low interest rates were accompanied by generally good availability of bank loans, hence the low credit growth can be attributed to weak demand for loans.[15] According to the *Baseline Scenario*, this situation – reflecting poor investment sentiment and uncertainty about future developments – will continue and credit growth will remain very sluggish next year. If the assumptions of the *Protracted Depression* scenario materialise, the year-on-year growth rate will fall sharply and the credit cycle will move towards the trough of the recession amid escalating difficulties with insufficient demand.

13 This type of loan is subject to special regulation (see the Official Information of the CNB of 27 May 2011).
14 To a certain extent, this tendency was fostered by advantageous tax conditions for issuing bonds with a face value of one koruna.
15 This issue is dealt with in detail in the thematic article *Modelling Bank Loans to Non-financial Corporations* at the end of this Report.

CHART II.23

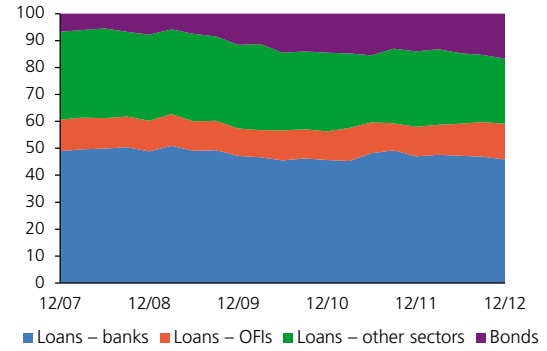
Average time between classification as a watch loan and reclassification as an NPL
(months)



Source: CNB

CHART II.24

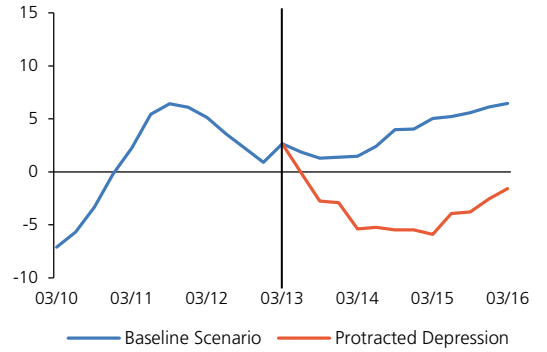
Structure of external financing of non-financial corporations
(%)



Source: CNB
Note: External sources exclude other liabilities (trade credits, advances, tax arrears, etc.).

CHART II.25

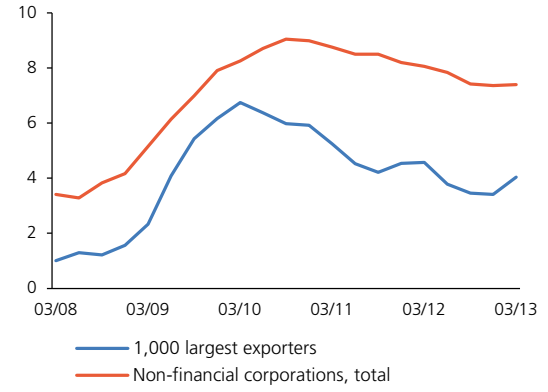
Year-on-year growth in bank loans to non-financial corporations
(%)



Source: CNB

CHART II.26

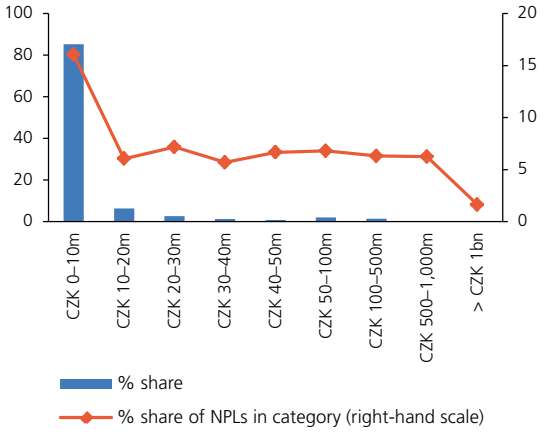
Non-performing bank loans ratio for the 1,000 largest exporters
(%)



Source: CNB

CHART II.27

Breakdown of loans by size and relationship to credit risk
(as % of total number)



Source: CNB

The sector's sensitivity to external developments is increasing

Despite the declining performance of the economy, net exports recorded positive (albeit gradually declining) growth in all four quarters of 2012. This allowed exporters to achieve relatively good financial results (return on equity 3 pp higher than the sector as a whole) and fostered significantly more favourable credit risk materialisation compared to the sector as a whole (see Chart II.26). On the other hand, the stronger role of exports at the expense of weaker domestic demand led to a rise in the potential risks associated with the sector's increasing dependence on conditions in trading partner countries. Globally, the situation in traditionally strong industries such as the automotive industry is generally unfavourable. On the other hand, the robust growth rate of exports to non-EU countries[16] is a positive trend, fostering greater geographical diversification and distribution of potential risks across more geopolitical units. The situation as regards exchange rate risk is also satisfactory. The exchange rate recorded no serious or unexpected fluctuations last year and the *Baseline Scenario* assumes it will remain stable in the period ahead. Accordingly, the natural hedging indicator (the share of foreign currency loans) and the share of exports hedged against exchange rate risk by derivatives remain broadly constant over time.

Foreign parent companies increased their investment in domestic firms

The rise in foreign exposures of non-financial corporations was reflected in a strong inflow of foreign direct investment into Czech firms. 2012 saw a considerable year-on-year increase in reinvested earnings, which were therefore not used to finance foreign parent companies. A solid inflow of other foreign capital (for example in the form of loans from parent companies to their Czech subsidiaries) was recorded at the same time. This is currently contributing to the good capital position of Czech subsidiaries, although in the years ahead their financial condition may depend increasingly on the financial soundness of their parent companies and therefore also on economic developments in their owners' countries.[17] The current satisfactory situation of large corporations, which are almost exclusively foreign-owned, is illustrated by the low level of credit risk on the large loans obtained by these corporations from the domestic banking sector (see Chart II.27). Increased problems in large corporations – caused by problems in parent companies or on the domestic market – would significantly affect the overall level of credit risk.

16 Especially exports to Russia and also, in the first half of the year, exports to China.
17 However, some owners may resolve any problems they might face by selling their Czech subsidiaries rather than by gradually siphoning off their profits.

2.3 HOUSEHOLDS

In line with the general economic conditions, the labour market situation deteriorated in 2012 and the real wages of households again declined. Households responded to the worsening income conditions by reducing their consumption and new borrowing. Together with low interest rates, this helped to stabilise the credit risk of households. Its future level will be affected mainly by the financial situation of young households in and around Prague and Brno, which have the largest amount of loans. They have been repaying their debts relatively easily so far thanks to their above-average income. As a result, it is mainly low-income households that are currently in danger. However, they do not pose too great a risk to banks' balance sheets, as their total debt volume is low.

The real wages of households fell in line with adverse labour market developments

The decline in economic activity in 2012 adversely affected the labour market situation, and the general unemployment rate rose slightly. In some regions the unemployment rate decreased, but in regions which had already been facing high unemployment in 2011 it rose further, exacerbating the unfavourable regional trends in unemployment. The rise in the number of unemployed persons was also accompanied by a drop in the number of vacancies. Household income deteriorated in line with the labour market conditions, with the real average wage falling by 0.6%[18] (see Chart II.28). According to the CNB's May forecast, a worsening of the labour market situation coupled with a decline in purchasing power is also expected in 2013 and will probably be the largest source of risks to the household sector. A slight rise in employment – due to an increase in the number of persons working outside primary employment – was a minor positive signal on the labour market.

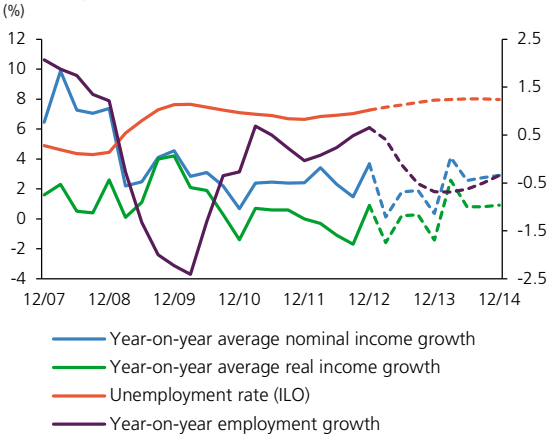
Household debt rose only slightly, which led to a marked rise in net financial assets

Household debt rose only very slightly as a percentage of gross disposable household income in 2012, reaching 57.7% (see Chart II.29). This is still a low level by comparison with other advanced countries. The rise in household credit obligations in absolute terms was also very gradual last year (see Chart II.30). Loans for house purchase recorded the highest growth, rising by 4.8% year on year in 2012. By contrast, consumer credit and liabilities to non-bank institutions edged down. Growth in loans to households should also slow in overall terms over the next two years, and if the *Protracted Depression* scenario materialises it will even turn negative in 2014 (see Chart II.30). Thanks to the limited growth in household debt and virtually unchanged nominal GDP, the upward trend in net financial assets relative to GDP continued for the

18 Different data are provided by the CZSO Household Budget Statistics, according to which real money income including non-wage components grew by 1.6% in 2012.

CHART II.28

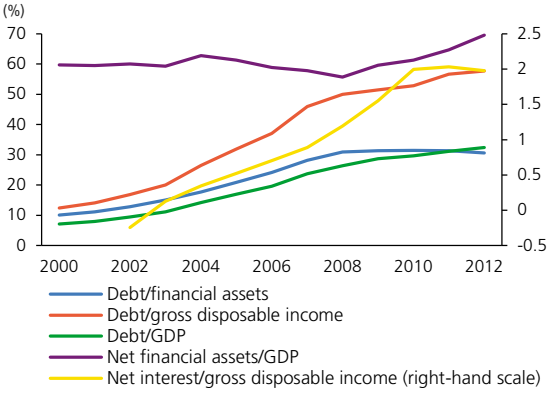
Nominal and real wage growth, employment growth and the unemployment rate



Source: CNB
Note: The unemployment rate is seasonally adjusted. Dashed lines indicate CNB predictions.

CHART II.29

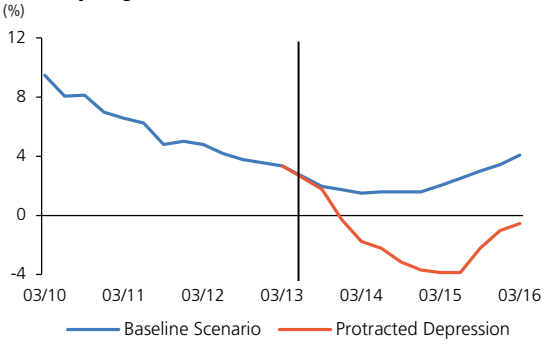
Household debt ratios



Source: CNB, CZSO
Note: The net interest payments data do not cover non-bank financial intermediaries.

CHART II.30

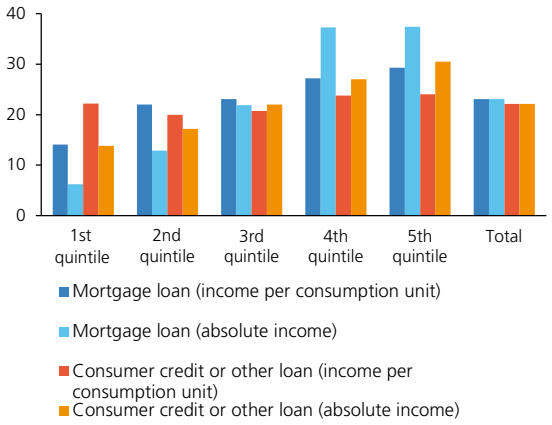
Year-on-year growth in bank loans to households



Source: CNB

CHART II.31

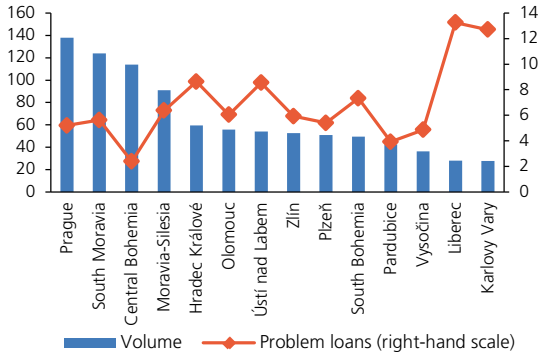
Shares of households with loans according to different income quintile definitions
(%)



Source: 2011 Household Budget Statistics, CNB calculation
Note: The income quintiles were based on absolute income – light blue and orange columns – and on income per consumption unit – dark blue and red columns. Consumption unit is defined according to the OECD, with the whole unit consisting only of the head of household.

CHART II.32

Loans to households by region and credit risk
(CZK billions; share of problem loans in %)



Source: 2011 SILC, CNB calculation
Note: Volumes of loans as of 31 December 2011. A problem loan is one that was in arrears at least once during 2011.

fourth consecutive year, rising to 69.6% (from 64.7% at the end of 2011).[19] The financial asset structure remained almost the same in 2012 as in the previous year. Currency and deposits remained the dominant financial instrument, accounting for 54.5% of financial assets at the end of 2012. An increase in the share of government savings bonds from 2.0% to 3.3% represents a minor change in structure.

The share of low-income households with loans is higher if the number of household members is taken into account

FSR 2011/2012 presented the relationship between the share of households with loans and the income quintile, showing that the share of households with loans increases relatively strongly as a function of income. However, the definition of household income can also take into account the number of household members (or consumption units as defined by the OECD), as a larger number of household members implies higher necessary expenditure. As an alternative, therefore, this Report divides households into income quintiles based not only on the absolute net income of the entire household, but also on net income per consumption unit. Although this approach also leads to the conclusion that low-income households have fewer loans, the relationship between borrowing and income is less strong (see Chart II.31). In the case of consumer credit and other loans, households in the lowest-income quintile in fact borrow more often than households in the two higher quintiles. One possible explanation is that such households use consumer credit to bridge shortfalls in funds, as their income situation is even worse on average than according to the quintiles based on absolute income levels. Loans provided to this type of household are the most risky and may lead to default in the future. However, the impacts on the financial sector would be significantly dampened by the fact that the overall absolute amount of these loans is relatively low.

The financial situation of young households in and around Prague and Brno is crucial to maintaining low credit risk

Data from the Survey of Income and Living Conditions (SILC) make it possible to map the distribution of loans and credit risk by region and age category based on the share of problem loans.[20] As expected, the highest levels of credit risk were recorded in regions generally known for their high unemployment rates – Karlovy Vary, Ústí nad Labem and Liberec (shares of unemployed persons 8.0%, 10.0% and 7.4% respectively as of 31 December 2012).[21] Central Bohemia and Prague[22] are among the least risky regions (see Chart II.32). These two regions are home to a high

19 The ratio of net financial assets to GDP dropped temporarily between 2004 and 2008 owing to relatively rapid growth in financial liabilities in this period.
20 The proposed indicator is conceptually similar to the NPL ratio, but cannot be compared directly due to the different constructions of the relevant items in the SILC and in CNB statements.
21 On the other hand, the Moravia-Silesia region, which traditionally has a high unemployment rate, did not rank among the regions with a high share of problem loans.
22 A clear distinction cannot be made between these regions, as many people with permanent residence in Central Bohemia come to Prague to arrange loans and/or work in the capital.

proportion of high-income households, which traditionally have less trouble repaying their debts. A negative relationship can also be observed between the volume of loans in each region and their riskiness. This can probably be explained by the fact that high-income households have lower credit risk and the highest debts in absolute terms. From the age perspective, persons aged 24 or younger are the most risky, but the credit risk rates differ little across the other age categories (see Chart II.33). The debt level is highest in the 30–39 age category. The SILC data show that keeping credit risk low among households aged 30–39 in and around Prague and Brno, which have relatively high wages and currently low unemployment, is essential to maintaining the sector's financial stability in the future. The situation in this household segment is crucial given the dominant share of these households' liabilities in the sector's total debt.[23]

Other variables besides age and place of permanent residence affect credit risk

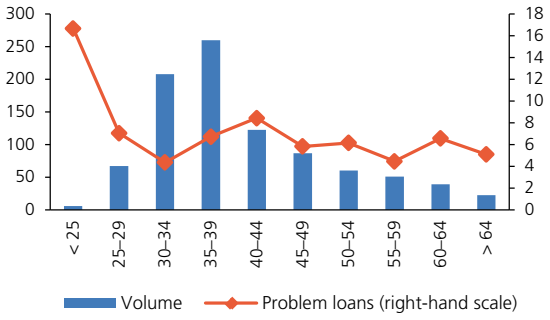
Besides age and place of permanent residence, the SILC data file contains other socio-demographic household characteristics which can be used to identify households with an increased probability of default. For the purposes of this analysis, binary variables were created, taking values of either 1 or 0 depending on whether or not a pre-defined criterion is fulfilled (see Table II.1). This type of variable gives rise to results that are easy to interpret. Fulfilment of the condition defined by the division criterion in Table II.1 implies a higher probability of default. The last column contains the Gini coefficient, which indicates how well the variable separates households in arrears from those who repay on time. A Gini coefficient of 0% means a zero ability of the variable to help distinguish defaulting households from the rest, while a Gini coefficient of 100% means an absolute ability of the variable to separate the two groups. The results show that net household income is the most suitable variable for identifying households unable to repay their debts. Ownership of the property in which the household lives and the level of education of the head of household are also strong predictors of repayment problems. On the other hand, it is clear that the age of the head of household is not a very good indicator of loan repayment problems. Households whose head is younger than 25 have a very high risk of default, but their share in total households with loans is very low.[24] It is also apparent that no variable alone has a very high ability to predict (explain) loan default.

Household credit risk increased only slightly

From the perspective of the 12-month default rate, household credit risk was almost flat in 2012 (see Chart II.34) in both the loans for house purchase and consumer credit segments. The NPL ratio in the loans for

CHART II.33

Loans to households by age category and credit risk
(CZK billions; share of problem loans in %)



Source: 2011 SILC, CNB calculation
Note: Volumes of loans as of 31 December 2011. A problem loan is one that was in arrears at least once during 2011.

TABLE II.1

Importance of binary variables for household credit risk

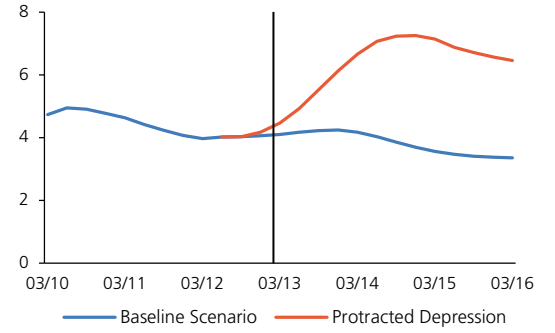
Variable	Division Criterion	Gini coefficient (%)
Net household income	< 21,000 CZK/month	27.5
Owner-occupied property	NO	23.4
Education of head of household	No school leaving certificate	20.0
Existence of partner	Head of household has no partner	19.8
Gender of head of household	Head of household is a woman	15.6
Region of residence	Not Prague, Central Bohemia, Pardubice, Vysočina	12.1
Employment of head of household	Head of household is unemployed	11.6
Employment of partner	Partner is unemployed	8.6
Age of head of household	< 25	2.3

Source: 2011 SILC, CNB calculation
Note: Fulfilment of division criterion means higher credit risk

23 Such households account for one-half of the total loan volume.
24 The same is true for households with more than two children. These households are significantly more risky, but are too low in number to make the existence of more than two children in itself a good indicator of a household's level of risk.

CHART II.34

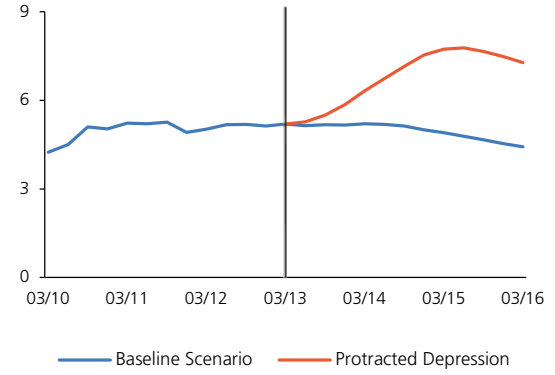
12-month default rate on bank loans to households
(%)



Source: BRCI, CNB

CHART II.35

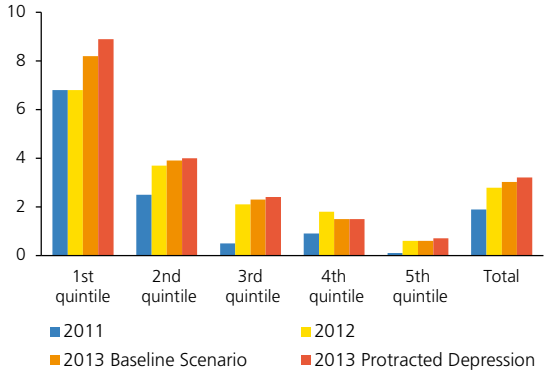
NPL ratio for bank loans in the household segment
(%)



Source: CNB

CHART II.36

Shares of overindebted households by income quintile
(%)



Source: CZSO 2011 Household Budget Statistics, CNB calculation
Note: The income quintiles are based on net income per consumption unit. Consumption unit is defined according to the OECD.

house purchase segment was also almost unchanged from 2011, although in the consumer credit segment it rose by more than 1 pp. Overall, the NPL ratio for loans to households recorded a slight increase (see Chart II.35). The stabilisation of household credit risk was due largely to exceptionally low interest rates on loans for house purchase, which are the most important component of household financial liabilities. Future strong growth in interest rates coupled with subdued income growth would probably lead to a sizeable increase in household credit risk. The *Protracted Depression* stress scenario would imply a rise of almost 3 pp in both credit risk indicators.

Consumer loans are much more risky than mortgages

As of 31 March 2013, the NPL ratio for loans for house purchase was 3.5%, whereas that for consumer credit was 12.4%. For this reason, consumer credit accounted for about 44% of NPLs to households as of the same date, even though the share of this component in total household credit liabilities is only around 18%. The higher credit risk for consumer credit is reflected in interest rates (or the APRC), which are several times higher than those on loans for house purchase. This difference is larger than in advanced euro area economies. It is reasonable to assume that rather than being a case of incorrect risk valuation by Czech banks, the interest rates on consumer credit reflect its actual level of risk. In Poland and Hungary, both the interest rates and the NPL ratios for consumer credit are similar to those in the Czech Republic. Although there is some heterogeneity across consumer credit, 73.2% of consumer credit was non-specific consumer credit at the end of 2012. As a result, the NPL ratio for total consumer credit at the end of last year (12.3%) was almost identical to that for non-specific consumer credit.

Stress tests show that low-income households are the most vulnerable[25]

The stress test methodology has been further refined compared to FSR 2011/2012. The tests in this Report use the CZSO Household Budget Statistics for 2011 and have been extended to include the second adult in the household and a more detailed model of the labour market taking into account socio-demographic characteristics of individual households. The tests now also consider interest rate shocks, and a household is now defined as overindebted if it has a monthly financial surplus of less than zero korunas.

Chart II.36 shows the test results broken down by income quintile. In contrast to the aforementioned article, however, it divides households into income quintiles according to net income per consumption unit as defined by the OECD, not according to net income in absolute terms. However, the conclusions are very similar and concur that low-income households are overindebted most frequently. Overall, household

25 Preliminary results of CNB Research Project C1/11 (Hlaváč, Jakubík, Galuščák). The stress tests are discussed in more detail in the thematic article *Household Stress Tests Using Microdata* in this Report.

overindebtedness is rising and is not very sensitive to the choice of stress scenario, as the scenarios tend to represent stress from the perspective of the banking sector. Again, low-income households show the highest sensitivity to the nature of the scenario. On the other hand, the losses of the financial sector arising from the materialisation of the assumptions of the *Protracted Depression* scenario would be limited given the relatively low overall debt of these households. The results differ from the version of the stress tests used in the thematic article in that the level of overindebtedness varies less across the income quintiles than in the case of traditional income quintiles.

The rising share of mortgages with short rate fixation periods should not turn into a significant risk

As a result of the very low level of short-term interest rates, households' interest in refixing mortgages to shorter periods is rising (the share of new loans with either a floating rate or initial rate fixation of up to one year in total new loans was almost 10% at the end of 2012).[26] In addition to very low short-term interest rates, this was due to a high number of mortgages whose fixation period was ending. The scenario of a large number of households refixing their house purchase loans for a very short period (with fixation of up to one year or a floating rate) at low interest rates and then rates rising sharply poses some risk. However, the current trends may be regarded as mostly stabilising. At present, debtors generally achieve better interest rates when they refix, and the decrease in their mortgage loan servicing costs reduces their risk of default. Moreover, if interest rates were to increase gradually, banks and clients would probably adjust to the new situation and turn away from short fixation periods and floating rates. A rise in the interest rate level could have an adverse effect mainly on households whose loans have high LTV and LTI ratios (see section 5).[27]

A significant rise in defaults in reaction to an increase in the interest rate level would occur only if short-term refixations were mostly used by low-income households, which have minimal financial reserves. A combination of rapidly rising interest rates and flat nominal income, or essential household expenditure increasing at least as much as income, would have to occur at the same time. This could materialise in the event of a loss of confidence in public finance sustainability, which would lead to growth in credit premiums (and therefore interest rates) even in a situation of non-rising monetary policy rates due to adverse economic developments. The share of mortgage loans with initial rate fixation of up to one year in total mortgage loans is still relatively low (according to

26 In Austria, a full 87% of new loans to households in 2012 Q3 were provided with initial rate fixation of up to one year – see Oesterreichische Nationalbank (2012): *Financial Stability Report 24*.

27 The risks of mortgages with a variable interest rate associated with the interaction between credit and market risks are described in Breuer T., Jandacka M., Rheinberger K., Summer M. (2008): *Compounding Effects between Market and Credit Risk: The Case of Variable Rate Loans*, in Andrea Resti, ed., *The Second Pillar in Basel II and the Challenge of Economic Capital*, Risk Books.

market participants' estimates, floating-rate mortgages account for less than 5% of total mortgage loans), so the risk of this scenario materialising seems very limited so far.[28] As in the case of short-term refixation, new mortgages could in the future be more risky for households with minimal financial reserves when their initial rate fixation period expires. In order to mitigate this risk, banks should consider the historical behaviour of interest rates and not only their current low levels when evaluating the creditworthiness of current and potential clients.

28 Although this risk has been identified in several European financial stability reports, none of them identifies it as important.