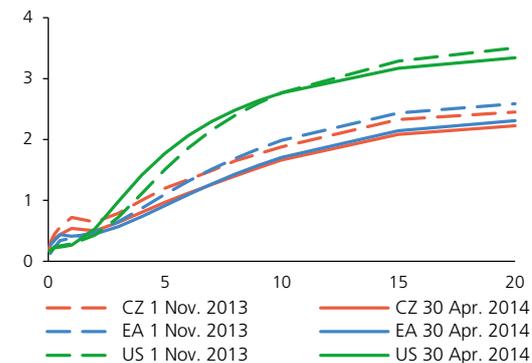


CHART III.1

Change in yield curves in the USA, the euro area and the Czech Republic

(x-axis: maturity in years; y-axis: %)

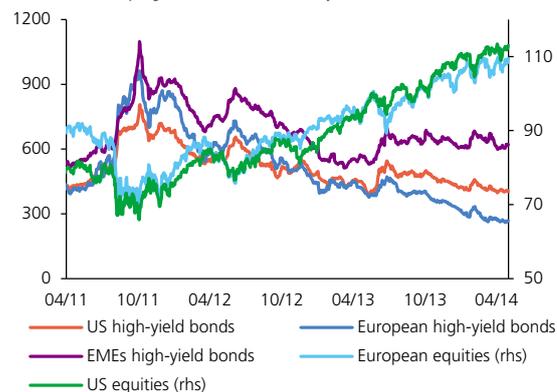


Source: Bloomberg L.P.

CHART III.2

Global view of prices of risky assets

(left-hand scale in bp; right-hand scale: index 17 May 2013 = 100)



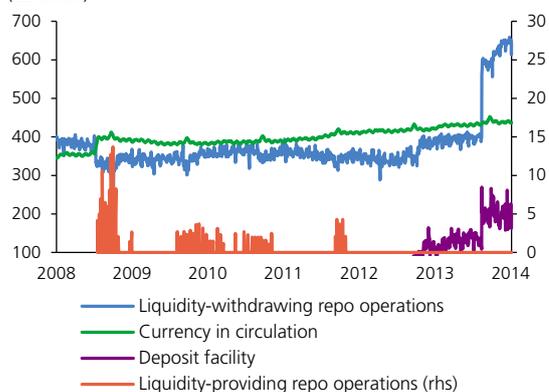
Source: Bloomberg L.P., Thomson Reuters, CNB calculation

Note: For bonds the option-adjusted spread is illustrated; a risky bond is a speculative-grade bond (BB+ or lower). For stocks the STOXX EUROPE 600E index was used for Europe and the S&P 500 COMPOSITE index for the USA.

CHART III.3

Open market operations and currency in circulation

(CZK billions)



Source: CNB

3 ASSET MARKETS

3.1 THE FINANCIAL MARKETS

Following a change in the major central banks' communication about the speed and intensity of the normalisation of their monetary policies, volatility in financial markets decreased and long-term interest rates fell again in mid-2013. Global financial conditions thus remain easy and the period of search for yield associated with greater risk-taking has been extended. The sensitivity of global portfolios to interest rate growth has intensified and the potential negative impact of the re-assessment of market risks has increased. The Czech financial market is also partially exposed to the risk of spillover of external shocks. The intensity of these shocks will depend on domestic fundamentals, and the size of their impact will be affected by the quality and extent of hedging by domestic financial institutions.

Global monetary conditions remain easy ...

Global financial markets continue to operate in an environment of very low interest rates, and the outlooks also remain low. The major central banks gradually indicated via forward guidance¹ that the easy monetary conditions would continue (see Chart III.1). Although the Federal Reserve has started to taper its quantitative easing programme by slowing the pace of bond purchases (gradually from USD 85 billion to USD 55 billion a month with effect from April 2014) and excess liquidity has also been decreasing in the euro area since 2013, the ECB lowered its key interest rate in November 2013 and announced other unconventional measures in June 2014. The Bank of Japan also started to ramp up its quantitative and qualitative easing programme last year. Together with positive economic outlooks for advanced economies, in particular the US economy (see section 2), investors' high risk tolerance is thus being maintained and demand for risky assets is being further stimulated by low portfolio returns (see Chart III.2).

...as do monetary conditions in the Czech economy

The CNB's monetary policy rate has remained at technical zero (0.05%) since November 2012. Market rates decreased again in November 2013 owing to the use of the exchange rate as an additional monetary policy instrument by the CNB (see Chart III.1). The total monetary liquidity in the Czech financial system increased as a result of foreign exchange interventions to weaken the Czech koruna. However, the additional excess liquidity was sterilised using standard two-week repo tenders and the overnight deposit facility. The participation of banks in sterilisation operations thus increased compared to previous months, and the take-up of an extraordinary liquidity-providing repo operation testifies not only to ample liquidity, but also to satisfactory distribution of that liquidity across the Czech financial system (see Chart III.3).

¹ See also *Global Economic Outlook*, January 2014, CNB.

Money market activity remains subdued...

The abundance of cheap liquidity in advanced countries reduced the liquidity component of the risk premium in the interbank market and the market's volatility. At the same time, however, activity in this market is falling. This is apparent from regular surveys of average daily turnovers in interbank markets in the Czech Republic and the EU. The average daily turnover in the Czech unsecured market fell by 50% year on year.² Moreover, all activity is concentrated in short-term (up to one week) maturities in the unsecured markets of both regions (see Chart III.4). This may indicate persisting caution about counterparty risk. The presence of this risk within the EU is suggested by a shift of activity to secured markets (see Chart III.5), where activity is rising again. This contrasts with the Czech secured market, which recorded a year-on-year decline of 67%. A preference for short maturities can be seen in both regions.

...and will continue to be affected by gradual adjustment to European regulations

The lower money market activity and partly also the increased preference for secured transactions may also be a response to changes to European regulations, primarily in the liquidity area. The proposed Basel liquidity standards (known as LCR and NSFR) encourage the banking sector on the one hand to hold assets eligible for creating a liquidity buffer³ and on the other to prefer stable, easily renewable and long-term funding sources.

Both the unsecured and secured interbank market will largely affect the conduct of banks that meet the limits of the said standards towards banks that do not meet them. Banks that prefer short-term maturities for unsecured transactions and accept eligible assets as collateral in secured transactions will feature on the liquidity supply side. The opposite preference will apply on the demand side. This may result in a shift of activity to the secured market and fragmentation between the secured and unsecured markets. Rates may go up in the secured market, as an additional premium will be demanded for transactions secured by ineligible assets. The introduction of liquidity standards also gives rise to a risk of a permanent shift of part of banks' activities from the interbank market to operations with the central bank, as funds raised in these operations are regarded as fully renewable regardless of their maturity. The risk of this shift will depend largely on the central bank's collateral policy, on the types and maturity of liquidity-providing instruments and on the liquidity allotment policy.⁴ In general, stricter central bank collateral policy regarding eligible assets, shorter maturities of such operations and restricted allotment of liquidity will lead to a reduction in

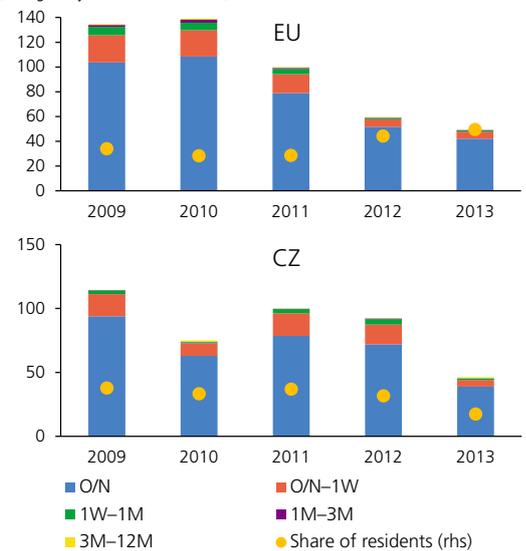
2 The average turnover dropped from CZK 52.8 billion in April 2012 to CZK 26.4 billion in April 2013 in the unsecured market and from CZK 5.9 billion to CZK 1.9 billion in the secured market.
http://www.cnb.cz/en/financial_markets/money_market/mm_turnover/index.html

3 The liquidity buffer is the sum of highly liquid assets immediately available to a bank to overcome a short-term liquidity stress situation.

4 When conducting open market operations, the central bank assesses the total liquidity need in the banking sector and allots this amount using tenders. In exceptional situations, however, it may allot the full amount of liquidity demanded by banks, i.e. satisfy all the bids.

CHART III.4

Transactions in the unsecured interbank market (average daily turnovers; 2011 = 100)

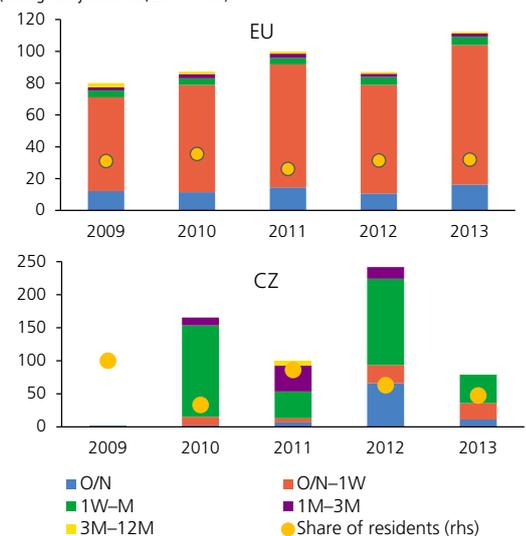


Source: CNB, ECB, CNB calculation

Note: Data from surveys of average daily turnovers on the relevant money market. O/N = overnight, 1W = 1-week, 1M = 1-month, 3M = 3-month, 12M = 12-month. The information for the EU relates to September of the given year. In the case of the Czech Republic the data are taken from the April survey in the given year.

CHART III.5

Transactions in the secured interbank market (average daily turnovers; 2011 = 100)

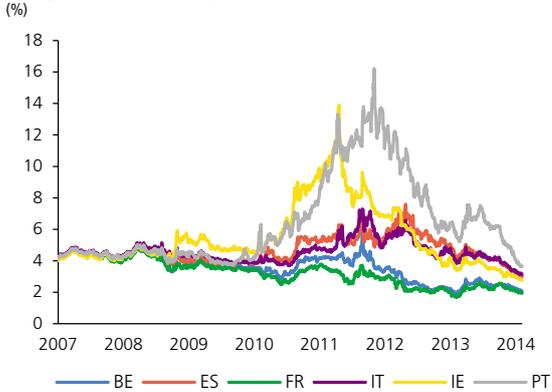


Source: CNB, ECB, CNB calculation

Note: Data from surveys of average daily turnovers on the relevant money market. O/N = overnight, 1W = 1-week, 1M = 1-month, 3M = 3-month, 12M = 12-month. The information for the EU relates to September of the given year. In the case of the Czech Republic the data are taken from the April survey in the given year.

CHART III.6

10Y government bond yields in selected euro area countries (%)



Source: Thomson Reuters

CHART III.7

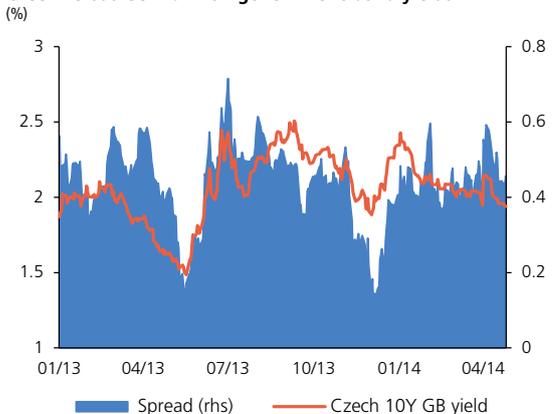
10Y government bond yields in selected CEE countries (%)



Source: Thomson Reuters

CHART III.8

Czech versus German 10Y government bond yields (%)



Source: Thomson Reuters, CNB calculation

Note: Spread between Czech and German generic 10Y government bond yields.

this potential risk. Banks that are highly dependent on funding from money and capital markets can be expected to display the changes in conduct described above. As for Czech banks, which are mostly compliant with the LCR limits (see section 4.2), the impact of the new standards on Czech money markets is generally limited.

Low government bond yields are encouraging search for yield...

The changes in the future monetary policy settings of major central banks also affected the pattern and volatility of yields in government bond markets. The impact in euro area periphery countries was pronounced. In Italy, for example, the ten-year yield dropped to an all-time low (see Charts III.6).⁵ The effect is also visible in selected Central European countries (see Charts III.7 and III.8). This is evidenced by an increase in the correlation between their government bond yields and those in advanced economies. In the Czech Republic, this correlation has been rising since the onset of the debt crisis in 2010, and a stronger effect of the euro area has been apparent since the ECB launched its three-year lending operations (see Chart III.9). Owing to the expected introduction of further unconventional measures by the ECB, Czech government bond yields may decline further, as they still represent a relatively attractive investment (see Chart III.10). Corporate bonds are also a more profitable alternative. This is apparent from the very low yields on high-quality corporate bonds and the still declining yields for riskier issues (see Charts III.11 and III.12). Many large companies in advanced and emerging countries are taking advantage of this. Issuance of corporate bonds has also been rising in the Czech Republic in recent years (see Chart III.13), especially in the case of non-financial corporations (see section 2.2).

...which is causing growing concerns about the re-assessment of market risks...

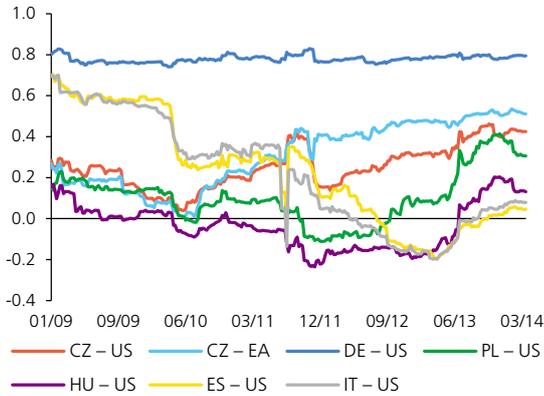
The current imbalance in bond markets is causing growing concerns about a sharp adjustment of prices of these assets and global restructuring of portfolios. This concern stems from the fact that institutional investors and asset managers, mostly from advanced countries, have in recent years created large portfolios often composed of bonds with longer maturities. In the search for yields, these investors might have underestimated the risks associated with at least some of these bonds. Underlying this concern is a substantial decline in risk premia on corporate bonds (i.e. the expected yield on top of the yield on short-term government bonds).⁶ A more pronounced increase in yield

5 For the first time since the debt restructuring in 2012, the Greek government successfully auctioned five-year bonds at a yield of less than 5% at the start of April.

6 See, for example, Stein, J.: *Overheating in Credit Markets: Origins, Measurement, and Policy Responses*, lecture at the Federal Reserve Bank of St. Louis research symposium, 7 February 2013, or Stein, J.: *Incorporating Financial Stability Considerations into a Monetary Policy Framework*, lecture at the Spring meeting of the International Monetary Fund in Washington, 13 April 2014. The combination of extremely low risk premia and an increasing share of bonds with a risky profile (junk bonds, covenant-lite bonds, etc.) in total bond issuance is identified there as a significant indicator of excessive risk-taking in the USA.

CHART III.9

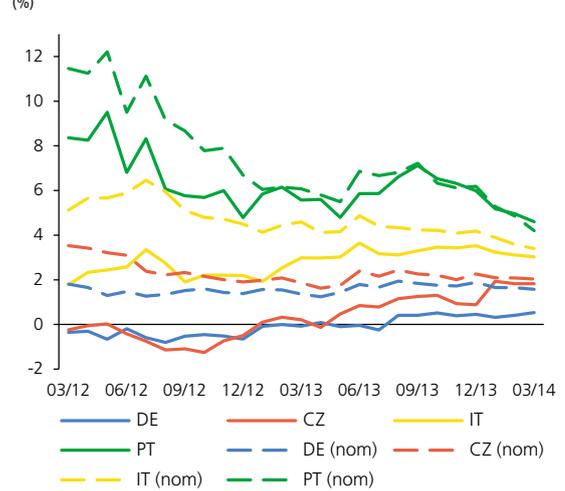
Correlation of 10Y government bond yields between selected countries and the USA/euro area



Source: Thomson Reuters, CNB calculation
 Note: The correlations were obtained from data on weekly average 10Y government bond yields in 1997–2014 for CZ, DE, EA, ES, HU, IT, PL and US. The calculation was performed using the EWMA method (with a smoothing factor of 0.98), which takes into account changing data volatility and changing covariance.

CHART III.10

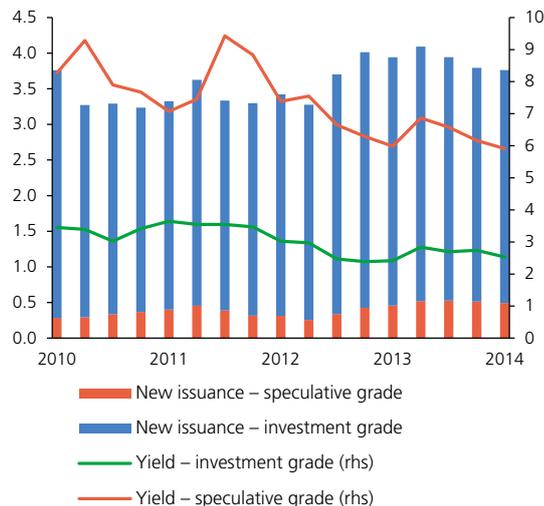
Real and nominal government bond yields for selected countries



Source: Thomson Reuters, CNB calculation
 Note: The chart shows ex post real yields, calculated as the difference between the nominal yield on 10Y GB and the year-on-year change in the CPI in the given economy.

CHART III.11

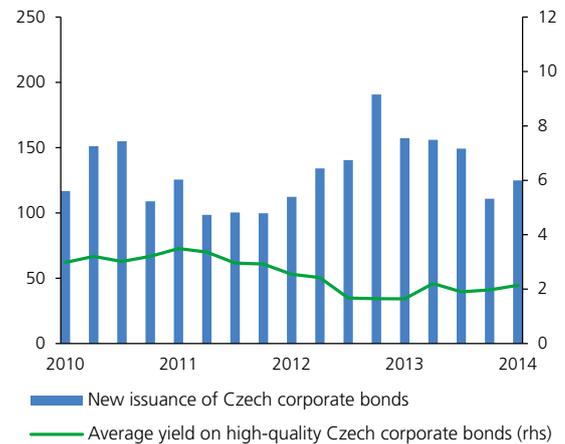
New issuance of corporate bonds on the global market
 (left-hand scale in USD trillions; right-hand scale in %)



Source: Bloomberg L.P., CNB calculation
 Note: The data on the volumes of bonds issued are converted to an annual basis by summing over the last four quarters.

CHART III.12

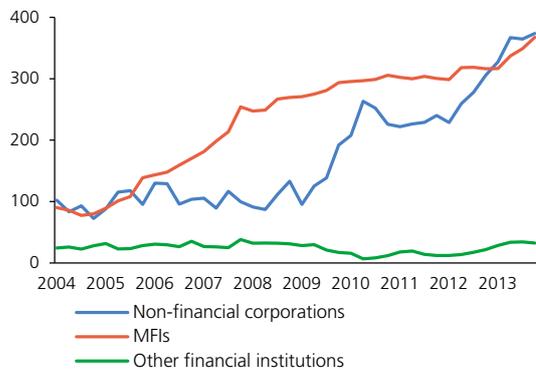
New issuance of Czech corporate bonds
 (left-hand scale in CZK billions; right-hand scale in %)



Source: Bloomberg L.P., CNB calculation
 Note: The data only cover issues registered on the regulated market. The issue volume is converted to an annual basis by summing over the last four quarters. The average yield is calculated as a weighted average yield on a sample of bonds issued by Czech issuers with a rating of A- or higher in various currencies. The basket contains 20–40 issues with a time to maturity of no more than 15 years (average 5.5) depending on time. The face value of the issue is used as the weight in the calculation. The low number of bonds issued by domestic risky issuers (five) makes it impossible to calculate the average yield for such securities.

CHART III.13

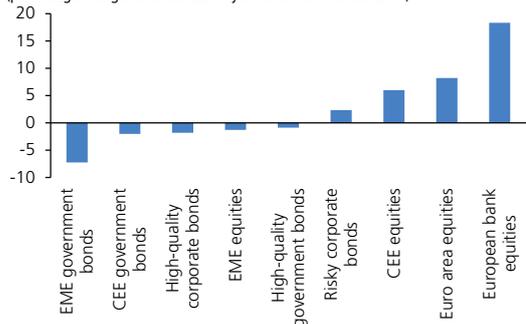
Value of corporate bonds issued in the Czech Republic (CZK billions)



Source: CNB

CHART III.14

Change in prices of selected global assets (percentage changes between 22 May 2013 and 31 October 2013)

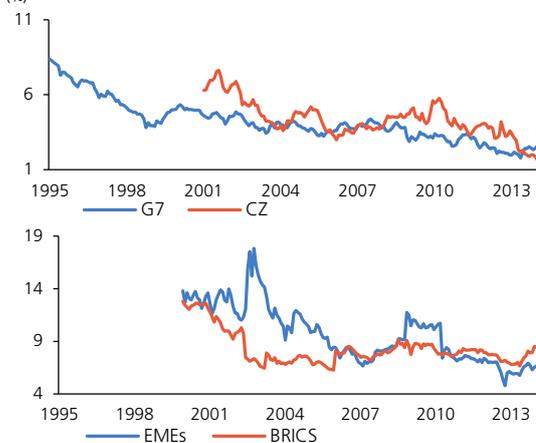


Source: Bloomberg L.P., CNB calculation

Note: CEE countries comprise CZ, HU, PL and SK. High-quality bonds are AAA-rated bonds, while risky bonds are speculative-grade bonds (BB+ or lower). The price change calculations are performed on individual price indices, except for the data on CEE countries, which are calculated as the average change in the price indices for individual countries.

CHART III.1 Box

Global view of government bond yields (%)



Source: Thomson Reuters, CNB calculation

Note: Yields on 10Y GB. EMES comprise AR, BR, CL, CO, MX, PE and VE.

curve slopes in large advanced economies might trigger portfolio revaluation and restructuring. As a result, the yields demanded on bonds of smaller or globally less important economies, including the Czech Republic, might rise or suddenly return to levels consistent with fundamentals (see Box 2).

...concerns which partially materialised in spring 2013

This was also shown by events observed in late May and early June 2013, when a change occurred in market expectations about the US economic recovery and the related timing of the reduction in bonds purchased by the Federal Reserve under QE3.⁷ This change in expectations triggered an unusually sharp adjustment of prices in numerous asset categories across global markets, which was accompanied by market turbulence. The adjustment of prices differed across countries in terms of both its size and nature. While the markets for highly-rated government bonds recorded a decrease in prices, prices of most equities and risky corporate bonds increased (see Chart III.14). Last year's events also affected Czech financial markets, although less so than emerging markets.

BOX 2: HOW COMMENSURATE ARE THE CURRENTLY LOW GOVERNMENT BOND YIELDS WITH THEIR MACROFINANCIAL FUNDAMENTALS?

This box aims to identify the probable evolution of long-term government bond yields in the years ahead with respect to their trend and the course of the economic cycle. Government bond yields have long been falling across a wide range of countries (see Chart III.1 Box) despite the growing sovereign debt in those countries (see Chart III.2 Box). This trend is due to several common global factors. They include the large surpluses in emerging economies and the related accumulation of reserves in central bank balance sheets, global portfolio shifts towards safe assets, and the decline in nominal interest rates linked with the anchoring of low inflation expectations.

However, government bond yields did not fall sharply until the onset of the financial crisis. In response to declining inflation rates, falling investment and negative output gaps, a large number of central banks in advanced countries lowered their monetary policy rates to near-zero levels. In addition, some opted to use unconventional monetary policy instruments to directly influence the term premium on domestic government bonds. In this way they released a large amount of liquidity, reduced market volatility and changed interest rate differentials. This caused adjustments in

⁷ Events of a similar nature also occurred in late 1993 and early 1994, when volatility in global bond markets increased significantly in response to a tightening of monetary policy by the Federal Reserve. For details see ECB (2013): *Financial Stability Review*, November 2013, Box 4.

capital flows between countries due to an increase in demand for more attractive assets. The proportion of government bonds held by non-residents thus increased in some countries and their yields became more affected by external factors. The results of the latest studies of government bond yield determinants point to the changing importance of local and global factors. The relevance of foreign variables has been rising since 2007 due to market integration.⁸

Equilibrium real yields of government bonds were estimated on the basis of a simple model based on the calculation of the average effect of domestic macroeconomic variables across a wide range of countries. The difference between the observed average real yield on a government bond of a given country and the relevant fitted value implied by the model is the main variable of interest. The model is based on the assumption that real long-term government bond yields are determined mainly by current and expected future economic growth and the risk premium.⁹ This can be expressed formally by the following relationship:

$$r_{it} = \alpha_i + \beta trend_{it} + \gamma cycle_{it} + \delta debt_{it} + \eta balance_{it} + \theta savings_{it} + \varepsilon_{it}$$

where r denotes the real yield, defined as the average nominal five-year government bond yield minus inflation. The effects of real economic growth are estimated separately for its trend (*trend*) and cyclical (*cycle*) components to distinguish between short-term and long-term factors. The sovereign risk premium, which is affected mainly by government debt sustainability, was represented in the model by the government debt-to-GDP ratio (*debt*) and the government budget balance to GDP ratio (*balance*).¹⁰ The national saving rate (*savings*) is the last variable included. Savings represent domestic absorption capacity in the model. We deliberately abstracted from some temporarily important external effects, such as market sentiment, the sovereign rating and the above-mentioned effect of major foreign economies having a cross-border effect through capital investment.

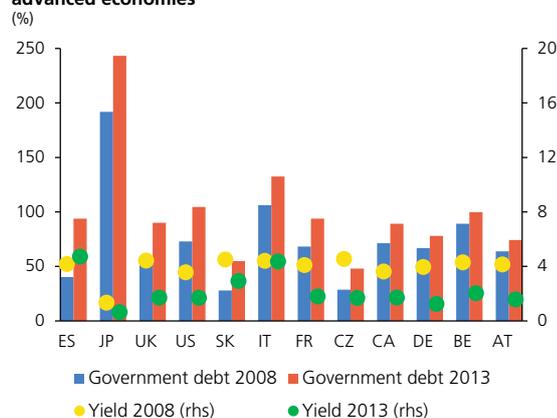
8 See Miyajima, K., Mohanty, M. S., Chan, T (2012): *Emerging Market Local Currency Bonds: Diversification and Stability*, BIS WP No. 391, or Turner, P. (2013): *Benign Neglect of the Long-term Interest Rate*, BIS WP No. 403.

9 See Moore, J., Nam, S., Suh, M., Tepper, A. (2013): *Estimating the Impacts of U.S. LSAPs on Emerging Market Economies' Local Currency Bond Markets*, FRBNY Staff Report No. 595, or Bernanke, B. (2013): *Long-term Interest Rates, paper at the conference: The Past and Future of Monetary Policy*, San Francisco, USA, March 2013.

10 See IMF (2014): *World Economic Outlook*, April 2014.

CHART III.2 BOX

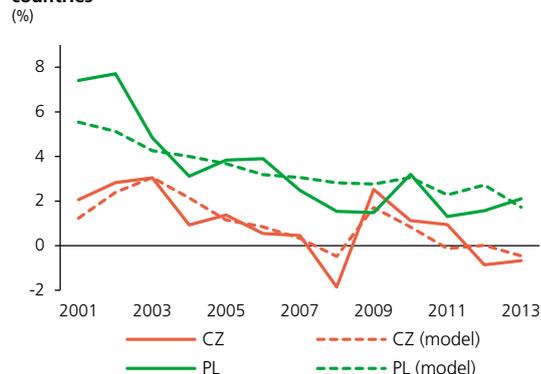
Comparison of government debt and yields for selected advanced economies



Source: IMF, Thomson Reuters, CNB calculation
Note: Yields are expressed as the average value on nominal yield on 10Y GB in the given year; debt is expressed as a percentage of GDP.

CHART III.3 BOX

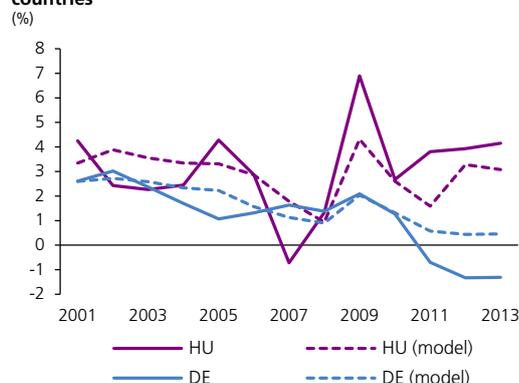
Observed and fitted government bond yields for selected countries



Source: EIU, Thomson Reuters, CNB calculation

CHART III.4 BOX

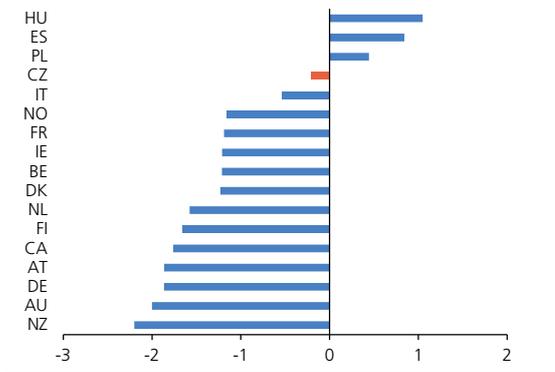
Observed and fitted government bond yields for selected countries



Source: EIU, Thomson Reuters, CNB calculation

CHART III.5 Box

Difference between observed and fitted values of real yield on five-year government bond for 2013
(%)



Source: EIU, Thomson Reuters, CNB calculation

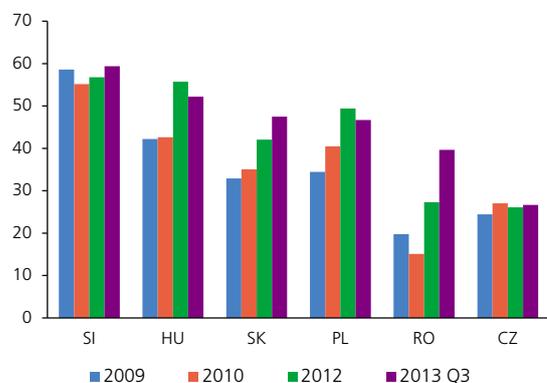
The selected model was estimated on data for the period 1980–2013 for selected OECD countries, for the period 2002–2013 for the Czech Republic.¹¹ The fitted yields were obtained by averaging the results obtained using two estimation methods – fixed effects panel regression and linear regression for individual countries.¹²

The results of both methods showed that the values observed for individual countries deviate only temporarily from the more stable fitted values (for the selection of countries see Charts III.3 Box and III.4 Box). Significant deviations of the model values from the actual values can be seen for most of the countries under analysis starting in 2009, i.e. at a time of debt crisis, significant economic contraction and very easy financial conditions. An upward deviation of the model value can be seen for countries whose government bonds are globally regarded as safe, countries such as Germany (Graf III.4 Box), Canada, New Zealand and Finland. By contrast, a second group comprises economies such as Italy, Ireland, Hungary (see Chart III.4 Box) and Spain, for which the model implies lower-than-observed yields in some observations from this period. In these countries, more pessimistic market sentiment about their fundamentals is thus apparent. As for the Czech Republic, the deviations of the actual values from the model ones are not too large, but they clearly reflect the impact of the 2008–2011 crisis and the subsequent introduction of unconventional monetary instruments by the ECB. All countries recorded a significant reversal towards the fitted value in 2013, although deviations are still visible (see Chart III.5 Box). The deviations can be attributed partly to the heterogeneity of the panel data, since government bond markets differ across countries in terms of investor base, size and liquidity, so their yields may display different sensitivities to external factors.

CHART III.15

Share of non-residents in government bond holdings in selected CEE countries

(%: end-of-period data)



Source: IMF, World Bank

The spillover of external shocks depends on several factors...

The risk of spillover of external shocks is associated with the presence of non-residents and their significant share in domestic asset holdings. Domestic asset prices are consequently more volatile and more vulnerable to external shocks, because non-residents usually hold their foreign assets for revaluation and constantly seek more profitable investment opportunities. They are thus far more sensitive to external factors, including global market sentiment, than residents and may succumb

11 The sample consists of Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, the Netherlands, New Zealand, Norway, Poland, Spain and Switzerland. Economist Intelligence Unit and Thomson Reuters data were used.

12 Tests of the sensitivity of the results to the scope of the country sample, the time period and the model specification were performed. Except for θ , the estimated coefficients were statistically significant at the 5% level with the expected signs: trend (+), cycle (-), debt (+), balance (-), savings (-). Moreover, their values were relatively robust to various model specifications and to the size of the source data sample.

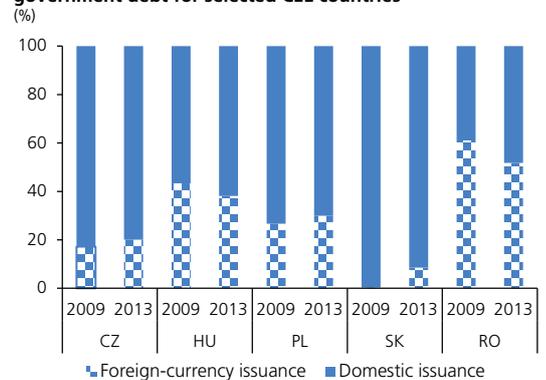
more easily to herd behaviour. The share of foreign holders of government debt is rising in most of the CEE countries under review (see Chart III.15), and not only in the case of foreign currency bonds. This is evident from a comparison of the higher share of non-residents in government debt holdings and the share of foreign issues (see Charts III.15 and III.16). The share of non-residents in Czech government debt has risen only slightly and, although not negligible, is lower and more stable (27%) than in other countries. Similarly, the share of foreign issues in Czech government debt remains relatively low (20%). However, non-residents predominate among investors buying bonds issued by Czech non-financial corporations (see Chart III.17). The same goes for bonds issued abroad by Czech banks, which are eligible collateral in ECB operations.¹³

...whose effects should not be underestimated in the case of the Czech Republic either

The lower liquidity in the Czech bond market may pose some risk. A sell-off of bonds by non-residents might trigger relatively high volatility. The effect of external fluctuations on specific investors would depend mainly on the size of the revalued portfolio, the number and price of sales, the amount of bonds used as collateral in repo operations in the event of realisation of collateral, and the level of hedging against interest rate risk. For banks, bonds account for around 20% of total assets, and around 50% of them are bonds for revaluation at market price (see Chart III.18). For insurance companies, the ratio is about 60% of assets, with 60% for revaluation. For funds operated by pension management companies, the ratio is about 87% of assets, with 80% for revaluation. However, institutions face not only risks of immediate losses due to revaluation of assets sensitive to interest rate movements, but also the risk of a decline in their market liquidity and hence the impossibility of selling such assets on the planned date. The asset holding period may thus get longer at times of market stress, gradually increasing the maturity mismatch. This is why the CNB includes these risks in its stress tests (see section 4.2)

CHART III.16

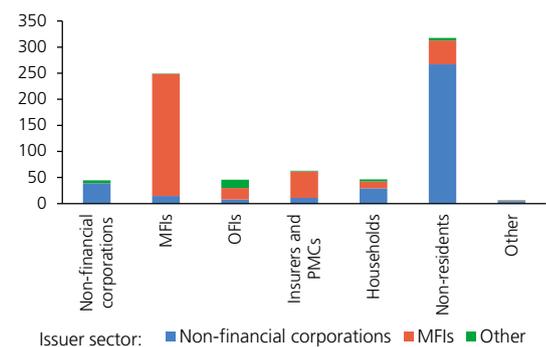
Share of domestic and foreign-currency issuance in government debt for selected CEE countries



Source: MF CR, IMF, World Bank

GRAF III.17

Holders of bonds issued by the Czech private sector



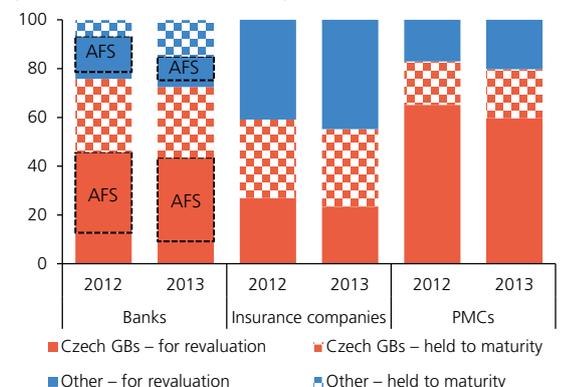
Source: CNB

Note: The "Other" category comprises general government and non-profit institutions serving households.

CHART III.18

Breakdown of the bond portfolio by sector and valuation method

(% share in bonds; as of 31 December 2012)



Source: CNB

Note: AFS denotes financial assets classed as "available for sale". The figures for the insurance sector include financial placement of unit-linked insurance.

¹³ Foreign issues, or issues under foreign law, were allowed by a May 2012 amendment of the Act on Bonds. This option has so far been exercised only by Raiffeisen Bank, which issued covered bonds totalling EUR 500 million in June 2013, and UniCredit Bank, which issued five-year mortgage bonds worth EUR 800 million in December 2013.

3.2 THE PROPERTY MARKET

Following quite a long period of decline, property prices started rising again in 2013, driven mainly by prices in Prague. The growth was generally moderate by international comparison. However, it was not underpinned by economic fundamentals, as lower wage growth, a worse labour market situation and deteriorating demographic indicators were recorded compared to the assumptions in FSR 2012/2013. At the same time, the recovery in demand for apartments was not in line with the number of transactions, which continued to fall. Although the property price sustainability indicators as such still suggest that apartment prices are potentially undervalued, estimates using econometric methods indicate that they are slightly overvalued. The current prices appear to be approximately in equilibrium when all price fundamentals are taken into account. Based on the assumptions of the Baseline Scenario, moderate but gradually accelerating price growth is expected in the period ahead.

The phase of falling residential property prices in the Czech Republic seems to be at an end...

Two major changes in residential property transaction prices were recorded compared to 2012. First, the signals that the almost four years of constant decline in property prices were coming to an end were confirmed in most categories in 2013 (see Chart III.19). Transaction prices of apartments switched to a growth phase in 2013 Q2 (year-on-year growth of 0.5%), driven mainly by prices in Prague (growth of 3.0%). In the rest of the Czech Republic, prices continued to fall on average (by 0.7%), although some regions outside Prague started to record noticeable growth (2.6% in South Bohemia and 2.7% in the Liberec region). In 2013 H2, for which CZSO data on transaction prices from property transfer tax returns are not yet available, alternative sources indicate mostly stagnating prices.¹⁴ Prices of family houses and building plots also increased (by 1.2% and 1.9% respectively in 2013 Q4). The second change was a substantial upward revision of CZSO data, which retrospectively changed the view of the post-2010 price dynamics of most types of property. Although the overall price trend remained downward after the revision, the previous price decline in the main monitored category of transaction prices of apartments is in fact more moderate by comparison with the pre-revision data.¹⁵ As regards family houses, the revision pertained mainly to the period of price growth in 2011, which was longer according to the latest data. Similarly, the decline in family house prices in 2012 was considerably smaller according to the new data (0.4% on average). However, building plots recorded the

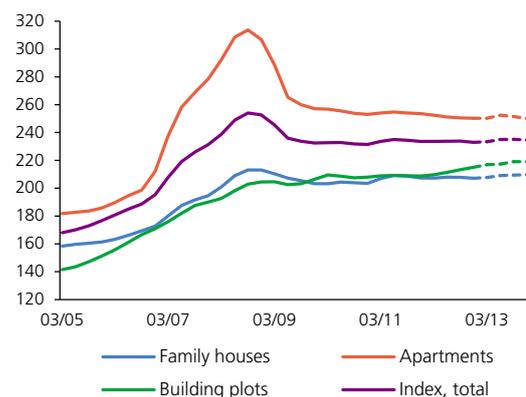
¹⁴ For example the alternative transaction price indicator based on the HB index (see <http://www.hyposvet.cz/hb-index/>). As transaction price data according to this index have recorded larger decreases or weaker increases in the last few quarters, it is likely that the figure showing a decrease in transaction prices of apartments in 2013 Q4 is also biased downwards. The HB index does not provide data broken down by region.

¹⁵ While the original estimates had indicated year-on-year declines in apartment prices of 3.8% in Prague and 10.7% in the rest of the Czech Republic, according to the new data the declines were only 0.2% and 1.8% respectively. About six months earlier the CZSO had revised its original estimates for 2012 H1 in the opposite direction (down by 1.4% in Prague and 8.4% outside Prague).

CHART III.19

Property prices – transaction prices

(absolute index; 1999 Q1 = 100)



Source: CZSO, HB index, CNB calculation

Note: The data for family houses and apartments for 2013 H1 are preliminary data. The other data for 2013 are calculated from alternative sources of data on transaction prices (HB index, etc.).

biggest upward revision, with the 5.2% year-on-year decline in 2012 Q3 corrected to an increase of 2.1% in the same period.

In the case of apartments, for which more alternative data sources with more up-to-date data are available, the end of the phase of price decline in the Czech Republic is confirmed across regions and types of prices monitored (see Chart III.20). Following a surge in 2012, growth in asking prices in Prague started slowing substantially in mid-2013 (by 3.8% in 2013 Q1), confirming the hypothesis of a statistical anomaly in this CZSO time series mentioned in Inflation Report I/2013. By contrast, asking prices in the other regions switched only very gradually to growth last year.

While FSR 2012/2013 had pointed to two-speed property prices, with Prague as the price leader and the rest of the country relatively homogeneous, now the situation is starting to vary substantially across regions. According to alternative information on asking prices from the Institute for Regional Information,¹⁶ asking prices in 2014 Q1 recorded sizeable year-on-year growth – comparable to that in Prague (5.4%) – in Brno (4.5%), České Budějovice (5.5%) and Hradec Králové (5.5%). On the other hand, asking prices continued to fall in Ústí nad Labem (by 6.0%) and Zlín (by 4.4%). In Prague, the segment of new apartments is an exception from the rising trend, as it recorded a further slight decline in 2013 Q4 (0.8%). This can be regarded as a delayed correction of an earlier overvaluation, as in the past new apartment prices had fallen much more slowly than old apartment prices. In addition, the price decline played a role in the recovery in sales of apartments in development projects (see below).

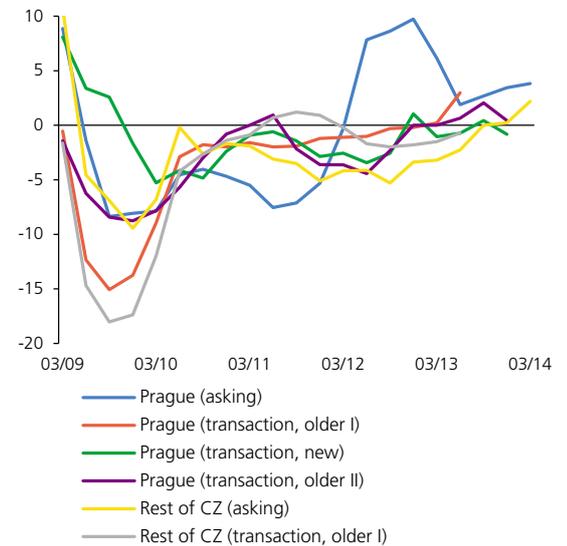
...as also indicated by an international comparison

The end of the phase of across-the-board declines in property prices is apparent from an international comparison with advanced countries, which, however, continue to show very mixed trends (see Chart III.21). Of the countries where the bursting of the price bubble after the onset of the financial crisis was accompanied by debt problems, prices are still falling in Greece and Spain (by 15.2% and 4.4% respectively in 2013). By contrast, property prices in Ireland, which had been decreasing fastest in this group of countries, saw one of the largest increases in all the countries under review (6.2%) in the most recent period. Only in the USA, where the price turnaround occurred much earlier, as it did in the UK, are prices rising faster. The early market recovery there has also been aided by an early credit market recovery and a stronger general economic recovery. The 10.1% rise in housing prices in the USA in 2013 Q4 is causing concerns about the emergence of another speculative bubble, even though the previous declines recorded in the USA were more pronounced. A favourable factor from the perspective of potential cross-border contagion, however, is that prices in countries where FSR

CHART III.20

Apartment prices according to the CZSO – transaction prices and asking prices

(%; year-on-year change in indices)



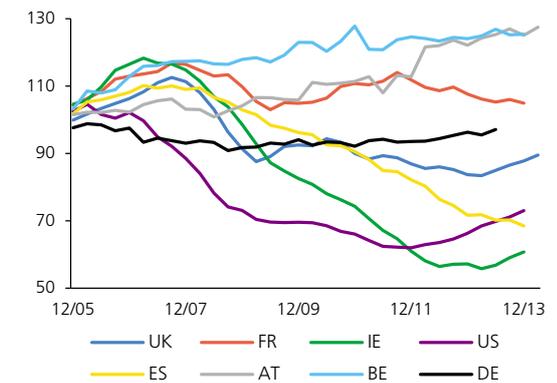
Source: CZSO

Note: The data on apartment transaction prices come from two independent sources – property tax returns ("older I") and a CZSO survey of estate agencies ("older II" and "new").

CHART III.21

Property prices – international comparison, advanced countries

(prices in real terms; absolute index; 2005 average = 100)



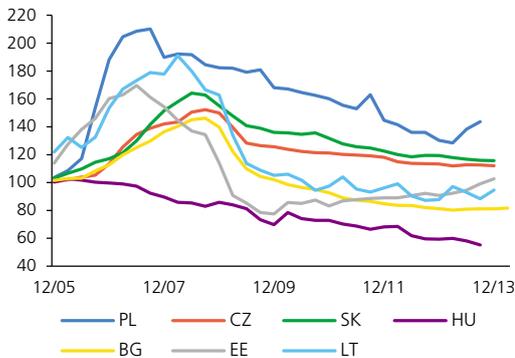
Source: BIS, Nationwide (UK), national statistical offices

¹⁶ IRI apartment prices are an alternative source to CZSO asking prices, but are further broken down by region.

CHART III.22

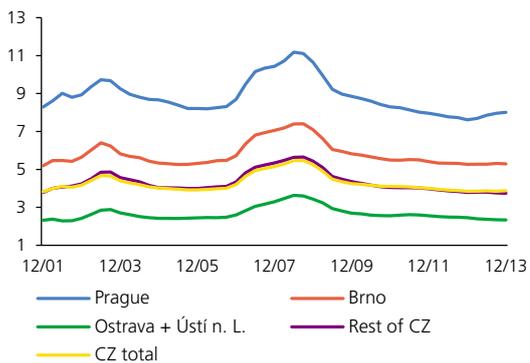
Property prices – international comparison, selected EU countries

(prices in real terms; absolute index; 2005 average = 100)



Source: BIS, national statistical offices and central banks

GRAF III.23

Price-to-income ratios(ratio of price of 68 m² apartment to moving sum of wage over last four quarters)

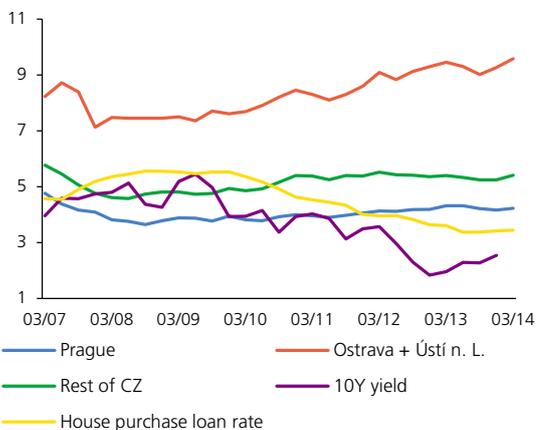
Source: CZSO, CNB calculation

Note: 2013 data preliminary or calculated from asking prices.

CHART III.24

Apartment rental returns

(averages for period in %)



Source: IRI, CNB

Note: Comparison with 10Y government bond yields and rates on new house purchase loans.

2012/2013 highlighted uncertainty about property prices are growing at low rates (2.6% and 1.1% respectively in Austria and Belgium) or even falling steadily (-2.5% in France). Nevertheless, some of these countries are still showing signs of property market overheating,¹⁷ and any correction of these imbalances could have indirect impacts on the Czech property market (e.g. a general move of multinational investors away from property investment).

In the newer EU Member States (see Chart III.22), the latest data indicate continuing declines in Hungary (-7.4%) and in Slovakia (-3.1%), which has long had the closest price dynamics to those in the Czech Republic. Conversely, Bulgaria – like the Czech Republic – saw a noticeable recovery in 2014 Q1 (growth of 1.8%) after four years of decline. Prices have long been going up in Estonia (13.2%) and have started surging in Poland (from -10.0% year on year in 2012 Q4 to 5.6% in 2013 Q3) and Lithuania (from -8.7% in 2012 Q4 to 7.8% in 2013 Q4). Overall, the slow transition to price growth in the Czech Republic can thus be regarded as moderate, as the amplitude of the year-on-year changes is as usual smaller than in other countries.

Housing affordability may therefore start worsening...

Following a long period of increasing housing affordability driven by falling prices, the price-to-income ratio worsened for the first time in the Czech Republic as a whole (see Chart III.23). The rise in this indicator in late 2013 (of 0.9% in both year-on-year and quarter-on-quarter terms) was driven mainly by rising prices and falling affordability in Prague (of 5.2% year on year). This currently means a further widening of the already large differences in housing affordability between Prague, Brno and the rest of the Czech Republic. Compared to the rest of the country, it takes an average household in the capital twice as long to earn enough to purchase its own home, and the difference against Ostrava and Ústí nad Labem is more than threefold. This difference is probably due in part to a greater willingness of households to pay to live in Prague, as unemployment in the capital is significantly lower than in regions with the most affordable housing. Although worsening housing affordability is not yet visible in the year-on-year changes in the price-to-income ratio outside Prague, given the low inflation and still subdued economic recovery, housing affordability can also be expected to worsen in regions outside Prague, where the expected price growth will probably not be fully offset by wage growth.

...and the room for making profit by investing in property is thus beginning to shrink

As with the price-to-income ratio, the above-mentioned price recovery influenced apartment rental returns in 2013. In most regions, rental returns fell by 0.1–0.3 pp in 2013 following roughly four years of growth

¹⁷ Property prices are said to be overvalued in Austria, Belgium and Sweden (see the ECB FSR). In Germany, where the aggregate index has so far been rising relatively modestly (by 4% in real terms in the last three years taken together), property prices are growing strongly in the largest cities (by 22.6% in real terms in last three years).

(see Chart III.24), but on average they remain 0.6 pp above the low recorded in 2008. However, given the historically low interest rates on loans for house purchase, which were mostly flat in 2013, speculative purchases of apartments for investment are still relatively profitable. Owing to rising returns on alternative investment in government bonds and higher returns on commercial property (6%–7.5% depending on the type of property), however, the relative profitability of such investments is gradually falling, especially for institutional investors. As for individual investors, whose share is rising according to anecdotal evidence, the question is whether they are always aware of all the risks of such investment. Overall, the property price sustainability indicators continue to suggest slight undervaluation of property prices in the Czech Republic, despite a partial deterioration compared to historical values. However, updated estimates of equilibrium property prices based on more complex econometric techniques indicate that property prices are broadly in equilibrium or even slightly over-inflated (see section 5.4 for details). It can be said that the current prices are close to equilibrium when all price fundamentals are taken into account.

The property price recovery is not fully underpinned by economic fundamentals...

The above-mentioned partial recovery in property prices in 2013 was rather surprising. The increase in apartment prices was around 4 pp larger than assumed in the Baseline Scenario in FSR 2012/2013 (see Chart III.25). Although this surprising result may have been partly due to the revisions of transaction prices discussed above, implying increased uncertainty connected with the interpretation of actual developments, it is clear that the price growth was not fully in line with economic fundamentals. In particular, GDP growth was lower than assumed last year, and the related deterioration of the labour market situation was reflected in a drop in real wages and a rise in unemployment (see section 2). Demographic trends also worsened, with negative natural population growth and negative net migration recorded in 2013. A negative overall increase in the population (0.35 person per 1,000) occurred for the first time since 2002, while during the peak in property prices the total growth had reached 8.7 persons per 1,000.

...probably representing a correction of the previous undervaluation...

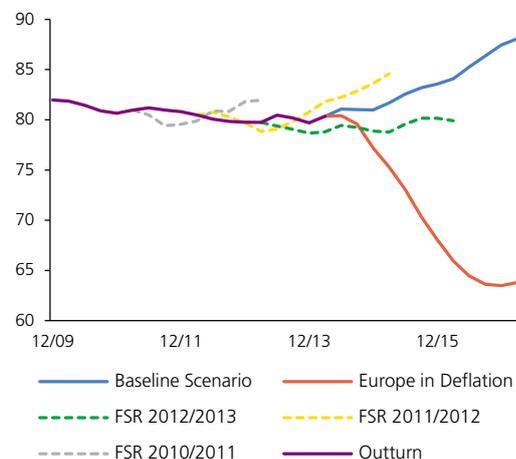
The growth in property prices despite their worsening determinants can be interpreted as a correction of the price undervaluation identified in the past, i.e. convergence towards equilibrium. Given that the mismatch between fundamentals and apartment prices was coupled with an increased share of property held as a financial investment, further rapid price growth could mean, *ceteris paribus*, that the seeds of a speculative bubble are being sown as a result of speculative activity in the market.

Although the interpretation of prices is subject to considerable uncertainty, slight growth in property prices of around 0.75–2% year on year can be expected until mid-2015, in line with the *Baseline Scenario*. Starting in 2015 H2 the growth may accelerate to 3%–5% (see Chart III.25). This property price growth is conditional mainly on the projected

CHART III.25

Property price scenario

(absolute index; maximum: 2008 Q3 = 100)



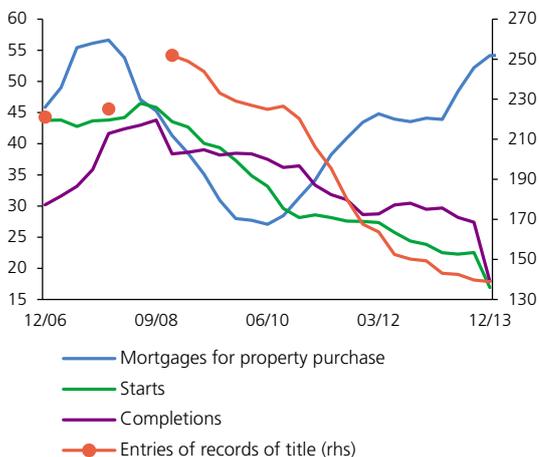
Source: CZSO, CNB calculation

Note: Due to revisions, the historical property price scenarios were linked to updated apartment prices for the scenario period.

CHART III.26

Numbers of transactions on the property market

(thousands of transactions; moving sums over past year)



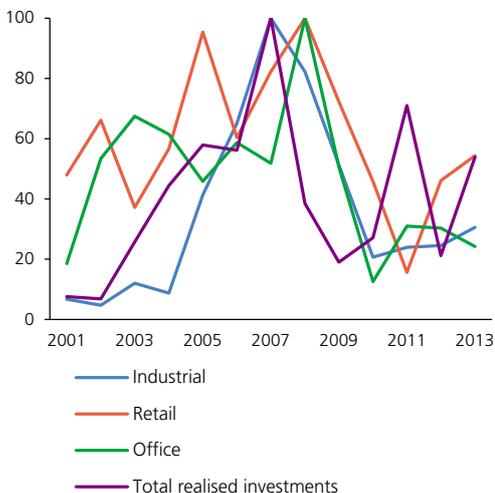
Source: CZSO, COSMC, FINCENTRUM HYPOINDEX

Note: Entries of records of title to buildings and apartments only.

CHART III.27

Planned supply and realised demand on the commercial property market

(maximum = 100)



Source: Jones Lang LaSalle

Note: Supply of industrial and retail property calculated from new supply in m² for the Czech Republic as a whole and supply of office property in m² for Prague; realised investments from data in EUR. Maximum for office and retail property for 2008 and for industrial property and investments for 2007.

recovery in economic activity, driven mainly by developments abroad, easy monetary policy and the expected easing of fiscal policy. The easing of the exchange rate component of the monetary conditions through the use of the exchange rate as an additional monetary policy instrument by the CNB (see section 2) also plays a not insignificant role, as it may motivate non-residents to purchase property for investment purposes. These macroeconomic developments, and, in turn, price developments, are still subject to considerable uncertainty and can be expected to remain mixed across regions. Given the lower unemployment rate in and around Prague and the expected difference in population growth,¹⁸ growth in apartment prices will still be concentrated in the capital. Further differentiation between the other regions can also be expected. The risk of significantly worse macroeconomic developments is illustrated in the *Europe in Deflation* stress scenario, which could lead to a decrease in apartment prices of up to 20% (see Chart III.25). In the long term, property price growth will be hindered by worsening demographic characteristics, with the population of the Czech Republic shrinking by as much as 4% by 2050 according to the latest CZSO demographic projection.

...and has yet to be reflected in housing market activity

The recovery in property demand possibly implied by the growth in prices has yet to be confirmed by the number of property market transactions, which is still falling. The numbers of apartment completions and starts also continued to decrease, reaching their lowest level since 2001 for apartment completions and since 1998 for apartment starts (see Chart III.26). The number of transactions as measured by the number of proceedings on entry of title to houses and apartments in the cadastre also dropped (by 6.9% in 2013 as a whole; this measure has fallen to about 55% of its 2008 level). However, differentiation in the property market situation between Prague and the rest of the Czech Republic is also indicated by the fact that the number of transactions for houses and apartments rose by 9.3% in Prague and Central Bohemia but fell by 10.4% in the rest of the Czech Republic. This is in line with the 24.9% rise recorded for sales of new apartments in development projects in Prague (Ekospol data).

Following a large increase in the number of new mortgage loans in 2011–2012, the market stabilised in early 2013. At the close of the year, however, the number of new mortgages surged again. Also related to the rise in the number of mortgage loans was a 10.3% rise in the number of new entries of title (source: COSMC). The increase in new mortgage lending was largely due to refinancing of existing loans (see section 2.3 for details), although it may partly be an indicator of an upcoming rise in housing market activity.

¹⁸ According to the CZSO projection for the Czech regions, Prague and Central Bohemia will see total population growth of around 2% in the next five years, while the population of the rest of the country will shrink by 0.7%.

Investment activity in the commercial property market is on the rise

Following a downturn in 2012, the commercial property market saw a recovery in realised investment¹⁹ to EUR 1.559 billion in 2013, roughly 40% above the long-term average (see Chart III.27). Almost one-half of the transactions involved office property in Prague. The renewed investment activity is being driven mainly by foreign entities, maybe motivated by a search for yield given the low yields on alternative assets and the gradually improving situation on foreign commercial property markets (especially in Germany). However, the increase in investment activity is not yet being supported very strongly by improvements in commercial property fundamentals.²⁰ The supply of office property (newly completed office space) fell by 20% year on year and remains at roughly one-half of its long-term average. By contrast, the supply of industrial and retail property increased and is now only slightly (roughly 10%) below the long-term averages. The total gross take-up in the office property sector (total rental stock) increased by 9.6% year on year in 2013 and is above its long-term average, but the growth was driven by a further rise in the proportion of renegotiations of existing contracts, which grew by 6.4 pp year on year to 49.4%. Net take-up, which is adjusted for renegotiations, thus declined by 2.9% year on year. This was reflected in a rise in the vacancy rate of 1.2 pp to 13.2% (see Chart III.28). Both gross and net take-up increased in the industrial property sector (by 29% and 5% respectively year on year), but the vacancy rate also rose by 1 pp to 7.9%. In the context of the Central European region, the vacancy rates are relatively low.

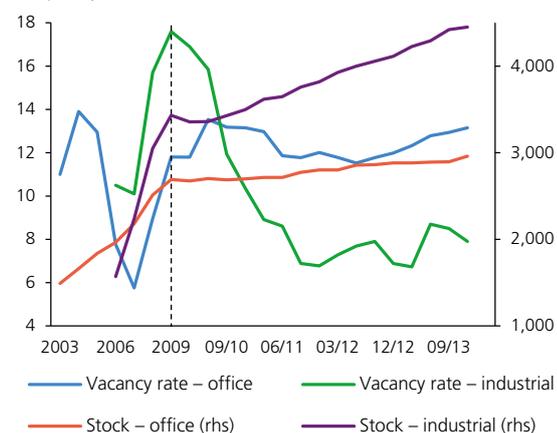
The NPL ratio in the property development sector decreased

The improvement in sales in residential property developments together with the recovery in the commercial property market in 2013 led to a decrease in the NPL ratio in the property development sector, which is now close to the ratio for the entire non-financial corporations sector (see Chart III.29). In addition, loans to developers started rising again year on year at the close of 2013. On the other hand, CCR data also show some adverse tendencies associated with lending to developers. First, the time for which banks monitor potentially risky clients before categorising loans as NPLs continued to increase for these companies in 2013. In 2007–2008, the average monitoring period for loans ultimately classified as NPLs had been around 5.1 months, whereas in 2013 it was 11.2 months (1.3 months longer than in 2012). On the one hand, this may reflect more prudential behaviour of banks vis-à-vis the sector as a whole, but on the other hand it may mean deferral of categorisation as NPLs and creation of provisions. The second potentially problematic tendency in the area of loans to companies operating in the property sector is an increase in the share of foreign currency loans to 44% of total loans (from 25%–

CHART III.28

Total stock and vacancy rates

(vacancy rate in %; stock in thousands of m² on right-hand scale; 2003–2009 yearly data, then quarterly)

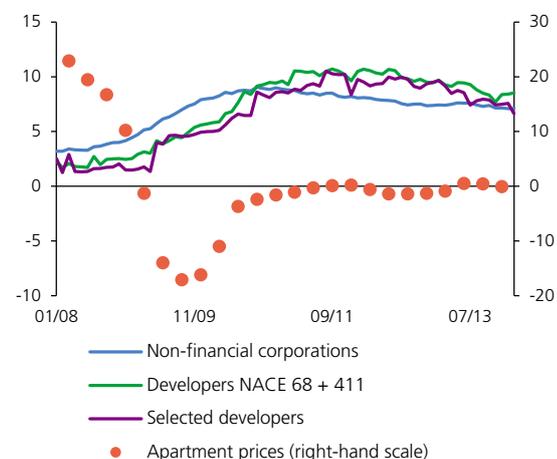


Source: Jones Lang LaSalle, Prague Research Forum

CHART III.29

NPL ratios in the property development sector

(%; year-on-year growth for apartment prices)



Source: CZSO, CNB

¹⁹ Realised investments include transactions in newly completed commercial property as well as transactions in property completed in the past, where, for example, the original investor has arranged the letting of the property and is selling it on to a real estate fund.

²⁰ Office property fundamentals are discussed in the thematic article *Office Property in Central European Countries* in this Report. Among other things, the article explains the relationship between gross take-up and the vacancy rate and compares office property indicators between Central European countries and Germany.

35% in 2007–2013). This share is similar as in 2002–2004 and it could be argued that, especially for commercial property, the exchange rate risks are mitigated by natural hedging, as a large proportion of rental returns are contractually denominated in euros. Nevertheless, the sensitivity of developers to exchange rate movements is increasing. In a situation where rents are contracted in foreign currency the exchange rate risk is transferred to the tenant, but the tenant's financial situation often depends on the domestic economic situation. An exchange rate weakening may then manifest itself in a different area (e.g. the vacancy rate) and ultimately affect the developer.