

Economic Outlook and Financial Stability

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- The CNB fulfils its primary objective to maintain price stability, and, within this objective, supports the general economic policies of the government
- Sets monetary policy in the regime of inflation targeting
- Implements monetary policy (financial market operations, foreign exchange reserves management)
- Supervises the activities of subjects operating in the financial market and takes care of safe functioning and stability of the financial market in the Czech Republic



- Analyses financial stability and trends in the financial system
- Manages the circulation of currency and administers payments and clearing settlements between banks, branches of foreign banks and savings and credit cooperatives
- Issues banknotes and coins



- Crisis arrived to the CR quickly but predominantly only through the <u>foreign demand channel</u>
- <u>Large openness</u> of the Czech economy = strong export channel
 - Fall in foreign demand → marked slump in production
 → employment dipped and unemployment rate grew
- Exchange rate volatility increased
 - Build-up in the risk premium of the country, little ability of investors to distinguish between countries in our region (intensive communication of the CNB)
- Increased reluctance of banks to mutually grant credits
 - Risk premium on the interbank market and client interest rates rose







- An economic slump in 2008/2009; activity bottomed out in mid 2009
- Main drivers of the economic downturn: net exports and investment
- Modest q-o-q growth since Q3 2009, positive y-o-y growth since Q1 2010





Labor market indicators (y-o-y changes in %)

• Fall in employment responded to the economic recession with the usual time lag

Unemployment and average wage





- Unemployment rate rapidly grew and starts to decline very slowly during 2010
- Wage growth markedly slowed at the beginning of 2009 and is still very modest

Inflation and household consumption





Inflation and household consumption (y-o-y change in %)

- Unfavorable labor market developments got reflected in flagging household consumption
- Inflation promptly declined and turned even negative for a short period of time at the end of 2009





Loans to corporations and households (stocks, y-o-y changes in %)

 Lower demand for credits + higher (rational) carefulness of banks → growth in stock of total credits slowed to zero level (even turned negative in case of firms) due to a sharp reduction in monthly credit flows and due to a drop of newly granted credits



Barriers to growth in industry



- The most severe problem is still insufficient demand!
- Firms complain much less about financial and other problems
- Some improvement in foreign demand since 2010

CNB monetary policy response



Monetary policy rates (%)



- The CNB started loosening of its monetary policy already in August 2008 and was one of the "pioneering" central banks in this respect
- The key interest rate (2W repo rate) was gradually lowered from 3,75 % to its historical minimum (0,75 %)

CNB monetary policy response





- The CNB introduced also new liquidity-providing repo operations
- Although banks used them only rarely, these operations had an important calming/psychological effect
- They also helped to calm the situation at the treasuries market (support of their use as collateral in operations with the CNB)



- In the CR there is a <u>persistent surplus of liquidity</u> in the banking sector
- The <u>zero level</u> of interest rates has not been reached
- <u>Transmission of interest rates</u> to economy weakened but still works
- The <u>financial system is stable</u>
- <u>Exchange rate depreciation</u> contributed to easing of monetary conditions





- Floating exchange rate was advantageous despite increased volatility
 - Crises hit predominantly countries facing macroeconomic and financial imbalances and using the fixed exchange rate
 - Exchange rate risk and low interest rates curbed indebtedness of Czech economic agents abroad and in foreign currencies
 - Depreciation of the exchange rate partially cushioned the slump in external demand



Chart I.6 GDP growth forecast

GDP growth will slow temporarily in 2011 and at the start of 2012 (annual percentage changes; seasonally adjusted)



Chart I.2 Headline inflation forecast

Headline inflation will temporarily get just above 3% in 2012 owing to a VAT increase (annual percentage changes)



■ 90% ■ 70% ■ 50% ■ 30% confidence interval

Chart I.5 Exchange rate forecast

The nominal exchange rate is gradually appreciating over the forecast horizon (CZK/EUR)



Chart I.4 Interest rate forecast

Consistent with the forecast is broad stability of market interest rates at the start of the forecast horizon and a gradual rise in rates starting in late 2011/early 2012 (3M PRIBOR, %)



Chart II.2.1 Headline inflation and monetary-policy relevant inflation Headline inflation will be just above 3% in 2012, while monetary-policy relevant inflation will be close to the 2% inflation target (annual percentage changes)

8 Monetary 6 policy horizon Inflation target 0 -2 I/07 I/13 I/08 I/09 I/11 I/12 I/10 Monetary-policy relevant inflation Headline inflation

Chart III.1.4 Structure of inflation

For the first time in quite some time, market prices contributed the most to annual inflation

(annual percentage changes; contributions in percentage points)

- According to the forecast, headline inflation will rise slightly above 3% in 2012 owing to a VAT increase, but will return to the target at the start of 2013.
- Monetary-policy relevant inflation, i.e. inflation adjusted for the first-round effects of changes to indirect taxes, will be close to the target over the entire forecast horizon.
- Its modest rise will be fostered, in addition to administered prices, by gradually strengthening pressures from the domestic economy linked with the pick-up in wage growth and, in the longer run, also with a more robust recovery in economic activity.

- Inflationary pressures will be largely offset by gradual appreciation of the exchange rate and by the unwinding of commodity price growth, manifested in lower annual food and fuel price inflation.
- Administered price inflation will rise gradually to above 7% at the start of 2012. This will be due to growth in regulated and deregulated rents, administered health care prices and prices of energy for households, and the one-off effect of a rise in the reduced VAT rate.
- The forecast expects growth in food prices to moderate in the near future. During 2012, food prices should reflect the fading annual growth in global food commodity prices together with the expected decline in domestic agricultural producer prices.

Chart II.2.12 GDP growth forecast

GDP growth will be slightly above 2% this year and the next on average

(percentage changes; seasonally adjusted)

Chart II.2.13 Annual GDP growth structure

The main source of GDP growth in 2011 will be net exports, but in 2012 all components of domestic demand will contribute (annual percentage changes; contributions in p.p.; seasonally adjusted)

Source: CNB, CNB calculations

- The growth of the Czech economy will slow this year owing to fading investment in inventories and to fiscal consolidation. The main source of growth, which will reach 2.1% for the year as a whole, will be net exports.
- In 2012, all components of domestic demand will contribute to GDP growth. However, household consumption will be dampened by the VAT change. An upturn in the economy will also be hampered by a temporarily negative contribution of net exports, due, among other things, to a slowdown abroad. GDP growth will thus increase only marginally, to 2.2%.
- In 2013, real economic activity is expected to grow more strongly.

Euro area GDP growth forecast

- In 2011 and 2012, GDP of the Euro area is expected to grow by less than 2% mainly due to continuing debt-related problems of the Euro area and the growing uncertainty on the financial markets.
- Germany, one of our main trading partners, is expected to slow down to 2% as well.

Euro area inflation & interest rates forecast

- Expected inflation 2.6% in 2011 and its decrease below the 2% ECB target in 2012.
- Role of commodity prices in 2011.
- After the August ECB meeting the market interest rates decreased.
- Growing uncertainty pushed Bund yields to their record lows under 2% on the beginning of September.

Chart II.2.11 Average nominal wage

Wage growth in the business sector will accelerate, but wages in the non-business sector will probably not rise until 2012 (annual percentage changes; seasonally adjusted)

Chart II.2.14 Labour market forecast

Total employment will start to rise continuously only in 2012; this rise will be reflected in the unemployment rate (annual percentage changes in employment; unemployment rate in percentages; seasonally adjusted)

- Annual growth in nominal wages in the business sector should increase further in the remainder of the year and accelerate next year to 5%.
- Annual growth in the average wage in the non-business sector will reach 0.5% in 2012 as a result of continued efforts of the government to contain growth in expenditure, albeit it not in the form of an absolute reduction in wages. In 2013, wage growth in the non-business sector will rise further to 2%.
- Household consumption will be broadly flat owing to an only slight recovery in the labour market.
- Domestic inflation pressures are insignificant mainly due to modest growth in wages and growing labour productivity.

Chart II.2.6 Interest rate forecast

Consistent with the forecast is broad stability of market interest rates at the start of the forecast horizon and a gradual rise in rates starting in late 2011/early 2012 (3M PRIBOR and 3M EURIBOR in %)

Chart II.2.7 Exchange rate forecast

The nominal exchange rate of the koruna against the euro is gradually appreciating over the forecast horizon (CZK/EUR and CZK/USD)

- Consistent with the forecast is broad <u>stability of market interest rates</u> at the start of the forecast horizon and a gradual rise in rates starting in late 2011/early 2012. The rate stability at the start of the forecast horizon is chiefly a result of <u>low expected foreign</u> <u>interest rates</u> and <u>insignificant domestic inflationary pressures</u>. In the longer run, as domestic inflationary pressures gradually renew and interest rates abroad creep up, rates increase towards their long-term equilibrium level.
- The forecast assumes a gradual appreciation of the koruna-euro exchange rate owing to a favourable outlook for net exports, a declining risk premium owing to fiscal consolidation and renewed real convergence in the longer run. By contrast, low domestic interest rates are expected to attenuate the appreciation of the exchange rate via a temporarily negative interest rate differential.

- The Czech Republic came through a period of major financial instability during 2nd half of 1990s.
- The natural response was to set financial stability as important goal of CNB's policies.
- Up to 2004, the goal was pursued as rather informal one in a historical memory-based manner.
- With the amendment of the Act as of April 2006 (integration of financial supervisors into the CNB), the financial stability task of the CNB became more explicit
 - Article 2 (2d): CNB shall... contribute to stability of the (Czech Republic's) financial system as a whole.

Credit and its quality in the Czech Republic (1993-2010, in %)

Source: CNB

Note: credit growth is y-o-y increase in total bank credit, % NPL is the share of non-performing loans on total bank credit.

- Under financial stability we understand a situation in which
 - financial system fulfils its functions without disturbances and negative effects on current and future development of the economy,
 - and at the same time shows a high degree of resilience towards adverse shocks.

- The CNB's approach to financial stability has historically been strongly macroprudential and close to the relatively narrow BIS interpretation focusing primarily on risks associated with the financial cycle.
 - Its objective is to ensure that the financial system does not become so vulnerable that unexpected shocks ultimately cause financial instability in the form of a crisis.
 - Focus on whether weak spots are forming in the financial system and whether conditions are being created in which the interaction of macroeconomic factors and policies, excessive debt, and financial market volatility could cause a financial crisis.

- The object of macroprudential policy is systemic risk in two dimensions:
 - The time dimension reflects the build-up of systemic risk over time.
 - The source of this dimension is pro-cyclical behaviour of financial institutions contributing to the formation of unbalanced financial trends.
 - Systemic risk of this type manifests itself primarily as common exposures to macroeconomic factors across financial institutions.
 - The second dimension is <u>cross-sectional</u> and reflects the existence and distribution of systemic risk at any given moment in time.
 - The source of this dimension is common exposures across financial institutions.
 - Systemic risk models based on the cross-sectional dimension of the interaction between financial institutions, which can result in collective failure of the system due to the susceptibility of interconnected institutions to a common source of risks.

- The CNB considers macroprudential policy to be an element of financial stability policy.
- The main distinguishing feature of macroprudential policy is that unlike traditional microprudential regulation and supervision (focused on the resilience of <u>individual</u> financial institutions to mostly <u>exogenous</u> events):
 - it focuses on the stability of the system as a whole;
 - it primarily monitors <u>endogenous</u> processes in which financial institutions that may seem individually sound can get into a situation of systemic instability through common behaviour and mutual interaction;
 - the task of financial stability analysts is therefore to avoid risks arising from the fallacy of composition, which arises when the whole is wrongly assessed only as the sum of mutually independent parts.

- CNB's solution was based on the "independent" interaction of the conduct of financial stability agenda, monetary policy and regulation/supervision.
- If financial stability concludes that there are growing risks for financial stability, the governing body (i.e. bank board) has to consider measures to limit the risks.
- In one institution, the governing body can directly and immediately address departments responsible for monetary policy and supervision. If the whole structure involved more institutions, it would be rather difficult.
- After the outset of crisis a multi-department monitoring team established in 2008
- Since May 2009 new macrofinancial panel organized:
 - one day before quarterly monetary meeting with new forecast presentations and discussions with the Board
 - simulations of various crisis scenarios prepared by the financial stability department and the monetary policy department
 - departments: financial stability, research, monetary policy department, supervision, regulation, financial market operations, risk management

Banking sector has kept strong liquidity

- Banking sector was able to preserve its strong liquidity position ...
- ... without central bank assistance (only a very temporary recourse to liquidity-providing facility).

Source: CNB

IONAL BANK

- Capital adequacy ratio reached 15.6 % in March 2011 ...
- ... despite unavoidable increase in non-performing loans and associated loan losses.

- Price stability goal cannot be achieved without stable financial system:
- Macro-stress tests (top-down):
 - since 2003 banking sector, since 2007 insurance companies and pension funds, since 2008 liquidity stress tests of banks
- Bottom-up stress tests:
 - since 2009 with selected banks, since 2010 with selected insurance companies
- Between 2003–2008, stress tests run once per year for Financial Stability Report
- Since 2009, CNB performs macro stress tests of the banking sector with every new quarterly macroeconomic forecasts
- Recent alternative scenarios:
 - <u>Baseline</u> = official CNB forecast from August 2011
 - <u>Recession</u> = renewed recession in main trading partner countries, escalation of the euro area fiscal crisis and increased financial market volatility, GDP decline of around -4 %, depreciation of CZK, decline in property prices of more than 30%, revaluation of Czech banking sector's exposures vis-à-vis Ireland, Italy, Portugal, Greece and Spain in bank's balance sheets from CZK 28 billion to zero

- Adverse scenarios reflect identified risks, labeled accordingly:
 - Safe Haven; Property Market Crisis; Loss of Confidence (FSR 2007, June 2008)
 - Europe in Recession; Market Nervousness; Economic Depression (FSR 2008/2009, June 2009)
 - Protracted Recession (August 2009)
 - Double Dip; Loss of Confidence (February 2010)
 - Return of Recession; Loss of Confidence (FSR 2009/2010, June 2010);
 - Debt Crisis (August 2010); Fiscal Crisis (November 2010); Unexpected Recession (February 2011);
 - Renewed Recession; Asymmetric Developments (FSR 2010/2011, June 2011)

- The horizon is set to 8 quarters
 - for example, August 2011 stress tests performed on mid-2011 portfolios with August 2011 forecasts focused on horizon 3Q2011 – 2Q2013
- A number of satellite models used where macro factors are explanatory variables (yield curve, credit risk, credit growth, real property prices etc.)

- Tests are set as <u>dynamic</u> for every item in assets, liabilities, income and costs there is an initial state to which the impact of shocks is added in one quarter and the results serve as the initial state for following quarter
- This is repeated in next 8 quarters for which the prediction is generated.
- Risks tested:
 - credit risk,
 - market risk (interest rate risk and FX risk),
 - income risk,
 - interbank contagion.

- Basel III, the new set of recommendations for strengthening the regulation, supervision and risk management of the banking sector, introduces two new standards to strengthen liquidity management (planned implementation in 2015-2018):
 - Liquidity coverage ratio: strengthening 30-day liquidity, requires at least 100% coverage of a stress-tested net liquidity outflow by quick assets
 - Net stable funding ratio: limiting maturity mismatch of assets and liabilities so that banks do not rely on unstable short-term funds when financing longterm loans
- Liquidity position of Czech banks is very good (quick assets account for 26% of total assets), but potential risk in the building society sector (liquid assets accounted only for 16% of total assets in 2010, down by 6 p.p. since 2009; coverage of the net 3-month position of client loans and deposits with quick assets declined from 41% to 32%).
- Reason: Maturity of building societies' funds decreases after the binding period as the volume of deposits increases
 - Rising maturity mismatch: claims over 5 years exceed long-term liabilities by almost CZK 164 bn.
 - Not due to shortcomings in liquidity management, but due to specific configuration of the building savings system.

Alternative scenarios for the stress tests

(in %) 6 5 4 3 2 1 0 1/09 IV 1/10 II III IV 1/11 II III IV 1/12 II III IV 1/13 90% 50% 70% 30% confidence interval

3M PRIBOR forecast + stress scenario "Recession"

Inflation forecast + stress scenario "Recession" (in %)

Exchange rate forecast + stress scenario "Recession" (CZK/EUR)

Czech GDP growth in 2012 in CNB and EBA tests (in %)

- Comparing EBA Adverse with <u>CNB scenarios from Financial Stability Report 2010/2011</u> prepared in May 2011 to ensure that the forecast was made in the similar time period with similar available information
- Graphs depict the CNB baseline (official CNB's May macroeconomic forecast) and CNB & EBA stress scenarios <u>for 2012</u>
 - Renewed Recession = extreme GDP decline, market turmoil with depreciation of CZK and increase in both short-term rates and bond yields
- For both GDP growth and unemployment in 2012 the stress assumed by the CNB is significantly stronger

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5Y (CNB) and 10Y (EBA) Czech government bond vield in 2012

- Source: CNB, CNB calculations, EBA
- CNB assumes higher 3M PRIBOR, i.e. larger stress in its stress scenario
- Even though EBA uses 10Y bond yield which is generally higher than 5Y bond yield used by CNB, CNB again assumes larger stress
- For GDP, unemployment, 3M PRIBOR, and bond yield assumes the newer August CNB stress scenario slightly lower stress, but still sizably above the EBA stress

- CNB assumes deeper fall of residential property prices (and even deeper in the August stress tests)
- Banking sector operating profits in 2012 down by 28% vis-à-vis the 2009-2010 average in both CNB & EBA stress scenarios
- In the last year's Committee of European Banking Supervisors (CEBS) stress tests the operating profits down only by 5% which was often criticized

Change in Czech residential property prices in 2012 in CNB and EBA tests (in %)

CNB vs. EBA stress tests

Source: CNB, CNB calculations

 Loss rates (the product of probability of default times loss given default) for EBA test are not publicly available, but their comparison reveals that CNB's stress scenario generates higher stress than EBA, even though the stress in EBA's adverse scenario is relatively high especially for the portfolios of households.

- The exercise runs from 2010 to 2012. The banks had an average Core Tier 1 capital ratio (CT1R) of 8.9%. This figure included some EUR 160bn of government support at end 2010 reflecting the measures that EU governments have been put in place to strengthen banks balance sheet. Year end capital included EUR 50bn of 2010 retained earnings.
- Based on end 2010 information only, the EBA exercise shows that 20 banks would fall below the 5% CT1 threshold over the two-year horizon of the exercise. The overall shortfall would total EUR 26.8 bn.

	2010	2012	< 2%	< 3%	< 4%	< 5%	< 6%	< 7%	< 8%	< 9%	< 10%	> 10%
AT	8.2%	7.6%	0	0	0	1	0	0	1	1	0	0
BE	11.4%	10.2%	0	0	0	0	0	0	0	0	0	2
CY	7.7%	4.8%	0	0	1	0	0	1	0	0	0	0
DE	9.4%	6.8%	0	0	1	0	2	2	3	1	0	3
DK	9.8%	10.8%	0	0	0	0	0	0	0	0	1	3
ES	7.4%	6.5%	4	0	3	2	7	2	0	3	2	2
FI	12.2%	11.6%	0	0	0	0	0	0	0	0	0	1
FR	8.4%	7.5%	0	0	0	0	0	2	1	1	0	0
GB	10.1%	7.6%	0	0	0	0	0	1	2	1	0	0
GR	10.2%	5.7%	1	0	0	1	2	0	2	0	0	0
HU	12.3%	13.6%	0	0	0	0	0	0	0	0	0	1
IE	6.2%	-0.1%	2	0	1	0	0	0	0	0	0	0
IT	7.4%	6.5%	0	0	0	1	1	2	1	0	0	0
LU	12.0%	13.3%	0	0	0	0	0	0	0	0	0	1
MT	10.5%	10.4%	0	0	0	0	0	0	0	0	0	1
NL	10.6%	9.4%	0	0	0	0	0	1	0	1	1	1
NO	8.3%	9.0%	0	0	0	0	0	0	0	1	0	0
PL	11.8%	12.2%	0	0	0	0	0	0	0	0	0	1
PT	7.1%	5.2%	0	0	1	0	1	2	0	0	0	0
SE	9.0%	9.5%	0	0	0	0	0	0	0	1	2	1
SI	5.7%	4.2%	0	0	1	0	1	0	0	0	0	0
Total	8.9%	7.4%	7	0	8	5	14	13	10	10	6	17

Adverse scenario

Source: EBA

- EBA allowed specific capital actions in the first four months of 2011 to be considered in the results. Banks were incentivised to strengthen their capital positions ahead of the stress test. Between January and April 2011 a further amount of some EUR 50bn of capital was raised on a net basis.
- Once capital-raising actions in 2011 are added, the EBA's 2011 stress test exercise shows that eight banks fall below the capital threshold of 5% CT1R over the two-year time horizon, with an overall CT1 shortfall of EUR 2.5bn. In addition, 16 banks display a CT1R of between 5% and 6%.

	2010	2012	< 20%	< 30/0	< 40/0	< 5%	< 6%	< 7%	< 8%	< 9%	< 10%	> 10%
AT	8.2%	7.6%	0	0	0	510	0	0	1	1	0	0
BE	11.4%	10.2%	0	0	0	0	0	0	0	0	0	2
CY	7.7%	5.7%	0	0	0	0	1	1	0	0	0	0
DE	9.4%	6.8%	0	0	0	0	2	4	2	1	1	2
DK	9.8%	11.9%	0	0	0	0	0	0	0	0	1	3
ES	7.4%	7.3%	0	0	3	2	7	5	1	3	2	2
FI	12.2%	11.6%	0	0	0	0	0	0	0	0	0	1
FR	8.4%	7.5%	0	0	0	0	0	2	1	1	0	0
GB	10.1%	7.6%	0	0	0	0	0	1	2	1	0	0
GR	10.2%	6.1%	1	0	0	1	2	0	2	0	0	0
HU	12.3%	13.6%	0	0	0	0	0	0	0	0	0	1
IE	6.2%	9.8%	0	0	0	0	0	0	1	0	0	2
IT	7.4%	7.3%	0	0	0	0		2	1	1	0	0
LU	12.0%	13.3%	0	0	0	0	0	0	0	0	0	1
MT	10.5%	10.4%	0	0	0	0	0	0	0	0	0	1
NL	10.6%	9.4%	0	0	0	0	0	1	0	1	1	1
NO	8.3%	9.0%	0	0	0	0	0	0	0	1	0	0
PL	11.8%	12.2%	0	0	0	0	0	0	0	0	0	1
PT	7.1%	5.7%	0	0	0	0	2	2	0	0	0	0
SE	9.0%	9.5%	0	0	0	0	0	0	0	1	2	1
SI	5.7%	6.0%	0	0	0	0	1	0	0	1	0	0
Tatal	0.00/	7 70/		0						12	-	10
Total	8.9%	1.1%	1	0	3		10	18	111	12		18

Adverse scenario

Source: EBA

- Despite high credit market losses and weaker operating profit, aggregate capital adequacy ratio above 10%
- However a few banks would get into situation of insufficient capital adequacy in the adverse scenario (but only CZK 13.4 billion = less than 0.4% of GDP of capital injection needed for all banks to reach the regulatory minimum of 8%)

- Also in the FSR 2010/2011 stress tests used for comparison with EBA, capital adequacy always above regulatory minimum of 8 %.
- Example of an ad-hoc sensitivity test: extraordinary dividend payments
 - Banks, expecting favorable future developments, will decide to downsize their existing capital buffers to the level prevailing in the pre-crisis period (2004-2007) and will pay out extraordinary dividends.
- The stress imposed on the banking sector is so high that changes in the baseline scenario (= official CNB forecast) do not constitute an important factor.

Capital adequacy ratios in each scenario in the event of extraordinary dividend payments

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