

RISKS TO FINANCIAL STABILITY AND THEIR INDICATORS

2019

The publication “Risks to financial stability and their indicators” was discussed by the CNB Bank Board at its regular meeting on financial stability issues on 28 November 2019. With a few exceptions, it contains information available as of 30 September 2019. It is available in electronic form on the [CNB website](#), where the underlying data for the tables and charts used in this publication are also published. A list of [abbreviations](#) can also be found there.



Dear Readers,

Our main publication in the area of financial stability and macroprudential policy is the *Financial Stability Report*, which we have published every June since 2005. It is the key document for the regular spring Bank Board meeting on financial stability issues. For the regular autumn meeting, our experts draw up an update of the Financial Stability Report. The publication ***Risks to financial stability and their indicators*** is based on this update and has been published on the CNB website since 2017. The third issue, based on the November 2019 update of the Report, is now at your disposal.

According to the Act on the CNB, maintaining financial stability is one of our key objectives. In accordance with the Act, the CNB identifies, monitors and assesses risks jeopardising the stability of the financial system and, in order to prevent or mitigate these risks, contributes by means of its powers to the resilience of the financial system and the maintenance of financial stability. It primarily employs macroprudential policy tools to do so.

The CNB defines financial stability as a situation where the financial system operates with no serious failures or undesirable impacts on the present and future development of the economy as a whole, while showing a high degree of resilience to shocks. The CNB's definition is based on the fact that financial stability may be disturbed both by processes inside the financial sector that lead to the emergence of weak spots, and by strong shocks, which may arise from the external environment, domestic macroeconomic developments, large debtors and creditors, economic policies or changes in the institutional environment. Any interaction between weak spots and shocks can result in the collapse of systemically important financial institutions and in disruption of the financial intermediation and payment functions of the financial system.

The CNB's aim with regard to financial stability is to ensure a degree of resilience of the system that minimises the risk of financial instability. To fulfil this aim, the CNB as an integrated supervisory and monetary authority uses the instruments made available to it by the Act on the CNB, the Act on Banks and other applicable laws. Cooperation with other national and international authorities is also very important in this area. In order to maintain financial stability, the CNB focuses on prevention and broad communication with the public regarding the potential risks and factors posing a threat to financial stability.

The CNB regularly monitors and closely analyses developments in all areas relevant to financial stability. The members of the CNB Bank Board meet with experts from key departments at regular meetings on financial stability issues. A wide range of information on developments of risks in the domestic financial system and abroad is presented at these meetings and the position of the Czech economy in the financial cycle is assessed. If any risks to financial stability are identified, discussions are held regarding the possible use of regulatory, supervisory and other economic policy tools to suppress such risks or their potential effects.

The CNB is a member of the joint EU institution for the identification of systemic risks and macroprudential policy – the European Systemic Risk Board (ESRB). Together with three pan-European sectoral supervisory authorities (EBA, ESMA and EIOPA), the ESRB makes up the European System of Financial Supervision (ESFS). CNB representatives are involved directly in the ESRB's work; the CNB Governor and another board member are members of the General Board of the ESRB, and CNB experts participate in its working groups. In line with an ESRB recommendation, macroprudential policy focuses on the fulfilment of several intermediate objectives. These objectives include (a) to mitigate and prevent excessive credit growth and leverage; (b) to mitigate and prevent excessive maturity mismatch and market illiquidity; (c) to limit direct and indirect exposure concentrations; (d) to limit the systemic impact of misaligned incentives with a view to reducing moral hazard; and (e) to strengthen the resilience of financial infrastructures. According to an ESRB assessment, the CNB is one of the most active authorities in the EU countries as regards the use of macroprudential policy at the national level.

The macroprudential policy instruments we use include above all a set of prescribed capital buffers for credit institutions. We set a countercyclical capital buffer and a systemic risk buffer for systemically important banks at regular intervals. In recent years, we have dealt intensively with risks associated with property market developments and mortgage lending. To mitigate these risks, we use a set of recommendations regarding the provision of mortgage loans. We are also pushing for a legislative change in this area, aimed at effective prevention of the relevant risks.

The publication is divided into four sections. Following the opening *Summary*, the section titled *The real economy and financial markets* focuses on risks connected with the macroeconomic environment, developments in the sectors of non-financial corporations and households, and financial market trends. The section called *The financial sector* assesses developments in the banking sector and in the non-banking institutions sector. The closing section, *Macroprudential policy*, contains information on macroprudential instruments for mitigating risks identified. This section focuses mainly on the setting of the countercyclical capital buffer and the assessment of risks associated with mortgage lending. Appended to the publication is a *Chartbook* containing numerous charts showing indicators of developments and risks in the financial sector.

On behalf of the Czech National Bank



Jiří Rusnok
Governor

FOREWORD	2
1 SUMMARY	5
2 THE REAL ECONOMY AND FINANCIAL MARKETS	10
2.1 THE MACROECONOMIC AND FINANCIAL ENVIRONMENT	10
2.2 THE PRIVATE NON-FINANCIAL SECTOR	17
3 THE FINANCIAL SECTOR	23
3.1 THE BANKING SECTOR	24
3.2 THE NON-BANKING FINANCIAL SECTOR	30
3.3 THE BANKING SECTOR MACRO STRESS TEST WITH A FIVE-YEAR HORIZON	35
4 MACROPRUDENTIAL POLICY	37
4.1 THE COUNTERCYCLICAL CAPITAL BUFFER	38
4.2 RISKS AND INSTRUMENTS ASSOCIATED WITH THE PROPERTY MARKET	45
CHARTBOOK (CB)	57
SELECTED FINANCIAL STABILITY INDICATORS	65
BOXES	
Box 2.1: RISKS OF THE LOW INTEREST RATE ENVIRONMENT	13
Box 2.2: THE IMPACT OF CHANGES IN HOUSEHOLD DEBT SERVICE ON CONSUMPTION	20
Box 3.1: POTENTIAL IMPACTS OF THE OUTPUT FLOOR ON THE CAPITAL SURPLUS OF IRB BANKS	25
Box 3.2: LONG-TERM PROJECTION FOR THE TRANSFORMED FUNDS SEGMENT	32
Box 4.1: ASSESSMENT OF RISKS ASSOCIATED WITH THE RESIDENTIAL PROPERTY MARKET AND THE ESRB'S WARNING TO THE CZECH REPUBLIC	50
Box 4.2: AN ANALYSIS OF LOANS FOR THE PURCHASE OF ADDITIONAL RESIDENTIAL PROPERTY	52

1 SUMMARY

The CNB Bank Board decided at its meeting on 28 November 2019 to leave the countercyclical capital buffer rate unchanged at 2.0%. This rate will apply from 1 July 2020; in the first half of 2020 the applicable rate will be 1.75%. The Bank Board also assessed the recommended LTV, DTI and DSTI limits for mortgage loans. At this moment, it does not deem it necessary to change the current limits. There are thus only two minor changes to the CNB's Recommendation on the management of risks associated with the provision of retail loans secured by residential property. These changes reflect findings obtained on the basis of newly available data and discussions with mortgage lenders. The list of other systemically important institutions assessed each year by the CNB has been shortened by one institution to six. The change has no impact on the capital requirements of the institutions on the old or new list.

The “low-for-long” scenario is beginning to materialise in advanced countries

The world economy is slowing, as is the euro area economy. Central banks are responding to the potential disinflationary pressures by discontinuing monetary policy normalisation, lowering monetary policy rates or by broadening quantitative easing. These steps are fostering expectations of an extended period of relaxed financing conditions and materialisation of the “low-for-long” scenario. On the one hand, the exceptionally low interest rates are helping to reduce the risks stemming from the potential economic contraction. On the other hand, they are creating an environment conducive to growth in risks to financial stability, especially in the form of overvalued prices of market assets and rising private and public sector debt.

Yields on financial and real assets are falling globally to historical lows and the search for yield is continuing

Yields on high-quality bonds dropped further in 2019, due in part to monetary easing by major central banks, and are close to zero or negative. Low returns on safe assets are still causing changes in the structure of institutional investors' and households' portfolios. Institutional investors are continuing to reallocate their portfolios towards riskier or less liquid assets, most notably shares, real estate and riskier corporate bonds. Negative real yields on deposit products are also motivating households to reallocate their funds into more profitable assets – especially investment fund units – and to buy property on credit.

The low rates are encouraging further growth in indebtedness

Private and public debt is at historical highs in many countries. Debt growth has been recorded mainly by emerging economies, China and some EU countries in recent years. The slowing economic growth could cause some debtors to experience debt servicing problems via a decline in disposable income. Debt sustainability risk is therefore becoming highly relevant in many economies. This is associated with a risk of a sudden repricing of risk premia on financial markets, where distrust of debt sustainability could lead to a rise in risk aversion and to massive sell-offs of financial and real assets. The current prices of many such assets are substantially overvalued relative to fundamentals. A spiral between growing risk premia, declining asset prices and asset sales could result in the financial sector, and also non-financial investors in such assets, incurring systemic losses. It would also foster growth in longer-term interest rates with the potential to cause a significant rise in the cost of funding for both the private and public sector.

The domestic economy continues to grow but will slow in the next year according to the CNB's November forecast

According to the CNB forecast, annual real GDP growth should reach 2.6% in 2019. A modest slowdown is expected in the following year due to weaker external demand. By contrast, domestic demand continues to be supported by robust household consumption, reflecting rapid growth in disposable income amid a tight labour market and low unemployment. However, higher wage growth has contributed to growth in total costs and a decline in the profitability of non-financial corporations. The CNB's November forecast assumes that the tightness on the labour market reached its cyclical peak in 2019 and wage growth will start to decrease gradually to a sustainable level.

The improvement in credit risk in the domestic economy will halt

Credit risk, as measured by the 12-month default rate, decreased slightly in the case of households and was flat in the case of non-financial corporations in 2019. In line with the favourable evolution of credit risk, the ratio of non-performing loans to total loans, measuring the materialisation of risks taken on in the past, also fell. The downward trend in credit risk was due to the positive trend in household income and the current low debt servicing costs. Given the outlook for an economic slowdown, however, it can be expected to halt, and in the case of non-financial corporation it may even swing upwards.

The Czech banking sector continued to develop favourably in the first half of 2019

Banks' capitalisation increased and their profitability remains high. The evolution of risk weights in the main credit portfolios was not uniform – loans to non-financial corporations saw a slight increase, while a decrease was recorded for loans to households. The risk weight level is relatively low and is thus consistent with a period of favourable economic conditions. Likewise, the evolution of expected credit losses, reflected in provisioning, does not indicate expectations of a macroeconomic deterioration on the part of banks. The historically low risk weights and expected credit losses increase the intensity of the negative impact of the potential materialisation of credit risks in an adverse economic situation. The banking sector is sufficiently capitalised and profitable to cover such risks at present.

Banks remain resilient to potential adverse shocks

Hypothetical adverse economic developments in a macro stress test with a five-year horizon were reflected in a significant fall in the sector's capital ratio (of 9.4 pp to 10.8%). Despite the large stress applied, the capital ratio remained comfortably above the regulatory minimum of 8%. However, if banks did not have capital 4 pp above the regulatory capital requirement at the start of the test, the sector's capital ratio would drop below the regulatory minimum. This highlights the need for adequate capital buffers to cover cyclical risks, reasonable dividend policies and prudential assessment of the effect of voluntary capital surpluses on the banking sector's resilience.

Investment and pension funds continued to grow apace

The first half of 2019 was favourable for the pension and investment fund segments, which recorded an inflow of new investment and gains in the value of the funds they manage. Both segments thus continue to grow slowly towards systemic dimensions. Financial market developments contributed to a slight surplus of assets over liabilities in transformed funds, but pension funds remain vulnerable to a fall in the prices of Czech government bonds. The age structure of participants and the relatively low interest in migrating from transformed to participation funds indicate that the amount of funds managed by transformed funds will continue to grow. This increases the need for high-quality capital management in pension funds.

The CNB responds to risks in the banking sector associated with the financial and business cycle by setting the countercyclical capital buffer

The countercyclical capital buffer (CCyB) is designed to increase the resilience of the banking sector to risks associated with the effect of the financial cycle. An appropriately set CCyB rate should help reduce the negative impacts of the manifestations of this cycle on the banking sector and in particular to maintain the stability of banks and their ability to lend to the real economy even in the event of adverse shocks. The CNB set the CCyB rate at 0.5% as of the end of 2015 and has increased it six times since then. At the time of publication of *Risks to financial stability and their indicators*, the CCyB rate applied to exposures in the Czech Republic is 1.50%. At its previous meetings on financial stability, the Bank Board decided to increase the rate to 1.75% with effect from January 2020 and 2.0% with effect from July 2020.

The domestic economy is currently close to the peak of the financial cycle

The starting point for the Bank Board's decision on the CCyB rate is an assessment of the position of the domestic economy in the financial cycle. According to the aggregate Financial Cycle Indicator, the domestic economy entered the fifth year of the expansionary phase during the first half of this year. At the end of 2019 Q2, however, this indicator recorded a slight decrease for the second time in a row. This decline was mainly due to weaker credit growth in the household sector. The shift of the Czech economy into the expansionary phase of the financial cycle halted and the cyclical risks newly taken on in the domestic economy shrank slightly. Nevertheless, risks associated with the financial cycle in previous years remain accumulated in

financial institutions' balance sheets, and materialisation of these risks may result in unexpected losses in the banking sector. The prudential estimate of these losses in the current phase of the financial cycle is around CZK 25 billion. The current phase of the financial cycle is also manifested in a low default rate and near-zero asset impairment losses. This is reflected in a decline in risk weights of the main IRB credit portfolios, which is a source of banking sector vulnerability. The current absolute capital requirement for IRB portfolios would be CZK 25 billion higher based on the risk weights observed at the start of the expansionary phase of the financial cycle (2015 Q4). The sum of these two effects represents an absolute volume of capital of CZK 50 billion. This implies a CCyB rate of 2.0% relative to the value of risk-weighted assets as of mid-2019.

Consistent with the assessment of cyclical risks and the degree of vulnerability of the banking sector is leaving the countercyclical capital buffer rate at 2.0%

The final decision on the CCyB rate is always a result of a comprehensive assessment of indicators of the financial cycle and the vulnerability of the banking sector and other factors affecting the sector's resilience. Following this assessment, the CNB Bank Board decided at its meeting on 28 November 2019 to leave the CCyB rate at 2.0%. Given the assessment of the position of the domestic economy in the financial cycle, the CCyB rate can be expected to stay unchanged for the near future. However, in the event of a renewed acceleration in credit growth, for example due to a decrease in mortgage interest rates, a renewed upward shift in the financial cycle or further growth in the vulnerability of the banking sector, the CNB stands ready to increase the CCyB rate further. By contrast, if the accumulated risks materialise and risk weights rise, the CNB is prepared to gradually lower the rate, or even zero it in a single step, depending on the depth of the recession and its impact on the banking sector.

Materialisation of cyclical risks and growing tensions in financial markets will be the key signal to lower the CCyB rate

Considerations of lowering the CCyB are unjustified at the moment. Most banks are compliant with the overall capital requirement, consisting of the minimum regulatory level in Pillar 1, the requirements based on the supervisory review of risks in Pillar 2 and the macroprudential capital requirements, by a sufficient margin. Assuming reasonable dividend policies, banks have large capacity for growth in their credit portfolios at the aggregate level even if the regulatory capital requirements were increased. The CNB stands ready to lower or completely zero the CCyB rate in the event of a sudden turnaround in the financial cycle. However, a gradual decrease in lending activity or more prudent lending will not constitute a reason for lowering the CCyB rate, as the cyclical risks assumed at times of above-average credit growth and relaxed credit standards stay in banks' balance sheets. Signals of risk materialisation, reflected in rising risk weights, growing costs of risk and increased provisioning will be the primary grounds for doing so.

The affordability of housing has deteriorated further due to rapid growth in residential property prices

Transaction prices of residential property rose further in 2019 H1 and were almost 35% higher compared to their pre-crisis peak in 2008. As expected by the CNB, the rate of price growth decreased, but it still exceeds growth in households' disposable income. This was reflected in worsening housing affordability and increasing price overvaluation. By the CNB's estimation, the overvaluation stood at 15%–20% in mid-2019. The CNB regards apartment undersupply in Prague and some other cities as the main cause of this trend. Price growth is also being fostered by a low level of interest rates on housing loans, which after last year's increase started to fall significantly again due to the very easy monetary policies of central banks in other countries. This factor will continue to push up demand for housing as an alternative to investing in financial assets. Given the recent developments in asking prices, however, the CNB assumes that growth in residential property prices will tend to weaken in the quarters ahead.

Conditions for a renewed spiral between property prices and housing loans persist

A spiral between credit financing of property purchases and rapidly rising property prices has been identified by the CNB as a significant source of systemic risk in the domestic economy for several years now. As the amount of new property purchase loans decreased and property price growth slowed, the spiral between prices and loans halted in 2019 H1. However, the reversal of the trend in interest rates on house purchase loans observed in 2019 is again increasing the risk of the spiral re-emerging in the future.

Genuinely new housing loans are lower than in previous years

Following a surge in loans in 2018 H2 linked with the media campaign accompanying the introduction of the DTI and DSTI caps, the amount of genuinely new loans (excluding refinancing and refixations) naturally dropped in 2019 H1. Besides the adjustment of the DTI and DSTI limits, the lower amount was due to a set of factors including frontloading before the limits came in, a continued deterioration in housing affordability owing to rising property prices, and undersupply of new apartments in cities. Genuinely new loans were provided at a stable monthly level of around CZK 13 billion in both Q2 and Q3. It can be assumed that the monthly volumes of genuinely new loans will be temporarily higher year on year in 2020 Q1 due to frontloading.

The CNB responded to the risks associated with credit financing of housing by applying macroprudential policy instruments

Since 2015, the CNB has been applying instruments to mitigate risks associated with credit financing of housing as formulated in its *Recommendation on the management of risks associated with the provision of retail loans secured by residential property* (the "Recommendation"). The CNB currently recommends that lenders should not provide such loans with LTVs of over 90% and should limit the provision of loans with LTVs of 80%–90% to 15% of new loans in the quarter. Since October 2018, the CNB has also advised lenders not to exceed a DTI ratio of nine annual incomes and a DSTI ratio of 45%. The CNB assesses the risks associated with mortgage lending and banks' compliance with the Recommendation twice a year. The assessment conducted on the basis of data on loans provided in 2019 H1 shows that the share of loans with highly risky characteristics decreased and the increase in the overall risks associated with mortgage lending halted.

Not all banks were compliant with the recommended LTV limits and the CNB regards the current limits as boundary values

Most banks continued to be broadly compliant with the currently applicable CNB Recommendation as regards LTV limits in the first half of 2019. However, the share of loans with LTVs of 80%–90%, which can account for a maximum of 15% of new loans, increased gradually, reaching 13% in June 2019. It was thus close to the upper limit. As in the previous period, banks also provided 3% of loans with an individual LTV of over 90%, the level above which loans should not be provided under the Recommendation. Overall, the share of loans with LTVs of over 80% exceeded 15% in June 2019, indicating that some providers were not compliant with the Recommendation. The CNB reacts – and stands ready to react further – to the risks associated with insufficient compliance with the Recommendation and prudential rules for the management of risks using the additional capital requirement under SREP. The increase in estimated house price overvaluation to 15%–20% in mid-2019 led to a further weakening of the effectiveness of the LTV limits from the financial stability perspective. The CNB does not deem it necessary to tighten the limits for the time being. However, continued growth in house price overvaluation could necessitate a reassessment of the sufficiency of the current limits.

Lenders adjusted to the recommended DTI and DSTI limits with a lag

Lenders adjusted to the DTI and DSTI limits with a lag and became compliant with them in 2019 H1. As regards the now more limiting DSTI ratio, the share of above-limit loans was just above the 5% exemption threshold throughout H1. A reduction in the supply of loans to clients with higher additional debt can be regarded as the main channel of adjustment to the recommended limits for both ratios. Another method that aids compliance with the recommended limits is to increase the number of applicants for a specific loan, as their combined income will be higher. The fact that the provision of loans simultaneously exceeding the limits on all three observed credit ratios (LTV, DTI and DSTI) was restricted can be regarded as positive. The CNB considers these loans to be the most risky. At the same time, lenders reflected the higher riskiness of some loans in the level of interest rates on those loans to a greater extent than in the past.

The CNB Recommendation now defines investment types of mortgage loans...

Additional information about mortgage loans provided in 2019 H1 confirmed that the share of mortgage loans for which clients declare rental income as part of their declared income is very low. However, the new information reveals that new mortgage loans to clients who already have one or more mortgage loans account for almost a third of the total. It is likely that such loans are mostly of an investment nature and some of them are provided to clients who will rent out the property

but do not need to declare the rental income as part of their income. The CNB therefore recommends that lenders should now separately monitor loans for the purchase of additional residential property (loans provided to clients who already have one or more mortgage loans when submitting the application and for whom the expected rental income is not included in net income) in addition to loans for the purchase of buy-to-let residential property (loans where expected income from renting out the residential property is included in net income for the assessment of the DTI and DSTI ratios). They should also use all available information to assess the purpose of such loans and apply a very cautious approach to those which in all probability are not being used to finance owner-occupied housing.

...and clarifies the terms and conditions for providing mortgage loans for the purchase of buy-to-let residential property

Under the previous wording of Article IX of the CNB Recommendation, lenders were recommended to apply an upper LTV limit of 60% to loans to finance buy-to-let residential property where indicators of the client's ability to service the loan from their own resources have a higher risk level. The higher risk level of indicators of the client's ability to service the loan from their own resources was not accurately defined in this article. The Recommendation now explicitly defines "higher risk level" as values exceeding 9 for the DTI ratio or 45% for the DSTI ratio. The upper LTV limit thus remains at 60% in these cases and applies only to loans for the purchase of buy-to-let residential property for which the DTI and DSTI ratios exceed the recommended upper limits (under the permitted 5% exemption from these limits).

The Recommendation now enables compliance with exemptions at the lender group level

Based on a discussion with mortgage lenders, some of which apply a centralised credit risk management model in their ownership structures, the Recommendation now enables management of compliance with the maximum permissible volume of exemptions from the credit ratios (under Article IV(2) for LTV and Articles V(2) and V(3) for DTI and DSTI respectively) in an aggregate manner at the lender group level in the Czech Republic as defined by the relevant lenders.

The CNB is seeking the statutory power to set upper limits on the LTV, DTI and DSTI ratios for mortgage loans

The CNB and the Czech Ministry of Finance have submitted into the legislative process an amendment to the Act on the CNB that would empower the CNB to set upper LTV, DTI and DSTI limits in a legally binding manner through provisions of a general nature. All three ratios are covered by the current Recommendation. A switch to setting these indicators in a legally binding manner will therefore have no major impact on current bank lenders or consumers. However, the limits must be legally binding in order to ensure a level playing field on the market and to prevent unfair competition between lenders in the future, when mortgages might start to be provided to a much greater extent by foreign institutions falling outside the scope of prudential supervision by the CNB. The draft amendment to the Act on the CNB was approved by the Czech government in June 2019 and started to be debated in the Chamber of Deputies in November. The fact that the CNB has no power to set upper limits on credit ratios in a legally binding manner was one of the main reasons why the ESRB issued a warning to the Czech Republic in September 2019 regarding the risks associated with the residential property market.

The list of other systemically important institutions is to be shortened from seven to six

The CNB is required to identify other systemically important institutions (O-SIIs) and to review the list at least once a year. According to the CNB's new assessment based fully on the methodology of the European Banking Authority, the Jakabovič & Tkáč financial group, whose systemic importance score has been falling over the long term to levels below the threshold of systemic importance, will be excluded from the O-SIIs list. Six consolidated groups will thus operate as O-SIIs in the domestic financial sector in 2020 (Československá obchodní banka, Česká spořitelna, Komerční banka, UniCredit Bank, PPF FH B.V. and Raiffeisenbank). The CNB does not currently consider it necessary to set an additional capital requirement for banks that are members of the relevant consolidated groups due to their designation as O-SIIs. Five banks with a high level of domestic systemic importance are required to maintain a systemic risk buffer.

The CNB will publish additional detailed analyses of risks to financial stability and information about the macroprudential policy settings in June 2020 in its Financial Stability Report 2019/2020, which will be an underlying document for the May Bank Board meeting on financial stability issues.

2 THE REAL ECONOMY AND FINANCIAL MARKETS

2.1 THE MACROECONOMIC AND FINANCIAL ENVIRONMENT

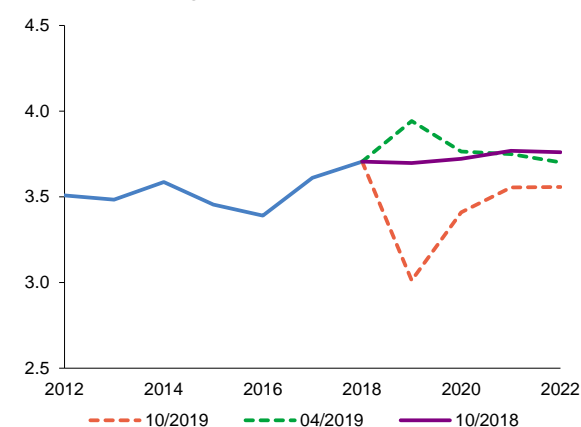
Global economic growth is slowing and the outlook is uncertain

The world economy is slowing. Prevailing high geopolitical uncertainty and the risk of further protectionist measures in international trade have led to a substantial revision of economic growth estimates during 2019 (see Chart II.1). According to the most recent IMF estimates, global annual GDP growth will reach 3% in 2019, which is 0.6 pp less than last year. Compared to previous forecasts, global economic growth is expected to be lower in the coming years as well. The euro area economy is also slowing and GDP growth in the euro area will probably fluctuate only around 1% this year (see Chart II.2). The ECB expects similar growth next year.¹ Increasing macroeconomic risk is perceived by an increasing number of EU countries (see Table II.1).

Chart II.1

Changes in the world economic growth forecast

(annual real GDP growth in %)

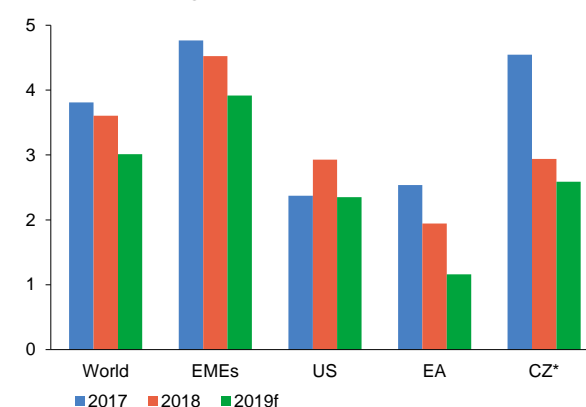


Source: IMF

Chart II.2

Economic growth in selected countries

(annual real GDP growth in %)



Source: IMF (World Economic Outlook, October 2019), CNB

Note: "f" stands for forecast; * the forecast for the Czech Republic is based on the CNB forecast published in Inflation Report IV/2019.

The scenario of low rates is materialising through slower monetary policy normalisation...

The key central banks are responding to the economic growth and inflation outlooks by maintaining accommodative monetary policy or by easing policy again after a phase of partial normalisation. The US Fed has lowered rates three consecutive times this year and ended its balance sheet reduction process on 1 August 2019.² The ECB has lowered its deposit rate and announced new unconventional monetary measures and changes to those already in place.³ Besides euro area countries, monetary policy rates are also negative in Sweden, Denmark and Switzerland (see Chart II.3). The halt in monetary policy normalisation signals that the period of exceptionally low interest rates will last longer than originally expected. The expectations of a prolonged period of low interest rates are also reflected in government bond markets, where yield curves are often inverted and yields are close to zero or even negative (see Chart II.4).

¹ The ECB's September 2019 macroeconomic projections foresee inflation at 1.2% in 2019, 1.0% in 2020 and 1.5% in 2021. The ECB also foresees subdued GDP growth: 1.1% in 2019 and 1.2% in 2020. <https://www.ecb.europa.eu/pub/projections/html/index.en.html>.

² The Fed will again fully reinvest income on repaid bonds in its portfolio in new US government bonds.

³ The ECB lowered the deposit rate by 10 bp to -0.5% in September. It kept the rates on its main refinancing and lending operations unchanged at 0% and 0.25% respectively. The asset purchase programme will be restarted on 1 November at a monthly pace of EUR 20 billion. The ECB will continue reinvesting, in full, the principal payments from maturing securities purchased under the asset purchase programmes even past the date when it starts raising rates.

Chart II.3

Main monetary policy rates of selected central banks (%)

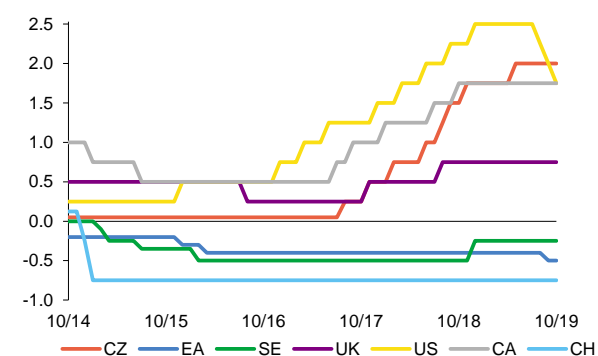
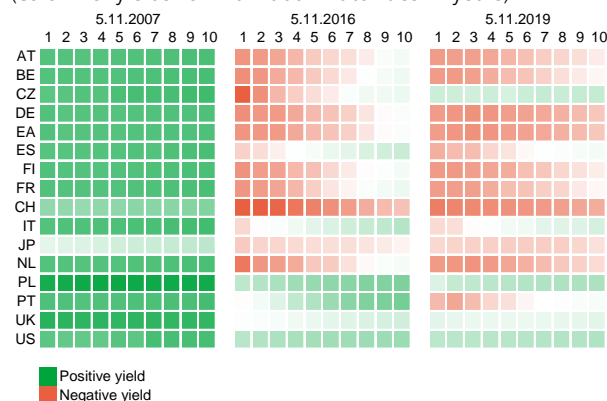


Chart II.4

Selected government bond yields

(columns: yields for individual maturities in years)



...which is amplifying the sources of risks to financial stability, including high and persisting indebtedness

The environment of low interest rates and yields is fostering a reduction in the risks stemming from the economic slowdown in the short term. In the medium term, however, the risks to financial stability – especially in the form of overvalued prices of market assets due to reduced risk premia (see Chart II.8) and increasing indebtedness (see Box 2.1) – are growing in this environment. The low interest rates are creating favourable conditions for borrowers, as reflected in a drop in debt service costs (see Chart II.5). However, the low rates are simultaneously giving an impression of easy debt service and encouraging the acceptance of higher levels of debt. Both government and private sector debt are at historical highs in many countries. Significant debt growth has been recorded by emerging economies, China and selected euro area countries. High debt and a potential sizeable rise in losses on loans taken out in the optimistic phase of the cycle currently represent the main risk to global financial stability.⁴ The observed economic slowdown and drop in borrowers' incomes, and the related deterioration in their ability to repay accumulated debts, could be the primary trigger of the materialisation of this risk.

Chart II.5

Changes in the debt service costs of private non-financial sectors in selected countries

(pp of GDP; change between 2007 and 2018)

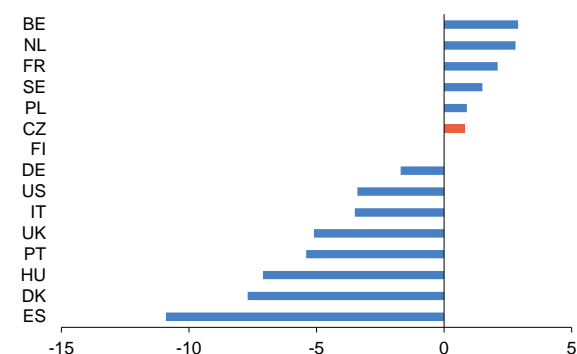
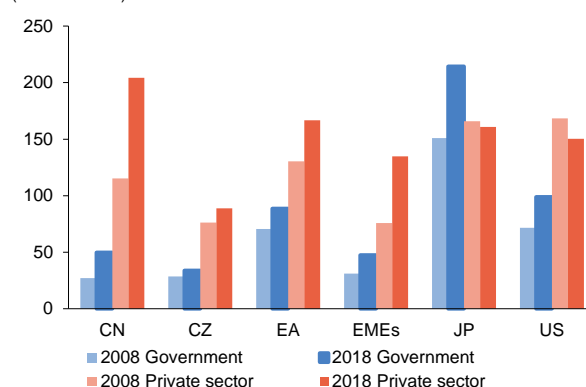


Chart II.6

Debt in selected countries

(% of GDP)



4 IMF (October 2019): *Global Financial Stability Report: Lower for Longer*.

The easy financial conditions are also increasing the risks to financial stability in the euro area...

In a number of EU Member States, the prolongation of the period of low interest rates is leading to a shift in the growth phase of the financial cycle, which is being accompanied by rapid growth in property prices (see Chart II.7) and increased credit growth. Most of the European countries under review now perceive the risks on the residential property market to be elevated, with four countries describing their level as high (see Table II.1).⁵ Deleveraging continues in countries hit hard by the global financial and debt crisis. Credit growth in these countries is subdued and the indebtedness of both corporations and households is gradually falling (see Chart II.1 CB and Chart II.2 CB). By contrast, countries on which the crisis had no major impact recorded growth in the debt of non-financial corporations, and many of them also growth in the debt of households, in 2008–2018. The debt level in some of the countries with high household debt has dropped but it remains very high, exceeding 80% of GDP (DK, NL, SE and UK).

Table II.1

Potential sources of risks to financial stability as perceived by selected national authorities

	IT	ES	AT	PL	DK	CZ	HU	SE	NO	NL	FI	DE	FR	UK	BE	SK
Residential property prices	High	High	High	Moderate	Moderate	Moderate	Moderate	High	Moderate	High	Moderate	Moderate	Moderate	Moderate	High	High
Excessive credit growth	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	Moderate	High
NFC debt sustainability	Moderate	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	Moderate	Moderate
Household debt sustainability	High	Moderate	High	Moderate	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	High	Moderate	Moderate	Moderate	High
Macroeconomic environment	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Insurance company sector stability	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate	High	Moderate
Bank profitability	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	High	Moderate
Sovereign risk	High	Moderate	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Bank loan portfolio quality	Moderate	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Pension fund sector stability	High	High	High	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate

Level of risk: High Moderate Low

Source: The relevant countries' latest financial stability reports, ESRB Risk Dashboard, CNB

Note: The assessment is based on a qualitative evaluation of the relevant countries' latest financial stability reports. Where a risk is not mentioned in the report, the assessment is based on the CNB's interpretation of the indicators used in the ESRB Risk Dashboard. The ordering of countries and risks in the table is obtained using a visual contrast-optimising algorithm.

...including search for yield

The low-rate environment is also reflected in an increased number of countries perceiving growth in risks in the sector of insurance companies (see Table II.1) and other institutional investors. The persisting low interest rates are reducing the profits of these institutions and motivating them to search for yield in the form of riskier investments (see Box 2.1). The demand for riskier investments is causing share prices to rise, often with no commensurate improvement in firms' financial results (see the upper panel of Chart II.8), and risk premia on corporate bonds to stay at unusually low levels (see the middle panel of Chart II.8). The risk of incorrect market risk valuation is exacerbated by reduced market volatility (see the lower panel of Chart II.8). Potential repricing of risk premia on market assets in investors' balance sheets, accompanied by growth in market volatility, represents another significant risk to financial stability in advanced countries.⁶

5 The ESRB issued warnings and recommendations for 11 EU/EEA countries in September 2019 in relation to risks associated with the real estate market (see Box 4.2).

6 The topic of overvalued financial asset prices in a prolonged period of low interest rates is discussed in IMF (April 2018): *Reach for Yield or Overreach in Risky Assets?* Global Financial Stability Report: A Bumpy Road Ahead, pp. 10–21.

Chart II.7

Property price growth in selected EU countries

(%; as of 30 June 2019; x-axis: three-year growth; y-axis: one-year growth)

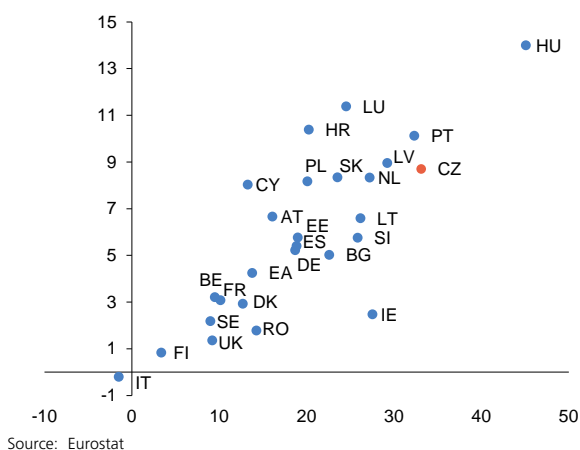
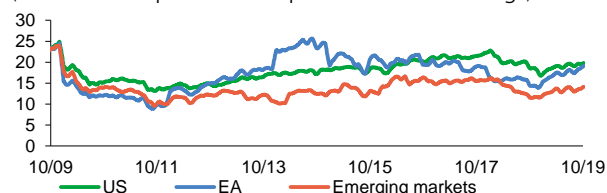


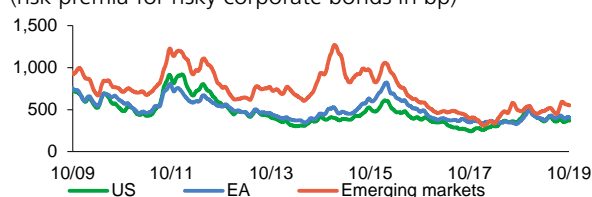
Chart II.8

Indicators of stock and bond price adequacy and market volatility

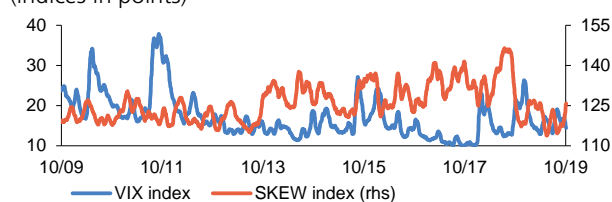
(market stock price in multiples of annual earnings)



(risk premia for risky corporate bonds in bp)



(indices in points)



Source: Bloomberg, CNB

Note: Stocks – S&P 500 for US, Euro Stoxx 50 for EA and MSCI Emerging for emerging markets. The risk premium is the yield spread for speculative-grade bonds (BB+ or lower) vis-à-vis government bonds adjusted for any embedded options. Smoothed by the 20-day moving average.

BOX 2.1: RISKS OF THE LOW INTEREST RATE ENVIRONMENT

An environment of exceptionally low interest rates has been prevailing in advanced countries for years now. What originally appeared to be a temporary issue related to the necessary response to the global financial crisis, is increasingly being seen as a longer-term structural problem. Following the economic recovery, central banks in some countries took the path of gradual monetary policy normalisation in 2015–2017. This year, however, some of them have interrupted the cycle of monetary policy rate increases or have even cut rates again (see Chart II.3). The ECB's September statements have become a strong impulse for European economies, raising expectations of a continued policy of zero or negative monetary policy rates in the years ahead and increased quantitative easing, which will also push long-term yields to exceptionally low or negative levels (see Chart II.4). The "low-for-long" scenario used in international institutions' analyses in previous years is thus materialising.⁷ This box summarises the findings of selected analyses regarding the risks inherent in this scenario.⁸

7 The ESRB's November 2016 report *Macroprudential policy issues arising from low interest rates and structural changes in the EU financial system* and the July 2018 analysis *Financial stability implications of a prolonged period of low interest rates* prepared by the Committee on the Global Financial System operating under the BIS in Basel.

8 Given the higher koruna interest rates, the risks to the domestic financial sector mentioned below are rather low. However, they also affect the sector indirectly through the cross-border interconnectedness of institutions and markets.

An environment of very low interest rates can jeopardise the financial stability of individual financial market segments via two channels. The first is its negative effect on the profitability and, in turn, the resilience of financial institutions. The second is the resulting search for yield, reflected in investment in riskier assets, growth in leverage and concentration, more intense sectoral interconnectedness and hence greater vulnerability of the financial sector. Both channels may create – to a certain degree spurious – impulses for a shift from a banking-based financial system towards capital markets and to migration of financial activities into less regulated segments, which are generally more sensitive to market shocks.

This interest rate environment – reflected in a flat yield curve – squeezes banks' profitability via a decline in net interest rate margins. This applies especially to countries in which interest rates on client deposits are zero or even negative.⁹ In such a situation, banks often cannot respond to a drop in interest rates on loans by lowering their deposit rates. For many European banks, the room for cutting funding costs will be limited by the obligation to acquire further eligible liabilities to comply with the MREL requirement and raise regulatory capital. Banks can try to reduce their operating costs, but this has its limits. Another option is to increase the volume of remunerated assets. However, this is difficult to do in economies where sectors are so indebted that demand for further loans is weak. Banks can partially relax their credit standards and invest in more profitable but potentially riskier assets. However, holdings of such assets are significantly limited by regulatory measures. The lower incentive to write off problem loans has an indirect negative impact on banks' profitability in the longer term. Cheap financing allows banks to hold such loans in their balance sheets for longer, but at the expense of new and potentially more lucrative clients.

Life insurance companies and pension funds providing defined benefit pension plans with guaranteed returns face similar risks. Their assets may have a shorter maturity than their liabilities, so a decline in interest rates increases the present value of liabilities more than that of assets. Specifically, this means that plans concluded 20 years ago, for example, were based on an assumption that government bond yields would fluctuate around 4%. If the environment of very low yields persists for an extended period, some providers of defined benefit pension plans may run into solvency problems, although more probably in the longer term. This risk is marginal for some European countries (such as the Czech Republic) but high for others. If it were to materialise, the problems could spill over to other sectors and cause a lack of confidence in the stability of the financial system as a whole. In addition, the current interest rate environment is discouraging financial institutions from providing products with guaranteed returns and generating incentives to transfer risks to clients.

The low interest rates are forcing insurance companies and pension funds to make riskier investments. As higher-yield bonds mature, they are having to choose between safe assets with low yields and assets with higher yields but riskier profiles. The share of funds invested in property, especially commercial property, is rising in many countries. The increased property exposures, which can be observed in almost all sectors, also mean higher exposures to credit, market and concentration risks. Property exposures are sensitive to changes in economic activity, interest rates and market sentiment. They are often subject to an increased risk of price overvaluation and a subsequent marked correction. If institutions were to suffer substantial losses, this could create a need for support using public finances. The costs would be borne mainly by the younger generation.

Investment funds are reacting to the decline in yields on safe assets by purchasing higher-yield investment-grade or speculative-grade corporate bonds and investing in alternative assets (property, private capital funds, funds investing in infrastructure assets etc.). The market liquidity of these assets is often low or uncertain. The share of highly liquid assets in portfolios is thus decreasing. In the event of a strong financial shock, many funds would probably have problems redeeming shares. Pressure on central banks to stabilise the situation could be expected to emerge. If

⁹ Until this year, the moderately negative deposit rates in some countries applied mainly to firms. At the end of the year, however, some banks started to communicate that they were also considering applying negative rates to holders of large retail deposits.

investment funds were forced to react to requests to redeem shares by selling off assets on a larger scale, this could cause a drop in their prices and a spillover to other sectors. This risk also pertains to life insurance companies.

The existing recommendations for mitigating these risks are rather general. They focus mainly on strengthening the resilience of the riskiest segments through higher capitalisation and various types of buffers. In the case of banking, they concentrate on the use of macroprudential instruments to prevent a build-up of systemic risk. However, instruments for mitigating specific risks in the non-bank sector are mostly in the initial discussion phase.

The domestic economy continues to grow but will slow according to the CNB's November forecast...

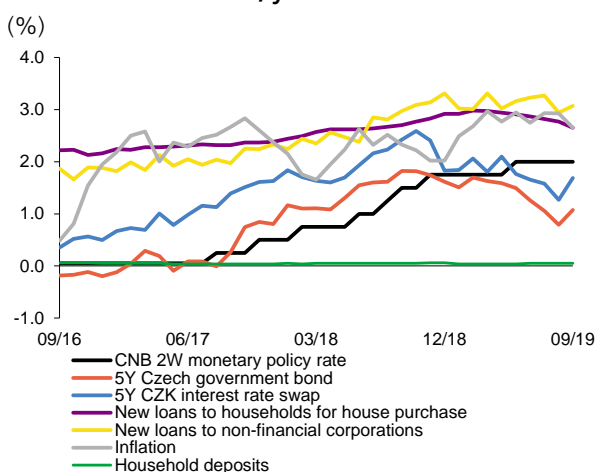
The CNB also perceives a rise in domestic macroprudential risks. The CNB's November forecast expects the Czech economy to grow by 2.6% this year, mainly on the back of robust domestic consumption. The risks to the domestic economy currently stem from the external environment, with the external uncertainty already being reflected in subdued growth in exports and a decline in corporate investment (see section 2.2). The CNB's November 2019 forecast expects the growth of the Czech economy to slow to 2.4% in 2020 due to weakening external demand. The CNB increased its monetary policy interest rate a total of five times last year and once this year. The rate has been at 2% since May 2019. The CNB is keeping monetary policy rates stable despite monetary policy easing by the central banks of key advanced countries (see Chart II.3).

...while domestic yields and loan rates are following developments abroad

The domestic interest rate environment has been affected by domestic and foreign monetary policy and expectations regarding their future evolution. Czech government bond yields, interest rate swap rates and housing loan rates have fallen since the end of 2018 (see Chart II.9). The biggest drop took place between June and September 2019, when a monetary policy turnaround occurred in the USA and the euro area. Domestic yield curves have remained flat or inverted during 2019 (see Chart II.10). This has continued to motivate domestic investors to reallocate their portfolios into shares, investment fund units and property (see section 3.2).

Chart II.9

Selected interest rates, yields and inflation

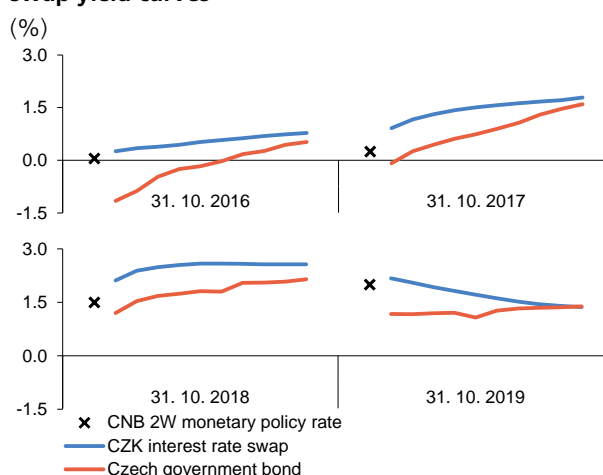


Source: Refinitiv Datastream, CNB

Note: Month-end values are used, except for client rates, where monthly averages are used instead.

Chart II.10

Czech government bond and koruna interest rate swap yield curves



Source: Refinitiv Datastream, CNB

Note: The curves represent yields for maturities of 1–10 years.

Growth in property prices remains high despite having slowed...

Year-on-year growth in residential property prices started to slow in 2019. However, the price growth remains elevated (see Chart II.11) and exceeds the growth rate of disposable income of households (see section 2.2, Chart II.15). Transaction prices were more than 35% above the cyclical peak of 2008 in 2019 Q2. The continued swift price growth has caused housing

affordability indicators to worsen modestly (see Chart II.12) and the observed overvaluation of apartment prices to rise (see Chart II.13). While growth in apartment prices has been slowing for several quarters, prices of family houses and land have tended to accelerate slightly further (see Chart II.3 CB). From a regional perspective, the observed developments are mainly due to slowing growth in transaction prices of apartments in Prague (see Chart II.4 CB). The future path of prices will probably be affected by households' gradually falling consumer optimism and the impacts of macroprudential measures (see section 4.2). This may be counteracted by a further decrease in mortgage rates and persisting undersupply of new apartments in cities. However, recent developments in asking prices suggest that growth in residential property prices will tend to weaken in the quarters ahead (see Chart II.5 CB).

...while yields on commercial property remain at historical lows

Prices of prime commercial property rose further year on year in the first half of 2019. This reflected increasing demand and further growth in the volume of transactions. Yields demanded by investors remained close to an all-time low (see Chart II.14) as rents roughly mirrored developments in prices. Vacancy rates for office and industrial property also stayed at their lowest ever levels (see Chart II.6 CB). Despite increased activity on the commercial property market, these developments are not being accompanied by a rise in financing by the domestic banking sector (see section 4.2).

Chart II.11

Transaction prices of residential property

(2015 = 100; right-hand scale: %)

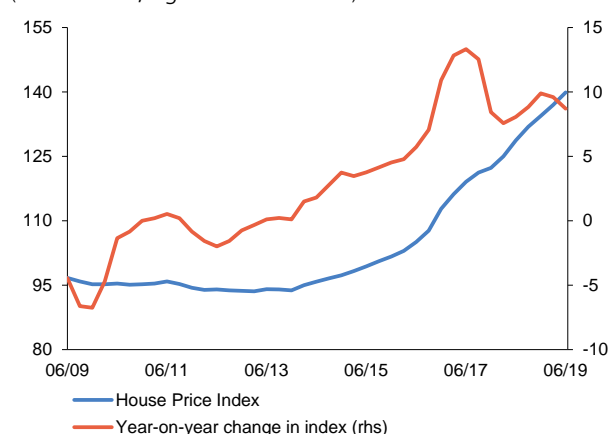


Chart II.12

Selected apartment affordability indicators

(PTI in years; yields in %; right-hand scale: %)

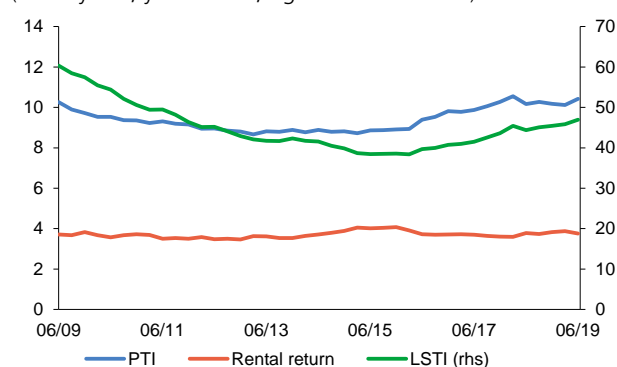


Chart II.13

Estimated overvaluation of apartment prices

(%)

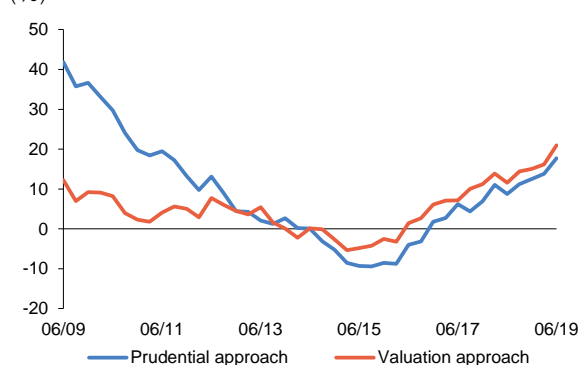
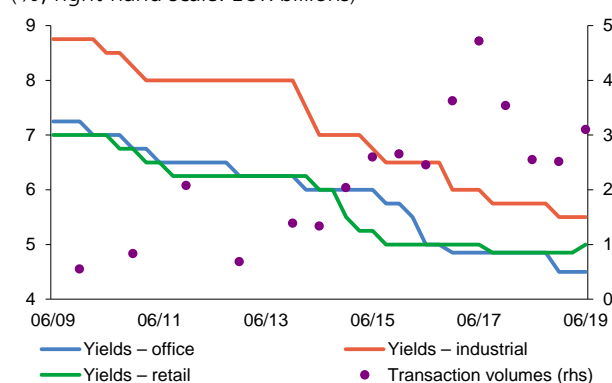


Chart II.14

Yields on commercial property and transaction volumes

(%; right-hand scale: EUR billions)



2.2 THE PRIVATE NON-FINANCIAL SECTOR

Developments in the private non-financial sector were affected above all by the tight labour market...

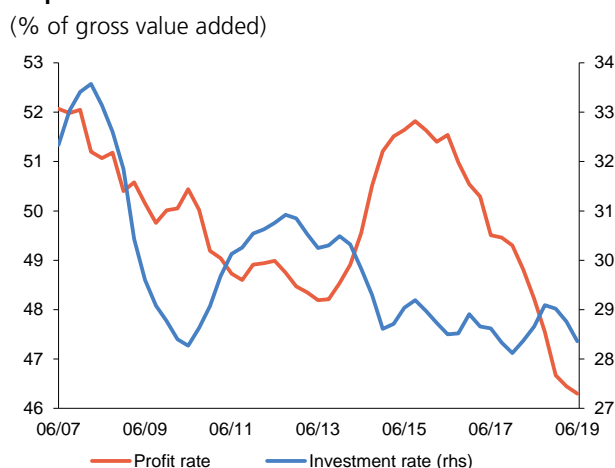
The unemployment rate did not keep falling sharply in 2019 H1, but it did remain exceptionally low. Wage growth fluctuated around 7% (see Chart II.15). Growth in disposable income and optimistic expectations regarding its future development resulted in robust growth in household consumption. For some time now, however, the strong wage growth has been reflected in growth in non-financial corporations' total costs and in a decline in their profitability (see Chart II.16). The profit rate fell by 5.3 pp to 46.3% between the end of 2015 and 2019 Q2. Compared with other EU countries, however, it remains above average (the EU average was approximately 39% in 2019 Q1). The current forecast published in Inflation Report IV/2019 assumes that wage growth in the Czech Republic has now reached its cyclical peak and will gradually converge to a sustainable level. Due to the uncertain outlook for global economic growth (see section 2.1, Chart II.1), consumer and business confidence indicators decreased (see Chart II.7 CB). The uncertainty surrounding future developments was reflected in a fall in the investment rate (see Chart II.16).

Chart II.15
Labour market indicators



Source: CNB, CZSO
Note: The general unemployment rate is seasonally adjusted. The vertical line divides the observed values and the official CNB macroeconomic forecast published in Inflation Report IV/2019.

Chart II.16
Profit rate and investment rate in the non-financial corporations sector



Source: CZSO
Note: The profit rate is the ratio of gross operating surplus to the gross value added of the sector. The investment rate is the ratio of gross fixed capital formation to the gross value added of the sector. The ratios are calculated using annual moving totals.

...and jointly with developments abroad remain a source of risk for the future

Potential non-materialisation of the forecast and continuing rapid wage growth pose a risk to non-financial corporations and households going forward. If wage growth were to outpace labour productivity growth, there could be a further decline in profitability and growth in the vulnerability of the non-financial corporations sector and potentially an erosion of export competitiveness. The negative impact could be amplified by falling external demand. Its evolution remains a source of uncertainty (see section 2.1). A situation where the current strong wage growth and low loan rates (see section 2.1, Chart II.9) become seen as a sustainable phenomenon remains a risk to the household sector and its debt servicing ability. In this situation, households could take out excessively large loans and a significant proportion of them could become overindebted. A sharper economic slowdown accompanied by a fall in income and growing unemployment would have a major negative impact on these households, leading to insolvency and, in turn, exacerbating the recession.

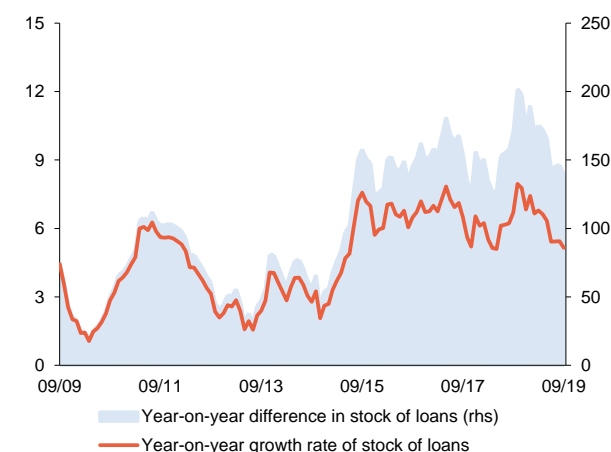
Growth in bank loans to the private non-financial sector weakened...

Year-on-year growth in bank loans to the private non-financial sector declined during 2019 and amounted to 5.2% at the end of September (see Chart II.17). The decline was driven by both the household sector and the non-financial corporations sector (with year-on-year decreases in growth of around 1.2 pp to 6.4%; see Chart IV.3), and 2 pp to 3.3% respectively at the end of September). The growth rate of foreign currency bank loans to non-financial corporations remained higher than that of total loans. This led to a rise in their share of the total to 33.1% (1.7 pp year on year; see Chart II.8 CB). Within non-bank external financing, growth in bonds issued weakened significantly, decreasing by 11 pp to 3.3% at the end of 2019 Q2, while leasing services saw a decline in growth of 5.5 pp to 3.8%. Conversely, intercompany loans from abroad rose significantly, as did loans provided through domestic captive corporations (mainly holding institutions; 53.7% year on year¹⁰). The result was a 5.4% year-on-year increase in non-financial corporations' debt.

Chart II.17

Absolute year-on-year differences and growth rate in bank loans to the private non-financial sector

(%; right-hand scale: CZK billions)

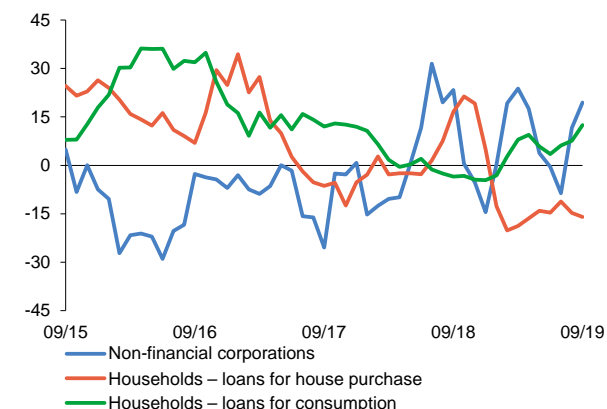


Source: CNB

Chart II.18

Year-on-year growth in new koruna loans to the private non-financial sector

(%)



Source: CNB

Note: The household sector also includes data for NPISHs. The year-on-year growth rates are smoothed by the 3-month moving average.

...while the provision of new loans to non-financial corporations and households showed different patterns

New borrowing by non-financial corporations has long been volatile (see Chart II. 18). Double-digit growth was observed in 2019 H1, and following a temporary decline in June and July new loans started to rise again. New loans to households for house purchase saw a sharp decline, due in part to new macroprudential measures in the form of upper limits on the DTI and DSTI ratios and to the effect of frontloading before these measures came in (see section 4.2).¹¹ The latter will foster volatile year-on-year growth in new loans for house purchase in Q3 and Q4 and then gradually fade out. High property prices and ever-decreasing housing affordability also played a significant role in the decline in new loans for house purchase (see section 2.1). The most stable were new loans to households for consumption, which have grown so far this year (by 7.2% year on year as of the end of Q3).

¹⁰ This growth is associated largely with the reclassification of selected non-financial corporations as captive corporations. These cases involve reclassification of the creditor's counterparty (institutional sector) rather than a rise in debt.

¹¹ See [Recommendation on the management of risks associated with the provision of retail loans secured by residential property](#) of 12 June 2018.

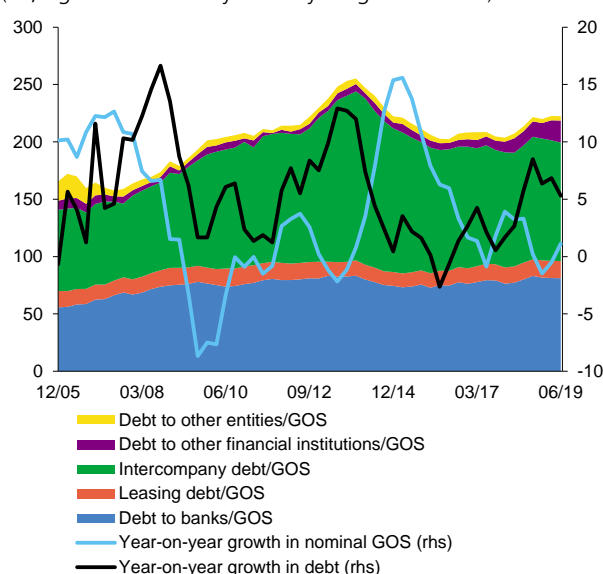
The debt-to-income ratio of non-financial corporations increased, while that of households was flat

Despite the weaker growth in bank loans, a rise was observed in companies' ratio of debt to gross operating surplus (of 8.8 pp year-on-year to 222.4%; see Chart II.9). The debt itself is slowly approaching the levels seen before the crisis of 2008–2009. The household debt ratio fell slightly year on year to 60.8% of disposable income at the end of 2019 Q2 (see Chart II.20). It is still relatively low in the European context (the euro area average was 97.3% at the end of 2017) and does not currently represent an immediate source of systemic risk.

Chart II.19

Creditor structure and growth in the debt and profit of non-financial corporations

(%; right-hand scale: year-on-year growth in %)



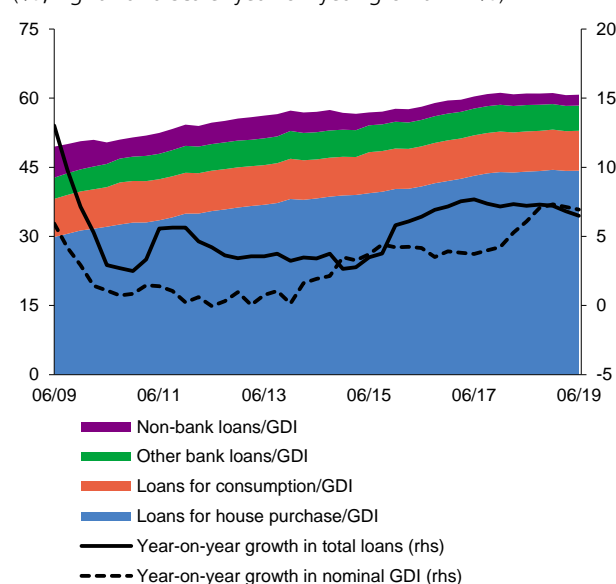
Source: CNB, CZSO

Note: Debt consists of loans and accepted and securities issued. GOS stands for gross operating surplus.

Chart II.20

Household indebtedness and income indicators

(%; right-hand scale: year-on-year growth in %)



Source: CNB, CZSO

Note: Non-bank loans are loans provided by other financial institutions. GDI stands for gross disposable income. The household sector also includes data for NPISHs.

Growth in household sector indebtedness would increase households' sensitivity to changes in interest rates

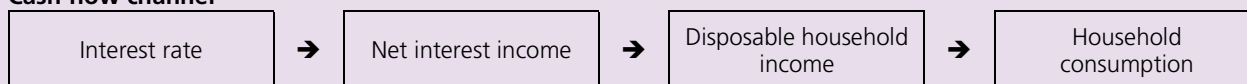
The optimistic income expectations and low interest rates are creating conditions for continued rapid credit growth. Even with unchanged interest rates and debt maturity structure, growth in household indebtedness would lead to a growing proportion of households' income being spent on debt service. Under these conditions, households would become more sensitive to changes in interest rates and could significantly reduce their consumption in the event of an economic slowdown. This would result in greater business cycle volatility. Empirical research suggests that a similar scenario materialises in the event of rapid growth in indebtedness in a short period of time, while the debt level per se does not usually play a decisive role (see Box 2.2).

BOX 2.2: THE IMPACT OF CHANGES IN HOUSEHOLD DEBT SERVICE ON CONSUMPTION

Growth in household debt may result in an increase in credit risk and a decrease in aggregate consumption. This is particularly true in crises, when highly indebted households reduce their consumption more significantly than households with low or no debt.¹² In addition to the debt level per se, however, the significant decrease in consumption may be linked with a sharp rise in interest rates. In recent years, economists have thus also focused on households' debt service-to-income (DSTI) ratio, in which changes in interest rates are reflected to a large extent. The overall process of change from interest rates to household final consumption is described by the cash flow channel (see Figure II.1 Box).

Figure II.1 Box

Cash flow channel



Source: Hughson et al. (2016).

Note: Net interest income is defined as the difference between interest received (interest on deposits) and interest paid (interest on debt).

The strength of the response of aggregate consumption to a change in interest rates and subsequently disposable household income¹³ depends on the reactions of various types of households. The commonly accepted theory of consumption based on the permanent income and life cycle models assumes an equal propensity to consume across all households. In a closed economy where households and financial institutions are the only agents and the latter adjust interest rates for all interest-bearing assets and liabilities equally, changes in interest rates therefore have no effect on aggregate consumption through the cash flow channel. The falling consumption of indebted households caused by decreasing disposable income is fully offset by the rising consumption of creditor households whose disposable income is growing. In practice, however, this assumption is not very realistic, as the available empirical literature confirms. Recent research has found differences in the propensity to consume between households with and without debt. It turns out that highly indebted households and households without a sufficient financial reserve respond far more strongly to interest rate changes than do households with low debt.¹⁴ The overall impact of rising interest rates on consumption also depends on the fixation length and structure of interest rates on debt. Where variable rate loans prevail in the economy, the effect of the cash flow channel can be expected to be stronger. Conversely, if loans with longer fixation periods predominate, the strength of the cash flow channel will be limited and changes in interest rates will pass through to consumption to a lesser extent and with a lag.¹⁵

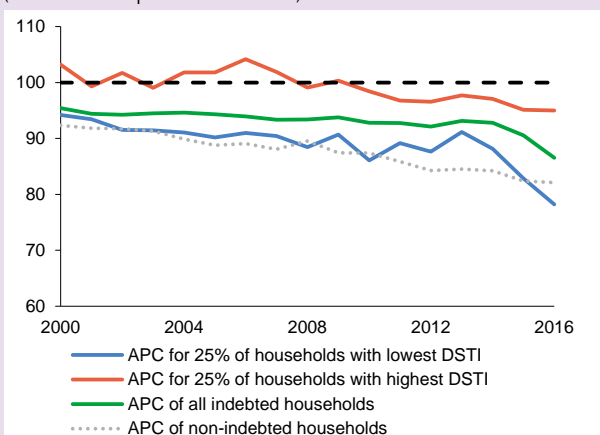
- 12 Loukoianova, E., Wong, Y. C., Hussiada, I. (2019): *Household Debt, Consumption, and Monetary Policy in Australia*, IMF Working Paper.
- Price, F., Beckers, B., La Cava, G. (2019): *The Effect of Mortgage Debt on Consumer Spending: Evidence from Household-level Data*, Research Discussion Paper, Reserve Bank of Australia.
- 13 In this context, disposable household income is defined as households' net income less all loan instalments. It is therefore the net income they can use entirely for consumption.
- 14 Di Maggio, M., Kermani, A., Keys, B. J., Piskorski, T., Ramcharan, R., Seru, A., Yao, V. (2017): *Interest Rate Pass-Through: Mortgage Rates, Household Consumption, and Voluntary Deleveraging*, American Economic Review, 107(11), pp. 3550–3588.
- Flodén, M., Kilström, M., Sigurdsson, J., Vestman, R. (2017): *Household Debt and Monetary Policy: Revealing the Cash-Flow Channel*, Working Paper Series 342, Sveriges Riksbank.
- Hughson, H., La Cava, G., Ryan, P., Smith, P. (2016): *The Household Cash Flow Channel of Monetary Policy*, Bulletin of the Reserve Bank of Australia, pp. 21–30.
- Gustafsson, P., Hesselman, M., Lagerwall, B. (2017): *How are Household Cashflows and Consumption Affected by Higher Interest Rates?* Sveriges Riksbank Staff memo.
- 15 Gerdrup, K., Torstensen, K. N. (2018): *The Effect of Higher Interest Rates on Household Disposable Income and Consumption – A Static Analysis of the Cash Flow Channel*, Norges Bank Staff Memo.
- Hughson, H., La Cava, G., Ryan, P., Smith, P. (2016): *The Household Cash Flow Channel of Monetary Policy*, Bulletin of the Reserve Bank of Australia, pp. 21–30.

In the Czech economy, a median indebted household consumes about 90% of its disposable income. In the category of households with the highest debt service, the figure is higher and basically the entire current income is consumed. At times of high consumer optimism, such as the period of 2005–2007, the consumption of the most indebted households is even funded partially from their financial reserves and additional loans. A rapid rise in interest rates would thus substantially limit the funds available to such households for consumption and would lead to a major drop in consumption. However, given the still relatively low share of highly indebted Czech households (see Chart II.20) and the prevalence of longer rate fixation periods (see Chart II.9 CB), a change in interest rates is unlikely to significantly affect aggregate consumption through the cash flow channel, as in aggregate terms net interest paid amounts to only around 2% of the gross disposable income of Czech households at the current low level of interest rates (see Chart II.2 Box) and the expected evolution of long-term interest rates (see section 2.1) does not suggest a substantial increase in this ratio over the next few quarters.

However, in the event of a rise in the number of indebted households and a simultaneous drop in income growth, the importance of the cash flow channel in the Czech Republic could strengthen. A sharp rise in indebtedness could be particularly risky, as consumption would initially grow excessively and then drop all the more sharply. Bunn and Rostom (2015)¹⁶ estimate that, out of the 5% drop in consumption recorded in the UK after 2007, 2 pp can be attributed to the sharp rise in indebtedness in previous years. The rapid growth in property prices may also be signalling a deteriorating outlook, as down-payment requirements are rising given the LTV limits in place. Households are thus losing a major part of their financial reserves and will not have enough room to smooth consumption in a crisis. Instead, they will have to rein in their consumption rapidly and sharply. Ultimately, this will be reflected in a substantial drop in aggregate consumption and GDP, which in turn will bring about an increased risk to financial stability and greater economic volatility. In the interests of maintaining financial stability, it is therefore vital to monitor the cash flow channel going forward.

Chart II.1 Box

Average propensity to consume by DSTI ratio
(% of net disposable income)

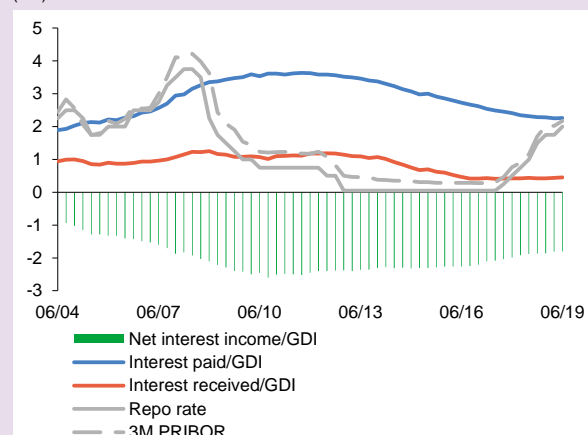


Source: CZSO

Note: APC stands for the average propensity to consume in a median household in the given category. DSTI stands for debt service to net income. The horizontal dashed line indicates the threshold at which the household's entire disposable income is spent on consumption.

Chart II.2 Box

Interest income and expenditure of households
(%)



Source: CNB, CZSO

Note: GDI stands for gross disposable income of households

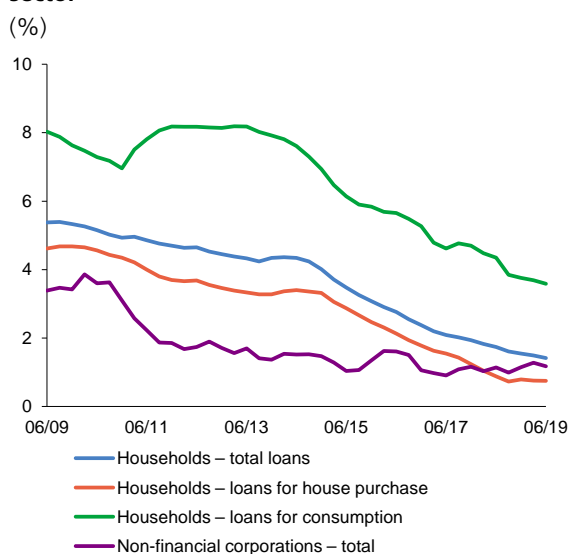
16 Bunn, P., Rostom, M. (2015): *Household Debt and Spending in the United Kingdom*, Bank of England Working Paper No. 554.

Household credit risk decreased slightly, while credit risk in the non-financial corporations sector was flat

Credit risk in the non-financial corporations sector, as measured by the 12-month default rate, was flat close to 1.0% (see Chart II.21). The downward trend in the default rate on loans to households continued, mainly due to a drop in loans for consumption (3.6% in Q2, -0.7 pp year on year). Loans for house purchase saw only a modest decrease in credit risk. That risk is now well below 1% and the scope for it to decrease further is very limited. In line with the favourable evolution of credit risk, the non-performing loan ratio, measuring the materialisation of risks taken on in the past, fell in both sectors (see Chart II.22 and section 3).

Chart II.21

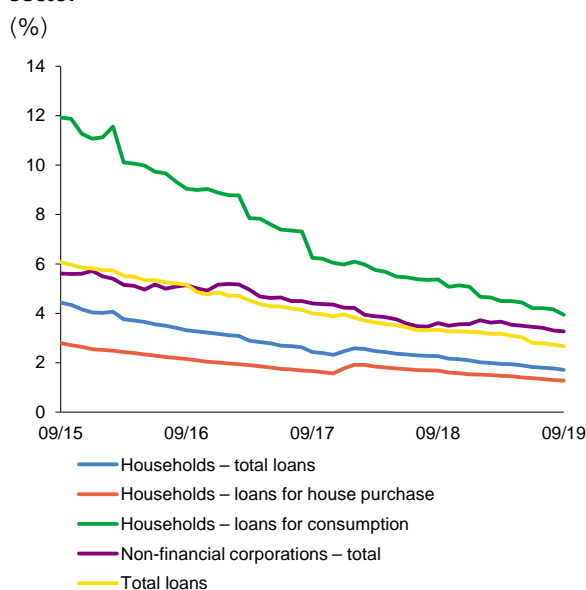
12-month default rate in the private non-financial sector (%)



Source: CNB, CIBR

Chart II.22

NPL ratio for bank loans to the private non-financial sector (%)



Source: CNB

3 THE FINANCIAL SECTOR

The financial sector's assets continue to rise, with the total assets of pension funds reaching those of insurance companies

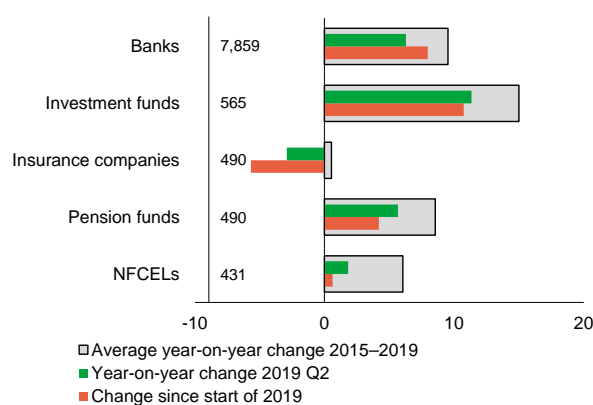
All main segments of the financial sector except for insurance companies saw growth in total assets in the first two quarters of 2019 (see Chart III.1).¹⁷ The banking sector recorded the largest increase in absolute terms (of CZK 580 billion, or 8%) and now accounts for 80% of the financial sector's assets. Investment funds recorded the highest growth rate (of CZK 55 billion, or 10.7%). The total assets of pension funds also grew at a fast pace (by CZK 20 billion, or 4.2%), reaching the same level as those of insurance companies (which fell by CZK 30 billion, or 5.7%). The gradual shift of part of the potential risks to the investment fund and pension fund segments and the gradual growth in the systemic dimension of both sectors are thus continuing.

The list of other systemically important institutions is to be shortened

The number of other systemically important institutions (O-SIIs) is to be lowered from seven to six for 2020. Jakabovič & Tkáč, whose systemic importance score has been falling over the long term to levels below the threshold of systemic importance, will be excluded from the O-SIIs list (see Chart III.2).¹⁸ The CNB still does not consider it necessary to set an additional capital requirement for institutions that are included on the list of O-SIIs. For these purposes, the CNB – like several other national macroprudential authorities in Europe – currently applies a systemic risk buffer (SRB).¹⁹ The European Parliament-approved revision of CRD V / CRR II only allows exclusive use of the O-SII buffer to mitigate risks associated with the systemic importance of banks. The CNB is therefore preparing a methodology for setting the O-SII rate, which it will apply after the revision has been incorporated into the national legislation, which is expected to happen in 2021.

Chart III.1

Rates of growth of segments of the financial sector (%)

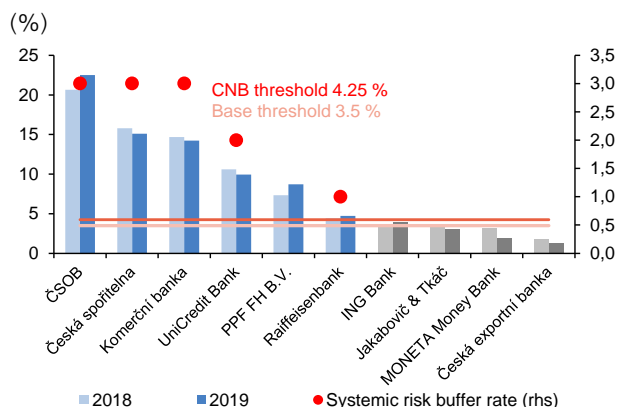


Source: CNB

Note: NFCEs = non-bank financial corporations engaged in lending. The figure next to the vertical base denotes total assets as of mid-2019 in CZK billions.

Chart III.2

Comparison of O-SIIs' scores as of mid-2018 and mid-2019



Source: CNB

Note: Grey denotes institutions not included in the list of other systemically important institutions for 2020.

17 Data for 2019 Q3 were not available at the time of publication of this report.

18 The conditions for excluding the institution from the list of O-SIIs given in FSR 2017/2018 (p. 95) were thus met: "It could only have been excluded if the decline in its systemic importance had been longer-lasting and its score had fallen below the cut-off of 3.5% stipulated in the [EBA/GL/2014/10] Guidelines".

19 Five banks with a high level of domestic systemic importance are still required to maintain a systemic risk buffer, with rates ranging between 1% and 3%. The main methodological difference is that the EBA methodology for O-SIIs works with data for consolidated groups containing banks and (selected) non-bank entities, including foreign subsidiaries, whereas the CNB methodology for setting the SRB rate uses data for individual banks on an individual basis. For details see Skořepa, M., Seidler, J. (2013): *An Additional Capital Requirement Based on the Domestic Systemic Importance of a Bank*, thematic article, FSR 2012/2013.

3.1 THE BANKING SECTOR

Banks' capitalisation increased...

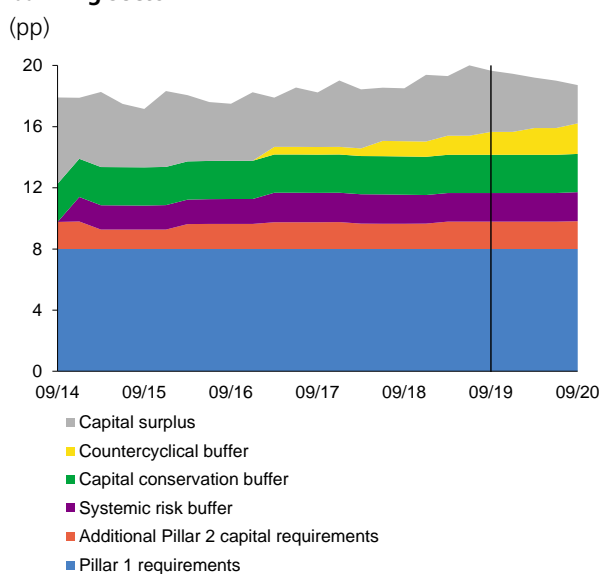
The total regulatory capital in the Czech banking sector rose by CZK 22 billion in 2019, reaching CZK 511 billion as of 2019 Q3.²⁰ The overall capital ratio increased by 0.6 pp to 20% (see Chart III.3) and the Tier 1 capital ratio rose by 0.6 pp to 19.5%.²¹ Credit growth had an effect on the overall capital ratio (-2.3 pp). Its impact was offset by a decline in aggregate risk weights (1.8 pp) and by an absolute increase in regulatory capital (1.1 pp).²²

...and its level still allows banks' balance sheets to grow

The overall capital requirement consists of the minimum level of regulatory capital in Pillar 1 (8%), a requirement based on the supervisory review and evaluation process in Pillar 2 (an average of 1.8% on aggregate) and capital buffers. Most banks meet the overall capital requirement by a sufficient margin. The capital surplus of systemically important banks amounts to CZK 62 billion (3.4 pp) and that of other banks to CZK 48 billion (6.6 pp). Assuming reasonable dividend policies, banks thus have sufficient space for credit growth and resources to cover increased capital requirements in the event of a change in economic conditions (see section 3.3).

Chart III.3

Structure of capital requirements in the domestic banking sector

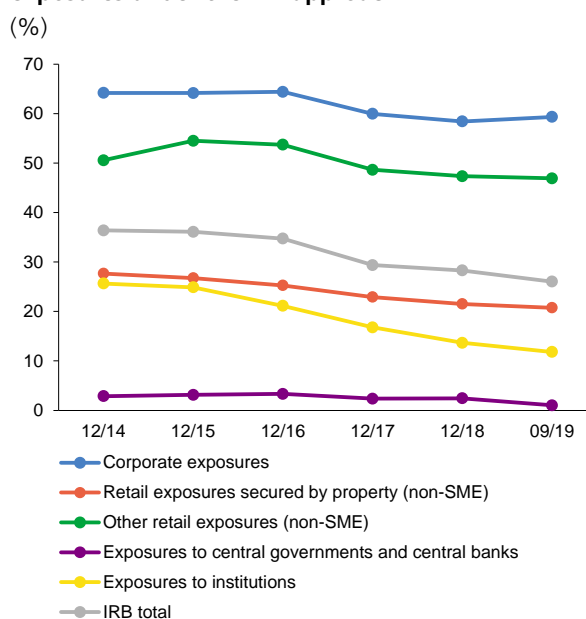


Source: CNB

Note: Due to partial overlap of the capital conservation buffer requirements with the Pillar 2 requirement, the Pillar 2 requirements have since July 2014 been adjusted for the requirements arising from the stress tests conducted for supervisory purposes. The capital surplus prediction for 2020 assumes constant risk weights. Risky exposures are calculated on the basis of banks' assumptions about future loans, which banks report in the statement "Bank financing plans" (FPSIFE10).

Chart III.4

Average risk weights of the main categories of exposures under the IRB approach



Source: CNB

20 The Czech Export Bank (ČEB) and the Czech-Moravian Guarantee and Development Bank (ČMZRB) were excluded from the analysis of the banking sector's capital and credit risk (section 3.1). This is because these banks are wholly owned by the Czech state (providing implicit state guarantees for their liabilities) and have different business models and volatile credit portfolios.

21 The Tier 1 capital ratio of domestic banks remains slightly above the EU average, but the overall capital ratio is below the EU average (see Chart III.1 CB). This asymmetry is the result, among other things, of greater use of hybrid capital instruments in the EU countries.

22 Undistributed profit contributed 0.6 pp to the increase in regulatory capital, amid essentially unchanged bank dividend policies.

The evolution of risk weights for exposures under the IRB approach was not uniform...

The risk weights²³ for the main portfolios under the IRB²⁴ approach showed mixed developments during 2019. While the average risk weights for loans to non-financial corporations and loans to institutions increased (by 3.4 pp to 59.3% and by 0.1 pp to 11.8% respectively year on year), those for the other main exposure categories kept falling (see Chart III.4). The risk weights for loans secured by residential real estate decreased by 1.2 pp to 20.7%.²⁵ Overall, however, the downward trend in aggregate risk weights halted at a time of favourable economic developments, with a year-on-year rise of 0.1 pp to 26% being recorded (see Chart III.4).

...which might indicate a change in economic conditions

Besides short-term factors, the mixed evolution of the main portfolios under the IRB approach may reflect a more lasting change in economic conditions. The growth in risk weights seen for loans to non-financial corporations may be related to growing pressure on firms' profitability caused by the higher wage growth and weakening external demand (see section 2.1). Nonetheless, the risk parameter estimates in banks' internal models have not shown any significant shift and remain at levels consistent with a period of favourable economic conditions. The change in the risk weights for non-financial corporations may thus be being determined to a larger extent by changes in the characteristics of loans provided (such as a lower required level of collateral), which enter the calculation of risk weights and thus indirectly cause them to increase. Model factors of a decline in risk weights in the case of house purchase loans conversely reflect continued favourable income growth and repayment of existing loans.

The decline in risk weights may lead to growth in the vulnerability of the banking sector

In the event of a change in economic conditions, credit risk may gradually materialise through the adverse evolution of risk parameters and credit default losses. In this situation, the ongoing materialisation of credit risk could lead to significant growth in risk weights and, in turn, the capital requirement, the intensity of which will depend on the size of the cyclically conditional decline in risk weights in the previous period. In response to the cyclical component of systemic risk, the CNB has gradually raised the countercyclical capital buffer rate to its current level of 1.5% (2% effective from 1 July 2020). The CNB stands ready to partially or fully release the countercyclical capital buffer if the materialisation of credit risk and an increase in the capital requirement caused by higher risk weights were to affect banks' ability to absorb losses through profit and equity and, in turn, the lending capacity of their capital. A decrease in the risk weights of IRB banks and a related increase in their vulnerability could in the future be limited by the introduction of the output floor (see Box 3.1).

BOX 3.1: POTENTIAL IMPACT OF THE OUTPUT FLOOR ON THE CAPITAL SURPLUS OF IRB BANKS

The current regulatory rules, known as CRD IV/CRR, make it possible to determine capital requirements for credit risk using a standardised approach (STA) and/or an internal ratings-based (IRB) approach.²⁶ Banks using the IRB approach show generally lower risk weights for the same asset categories compared with the STA.²⁷ In response, the Basel Committee²⁸ has proposed the introduction of an output floor setting a lower limit for the aggregate risk-weighted exposures of IRB banks at 72.5% of the aggregate risk-weighted exposures calculated using the STA approach. According to the current plans, the output floor is to be phased in from January 2022 to January 2027, increasing

23 The analysis of risk weights uses data on implicit risk weights. These are calculated as the weighted value of the exposure divided by the value of the exposure under the COREP single European reporting framework.

24 Exposures whose risk weights are determined using internal models (the IRB approach) amount to CZK 5.8 trillion (see Chart III.2 CB). This corresponds to 73.4% of the banking sector's exposures.

25 The share of real estate exposures in total loans to the private non-banking sector is 59.8%.

26 While the STA approach takes into account the type of credit granted and, where applicable, its external rating, the IRB approach is based on an internal rating set by the bank and takes into consideration the riskiness of the exposure and the quality of its collateral.

27 This difference may explain the generally higher quality of credit risk management observed at IRB banks.

28 See BCBS (2017), *Basel III: Finalising Post-crisis Reforms*.

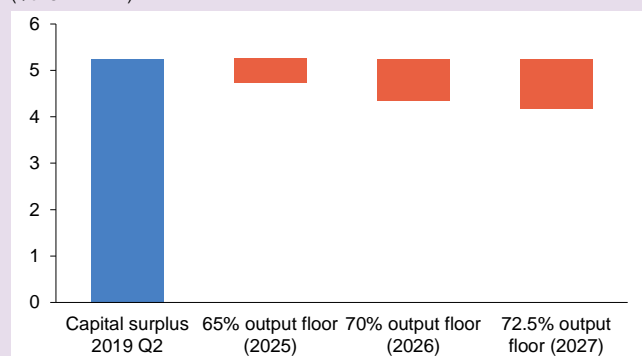
each year from an initial level of 50% to the aforementioned 72.5%. If the risk-weighted exposures under the IRB approach are below the output floor, the capital requirement will increase. It is therefore relevant to consider the potential effects of the output floor on the capital requirement and surplus of domestic banks.

The analysis, whose conclusions are summarised in Chart III.1 Box, is performed on data as of 2019 Q2. For the calculation of risk-weighted exposures of individual banks under the STA approach, the analysis assumes that the revised Basel III rules apply. For exposures secured by residential property, these rules set different risk weights for different LTV ranges (see Box 5.2 in FSR 2017/2018). For the sake of simplicity, the calculation only includes the dominant credit risk and abstracts from market and operational risks. It also assumes that banks' portfolios and capital requirements are constant in structure and size. Under these assumptions, the capital surplus with the 72.5% output floor valid in 2027 would decrease by a total of 1.1 pp, or CZK 21 billion, in the case of IRB banks (see Chart III.1 Box). The impact of the output floor on the capital surplus could be amplified by a further decline in the risk weights of some major loan portfolios (see Chart III.4) and/or by growth in credit portfolios. A systemic increase in the risk weights of portfolios in response to a deterioration in macroeconomic variables reflected in the internal model parameters could have the opposite effect, that is, reduce the difference between the model risk weights and the output floor.

The CNB will continuously monitor the potential impact of the introduction of the output floor on the capital position of domestic IRB banks. If only a few banks are affected by a significant fall in capital surplus due to the introduction of the output floor, it stands ready to respond with microprudential instruments. Should the impact have a systemic dimension, it is prepared to respond preventively by issuing a macroprudential recommendation to maintain a capital surplus in relation to the output floor.

Chart III.1 Box

Impact of the output floor on IRB banks' capital surplus
(% of RWA)



Source: CNB

The leverage ratio has decreased slightly

The leverage ratio, which acts as a (non-risk-weighted) prudential backstop against risks associated with the use of internal models for determining risk weights of exposures, has fallen by 0.2 pp to 6.5% since the beginning of 2019. Only one institution is non-compliant with the minimum required leverage ratio of 3% applicable as from 2021 (see Chart III.3 CB).²⁹ The slight decline in the leverage ratio was affected by a weaker year-on-year increase in Tier 1 capital (+0.4 pp) compared with the change in the total exposures of the banking sector (-0.6 pp). By contrast, the leverage ratio adjusted in the

²⁹ At the time of completion of this document, data were only available to mid-2019.

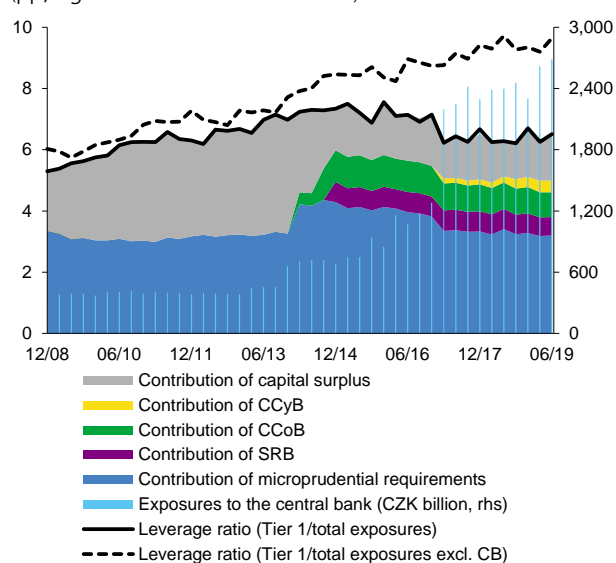
denominator for exposures to the central bank (roughly one third of all banks' assets) increased by 0.2 pp year on year to 9.8% in mid-2019 (see Chart III.5).

Materialised risks, as measured by the non-performing loans ratio, are at their lowest level since 2007...

The ratio of non-performing loans (NPLs)³⁰ to total loans went down by 0.4 pp in 2019 and stood at 2.2% in Q3 (see Chart III.6). The lowest NPL ratio since 2007 was reached through a combination of an increase in total loans (accounting for 32%) and a decrease in NPLs (accounting for 68%).

Chart III.5

Structure of the leverage ratio by capital source
(pp; right-hand scale: CZK billions)

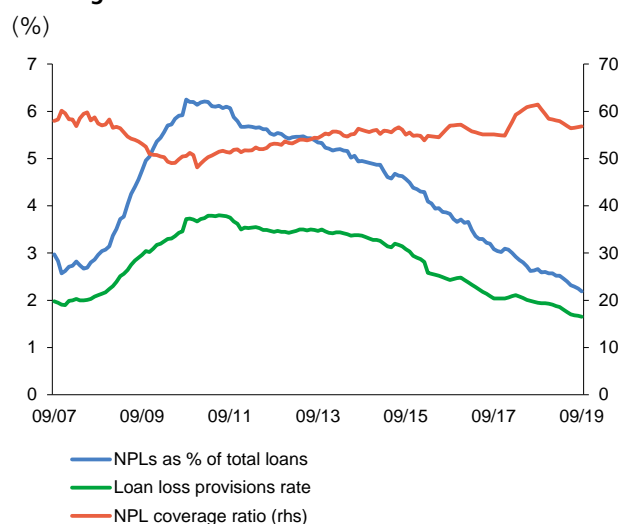


Source: CNB

Note: Due to unavailability of data in a longer time series, the denominator of the leverage ratio contains total assets (including exposures to the CNB). The capital surplus consists of total capital (not just Tier 1 capital). CCyB = capital conservation buffer.

Chart III.6

Non-performing loans and provisions in the domestic banking sector



Source: CNB

...and coverage by provisions seems sufficient

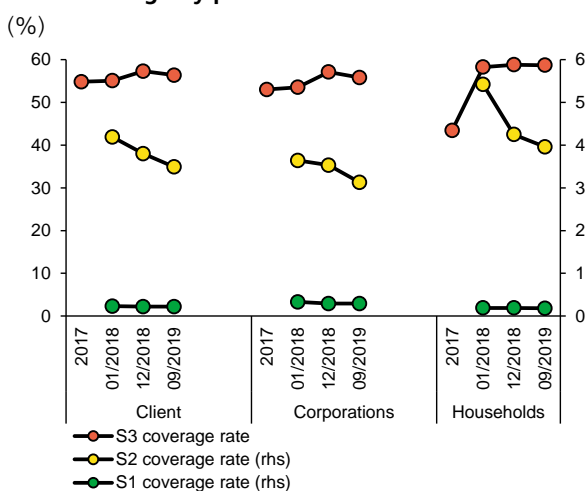
Coverage of NPLs by provisions in 2019 basically stagnated in the household sector (where it fell by 0.1 pp to 58.7%) and dropped only slightly in the case of non-financial corporations (by 1.3 pp to 55.8%). In both cases, this was due to a decrease in NPLs (of 13.8% in the household sector and 9.2% for non-financial corporations), which was accompanied by release of provisions (-14.0% and -11.3% respectively). Overall, the total coverage of NPLs for the household and non-financial corporations sectors stood at 57% in 2019 Q3. Given the losses recorded historically and the conservative loss projections in macro-stress tests in the case of NPLs,³¹ the NPL coverage ratios in the individual sectors seem sufficient.

30 The NPL ratio is calculated as the ratio of NPLs (formerly default loans) to total client loans. For the assessment of credit risk, the IFRS 9 accounting standard requires correct and timely recognition of both materialised credit risks (a backward-looking view), when loan impairment has already taken place (non-performing loans, Stage 3 – impaired) and future expected credit risks (a forward-looking view) for loans that do not currently show any evident signs of impairment (performing loans, Stage 1 – no increase and Stage 2 – increased). Banks cover recognisable materialised and future expected credit risks by provisions.

31 Banks' NPL losses are available from the results of a recovery rate survey that the CNB conducts every two years (the most recent round of the survey took place in 2019). In this survey, banks state their actual and expected NPL recovery rates broken down into several

Chart III.7

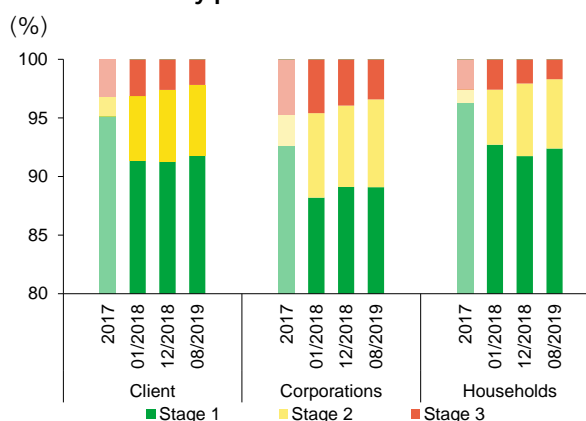
Loan coverage by portfolio



Source: CNB

Chart III.8

Loan structure by portfolio



Source: CNB

Note: The loan classification for 2017 corresponds to the classification according to the earlier IAS 39 standard into standard, watch and loss loans. Under the new IFRS 9 accounting standard (in effect since 1 January 2018), non-performing loans (NPLs) correspond to loans classified in Stage 3 – impaired loans.

Expected credit losses on performing loans are low

The coverage of performing loans in the household sector fell by 3 pp to 0.41% in 2019 Q3. It thus decreased below the level recorded just after the introduction of IFRS 9 in January 2018 (0.45%). In the case of non-financial corporations, the coverage of performing loans stagnated during 2019 (-1 bp to 0.51%). The coverage ratios in Stage 2 dropped in both sectors (see Chart III.7). In the household sector, the coverage ratio fell by 20 bp to 4% due to the release of provisions amid unchanged credit exposures. In the case of non-financial corporations, it decreased by 40 bp to 3.1%, with credit exposures rising amid an unchanged level of provisions. By contrast, the coverage of non-financial corporations' loans in Stage 1 rose slightly on the back of an increase in the expected loss rate, which can be attributed to changes in the characteristics of loans provided (such as lower collateral requirements). In the case of household loans in Stage 1, the level of coverage dropped slightly during 2019.³² Similarly, the weight of performing loans with no increase in credit risk (Stage 1) in performing loans has been flat at 94.1% since the beginning of 2019 (see Chart III.8). The perceived expected credit losses on performing loans therefore remain very low, with a downward trend. This suggests that risk parameter estimates, which are a key component of banks' expected credit loss models, do not yet indicate any significant change in banks' macroeconomic expectations (see section 2.1).

Limited provisioning is increasing the potential for a cliff effect

The evolution of the coverage ratios for performing and non-performing loans reflects a period of favourable economic developments, with loan default occurring only to a limited extent, the volume of NPLs originating in previous years gradually decreasing, and expectations regarding future developments and hence also expected credit losses remaining optimistic. The historically low ratio of provisions to total loans (a year-on-year decrease of 0.3 pp to 1.7%; see Chart III.6) seen in 2019 has thus been conditional on the release of previously created provisions and a minor decrease in NPLs. The level of provisioning in the current phase of the cycle is therefore increasing the potential for a cliff effect³³ and for credit losses that could affect banks' credit supply if they are of unexpected intensity. In response to the possible accumulation of credit risks over the

categories of loans to non-financial corporations and households. For the purposes of the sectoral analysis of NPL coverage by provisions, NPL losses are calculated as (1 - the recovery rate).

32 Provisions for performing loans in the household and non-financial corporations sectors amounted to around CZK 15 billion in 2019 Q3, accounting for 25.4% of the total volume. The value of provisions for NPLs in Stage 3 was roughly CZK 45 billion.

33 The cliff effect is a situation where banks will be forced to create a large amount of provisions in a relatively short period of time as economic conditions change and credit risks materialise. For details see Box 3.2 in FSR 2018/2019.

current cycle, the CNB has responded by gradually increasing the countercyclical capital buffer rate. The aim of this action is to strengthen the banking sector's ability to cover its credit losses and thus limit the possible impacts on lending to the real economy in the event of a drop in the capital ratio during a period of stress. If the banking sector's profits and capital surplus were to prove insufficient to absorb the expected and unexpected credit losses, the CNB stands ready to partially or fully release the buffer and thus help limit the potential procyclical decline in credit supply.

The profitability of the banking sector remains high...

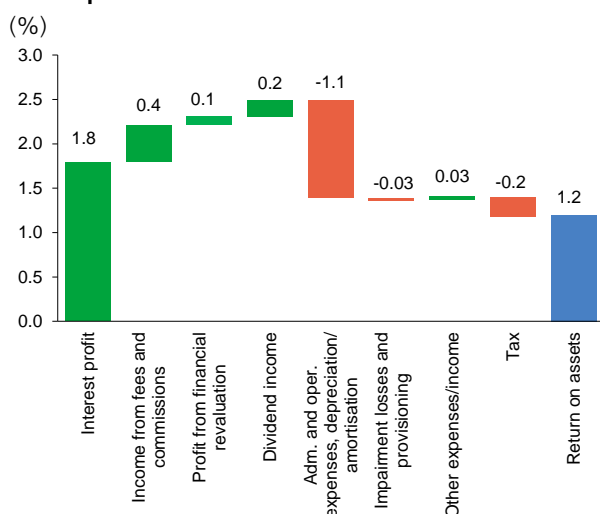
The banking sector turned in a profit of CZK 70 billion in 2019 Q3, a rise of 12.4% on a year earlier. Banks are maintaining high profitability due mainly to very low impairment losses and growing interest profit. Interest profit, which is the main source of profitability (see Chart III.9), rose by 14.8% year on year to CZK 108 billion as of 2019 Q3 (see Chart III.4 CB). Growing interest income on excess liquidity, which rose by CZK 21 billion year on year to CZK 38 billion, or 22.3% of total interest income, contributed to the growth in interest profit. On the other hand, total interest costs also increased year on year (by CZK 25 billion in total), mainly due to interest on deposits (up by CZK 13 billion) and interest on hedging interest rate derivatives (up by CZK 9 billion). Interest profit on exposures to households and non-financial corporations rose by 4.1% year on year to CZK 65 billion. Interest margins meanwhile decreased slightly by 0.07 pp year on year to 3.38 pp, rising only in the case of loans to non-financial corporations (see Chart III.10).

...although this is due to factors that are not sustainable over the long term

A change in the phase of the business and financial cycle poses a risk to profitability. This is associated primarily with growth in impairment losses (for details see the macro stress test results in section 3.3). Monetary policy would probably respond to negative economic developments, possibly leading to a decline in interest income on excess liquidity. If banks entered such an environment with the current relatively low level of deposit interest rates, they would have less manoeuvring space on the deposit part of the balance sheet to maintain their margins (see Chart III.10).³⁴

Chart III.9

Decomposition of return on assets



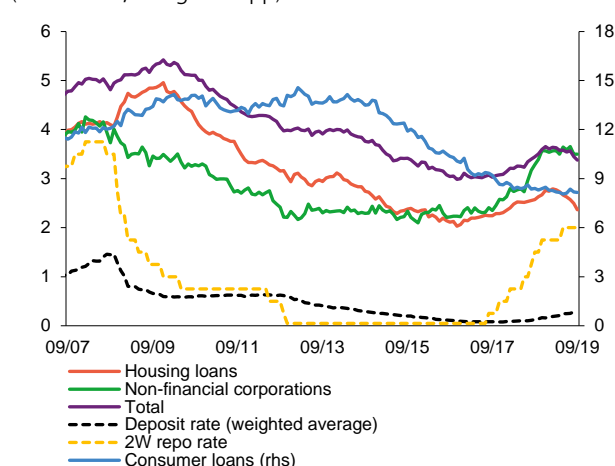
Source: CNB

Note: The given value is the ratio of the given type of income/expense to the level of assets.

Chart III.10

Czech banks' interest margins on new loans

(rates in %, margins in pp)



Source: CNB

Note: Margins are calculated as loan rates for the given sector minus the average deposit rate. The non-financial corporations item excludes revolving loans and credit cards.

34 During the previous economic slowdown after 2008, a higher deposit rate level made it possible to offset the decline in loan rates by reducing deposit rates as well.

3.2 THE NON-BANKING FINANCIAL SECTOR

Investment and pension funds continued to show dynamic growth

Investment funds returned to growth in 2019 H1. The segment's total assets rose by 10.7% in the first two quarters to CZK 565 billion (see Chart III.1). The assets managed by pension funds also continued to grow at a steady pace (increasing by 4.2% to CZK 490 billion in 2019 H1). The growth in the value of assets managed by investment and pension funds included both gains on existing investments and inflows of new ones. Interest in investing through investment and pension funds was therefore not weakened by the fall in prices on financial markets in late 2018 (see Chart III.11) or by the persisting market uncertainty during 2019 (see section 2.1). The increasing importance of investment through investment and pension funds is leading to a gradual partial transfer of market risks from the financial sector to households, which may entail new risks (see Box 2.1).

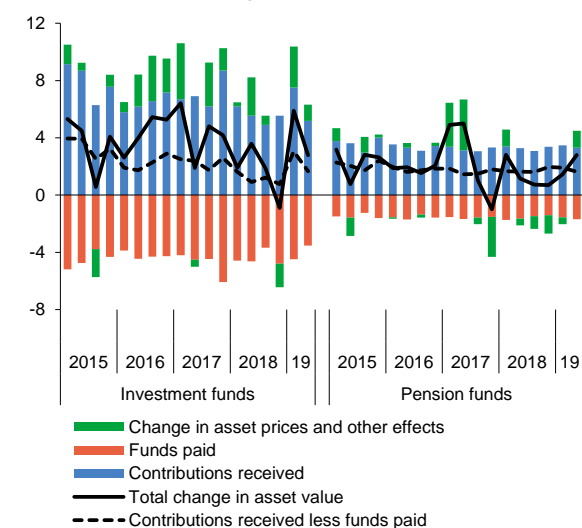
The relative importance of bonds in investment portfolios decreased...

Due to the persisting environment of low returns and reduced risk premia, the volume of new funds allocated by investment funds in government and corporate bonds in 2019 H1 was lower than the volume of funds placed in other asset classes (see Chart III.12). The volume of bonds in insurance companies' portfolios even fell in absolute terms (by CZK 11 billion). The relative importance of bonds in balance sheets has therefore decreased. Given the current global macroeconomic and monetary policy conditions (see section 2.1), the importance of bonds in institutional investors' portfolios can be expected to continue falling in the coming years.

Chart III.11

Decomposition of the change in the value of assets of investment and pension funds

(% of total assets of segments)



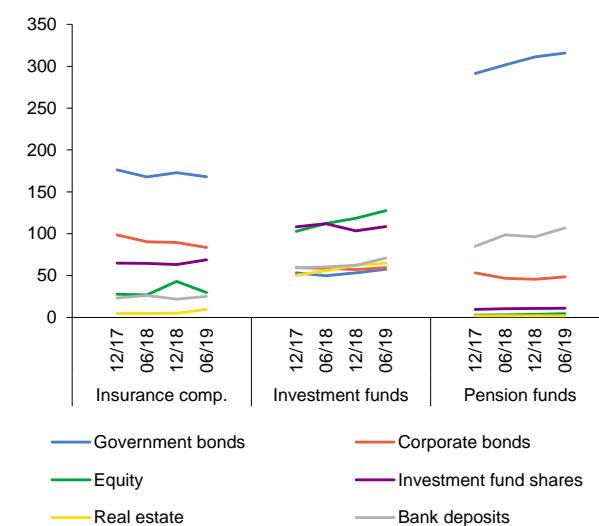
Source: CNB

Note: The values are gross contributions received and funds paid, i.e. unadjusted for transfers between funds.

Chart III.12

Components of domestic institutional investors' assets

(CZK billions)



Source: CNB

Note: Corporate bonds include mortgage bonds.

...to the benefit of shares, real estate and bank deposits

Equity and shares in other investment funds were still the main components of investment funds' assets as of 30 June 2019. The real estate held by real estate funds also continued to show dynamic growth in value (an increase of 10% in 2019 H1). These investments have risen from CZK 8.8 billion to CZK 30 billion over the past three years. Pension funds' deposits with banks kept rising (by CZK 10.4 billion, or 10.8%), indicating that it was relatively advantageous for domestic pension funds

to deposit their funds with banks. In the case of insurance companies, there was a drop in interest in bonds (of CZK 11 billion compared with the end of 2018) accompanied by a rise in investment in real estate (of CZK 4.4 billion to CZK 9.4 billion).³⁵

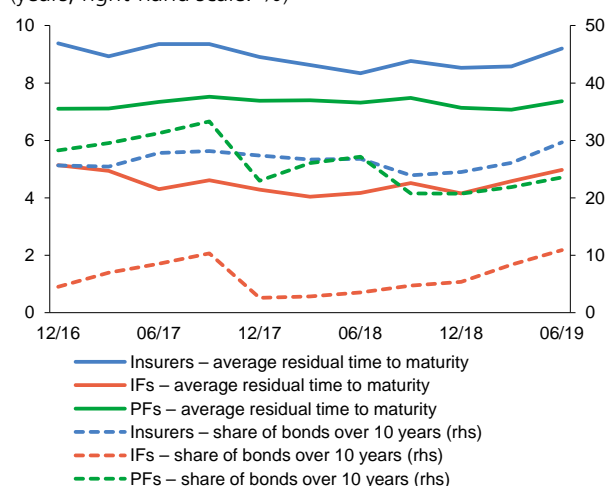
Interest in bonds with longer maturities or worse ratings also rose

Bond portfolios recorded not only a decrease in their balance-sheet importance, but also a change in structure, moving toward riskier bonds. In the case of government bonds, this was reflected in increased interest in longer maturity bonds, especially those in the maturity category of over ten years (see Chart III.13). Longer maturity exposes the bond holder to higher interest rate risk. In the case of corporate bonds, domestic institutional investors took on increased credit risk in 2019 H1. The downward trend in the volume of top-rated corporate bonds continued, while the share of speculative-grade bonds increased slightly (see Chart III.14).

Chart III.13

Maturity structure of Czech government bond portfolios

(years; right-hand scale: %)

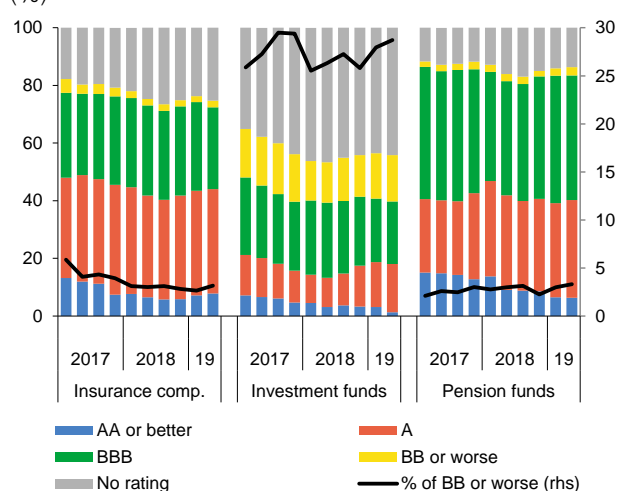


Source: CNB

Chart III.14

Corporate bond portfolio structure by rating

(%)



Source: CNB

Note: The share of bonds with a rating of BB or worse is related to the total volume of corporate bonds with a rating, i.e. excluding bonds with no rating.

The insurance sector remained resilient

The domestic insurance sector followed the trends of previous years in 2019 H1. Premiums written in non-life insurance continued to rise in line with the natural needs of the growing economy. The life insurance segment remained stable, with written premiums and claim settlement costs staying at the level of previous years (see Chart III.5 CB). The stability of life insurance is also reflected in the fact that the total assets of the insurance sector has not changed significantly in recent years (see Chart III.1). The domestic insurance sector remained sufficiently resilient, as confirmed by the results of this year's stress tests.³⁶ According to the CNB's estimates, the stability of the insurance sector should not be significantly affected by the change in the method for creating tax-deductible technical provisions of insurance companies either.³⁷

³⁵ The cited figures only include direct real estate holdings. Nevertheless, there are significant exposures to the risk of a fall in property prices in the form of direct holdings in companies whose principal activity is the holding and letting of residential or commercial property. The actual size of institutional investors' real estate exposures is thus higher.

³⁶ Results of the stress tests of insurance companies are published on the CNB website: <https://www.cnb.cz/en/financial-stability/stress-testing/insurance-sector-and-pension-management-companies-sector/>.

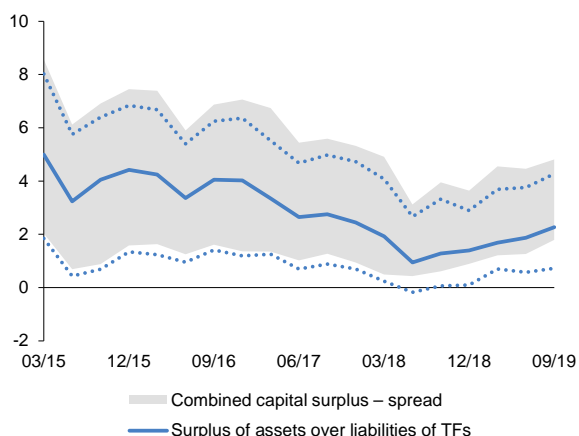
³⁷ This change was part of the revisions of a tax package that was in the legislative process at the time of publication of this document (for more details in Czech, see [Ministry of Finance of the Czech Republic](#)).

Developments on financial markets helped stabilise the capitalisation of transformed funds

The surplus of assets over liabilities of transformed funds grew in the first three quarters of 2019 (see Chart III.15). This meant a reversal of the adverse trend of 2016–2018, due mainly to developments on the Czech government bond market (see section 2.1). Most pension management companies (PMCs) saw an improvement in capitalisation from the perspective of the combined capital surplus as well (see Chart III.16). The excess of assets over liabilities and the combined capital surplus nevertheless remained at very low levels. Even a relatively small decline in Czech government bond prices could again lead to a need to top up transformed funds and potentially cause PMCs problems in meeting the capital requirements. From the size of the combined capital surplus it can be concluded that the owners of three companies would be forced to top up capital in the event of less than 2% impairment of the assets of transformed funds (see Chart III.16). PMCs therefore continue to be exposed to asset repricing risk and face challenges in managing capital adequacy in relation to the potential price volatility of Czech government bonds. Good capital planning by PMCs is important also in the context of the further expected growth in funds managed by transformed funds. The current age structure of participants and the relatively low interest in migrating from transformed to participation funds indicates that the assets of transformed funds may stay at current or higher values for another 15–20 years, despite the fact that the transformed funds segment has been closed to new participants since 2013 (see Box 3.2).

Chart III.15

Surplus of assets over liabilities of transformed funds
(% of TFs' total assets)

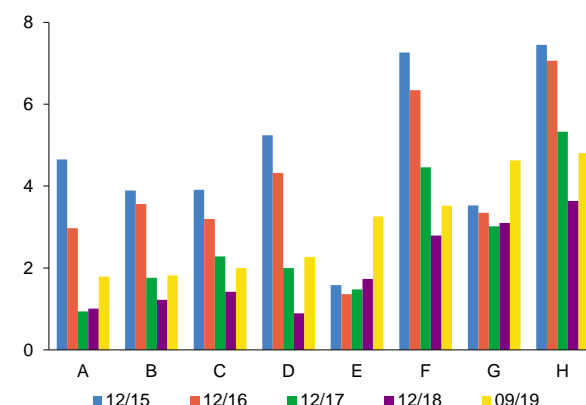


Source: CNB

Note: The dotted lines indicate the spread between the surplus of assets over liabilities of TFs (i.e. the highest and lowest values of the surplus of the individual TFs). The grey area indicates the combined capital surplus spread, which is the sum of the capital surplus of the PMC and the surplus of assets over liabilities of TFs.

Chart III.16

Combined capital surplus of pension management companies
(% of TFs' total assets)



Source: CNB

Note: The letters denote individual companies. The combined capital surplus is the sum of the capital surplus (i.e. the difference between capital and the capital requirement) of the PMC and the surplus of assets over liabilities of TFs. A positive value can be interpreted as the percentage size of the shock to the assets of TFs which would lead to a fall in the capital of the PMC to the capital requirement level.

BOX 3.2: LONG-TERM PROJECTION FOR THE TRANSFORMED FUNDS SEGMENT

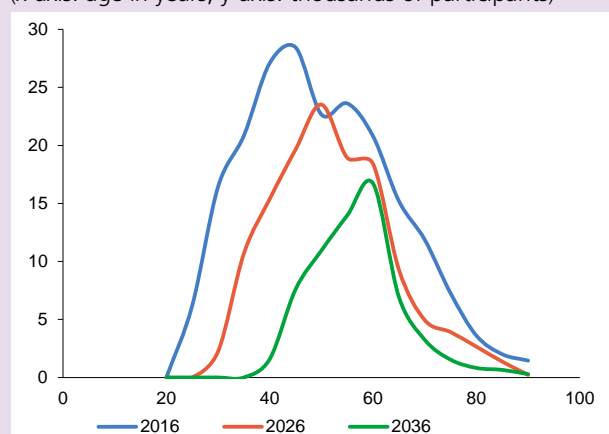
The CNB currently sees risks in the pension sector, especially in transformed funds. The non-negative yield guarantee given to private pension participants represents a source of vulnerability for pension management companies, which are obliged to top up a transformed fund in the event of a negative difference between its assets and liabilities. Given that the transformed funds segment is now closed to new participants, these risks will gradually decrease in the long term. As participant funds gain in importance, market risks will shift to households. This brings with it new risks, including potentially increased transmission of financial market volatility to household balance sheets (see Box 2.1).

To assess the long-term outlook for the risks associated with saving for retirement, the CNB has conducted a 25-year projection of the transformed funds segment. The projection is based on the evolution of the age structure of participants over time. In the projection, the participants gradually age. On reaching the age of 60, they have a certain probability in each period of terminating the saving phase and taking a payout (either a one-off payment or a regular pension). Premature termination of contracts by participants under the age of 60 is also modelled. The retirement rate and the early retirement rate were calibrated using the observed data for the period 2013–2019, hence no changes in the conditions of saving for retirement or in the behaviour of participants are assumed. The age structure of the participants therefore gradually changes. Up to the age of 60 it falls slowly, then from 60 onwards participants exit relatively quickly (see Chart III.2 Box). According to this projection, the total number of participants will fall by half (from the current 3.4 million as of 30 June 2019) over the next ten years (see Chart III.3 Box).

Chart III.2 Box

Age structure of participants in transformed funds

(x-axis: age in years; y-axis: thousands of participants)



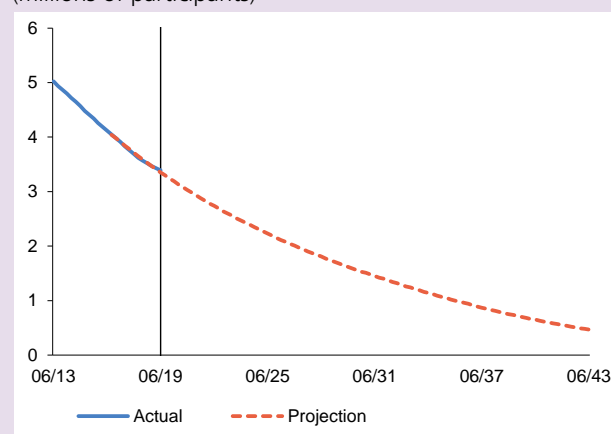
Source: CNB, Ministry of Finance of the Czech Republic

Note: The age structure data were interpolated using cubic spline interpolation. The modelled dynamics are reflected in (i) a gradual shift of the age structure to the right over time; (ii) a slight decrease in the structure up to the age of 60 due to early termination; (iii) a rapid decrease in the structure from 60 onwards due to regular completion of the saving phase.

Chart III.3 Box

Number of participants in transformed funds

(millions of participants)



Source: CNB

Note: The vertical line divides the known values (until 30 June 2019) and the projection.

Contributions received and funds paid out are derived from the evolution of the number of participants. Contributions received are modelled in each period as the average contribution of participants of a certain age³⁸ times the number of participants of that age. The contribution size was projected under the assumption of a constant contribution growth rate equal to the average rate of growth over the period 2013–2019. Contributions received are supplemented with net returns³⁹ credited to participants. Various rates of return are considered in the projection (1.1%–4.3% p.a.). Funds paid are calculated as the average payment per participant times the number of participants terminating the saving phase, calculated separately according to the payment type (lump sum, regular pension, early-termination surrender). The average payout increases over time, the growth rate being set so that no

38 Participants' contributions are projected in the model, and it is assumed that employers' contributions change proportionately. State contributions are calculated according to the current legislation (CZK 0–230 a month depending on the size of the participant's contribution).

39 This means returns net of expected fees for asset gains and for managing the fund.

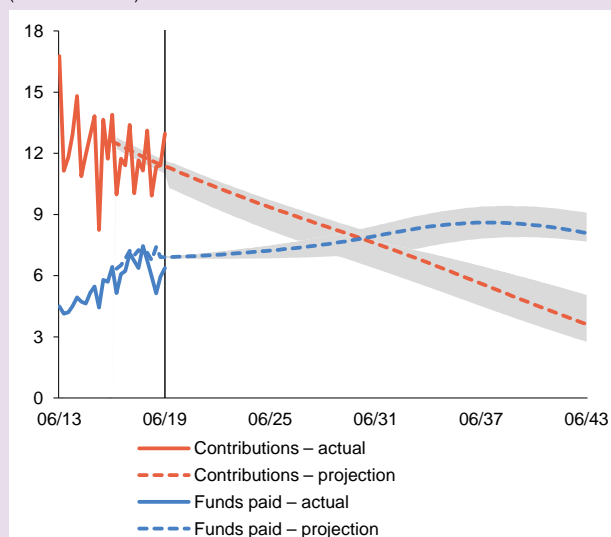
funds are left in the system after the final contract ends (around 2060).

According to the set projection parameters, the total contributions of depositors would exceed the funds paid out until 2029 (see Chart III.4 Box). There is a related increase in the value of the funds managed by transformed funds up to the same year (see Chart III.5 Box). Starting in 2029, the amount of funds would begin to decline, returning to the current level in 2037 and reaching half that level in 2045. For other payout growth rates or other rates of return,⁴⁰ the volume of funds would peak a few years earlier or later (see the grey areas of Chart III.4 Box and Chart III.5 Box). In all cases, however, the projection shows that the transformed funds segment will be managing large amounts of funds for at least the next 15–20 years. The results of the analysis thus reveal that, despite a gradual decline in participants in transformed funds, the sector will remain a relevant part of the financial sector for a long time to come.⁴¹

Chart III.4 Box

Inflows and outflows from transformed funds

(CZK billions)



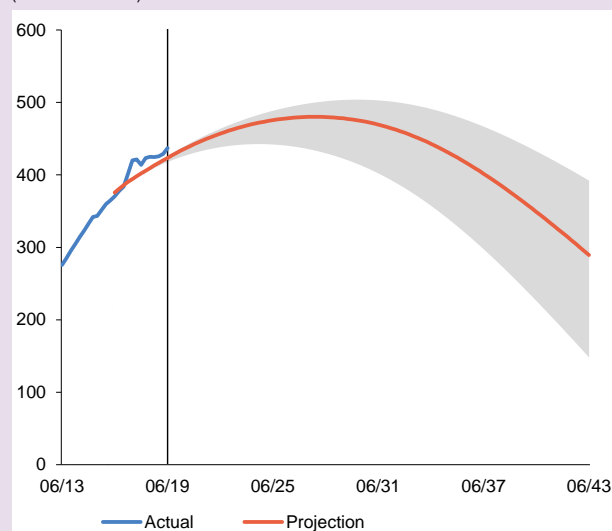
Source: CNB

Note: The grey areas indicate the projection results when different growth rates or rates of return on assets are selected. The vertical line divides the known values (until 30 June 2019) and the projection.

Chart III.5 Box

Value of funds managed by transformed funds

(CZK billions)



Source: CNB

Note: The grey area indicates the projection results when different growth rates or rates of return on assets are selected. The vertical line divides the known values (until 30 June 2019) and the projection.

⁴⁰ However, the projection does not consider the extreme scenario of sustained zero or negative returns.

⁴¹ The expected growth in funds managed is influenced to a large extent by the nominal growth in participants' deposits considered, which is reflected in the payout size only with a lag. However, even when the simulation is adjusted for inflation, the results still indicate that the real volume of funds managed will not decrease significantly for ten years (see Chart III.6 CB).

3.3 THE BANKING SECTOR MACRO STRESS TEST WITH A FIVE-YEAR HORIZON

In this report, the CNB presents the results of a banking sector stress test with an extended horizon of five years. The longer test horizon makes it possible to capture the build-up of risks in periods of expectations of further growth in the economic cycle (i.e. rapid credit growth, easing credit standards, increasing indebtedness of non-financial corporations and households, and the emergence of asset price bubbles), which risks do not materialise until quite some time later. The stress test was performed on the data as of 30 June 2019.

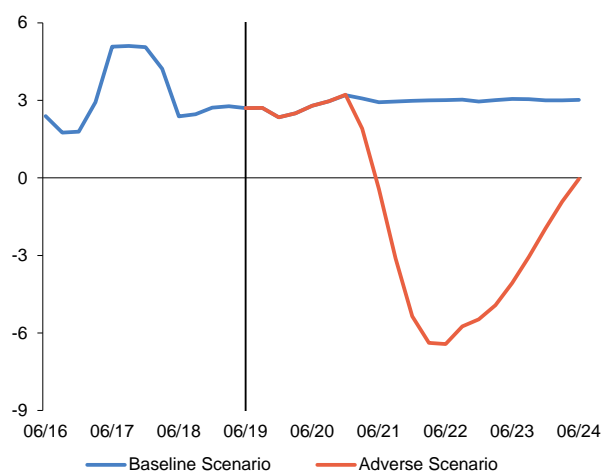
The *Adverse Scenario* assumes a fall into a V-shaped recession

In the first six quarters, the hypothetical five-year *Adverse Scenario* follows the CNB's forecast.⁴² During this period, there is continued growth in loans having the potential for credit risk accumulation (see Table III.1) linked with ongoing economic growth accompanied by optimistic expectations of both households and non-financial corporations. Subsequently, the Czech economy experiences a sharp contraction caused by unfavourable economic developments abroad, which are reflected in reduced demand for domestic production. In the scenario, CNB reacts to the economic contraction (see Chart III.17) by easing monetary policy. Banks' profitability⁴³ is adversely affected by a rise in credit losses caused by growth in the default rate (PD) and loss given default (LGD), a decrease in interest margins and a fall in the volume of loans (see Table III.1).

Chart III.17

Real GDP growth

(year on year in %)

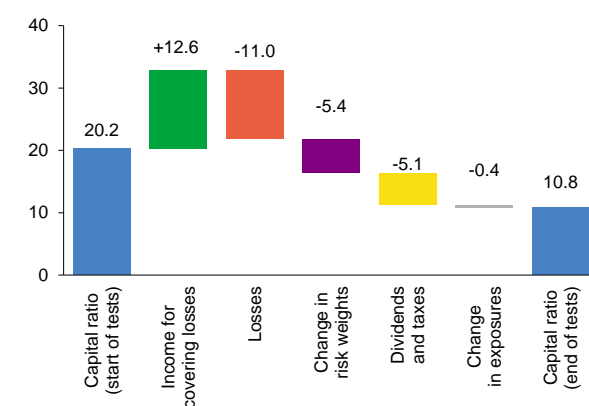


Source: CNB

Chart III.18

Decomposition of the change in the capital ratio of the banking sector in the *Adverse Scenario* in 2019 Q2–2024 Q2

(%)



Source: CNB

42 Inflation Report III/2019: <https://www.cnb.cz/en/monetary-policy/inflation-reports/Inflation-Report-III-2019/>.

43 From the methodological point of view, the calculation of the interest margin was refined to match the current and expected market conditions. Furthermore, the reference period for calculating the moving averages of the model risk parameters determining the evolution of risk-weighted assets was modified to better reflect the behaviour of the institutions tested.

The banking sector's income in the *Adverse Scenario* cannot cover the materialisation of risks and the capital ratio drops...

The favourable economic growth in the first six quarters allows banks to pay dividends, which thus negatively affect the resulting capital ratio at the test horizon (a -5.1 pp impact on the capital ratio; see Chart III.18). The economic contraction starting in the second year of the test is reflected in gradual significant growth in credit losses (Charts III.7–9 CB), reflecting falling credit portfolio quality (-11.0 pp). Income for covering losses (+12.6 pp) absorbs the credit losses. However, it is not sufficient to cover the increased capital needs caused by increasing risk weights (-5.4 pp), which respond to the increase in the PD and LGD loan portfolio parameters (see Table III.1). At the five-year test horizon, the aggregate drop in the banking sector's capital ratio is 9.4 pp and the resulting capital ratio in the *Adverse Scenario* is 10.8% (see Chart III.18).

...but, thanks to a voluntary capital surplus, it does not fall below the regulatory minimum

The resulting capital ratio is above the regulatory minimum of 8%. However, if banks had no capital surpluses above the regulatory requirements at the start of the test (in mid-2019 they had a surplus of 4.05 pp, including the CCyB at its future level of 2%), the capital ratio would drop below the regulatory minimum (see Chart III.19). This shows that a voluntary capital surplus is an important element of the banking sector's resilience and highlights the need for adequate capital buffers to cover cyclical risks (the countercyclical capital buffer and the capital conservation buffer).

Table III.1

Selected variables in the *Adverse Scenario*

(averages for given years)

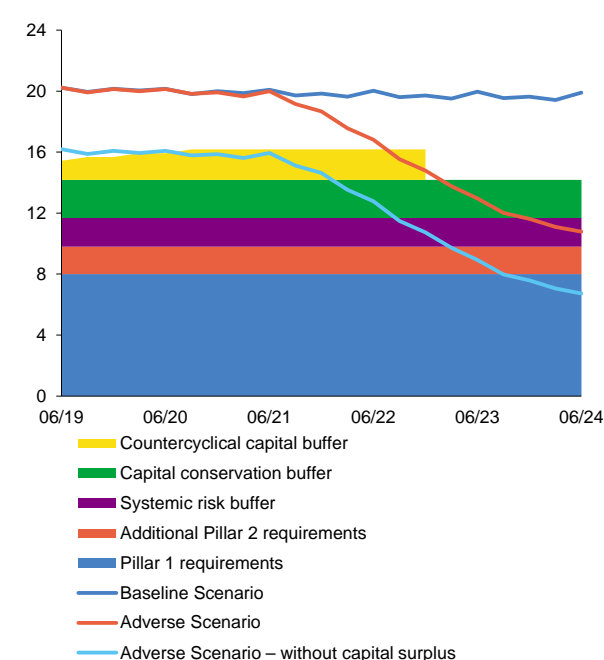
	Actual value	Adverse Scenario				
	2019	2020	2021	2022	2023	2024
Credit growth (%)						
Non-financial corporations	4.0	3.3	2.0	-5.2	-4.1	-0.6
House purchase loans	7.2	5.7	3.7	0.8	0.5	1.6
Consumer credit	5.0	5.0	2.1	-3.4	-2.2	-0.2
Default rates (PD, %)						
Non-financial corporations	1.1	1.3	3.5	6.0	5.3	4.4
House purchase loans	0.8	0.8	1.5	3.7	4.9	5.2
Consumer credit	3.2	3.0	3.9	6.9	8.8	9.3
Loss given default (LGD, %)						
Non-financial corporations	32	32	43	56	54	50
House purchase loans	15	15	17	28	36	36
Consumer credit	42	42	44	56	63	66
Growth in risk-weighted assets (%)	1.5	4.2	12.8	14.7	12.8	
Expected credit losses (CZK bn)	-20.2	-55.3	-92.3	-85.1	-31.9	
Income to cover losses (CZK bn)	85.2	47.6	28.3	30.1	25.7	
Capital ratio (%)	20.2	19.9	18.7	14.8	11.6	10.8

Source: CNB, BRCI

Note: Averages for the given years. The figures for 2024 are only up to Q2.

Chart III.19

Impact of the alternative scenarios and interactions with the capital requirements of the banking sector (pp)



Source: CNB

Note: The illustration shows the macroprudential policy response represented by a reduction or release of the countercyclical capital buffer in the *Adverse Scenario* and the impact of the *Adverse Scenario* in the absence of a voluntary capital surplus.

4 MACROPRUDENTIAL POLICY

The CNB sets macroprudential policy instruments on the basis of an assessment of the intensity of systemic risks. In conformity with an ESRB recommendation, it focuses on the fulfilment of intermediate objectives (see Table V.1) reflecting the existence of various sources of systemic risk and their transmission mechanisms.

Table IV.1 Summary of intermediate objectives and macroprudential instruments and evolution of specific risks

Intermediate objectives	Specific risk	Existence of specific risk in CZ	Key instruments	Applied in CZ	Detailed information
Mitigate excessive credit growth and leverage	Strong credit recovery accompanied by easing of lending standards	Yes	Countercyclical capital buffer	Yes, 1.5% from 7/2019; 1.75% from 1/2020; 2.0% from 7/2020	Details
	Rising leverage, rising off-balance sheet risk	Potential	Macroprudential leverage ratio	No	-
	Low risk weights of significant credit portfolios	Potential	Macroprudential tool to mitigate systemic risk at Member State level (Article 458 CRR)	No	-
	Elevated growth in loans and risks in specific sector	Potential	Sectoral capital requirements (in particular real estate exposure)	Not as yet, CNB reacts to property exposure risks with other instruments	-
	Risk of spiral between property prices and property financing loans	Yes	LTV caps	Yes, since 2015, tightened in 2016 and 2017	Details
	Risk of excessive household indebtedness and debt service	Yes	LTI, DTI, LSTI, DSTI caps	Yes, DTI and DSTI since 2018	Details
Mitigate excessive maturity mismatch and illiquidity	Long-term liquidity risk	Potential	Macroprudential NSFR	Microprudential general requirement since 2016	-
	Short-term liquidity risk	No	Macroprudential LCR	Microprudential minimum standard since 2015	-
Limit exposure concentrations	Property exposure concentration	Potential	Systemic risk buffer	Not as yet, CNB reacts to property exposure risks with other instruments	-
	Sovereign exposure concentration	Yes	Public finance stress test	Yes, option of additional capital requirements in event of elevated sovereign risk, since 2015	Details
Limit misaligned incentives	Potential impacts of problems in SIFIs on financial market stability and real economy	Yes	SIFI capital surcharges (G-SII and O-SII buffer)	No, O-SIIs identified, different instrument applied	Details
		Yes	Systemic risk buffer	Yes, since 2017 for five banks	Details
Strengthen resilience of financial infrastructures	Counterparty default risk, interconnectedness of financial infrastructures	No	Margin and haircut requirements on CCP clearing	No	-
			Increased disclosure	No	-
			Systemic risk buffer	No	-

Source: CNB

Note: The main goal of these instruments is to strengthen the resilience of the banking sector, not to mitigate systemic risk. The classification of intermediate objectives and instruments is based on Recommendation of the ESRB of 4 April 2013 on intermediate objectives and instruments of macro-prudential policy (ESRB/2013/1).

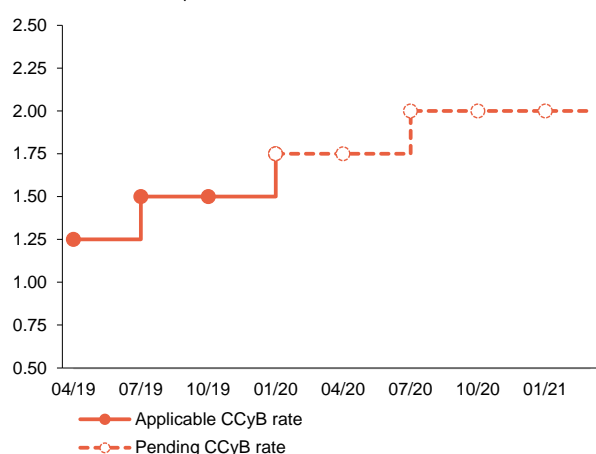
4.1 THE COUNTERCYCLICAL CAPITAL BUFFER

The countercyclical capital buffer (CCyB) is designed to maintain the resilience of the financial system to risks associated with the effect of the financial cycle. One of the manifestations of an expansionary phase of the cycle in the real economy is higher cyclical risk-taking, accompanied by strong credit growth, growth in debt and a very low default rate. In the event of a downturn in the financial cycle, accumulated risks may materialise and credit losses may increase, affecting banks' capital. Another feature of an upward phase of the financial cycle is growth in the banking sector's vulnerability due to cyclically low provisioning and decreasing risk weights. An economic downturn subsequently results in them returning to higher levels and potentially also in a need to top up capital so that the capital requirement can continue to be met by a sufficient margin once risk-weighted assets increase. The optimum CCyB rate is supposed to substantially reduce the negative impacts of all these manifestations of the financial cycle on the banking sector, maintain the supply of bank credit to the sound part of the private non-financial sector and thus prevent further transmission of the shock to the economy. For these reasons, the CNB sets the CCyB rate based on a comprehensive assessment of indicators of the financial cycle and the vulnerability of the banking sector and other factors affecting the sector's resilience.⁴⁴

Chart IV.1

Applicable and pending CCyB rate in the Czech Republic

(% of total risk exposure)

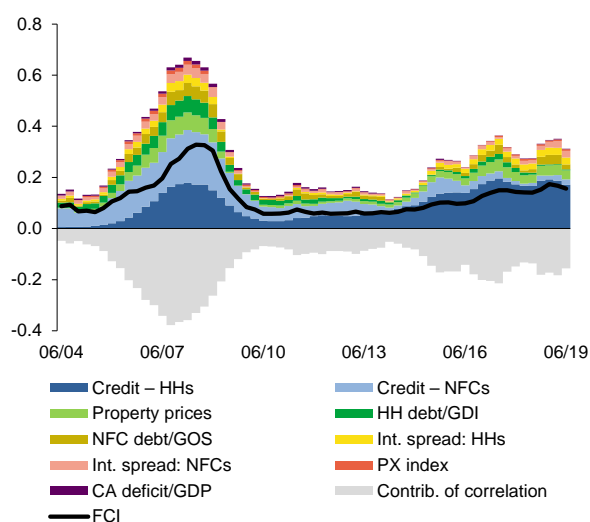


Source: CNB

Chart IV.2

Financial cycle indicator (FCI) and its decomposition

(0 minimum, 1 maximum)



Source: CNB

Note: GDI denotes gross disposable income of households, GOS stands for gross operating surplus of non-financial corporations. The interest spread is the difference between the client rate on new loans and the 3M PRIBOR. The negative contribution of the cross-correlation structure to the FCI value (the loss due to imperfect correlation of the subindicators) is due to the difference between the current FCI value and the upper bound, which assumes perfect correlation between all the components of the FCI. Weak correlation between the components is reflected in growth in the negative contribution to the overall FCI value. The construction of the FCI is described in Plašil, M., Seidler, J., Hlaváč, P. (2016): *A New Measure of the Financial Cycle: Application to the Czech Republic*, Eastern European Economics, 54(4).

44 The CNB's approach to the countercyclical capital buffer in the Czech Republic and the decision-making process from the assessment of the position of the economy in the financial cycle through to the setting of the buffer rate are described in Hájek, J., Frait, J., Plašil, M. (2017): *The Countercyclical Capital Buffer in the Czech Republic*, thematic article, FSR 2016/2017. The methodology is revised on an ongoing basis and presented in Financial Stability Reports.

The CNB decided to leave the countercyclical capital buffer rate at 2%

The CNB Bank Board decided at its meeting on 28 November 2019 to leave the CCyB rate unchanged at 2% (see Chart V.1). When making its decision, it took into account the indicators and analyses presented below. It took particular note of the position in the financial cycle, potential credit losses and the vulnerability of the banking sector. Given the assessment of the position of the domestic economy in the financial cycle, the CCyB rate can be expected to stay unchanged for the near future. However, in the event of a renewed acceleration in credit growth, a renewed upward shift in the financial cycle and growth in the vulnerability of the banking sector, the Bank Board stands ready to increase the CCyB rate further. By contrast, if the accumulated risks materialise and risk weights rise, the CNB is prepared to gradually lower the rate, or even zero it in a single step, depending on the depth of the recession and its impact on the banking sector.

The financial cycle indicator decreased, due mainly to weaker credit growth in the household sector

The aggregate financial cycle indicator (FCI) serves as a starting point for assessing shifts in the financial cycle. At the end of 2019 Q2, the FCI fell slightly for the second time in a row and stood at approximately 0.16 (see Chart IV.2). This decline was mainly due to weaker credit growth in the household sector. Smaller contributions were observed for loans to non-financial corporations, property price growth, household and corporate debt, interest rate spreads on loans to households and the adjusted current account deficit. However, loans to households, property price growth and interest rate spreads on loans to households and non-financial corporations remained historically very high.

Chart IV.3

Year-on-year growth in bank loans to the private non-financial sector

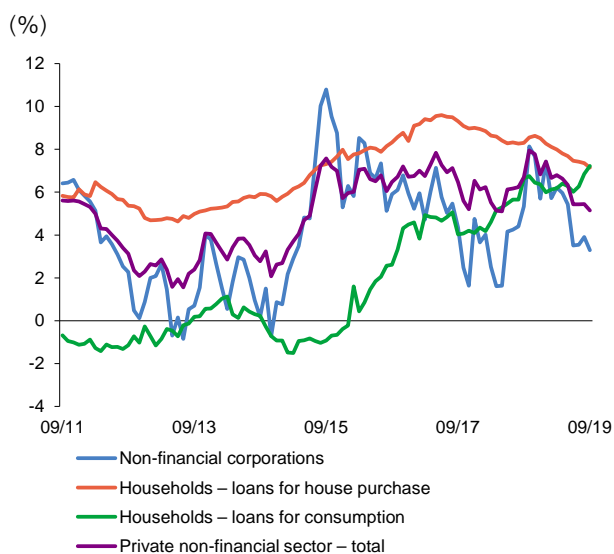
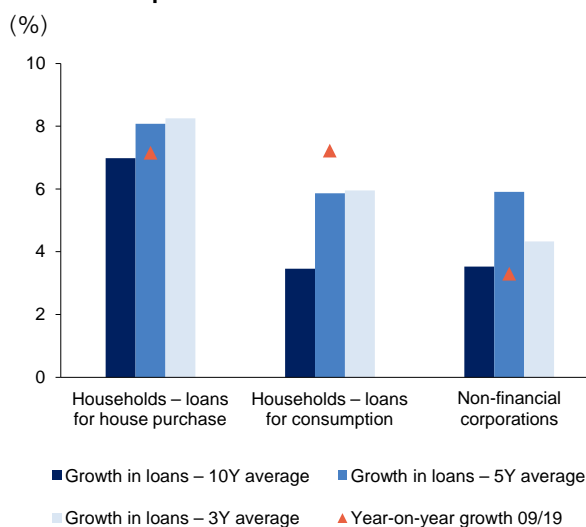


Chart IV.4

Average and current year-on-year growth in bank loans to the private non-financial sector



The rate of growth of bank loans declined slightly in 2019 H1...

Year-on-year credit growth in the private non-financial sector declined steadily in the first nine months of 2019 and stood at 5.2% as of September 2019. The decrease was due mainly to the two most significant credit segments – loans to non-financial corporations and loans to households for house purchase (see Chart IV.3, section 2.2). The growth rates in these segments dropped below their short-term and medium-term averages. In the long term, credit growth remains slightly above average (see Chart IV.4). By contrast, a further pick-up in growth was recorded for loans to households for consumption, where the growth rate exceeds the monitored averages.

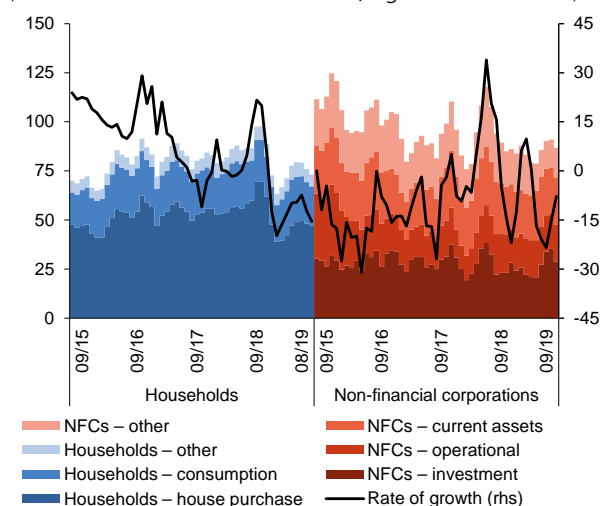
...and the amount of genuinely new bank loans also decreased year on year

Aggregate genuinely new⁴⁵ bank loans to households recorded a year-on-year fall of 12.9% in the first nine months of 2019 compared to the same period of 2018 (see Chart IV.5). This fall reflected new macroeconomic measures in the form of recommended upper limits on the DTI and DSTI ratios,⁴⁶ the effect of frontloading before these measures came in, and decreased affordability of housing (see sections 2.1 and 4.2). Genuinely new bank loans provided to non-financial corporations also recorded a downturn. The total drawn during the first nine months of 2019 dropped by around 10.4% compared to the same period of 2018.

Chart IV.5

Amounts of genuinely new bank loans to the private non-financial sector

(three-month totals in CZK billions; right-hand scale: %)



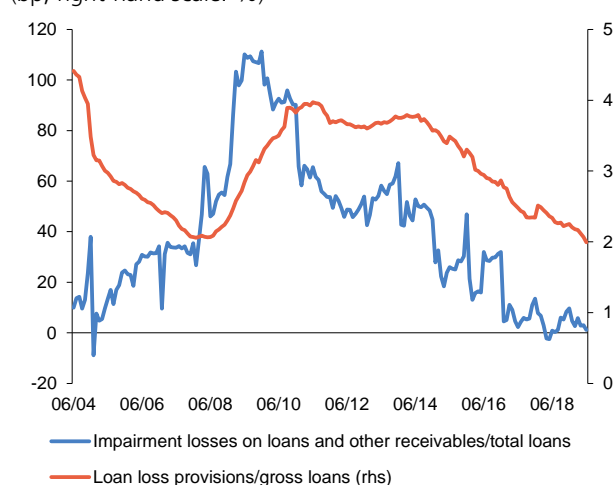
Source: CNB

Note: Genuinely new loans include increases in existing loans and are adjusted for refinanced and refixed loans. The growth rate is calculated using three-month totals.

Chart IV.6

Loan impairment losses and loan loss provisions

(bp; right-hand scale: %)



Source: CNB

Note: Impairment losses are the ratio of growth in net impaired loans to total bank loans.

The shift of the Czech economy into the growth phase of the financial cycle halted in 2019...

The weakening credit growth and related decline in the aggregate FCI suggest that the intensity of the cyclical risks taken on in the domestic economy shrank slightly. Persisting favourable financial conditions may foster further growth in the coming quarters. Interest rates on loans to households for house purchase began to decline again during 2019 (see section 2.1, Chart II.9). In combination with persisting rapid wage growth, the perceived real costs of debt are thus still very negative. This may lead to increased borrowing by the household sector. Real interest rates on housing loans adjusted for inflation expectations as measured by the CPI index convey a similar picture.

...but the total risks associated with the financial cycle did not decrease

Despite the drop in cyclical risk-taking observed during 2019, the domestic economy is close to the peak of the current financial cycle. Risks associated with the effect of the financial cycle in previous years remain accumulated in financial institutions' balance sheets, and materialisation of these risks may result in unexpected losses in the banking sector. This continues to prompt a need to maintain a sufficient buffer to cover these risks.

⁴⁵ Genuinely new loans are adjusted for refinanced and refixed loans.

⁴⁶ https://www.cnb.cz/export/sites/cnb/en/legislation/galleries/official_information/vestnik_2018_08_21018180_en.pdf.

Exceptionally low impairment losses and a further drop in the ratio of provisions to loans indicate a slight increase in the banking sector's vulnerability

The current low client default rate is the driving factor behind the almost zero loan impairment losses (see Chart IV.6). Accordingly, the future expected losses of the banking sector are falling, as is the ratio of provisions to total loans. A suitable indicator for describing the risks associated with the effect of financial cycle in the banking sector is the ratio of the interest rate margin on the stock of credit to provisions per unit of credit.⁴⁷ Unlike the FCI, this indicator increased further in 2019 H1, which may indicate greater sensitivity of banks to a deterioration in economic conditions (see Chart IV.7).

Chart IV.7

Ratio of the interest rate margin to provisions and the FCI

(%; right-hand scale: 0 minimum, 1 maximum)

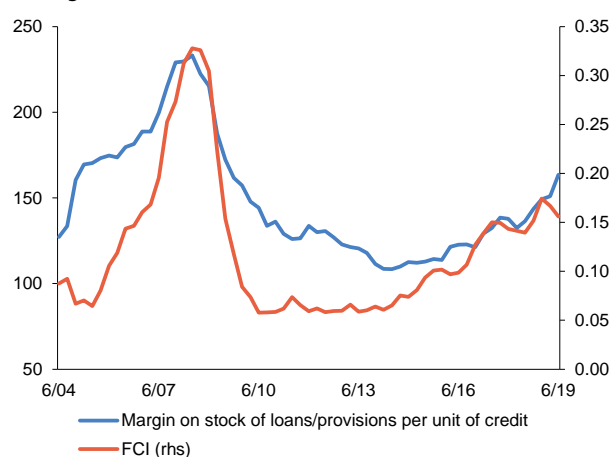
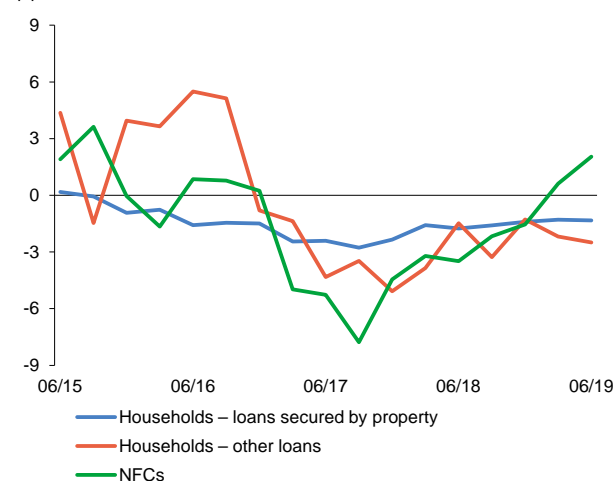


Chart IV.8

Year-on-year change in risk weights in the main loan categories under IRB approach

(pp)



The favourable conditions were also reflected in risk weights

The current robust economic growth is being reflected in the calibrations and results of banks' risk models (see section 3.1).⁴⁸ The risk weights for loans to households for house purchase in IRB portfolios continued to decline in 2019 H1 (see Chart IV.8). By contrast, the risk weights in the case of non-financial corporations increased year on year. Overall, however, the risk weights were down significantly⁴⁹ compared to the start of the expansionary phase of the financial cycle. The observed decline and the resulting lower volume of risk-weighted assets may mean that the banking sector's assessment of credit risks during the upward phase of the financial cycle is procyclical on the aggregate level. A deterioration in the economic conditions accompanied by an increase in the default rate would thus lead to risk weights gradually returning to higher levels. This would imply a need to top up capital or reduce the capital surplus. Based on the risk weights observed at the beginning of the expansionary phase of the financial cycle (2015 Q4), the capital requirement for IRB credit portfolios at the end of 2019 Q2 would be CZK 25.4 billion higher in absolute terms than its current level (see Chart IV.9).

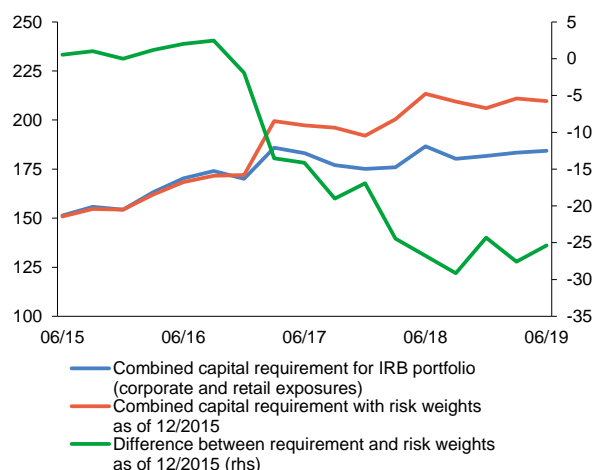
47 The indicator's construction, properties and relevance to CCyB rate decisions are discussed in Pfeifer, L., Hodula, M. (2018): *A Profit-to-Provisioning Approach to Setting the Countercyclical Capital Buffer: The Czech Example*, CNB WP 5/2018, CNB.

48 For details on the risk of procyclicality of risk weights under the IRB approach, see Malovaná, S. (2018): *The Pro-Cyclicality of Risk Weights for Credit Exposures in the Czech Republic*, CNB WP 12/2018, CNB, Malovaná, S., Kolcunová, D., Brož, V., (2017): *Does Monetary Policy Influence Banks' Perception of Risks?*, CNB WP 9/2017, CNB and Brož, V., Pfeifer, L., Kolcunová, D. (2017): *Are the Risk Weights of Banks in the Czech Republic Procyclical? Evidence from Wavelet Analysis*, CNB WP 15/2017, CNB.

49 Between December 2015 and June 2019, the average risk weight on loans to corporations decreased by around 5.4 pp, that on retail loans secured by residential property by 5.8 pp and that on other retail loans by 7.9 pp.

Chart IV.9

Actual and hypothetical capital requirements based on the application of risk weights as of 12/2015
(CZK billions)

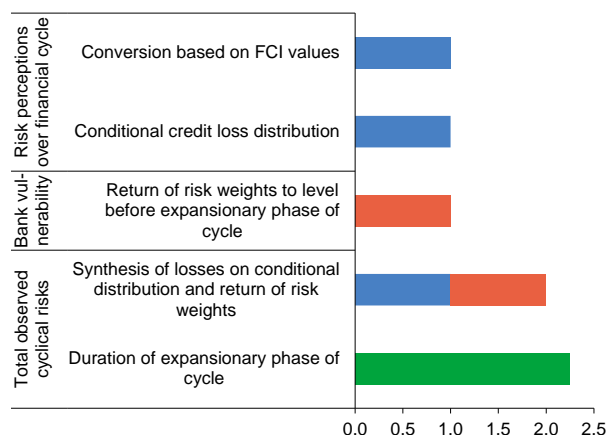


Source: CNB

Note: This is the capital requirement for the following IRB portfolios reported in the given period: retail exposures – secured by property (non-SME), retail exposures – other non-SME and corporate exposures. The hypothetical capital requirement is calculated on the basis of risk weights as of the beginning of the expansionary phase of the financial cycle (12/2015).

Chart IV.10

CCyB rate covering the monitored effects of the financial cycle
(% of total risk exposure)



Source: CNB

The new IFRS 9 accounting standard could result in a sharp pass-through of worsening economic conditions to banks' capital

One of the implications of the IFRS 9 accounting standard is an additional source of banking sector vulnerability. IFRS 9 is supposed to be beneficial to financial stability from the long-term perspective, because unlike the previous IAS 39 standard it allows for early and sufficient loan loss provisioning. However, the results of the macro stress tests of banks published in the CNB's Financial Stability Reports (for details see FSR 2017/2018) support the view that IFRS 9 may have a cliff effect in the form of a rapid and sharp pass-through of an adverse situation to capital in certain conditions.

The CCyB rate responds to potential credit losses and the vulnerability of the banking sector

The prudential estimate of unexpected credit losses indicates a need to set the CCyB rate at about 1% in the current phase of the cycle⁵⁰ (see Chart IV.10, line: conditional credit loss distribution). The same CCyB rate is also indicated by the conversion based on the FCI (see Table IV.1 CB). The indicative CCyB rate obtained using the conditional credit loss distribution or the FCI primarily provides information about the absolute size of the banking sector's potential credit losses but does not cover aspects of the financial cycle that affect its vulnerability and impact on risk weights. The return of risk weights on IRB loan portfolios to the level observed at the start of the expansionary phase of the financial cycle⁵¹ would generate a need for around CZK 25.4 billion of capital (i.e. 0.99% of risk-weighted assets). The simple sum of the potential losses and the assumed shift in risk weights to a higher level (1.97%) has to be adjusted for the volume of exposures in default from the conditional credit distribution, for which the effect of change in risk weights is not considered (i.e. CZK 0.6 billion, or 0.02%). The resulting effect implies a need for CZK 49.8 billion of capital, which the CCyB rate should cover. This amount of capital represents 1.95% of risk-weighted assets as of the end of 2019 Q2 (CZK 2,558 billion), implying a CCyB rate of 2.00% (see Chart IV.10).

⁵⁰ The potential losses are estimated at around CZK 25 billion, or 0.98% of risk-weighted assets.

⁵¹ According to the CNB's analyses, the domestic economy entered the expansionary phase of the financial cycle in 2015 Q4.

A 2% CCyB rate is at the upper bound of the need for capital

Besides the financial cycle, other factors (such as better-quality collateral and better risk management processes) may affect risk weights. The overall decrease in risk weights therefore does not reflect cyclical factors alone. A 2% CCyB rate is thus rather at the upper bound of the estimate. Nonetheless, it is desirable to take into account other factors in addition to the indicators used to guide decisions on the CCyB rate. As well as the evolution of risk weights, a decline in the ratio of provisions to loans and a strong cyclical rise in the ratio of the margin to provisions per unit of credit argue for keeping the CCyB rate at the upper bound due to the vulnerability of the banking sector (see Chart IV.6 and Chart IV.7).

According to the CNB, the standard CCyB rate for covering the usual level of cyclical risks is 1%

In previous publications, the CNB emphasised that it prefers to act with a high degree of prudence in deciding on the CCyB rate and to set a non-zero CCyB rate when cyclical financial risks have not yet become significantly elevated and are still close to their usual, standard levels. The aim of the standard rate concept is to ensure that the banking sector's resilience starts to be supported in a timely manner after the acute phase of a cyclical contraction, or even a financial crisis, has subsided. The CNB's detailed approach to setting and calibrating the standard CCyB rate is described in Thematic Article on Financial Stability 2/2019.⁵² According to the current assessment, cyclical risks have reached elevated levels, corresponding to a need to set the CCyB rate above the standard level. The concept described will therefore no longer affect the setting of the CCyB rate during the current financial cycle but will be applied in the early expansionary phase of the new cycle.

Materialisation of cyclical risks and growing tensions in financial markets will be the key signal to lower the CCyB rate

The CNB stands ready to lower or completely zero the CCyB rate in the event of a turnaround in the financial cycle. However, a decrease in lending activity or more prudent lending will not constitute a reason for significantly lowering the CCyB rate, as the cyclical risk assumed at times of above-average credit growth and relaxed credit standards stays in banks' balance sheets. Signals of increased risk materialisation, reflected in rising risk weights, growing costs of risk and increased provisioning, will be the primary grounds for reducing the CCyB rate. A potential decrease in spare lending capacity will also be a key factor. Indicators of stress in financial markets (such as the CISS indicator⁵³ for the Czech economy or money market rate spreads) may be a leading or coincident signal of this. The process of releasing the CCyB rate must be carefully timed, as a very early reduction would increase the banking sector's capital surplus, which might not be used prudently to cover future losses and the draining of which might further increase the sector's vulnerability. Conversely, releasing the buffer too late could result in a credit crunch and would render it impossible to smooth the downward phase of the financial cycle.

Deviations of the credit-to-GDP ratio from its trend do not provide a suitable guide to increasing or releasing the CCyB for the Czech Republic

In accordance with an ESRB recommendation,⁵⁴ the CNB should take into account the credit-to-GDP ratio and its deviation from the long-term trend when determining the position in the financial cycle and deciding on the CCyB rate. In 2019 Q2, the ratio was 89.1% and the relevant gap -3.1 pp. The CNB has long maintained that this approach is not a suitable tool for assessing cyclical risks in the Czech economy and is subject to a range of shortcomings which reduce its reliability.⁵⁵ The additional gap (the expansionary credit gap), which uses an alternative approach to determining the long-term trend and partially eliminates the problems associated with the recommended methodology, was 1.0 pp (see Chart IV.11).⁵⁶ However,

52 Plašil, M. (2019): *The Countercyclical Capital Buffer Rate for Covering the Usual Level of Cyclical Risks in the Czech Republic*, Thematic Article on Financial Stability 2/2019, CNB.

53 See Holló et al. (2012): *CISS – A Composite Indicator of Systemic Stress in the Financial System*, ECB Working Paper Series.

54 European Systemic Risk Board (ESRB, 2014): *Recommendation (ESRB/2014/1) on guidance for setting countercyclical buffer rates*.

55 Criticism of this approach has been presented regularly in the CNB's Financial Stability Reports. For a more detailed explanation see also Geršl, A., Seidler, J.: *Excessive Credit Growth as an Indicator of Financial (In)Stability and its Use in Macroprudential Policy*, thematic article, FSR 2010/2011.

56 More detailed methodological information about the additional gap can be found in Hájek, J., Frait, J., Plašil, M. (2017): *The Countercyclical Capital Buffer in the Czech Republic*, thematic article, FSR 2016/2017.

this indicator must also be viewed as only a very rough way of assessing the position in the financial cycle, with limited direct usefulness as regards deciding on the CCyB rate.

The number of countries with non-zero CCyB rates is growing

The easy monetary conditions are leading to a shift in the financial cycle and growth in cyclical risks in other European countries as well (see section 2.1.). In response, 15 European countries have decided to set a non-zero CCyB rate, and in 11 of them the rate is now active (see Chart IV.12). As for non-European countries, Hong Kong, for example, has a non-zero CCyB rate. On 14 October 2019, it decided to lower its CCyB rate from 2.5% to 2.0% with immediate effect in order to provide banks with sufficient room to support its slowing economy.

Chart IV.11

Standardised credit-to-GDP gap and additional gap
(pp)

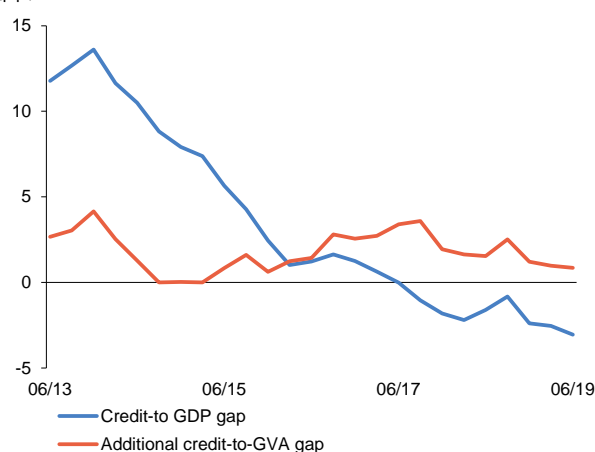
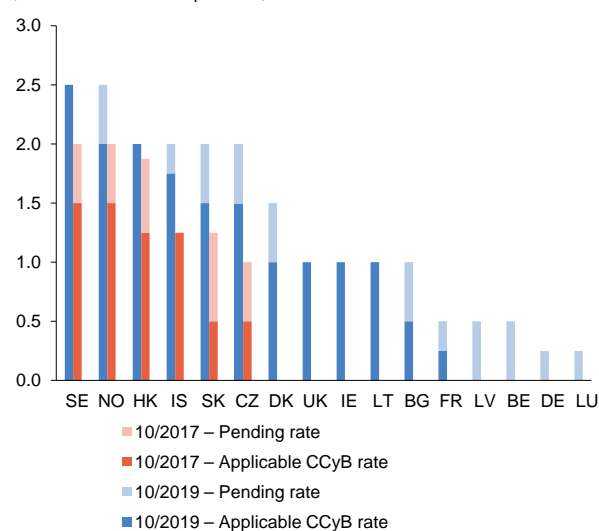


Chart IV.12

Countries with non-zero CCyB rates
(% of total risk exposure)



4.2 RISKS AND INSTRUMENTS ASSOCIATED WITH THE PROPERTY MARKET

4.2.1 Risks associated with residential property financing

The CNB evaluates risks associated with the residential property market on an ongoing basis...

A spiral between credit financing of property purchases and rapidly rising property prices has been identified by the CNB as a significant source of systemic risk in the domestic economy for several years now. The CNB evaluates the intensity of these risks on an ongoing basis and responds to them by applying macroprudential tools and microprudential supervision.⁵⁷ This approach is based on the set of rules contained in the Official Information *Recommendation on the management of risks associated with the provision of retail loans secured by residential property* (the "Recommendation"). The Recommendation sets quantitative limits on selected mortgage loan indicators and qualitative criteria for the prudential provision of such loans.⁵⁸ The last significant changes to these rules were made in 2018. Technical changes were made to the Recommendation with effect from 11 June 2019. Specifically, the reference volumes of loans used as the base for calculating the proportion of new loans subject to exemptions from the LTV, DTI and DSTI limits were revised. The CNB also clarified that lenders should always reassess compliance with the DTI and DSTI limits in the process of refinancing consumer credit not secured by residential property for clients who already have a mortgage loan and are simultaneously increasing the outstanding principal of the unsecured loan by more than 10%.

...and monitors compliance with the recommended limits

In addition to regularly assessing the property market situation, the CNB is paying increased attention to growth in, and risk characteristics of, housing loans. The main source of information for the aggregate analyses is the semi-annual *Survey of loans secured by residential property* (the "Survey"). It enables the CNB to check compliance with the recommended limits on selected ratios thanks to detailed information on individual loans. However, it also provides a whole range of other information necessary for adequately configuring macroprudential instruments. The quality of the data obtained in the Survey was improved further in 2019 H1. Specifically, the data were expanded to include data regarding clients' additional debt and also information on whether a loan is the first or additional loan secured by property in the client's credit history. These data are necessary to check the DTI and DSTI ratios reported by institutions, to assess the degree of risk of additional debt and to monitor the riskiness of various groups of clients.

Following a record amount of house purchase loans provided in 2018, a decline was recorded in 2019 H1...

Following a surge in loans in 2018 H2 linked with the media campaign accompanying the introduction of the DTI and DSTI caps, the amount of genuinely new loans (excluding refinancing and refixations) naturally dropped in 2019 H1 (from CZK 122 billion to CZK 88 billion, of which mortgage loans from CZK 98 billion to CZK 75 billion; see Chart IV.13 and Chart IV.14). Genuinely new loans were provided at a stable monthly level of around CZK 13 billion in both Q2 and Q3. Besides the adjustment of the DTI and DSTI limits, the lower amount of genuinely new loans is due to a set of factors including frontloading before the limits came in, a continued deterioration in housing affordability owing to rising property prices, and undersupply of new apartments in cities.

...but favourable conditions for a renewed spiral between housing loans and property prices persist

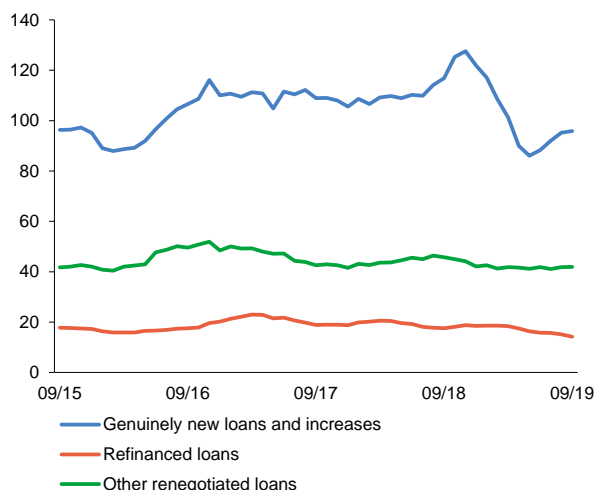
Property prices grew significantly further in 2019 H1 (see section 2.1). As the amount of new property purchase loans decreased and property price growth slowed, the spiral between prices and loans halted. However, the decline in interest rates on loans for house purchase during 2019, caused mainly by a fall in long-term government bond yields in Europe due to the very easy monetary policies of central banks, is again increasing the risk of the spiral re-emerging in the future (see Chart IV.15).

⁵⁷ Supervisory benchmark 1/2017 of November 2017 on the provision of loans to households by credit institutions.

⁵⁸ Some of the quantitative limits were incorporated into an amendment to the Act on the CNB that was approved by the Government in June 2019 and started to be debated in the Chamber of Deputies in November.

Chart IV.13**Six-month totals of components of new loans for house purchase**

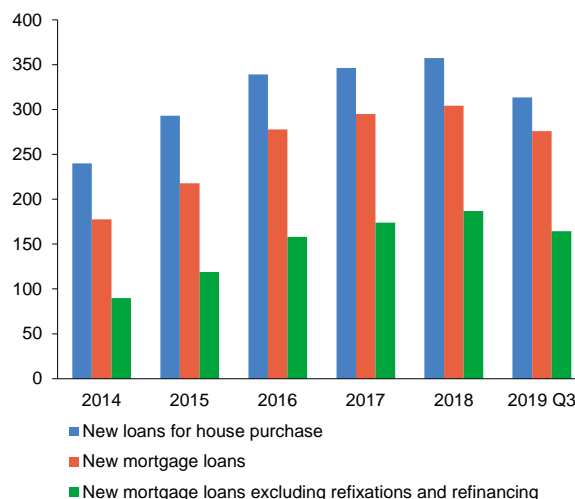
(CZK billions; moving six-month totals)



Source: CNB

Chart IV.14**New housing loans and mortgage loans**

(annual totals in CZK billions)



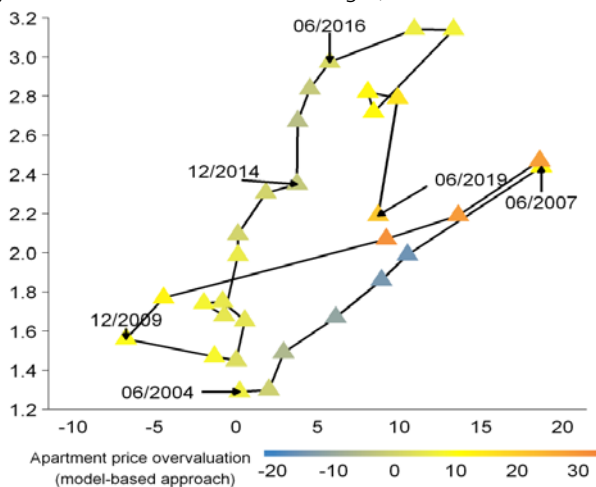
Source: CNB

Loan applicants are increasingly providing evidence of the income of a second applicant in response to the DTI and DSTI caps

The rising property prices did not lead to a further increase in the average house purchase loan in 2019 H1 (see Chart V.16). The introduction of the DTI and DSTI limits and their constraining effect on some applicants gave rise to an increase in the average number of clients for which households provided evidence of income in loan applications (see Chart IV.16).

Chart IV.15**Spiral between apartment price growth and new loans for house purchase in relation to the level of wages**

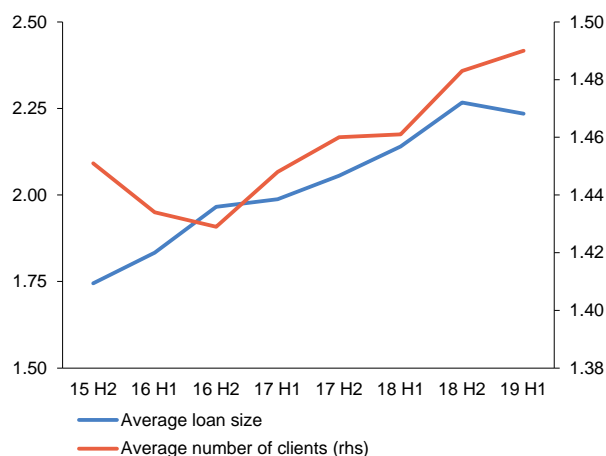
(x-axis: y-o-y growth in apartment transaction prices in %; y-axis: new loans in relation to wages)



Source: CNB

Chart IV.16**Average mortgage loan size and number of declared incomes according to the Survey**

(CZK millions; right-hand scale: number of persons)



Source: CNB

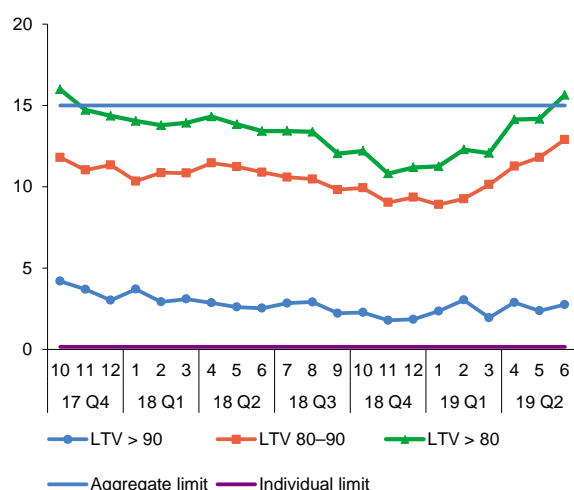
Not all banks were compliant with the recommended LTV limits

Data from the Survey for 2019 H1 indicate that most banks continued to be broadly compliant with the Recommendation as regards LTV limits. However, the share of loans with LTVs of 80%–90%, which can account for a maximum of 15% of new loans, increased gradually, reaching 13% in June 2019. It was thus close to the upper limit (see Chart IV.17). As in the previous period, banks provided some loans with an individual LTV of over 90%, the level above which loans should not be provided under the Recommendation. These loans accounted for around 3% of total loans. Overall, however, the share of loans with an LTV of over 80% exceeded 15% in June 2019, indicating that some lenders were not compliant with the Recommendation. In addition to a slight decline in the share of new loans with LTVs of 70%–80% and an increase in LTVs of below 50%, the distribution of new loans remained almost unchanged (see Chart IV.18 and Chart IV.2 CB).

Chart IV.17

Fulfilment of the recommended LTV limits

(share of loans in volume provided in %)

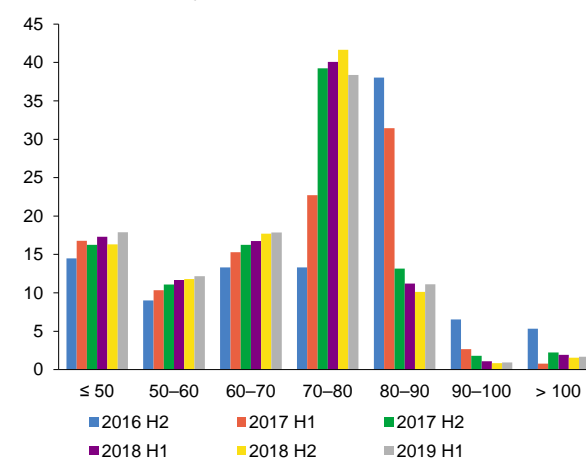


Source: CNB

Chart IV.18

LTV distribution of loans

(x-axis: LTV in %, y-axis: share of loans in volume in %)



Source: CNB

Note: Interval closed from the right.

The CNB still regards the current LTV limits as boundary values

The continued growth in property prices, which still exceeds growth in income, fostered a further increase in price overvaluation. By the CNB's estimation, the overvaluation stood at 15%–20% in mid-2019 (see Chart II.13, section 2.1). From the financial stability perspective, this led to a further weakening of the effectiveness of the LTV limits. The CNB does not deem it necessary to tighten the limits for the time being. However, continued growth in house price overvaluation could necessitate a reassessment of the sufficiency of the current limits.

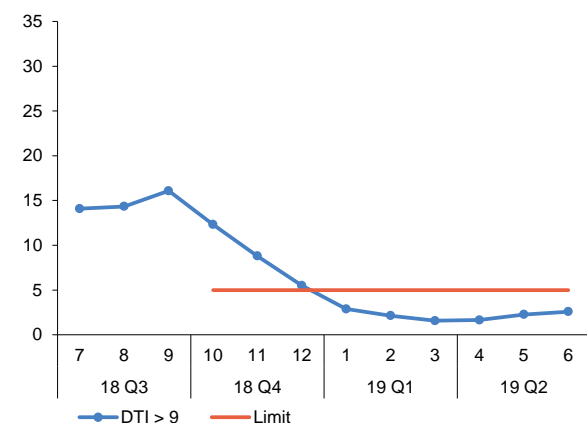
Lenders adjusted to the recommended DTI and DSTI limits with a lag...

Lenders were non-compliant overall with the DTI and DSTI limits introduced in 2018 Q3 in the first quarter of their applicability, i.e. 2018 Q4. In the first two quarters of 2019, however, lenders adjusted to the new limits with a lag and became compliant on the aggregate level (see Chart IV.19 and Chart IV.20). As regards the DSTI ratio, the share of above-limit loans was just above the 5% exemption threshold throughout H1. A reduction in the supply of loans to clients with higher additional debt can be regarded as the main channel of adjustment to the recommended limits for both ratios. This is indicated, among other things, by the distribution of loans according to risky LTI and LSTI levels, which remain relatively stable across the Surveys (see Chart IV.3 CB and Chart IV.4 CB). Another method that has been used to meet the recommended limits, as mentioned above, is to increase in the number of loan applicants, as their combined income will be higher (see Chart IV.16).

Chart IV.19

Fulfilment of the recommended DTI limits

(share of loans in volume provided in %)

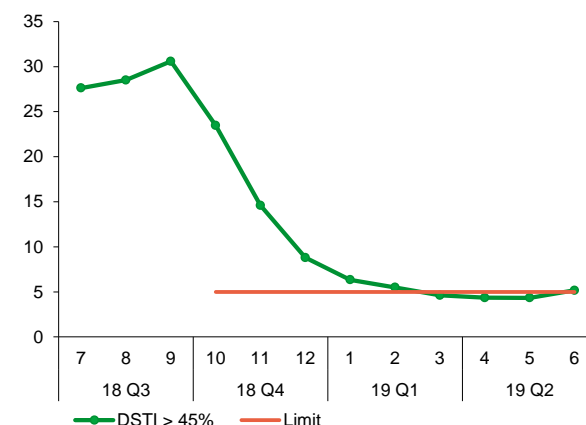


Source: CNB

Chart IV.20

Fulfilment of the recommended DSTI limits

(share of loans in volume provided in %)



Source: CNB

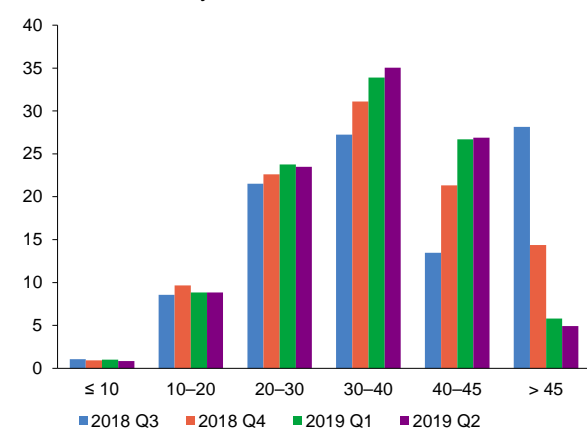
...and the limits proved to be constraining, especially in the case of the DSTI ratio

The CNB stated in FSR 2018/2019 that the DSTI limit was the main factor constraining the supply of credit. Banks complied with this limit in 2019 H1 primarily by transferring part of their loans to the 30%–40% and 40%–45% DSTI categories (see Chart IV.21). In its previous Financial Stability Reports, the CNB has also described the latter category as risky and recommended that institutions provide loans in this category with increased prudence. Household stress tests (see section 4.3 of FSR 2018/2019) confirm that the provision of loans with a DSTI ratio of over 40% is associated with high risk. Due to the renewed decrease in interest rates on new housing loans in the first three quarters of 2019, this conclusion still applies. Through its supervisory work, the CNB demands of institutions constant, highly prudent assessment of risks associated with potential growth in debt service, and it will continue to do so given the evolution of interest rates. By contrast, compliance with the DTI limits was reflected in an increase in loans in the less risky category of 3–6 (see Chart IV.22).

Chart IV.21

DSTI distribution of new loans

(x-axis: DSTI in %, y-axis: share of loans in volume in %)

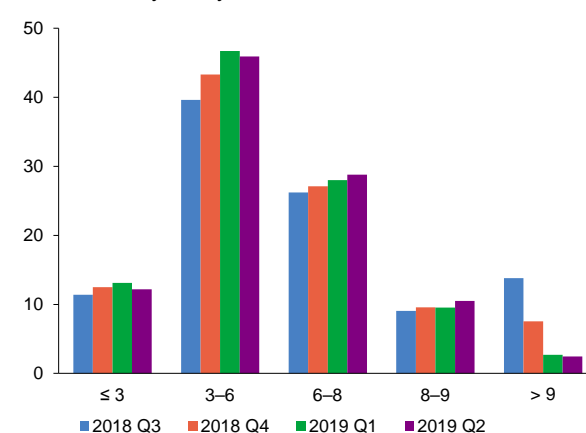


Source: CNB

Chart IV.22

DTI distribution of new loans

(x-axis: DTI in years; y-axis: share of loans in volume in %)



Source: CNB

The recommended DTI and DSTI limits resulted in low provision of new loans with simultaneously risky characteristics

One positive development is that lenders adjusted to the DTI and DSTI limits as expected⁵⁹ by restricting the provision of loans exceeding above-limit levels simultaneously for all the monitored credit ratios, including LTV. Such loans can be considered the most risky, since in the event of loan default and a fall in property prices the value of the collateral may not be sufficient to cover the outstanding amount of the loan and credit losses may occur. This approach taken by lenders is reducing the negative impacts of the measures on the supply of credit and increasing the effectiveness of the LTV limits which the CNB has been setting since June 2015.

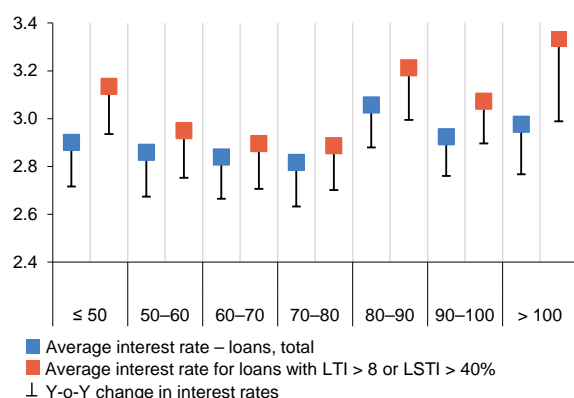
The restriction of loans with riskier characteristics was reflected in interest rate differentiation based on credit characteristics

Banks tried to differentiate loan rates based on the LTV ratio and newly also the DTI and DSTI ratios in 2019 H1 (see Chart V.23). Loans with LTVs of 80%–90% were provided at the highest interest rates (3.06% on average), in line with clients' increased demand for this type of loans and their limited supply by lenders. Loans with simultaneously risky LTI and LSTI ratios were provided at interest rates about 15 bp higher (3.21%).

Chart IV.23

Average interest rates by loan characteristics

(x-axis: LTV in %, y-axis: average interest rate in %)



Source: CNB

Note: Weighted average interest rates, with the sizes of individual loans as weights.
 Interval closed from the right.

The CNB is leaving the DTI and DSTI limits unchanged...

Capping the DTI and DSTI ratios is crucial in a situation where housing prices are rising sharply and mortgage interest rates fall to exceptionally low levels. This occurred in the domestic economy particularly in 2016 and 2017, when average rates on new mortgages stood at around 2% or even lower. These rates started to rise in 2018, approaching 3% at the end of the year. During 2019, however, they returned to a downward tendency. Given these conditions, the results of stress tests and the adjustment of the recommended limits, the CNB is leaving the DTI and DSTI limits unchanged.

59 Hejlová, H., Holub, L., Plašil, M. (2018): *The Introduction and Calibration Of Macroprudential Tools Targeted At Residential Real Estate Exposures in the Czech Republic*, thematic article, FSR 2017/2018, CNB.

...and is seeking the statutory power to set upper limits on the LTV, DTI and DSTI ratios for mortgage loans

The CNB and the Czech Ministry of Finance have submitted into the legislative process an amendment to the Act on the CNB that would empower the CNB to set upper LTV, DTI and DSTI limits in a legally binding manner through provisions of a general nature. All three ratios are covered by the current Recommendation. A switch to setting these ratios in a legally binding manner will therefore have no major impact on current bank lenders or consumers. However, the limits must be legally binding in order to ensure a level playing field on the market and to prevent unfair competition between lenders in the future. In this respect, entry of new (especially non-bank⁶⁰ and foreign) providers into this market segment would be problematic, as enforcement of the rules set out in the Recommendation would not be as effective for them as it is for domestic banks. The draft amendment to the Act on the CNB was approved by the Czech government in June 2019 and started to be debated in the Chamber of Deputies in November. The fact that the CNB has no power to set upper limits on credit ratios in a legally binding manner was one of the main reasons why the ESRB issued a warning to the Czech Republic in September 2019 regarding the risks associated with the residential property market (see Box 4.1).

BOX 4.1: ASSESSMENT OF RISKS ASSOCIATED WITH THE RESIDENTIAL PROPERTY MARKET AND THE ESRB'S WARNING TO THE CZECH REPUBLIC

In 2018 H2 and 2019 H1, the ESRB conducted a detailed assessment of the medium-term risks associated with residential property markets in the states of the European Economic Area. On 23 September 2019, it issued warnings or recommendations to countries in which it had assessed the risks as material and the macroprudential policy to mitigate these risks as insufficient. The Czech Republic is one of the countries to which a warning was sent. The ESRB refers to overvaluation of house prices, which continues to increase, high growth in housing loans and the loose of banks' lending standards. It also states that the CNB can set the mortgage-lending conditions in a non-legally-binding manner only. In light of these facts, the ESRB praises the CNB's macroprudential policy but refers to it as only "partially sufficient". Given a further possible increase in risks, the ESRB believes the CNB should have powers to set limits on credit ratios by law. As regards house price overvaluation, the ESRB also states that the slow pace of work on the future Metropolitan Plan in Prague and delays in issuing building permits may also have contributed to the shortage in housing supply.

Germany, France, Iceland and Norway also received warnings from the ESRB. All the countries warned are also expected to report back to the ESRB within one year to tell it what action they have taken to mitigate the risks identified in the warnings. The ESRB also sent recommendations to Belgium, Denmark, Finland, Luxembourg, the Netherlands and Sweden. These countries had received warnings in 2016 and had failed to respond sufficiently according to the ESRB's new assessment. The recommendations contain specific points to mitigate the risks identified, points which these states should comply with. In addition to the Czech Republic, the ESRB points to legislative shortcomings as regards legally binding limits on credit ratios in its warning to Germany and its recommendations for Finland, Luxembourg and the Netherlands. As in the case of the Czech Republic, the ESRB mentions for some of the other countries the importance of certain economic policy measures lying outside the remit of national macroprudential authorities in the creation of risks to financial stability. These policies include constraints on the construction of dwellings, tax deductibility of mortgage interest and policies leading to rigidity of the rental

60 Most mortgage loans in European countries are provided by banks. In some of them, however, the share of non-bank lenders has risen sharply in recent years. In the Netherlands, non-banks currently account for around one-quarter of the market. Outside Europe, for example in the USA, non-bank firms have provided (or raised) around half of all mortgages in recent years. This represents a significant rise compared with the pre-crisis years. It is due in part to the fact that banks have partially withdrawn from the market after their negative experience during the crisis and are concentrating mainly on high-quality mortgages, and in part to the fact that non-bank lenders enjoy laxer regulation.

housing market. The ESRB states in the recommendations that measures originating from other policy areas are needed to complement and support the current macroprudential measures in addressing the vulnerabilities present in the residential real estate markets in the individual countries efficiently and effectively, without generating excessive costs for the real economy and the financial system.

The fact that the recipients of the warnings and recommendations include several countries whose macroprudential authorities have insufficient powers to set legally binding limits on credit ratios points to the gravity of this issue and its implications for the risks associated with residential property markets. Limits on credit ratios as macroprudential policy tools are mentioned in Recommendation ESRB/2013/1,⁶¹ while the legal bases for these instruments should be enshrined at the national level. Apart from the countries which received a warning or a recommendation, there are fundamental shortcomings in the bases for legally binding limits on credit ratios in only a few other countries. Poland and Greece complete the list of countries where such bases are missing completely. By contrast, most EEA countries have a range of such instruments which can be stipulated as legally binding. Moreover, the competent institutions in numerous states have the discretion to define and introduce brand new instruments in the pursuit of financial stability-related objectives. By issuing specific recommendations for Finland, Luxembourg and the Netherlands, the ESRB has now expressed its position on what it considers to be the minimum elements of these bases. These are: (i) a complete range of instruments available to national authorities limiting the circumventing of the recommendations (covering at least LTV, DTI and DSTI limits and maturity limits), (ii) the ability for national authorities to respond to emerging risks in a pre-emptive way, and (iii) sufficient flexibility to select measures in specific situations so as to ensure that they are effective. The CNB is seeking the power to set legally binding limits on a limited number of credit ratios in a predetermined manner in a draft amendment to the Act on the CNB.

The CNB Recommendation now defines investment types of mortgage loans...

The results of the 2019 H1 Survey confirmed that the share of mortgage loans for which clients declare rental income as part of their declared income is very low (below 5%). Nevertheless, the proportion of new mortgage loans provided to clients who already have a mortgage loan is relatively significant (32%). It is likely that such loans are mostly of an investment nature and some of them are provided to clients who will rent out the property but do not need to declare the rental income as part of their income (see Box 4.2). Taking into account these findings, the CNB is introducing a division into two types of mortgage loans which can be considered of an "investment nature" in a new version of the Recommendation that was issued on 13 December 2019 and took effect the same day. Specifically, these are a newly defined loan for the purchase of additional residential property (a mortgage loan provided to a client who already has one or more mortgage loans when submitting the application and for whom expected rental income is not included in net income for the assessment of the DTI and DSTI ratios) and the previously introduced loan for the purchase of buy-to-let residential property. However, the latter is newly defined as a mortgage loan for which expected income from renting out this residential property is included in net income. Lenders should also use all available information to assess the purpose of such loans and apply a very cautious approach to those which in all probability are not being used to finance owner-occupied housing.

...and clarifies the terms and conditions for providing mortgage loans for the purchase of buy-to-let residential property

Under the previous wording of Article IX of the CNB Recommendation, lenders were recommended to apply an upper LTV limit of 60% to loans to finance buy-to-let residential property where indicators of the client's ability to service the loan from their own resources have a higher risk level. The "higher risk level of indicators of the client's ability to service the loan from

61 ESRB recommendation on intermediate objectives and instruments of macro-prudential policy (ESRB/2013/1).

their own resources” was not accurately defined in Article IX.⁶² The Recommendation now explicitly defines “higher risk level” as values exceeding 9 for the DTI ratio or 45% for the DSTI ratio for loans for the purchase of buy-to-let residential property. The upper LTV limit thus remains at 60% in these cases and applies only to loans for the purchase of buy-to-let residential property for which the DTI and DSTI ratios exceed the recommended upper limits (under the permitted 5% exemption from these limits).

The Recommendation now enables compliance with exemptions at the lender group level

Based on a discussion with mortgage lenders, some of which apply a centralised credit risk management model in their ownership structures, the Recommendation now enables management of compliance with the maximum permissible volume of exemptions from the credit ratios (under Article IV(2) for LTV and Articles V(2) and V(3) for DTI and DSTI respectively) in an aggregate manner at the lender group level in the Czech Republic as defined by the relevant lenders.

BOX 4.2: AN ANALYSIS OF LOANS FOR THE PURCHASE OF ADDITIONAL RESIDENTIAL PROPERTY

Residential property is purchased not only for the purpose of owner-occupied housing, but also to a large extent as an investment. Applicants for loans to purchase property as an investment may have different motivations (a purchase for their children, a long-term investment or speculation on price growth) and show different characteristics in terms of risky behaviour. In addition to usually higher income or assets, they tend to have a weaker incentive to repay in an adverse situation by comparison with applicants for loans for the purchase of owner-occupied housing.⁶³ For this reason, stricter limits on LTV or other credit ratios are set for investment-type loans in some countries.⁶⁴

The CNB has long been using data from the Survey on new loans secured by residential property (the “Survey”) to analyse the house purchase loan market. Only two categories of loans have been monitored so far: loans for the purchase of owner-occupied housing and loans to finance buy-to-let property. The share of the latter category has long been very low, as applicants probably only identified as such those loans for which they declared rental income as part of the income for assessing their creditworthiness. In 2019, the Survey made it possible to identify more accurately cases of clients who already have at least one loan for residential property yet do not identify the loan they are applying for as a loan to finance buy-to-let property. However, these cases, which the CNB now identifies as loans for the purchase of additional residential property, are probably also loans to finance an investment purchase. Based on the new information, the CNB decided to modify the Recommendation (Article IX, part F) to cover both loans for the purchase of additional residential property and loans for the purchase of buy-to-let residential property (collectively “second mortgages”).

According to the 2019 H1 figures, the share of new mortgage loans with second mortgages was around 32.4%.⁶⁵ As regards the Recommendation applicable to 2019 H1, the shares of second mortgages exceeding the DSTI and DTI

62 It can be inferred indirectly from the Recommendation that DTI and DSTI ratios of 9 and 45% respectively or 8 and 40% respectively can be regarded as higher risk levels.

63 The banking crisis in Ireland, which started in 2008, is a good example. The mortgage default rate peaked at 24% (and the default rate for all types of loans at 32%) in 2013. The non-performing loan ratio peaked at around 20% for mortgage loans for the purchase of owner-occupied housing and at around 35% for investment loans. For details see Donnery, S. et al.: *Resolving Non-Performing Loans in Ireland: 2010–2018*, Central Bank of Ireland Quarterly Bulletin, Vol. 02, April 2018.

64 There are usually stricter limits for the specific type of buy-to-let mortgage loans in some countries applying Anglo-Saxon principles. In Ireland, for example, a limit of 70% is set for all loans of this type. UK banks provide this type of loan with an LTV limit of 75% based on general principles laid down by the Bank of England. In Norway, the LTV limit for second and further properties is set at 60% specifically for Oslo.

65 Due to minor data issues, the actual share may be several percentage points higher or lower.

limits in total new second mortgages were 6.8% and 2.8% respectively. They accounted for 60% and 72.8% respectively of the volume of above-limit categories of all loans.⁶⁶ Second mortgages feature a lower loan amount⁶⁷ and higher client income compared to the rest ("first mortgages"). The higher client income may partly reflect the concentration of financed property in Prague, Central Bohemia and South Moravia, where wages exceed the levels in the other regions (see Table IV.1 Box). Second mortgages also show higher DSTI and DTI ratios (see Table IV.1 Box).

Data from the Survey indicate that lenders do not assess second mortgages as riskier (see Table IV.1 Box) than loans for the purchase of owner-occupied housing. The CNB decided to verify lenders' assessments based on an estimate of the riskiness of second mortgages in terms of probability of default (PD) and loss given default (LGD). In order to evaluate the resilience of second mortgages to default, it applied the concept of the reserve under stress used in the household stress tests.⁶⁸ The results of the assessment reveal that the relative reserve (the ratio of disposable to net income under stress) and thus the resilience to default is lower on average for second mortgages than for first mortgages. The opposite applies to the reserve in absolute terms (the amount of disposable income under stress; see Table IV.1 Box). The assessment results also confirm the DSTI and DTI ratios of 45% and 9 respectively as being critical as regards the relative increase in the riskiness of second mortgages (see Chart IV.1 Box and Chart IV.2 Box). As regards possible LGD, it is reasonable to assume that second mortgages will have a higher propensity to sale of collateral under stress due to their higher DSTI and DTI ratios and the assumed purpose of the additional mortgage. In the event of a turn for the worse in the cycle, a greater number of foreclosures may lead to a worse NPL recovery rate on the part of banks.

Table IV.1 Box

Aggregate statistics for first and second mortgages in 2019 H1

Variable	First mortgages	Second mortgages
<i>General</i>		
New loan size	CZK 2,174,970	CZK 2,009,458
Net monthly income	CZK 45,728	CZK 65,830
The share of loans from Prague, Central Bohemia and South Moravia in total	40.89%	45.77%
<i>Risk</i>		
DSTI	30.12%	34.27%
LSTI	24.42%	16.07%
DTI	4.58	5.19
LTI	4.30	2.85
LTV	64.86%	64.28%
Interest rates	2.92%	2.87%
PD	0.77%	0.65%
Reserve in absolute terms	CZK 16,703	CZK 24,205
Reserve in relative terms	36.77%	34.75%

Source: CNB

Note: Mean values unless stated otherwise. The results do not differ qualitatively if the median is considered instead of the mean.

66 Above-limit categories accounted for 3.7% (DSTI over 45%) and 1.2% (DTI over 9) respectively of new loans in 2019 H1.

67 The lower loan amount may be associated with a greater extent to which the DSTI and DTI limits are binding on clients with second mortgages or an effort to achieve higher returns in the case of an investment purchase of residential property.

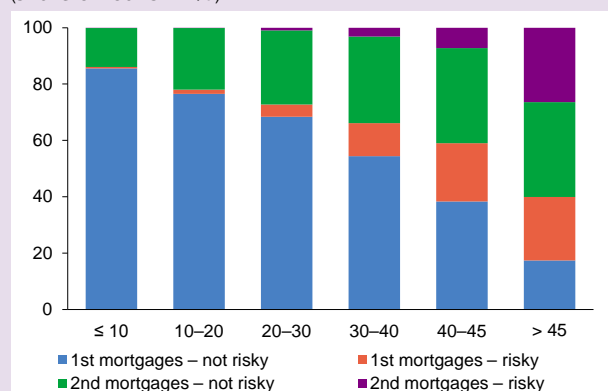
68 The stress is represented by a 10% decline in net income. Cases with less than 10% of net income or CZK 5,000 under stress are deemed risky.

The results of the CNB's assessment do not indicate that, as regards risk characteristics, clients with second mortgages have significantly riskier profiles overall than those with first mortgages. The CNB will nonetheless monitor the materiality and riskiness of second mortgages and respond commensurately if it identifies increased risks. The CNB has taken second mortgages into account in the revision of Article IX of the Recommendation. Lenders are recommended to identify the purpose of loans using all available information and to separately monitor the characteristics of portfolios of retail loans for owner-occupied property, for additional residential property and for buy-to-let residential property for credit risk management purposes. They are also recommended to observe an upper LTV limit of 60% for buy-to-let loans if at least one of the DSTI and DTI ratios exceeds the recommended limits (45% and 9 respectively) and to prudentially assess the property and income situation of clients with multiple mortgages.

Chart IV.1 Box

Relative riskiness of first and second mortgages in 2019 H1 by DSTI

(share of loans in %)



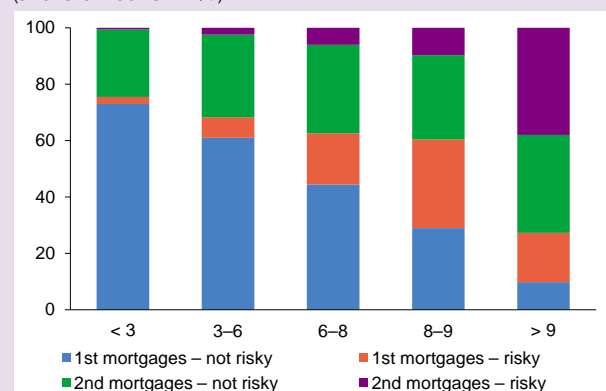
Source: CNB

Note: Cases with less than 10% of net income or CZK 5,000 under stress are deemed risky. A 10% decline in income is applied across the board as stress.

Chart IV.2 Box

Relative riskiness of first and second mortgages in 2019 H1 by DTI

(share of loans in %)



Source: CNB

Note: Cases with less than 10% of net income or CZK 5,000 under stress are deemed risky. A 10% decline in income is applied across the board as the stress.

4.2.2 Risks associated with commercial property markets

The amount of new bank loans recorded a slight decline...

New loans secured by commercial property amounted to CZK 37 billion in 2019 H1. They thus dropped back below CZK 40 billion, the level they have been fluctuating around since 2014 H2, when the CNB started to collect data on these loans.⁶⁹ Loans for investment in industrial property rose significantly in 2019 H1, accounting for more than half of the total. Significant growth was also recorded for loans for investment in office property (see Chart IV.24).

The risk characteristics of new loans improved again after having worsened in the previous half-year

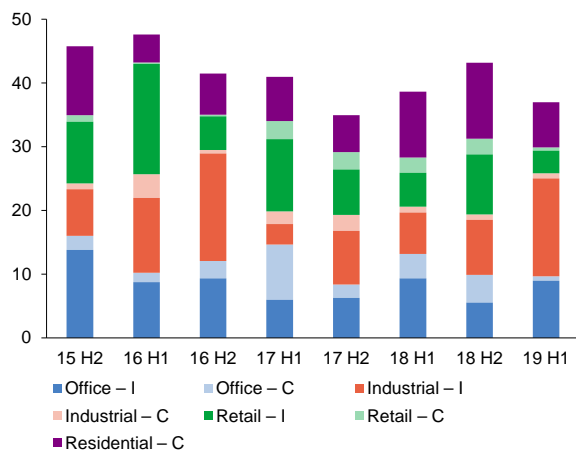
Vast majority of the new loans provided in 2019 H1 had LTVs of 60%–70% (see Chart IV.25). These LTV values can be considered acceptable even given the estimated overvaluation of commercial property prices by the CNB at the end of 2018 (see section 2.1 in FSR 2018/2019). Compared to 2018 H2, there was a reduction in the share of loans with very high LTVs (of over 90%; see Chart IV.5 CB). Another positive change was recorded for the debt service coverage ratio (DSCR) distribution of new loans in 2019 H1. Most loans continued to be provided with a DSCR of 1.2–1.4; however, the volume of

⁶⁹ The results are based on a semi-annual survey of loans secured by commercial property among eight banks covering around 70% of the market.

loans with very low DSCR levels (of under 1.2) decreased compared to the previous half-year (see Chart IV.26). A reduction in overall credit risk is suggested by dynamics of loans with simultaneously riskier levels of collateral (an LTV of over 70%) and the ability to generate income to cover debt (a DSCR of below 1.2). The volume of these loans decreased below CZK 2 billion in 2019 H1, representing just a fraction of the production of these loans in the previous half-year (see Chart IV.27). However, given the low volumes of loans secured by commercial property, the results may reflect ad hoc factors and the risk characteristics of only a very limited number of loans. Moreover, the observed levels and the high proportion of loans with a DSCR of more than 1.4 do not necessarily imply an absence of credit risks. On the contrary, they may signal over-optimistic estimates of future property income in the current phase of the business and financial cycle.

Chart IV.24**Amount of new loans secured by commercial property**

(CZK billions)

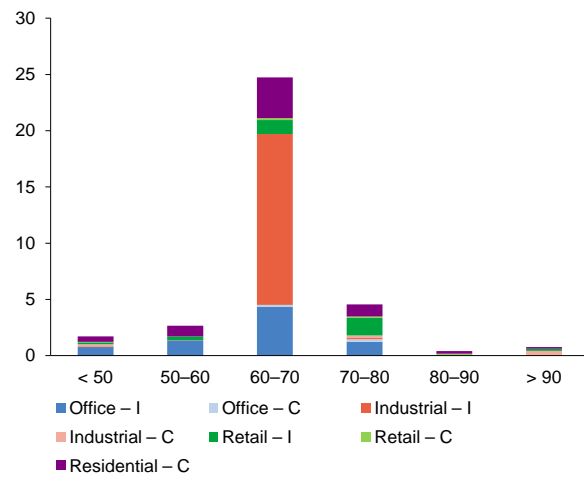


Source: CNB

Note: I stands for investment in existing property and C for construction.

Chart IV.25**LTV distribution of new loans in 2019 H1**

(x-axis: LTV in %, y-axis: CZK billions)

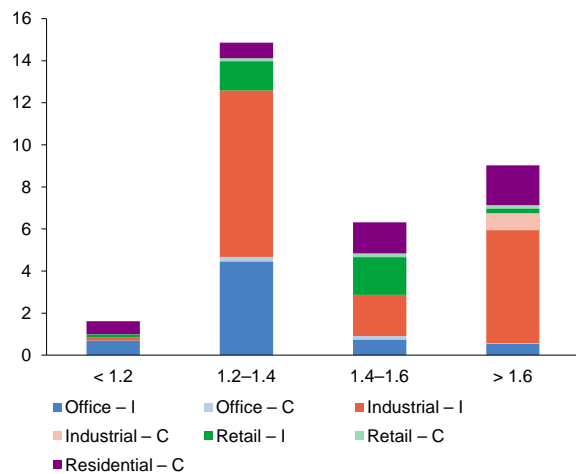


Source: CNB

Note: I stands for investment in existing property and C for construction.

Chart IV.26**DSCR distribution of new loans in 2019 H1**

(x-axis: DSCR; y-axis: CZK billions)

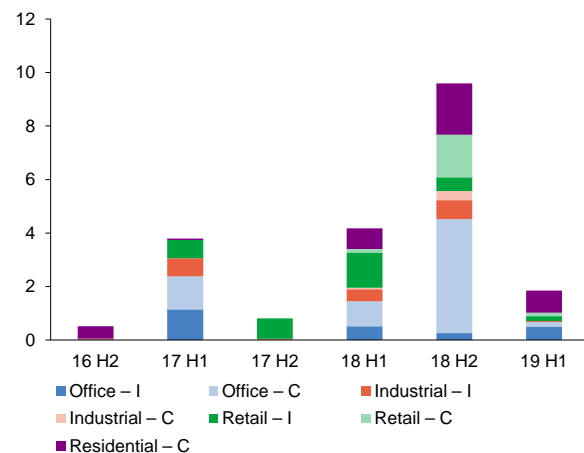


Source: CNB

Note: I stands for investment in existing property and C for construction.

Chart IV.27**Amount of new loans with an LTV of more than 70% and a DSCR of less than 1.2**

(CZK billions)



Source: CNB

Note: I stands for investment in existing property and C for construction.

The risks associated with commercial property markets continue to be largely exported

Owing to the limited share of exposures secured by commercial property in the balance sheets of Czech banks, developments in this market do not pose an immediate risk to financial stability even if prices gradually rise (see section 2.1) and the overvaluation increases. A large proportion of commercial property is financed by foreign capital and any materialisation of risks would primarily affect the financial systems in investor countries. The risks to the domestic banking sector may also be partly mitigated by the relatively even distribution of loans between different types of commercial property. A potential risk could arise in the future from the growing investments of Czech households and other domestic investors in real estate funds, whose performance is directly or indirectly linked with developments in the commercial property market (see section 3.2).

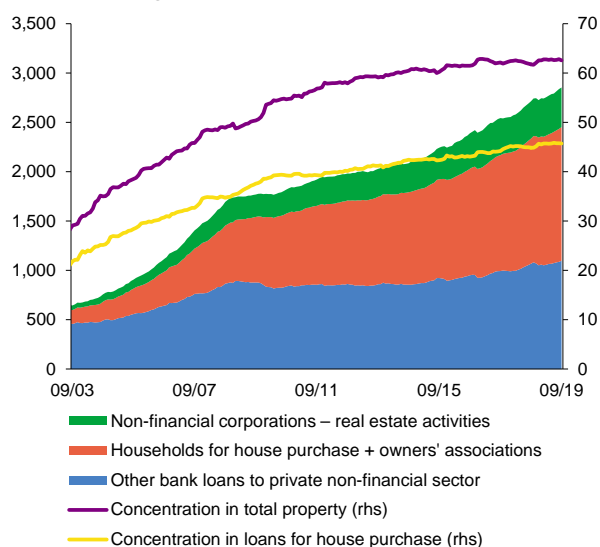
4.2.3 The concentration risk associated with property financing

In addition to cyclical credit risks, the financing of property purchases and construction is becoming an increasingly important source of concentration risk. The share of property-related bank loans in loans to the private non-financial sector amounted to almost 63% at the end of 2019 Q3 (see Chart IV.28). The share of loans to households for house purchase (mortgage loans and loans from building societies) in loans to the private non-financial sector increased to almost 47%. Adverse developments on the property market might thus lead to a structural deterioration in the credit portfolio quality of the entire banking sector. If this risk were to increase, the CNB could apply a sectoral systemic risk buffer, for instance.

Chart IV.28

Concentration of bank lending in the property segment

(CZK billions; right-hand scale: %)



Source: CNB

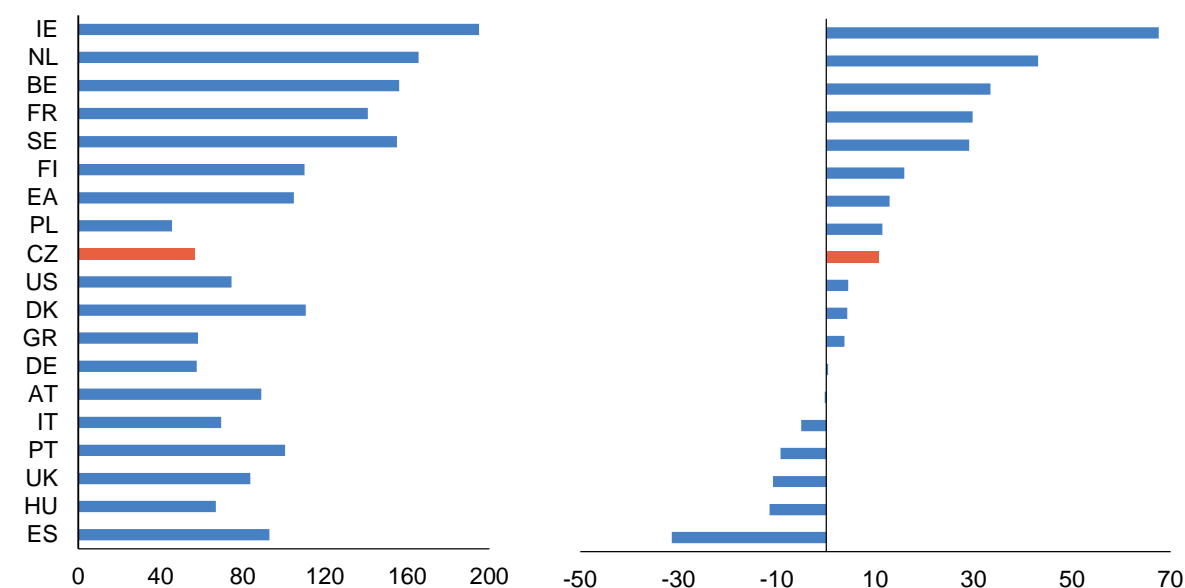
CHARTBOOK – SECTION 2

Chart II.1 CB

Debt of non-financial corporations in selected countries

(left-hand panel: debt as of 31 December 2018 in % of GDP;

right-hand panel: change in debt between 2007 and 2018 in pp)



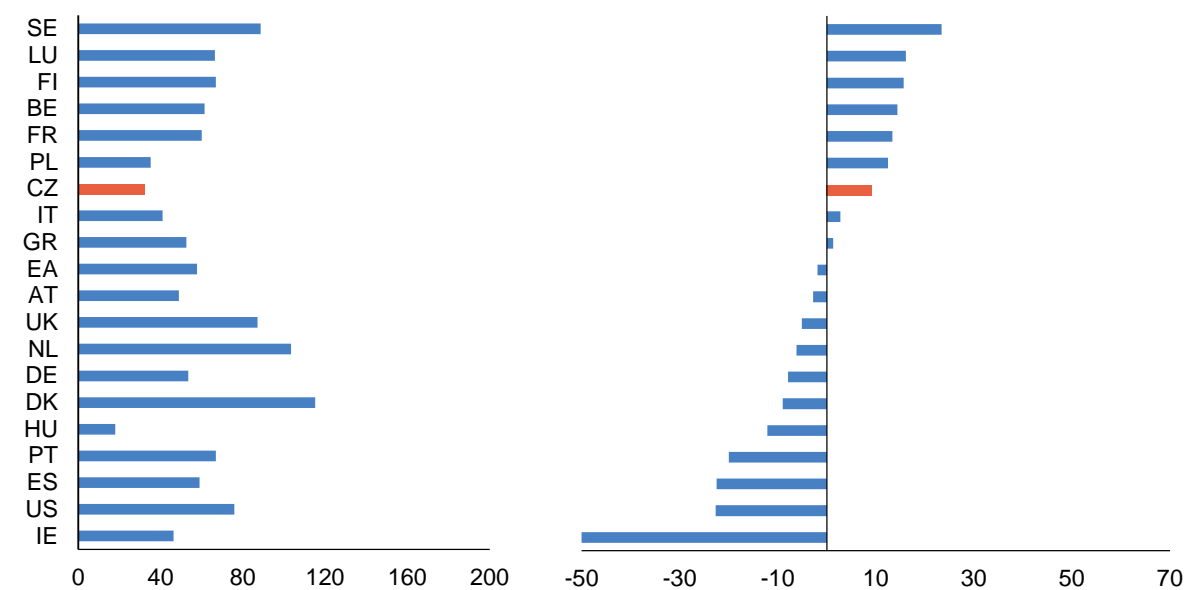
Source: BIS

Chart II.2 CB

Debt of households in selected countries

(left-hand panel: debt as of 31 December 2018 in % of GDP;

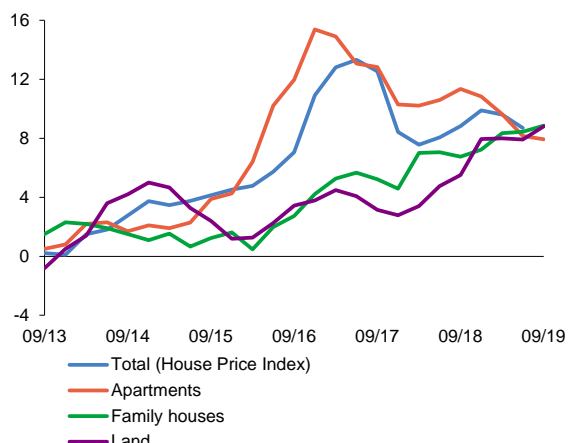
right-hand panel: change in debt between 2007 and 2018 in pp)



Source: BIS

Chart II.3 CB**Transaction prices by type of property**

(year-on-year growth in %)

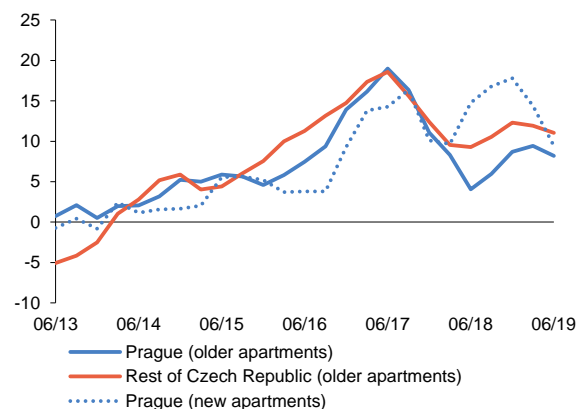


Source: CZSO, HB Index

Note: Prices of apartments, family houses and land since 2018 were obtained by extending the CZSO time series using HB Index data.

Chart II.4 CB**Apartment transaction prices by region**

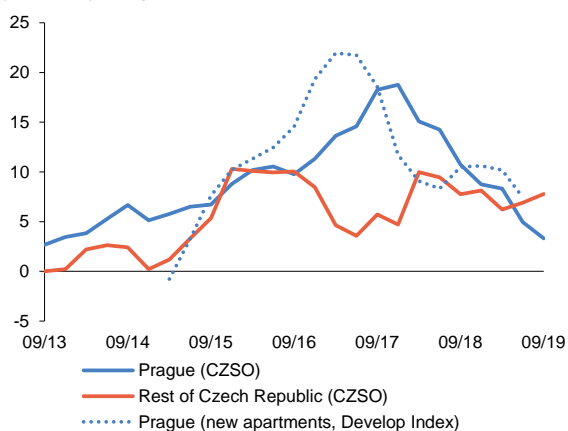
(year-on-year growth in %)



Source: CZSO

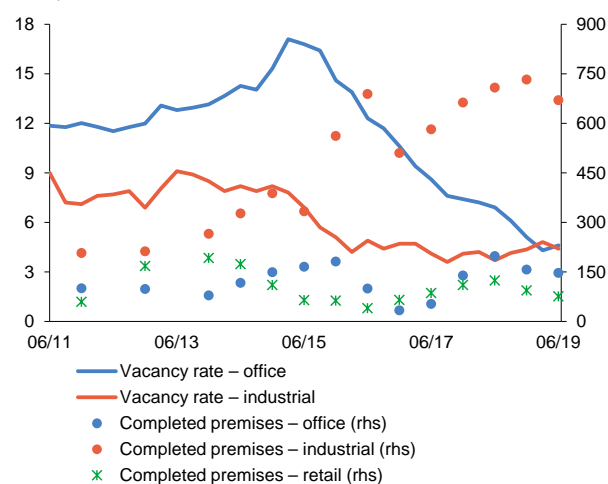
Chart II.5 CB**Apartment asking prices by region**

(year-on-year growth in %)



Source: CZSO, Společnost pro cenové mapy ČR, s.r.o.

Note: As the Develop Index is published every two months, the figures for March and September were obtained as the average of the year-on-year growth rates in February and April and in August and October respectively.

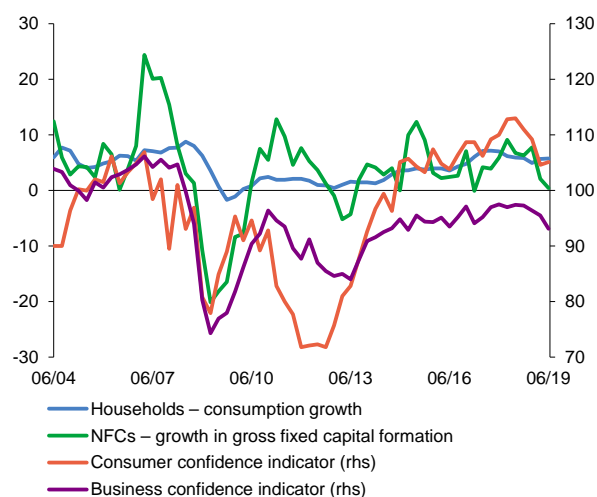
Chart II.6 CB**Vacancy rates and completed premises for commercial property**(vacancy rates in %; right-hand scale: space in thousands of m²)

Source: Jones Lang LaSalle

Note: Stocks of completed premises are reported at annual frequency until 2013 and as annual moving totals at semi-annual frequency from 2014 onwards.

Chart II.7 CB**Confidence, investment and consumption of economic agents**

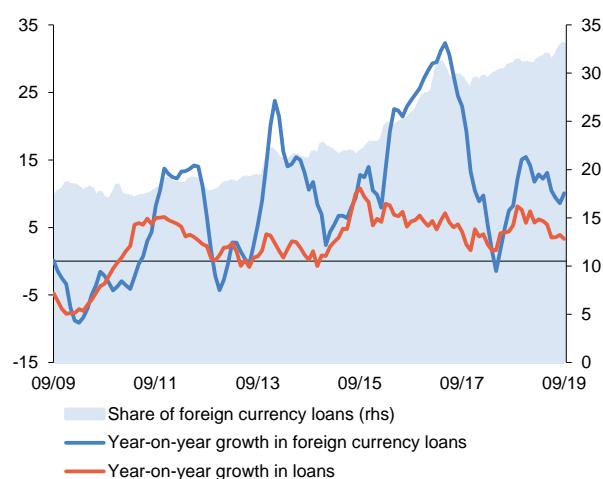
(%; right-hand scale: base index relative to 2005 average)



Source: CZSO

Chart II.8 CB**Selected characteristics of foreign currency loans in the non-financial corporations sector**

(%)

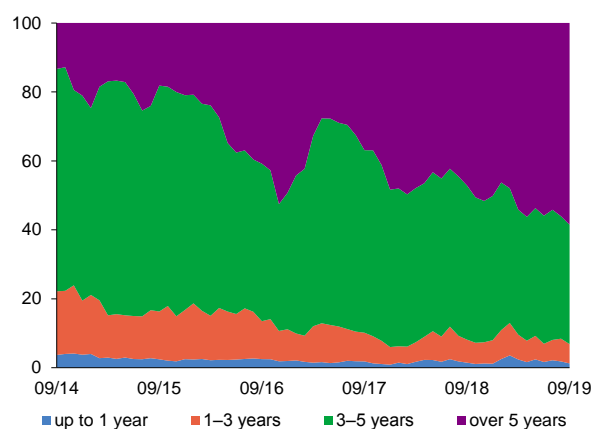


Source: CNB

Note: The growth rate of foreign currency loans is smoothed by the 3-month moving average.

Chart II.9 CB**Genuinely new mortgage loans by fixation period**

(%)



Source: CNB

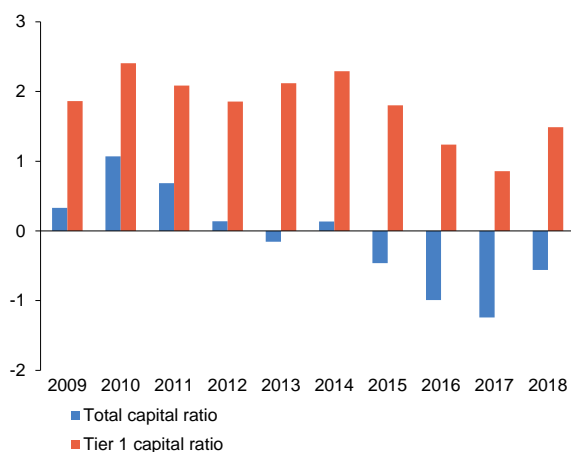
Note: The different colours denote the interest rate fixation period for mortgage loans.

CHARTBOOK – SECTION 3

Chart III.1 CB

Difference between the capital ratio of domestic banks and the EU average

(%; average of country ratios for EU)



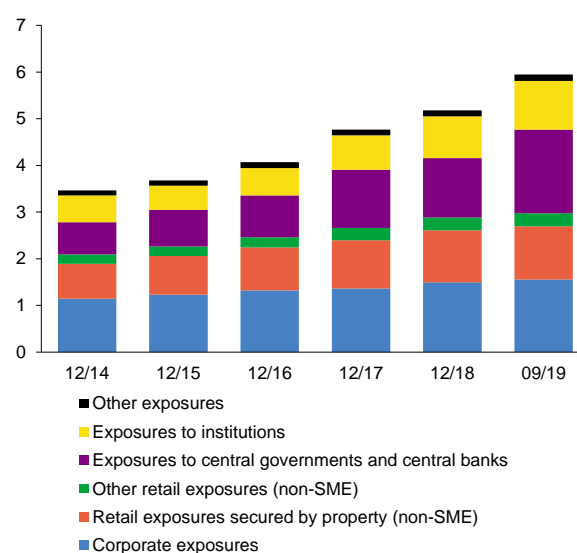
Source: IMF

Note: Data on capital are available only as of 30 September 2018 for BE, FR, LT, PL, RO and UK, and only as of 30 June 2018 for IT and UK. Owing to a different data source, the capital ratios for the Czech banking sector differ slightly from the CNB figures.

Chart III.2 CB

Size of the main categories of exposures under the IRB approach

(CZK trillions)

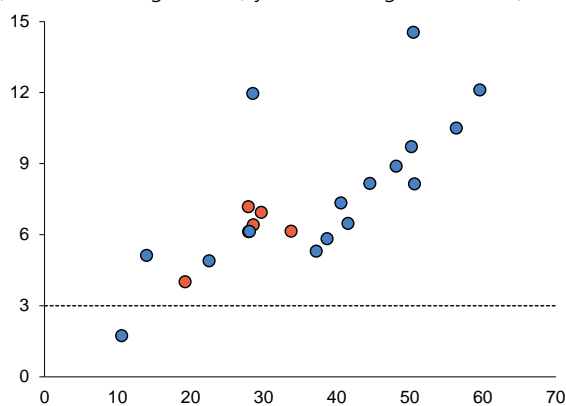


Source: CNB

Chart III.3 CB

Leverage ratios and risk weights for domestic banks as of 2019 Q2

(x-axis: risk weight in %; y-axis: leverage ratio in %)



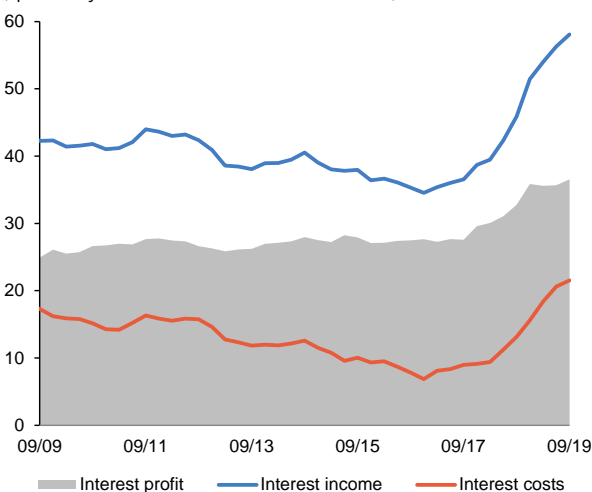
Source: CNB

Note: The black horizontal line depicts the leverage ratio requirement of 3% of total exposures. Red dots indicate systemically important banks with a non-zero systemic risk buffer. Implicit risk weights are shown on the x-axis. These are calculated as the weighted value of the exposure divided by the initial value of the exposure under the European COREP reporting framework.

Chart III.4 CB

Decomposition of interest profit

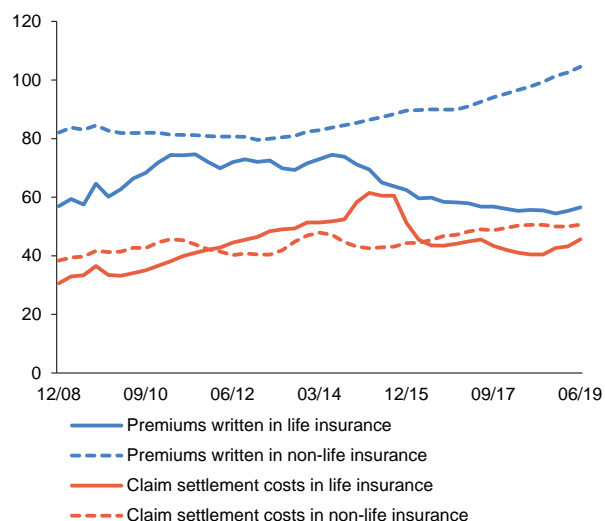
(quarterly contributions in CZK billions)



Source: CNB

Chart III.5 CB**Developments in the insurance sector**

(CZK billions)

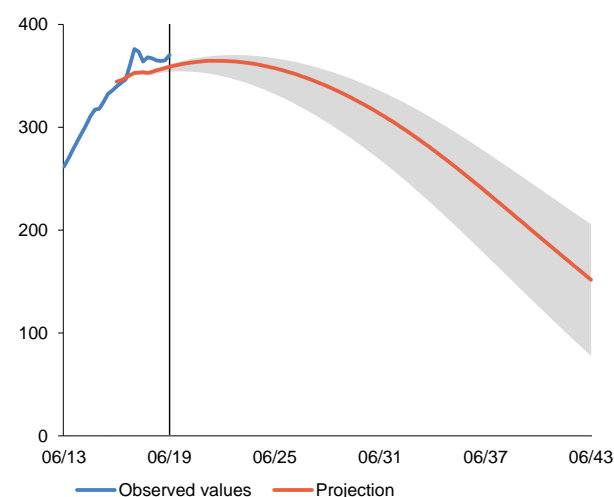


Source: CNB

Note: The Export Guarantee and Insurance Corporation is excluded from the calculation. The chart shows the moving sum of the values for four quarters in gross terms, i.e. unadjusted for reinsurers' share.

Chart III.6 CB**Funds managed by transformed funds at 2010 constant prices**

(CZK billions)

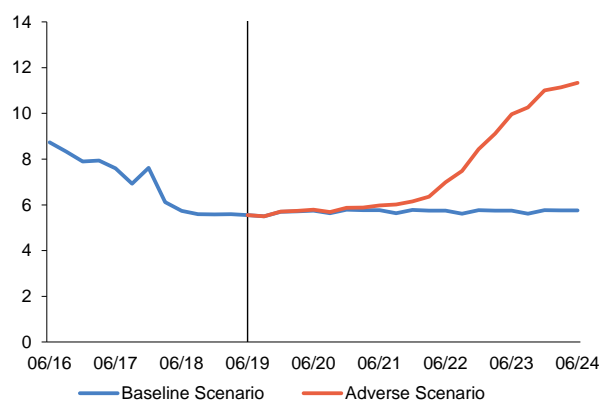


Source: CNB

Note: The calculation of constant prices for the future period in the projection assumes inflation at the inflation target. The grey area indicates the projection results when different growth rates or rates of return on assets are selected. The vertical line separates known values (until 30 June 2019) from the projection.

Chart III.7 CB**NPL ratio for bank loans to non-financial corporations**

(%)

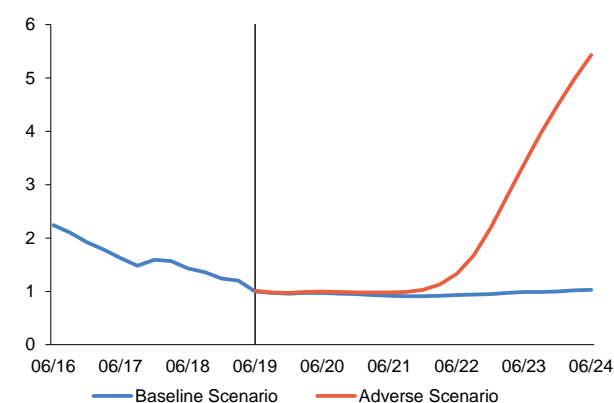


Source: CNB

Note: The chart includes all exposures to non-financial corporations (residents and non-residents).

Chart III.8 CB**NPL ratio for bank mortgage loans to households secured by residential property**

(%)

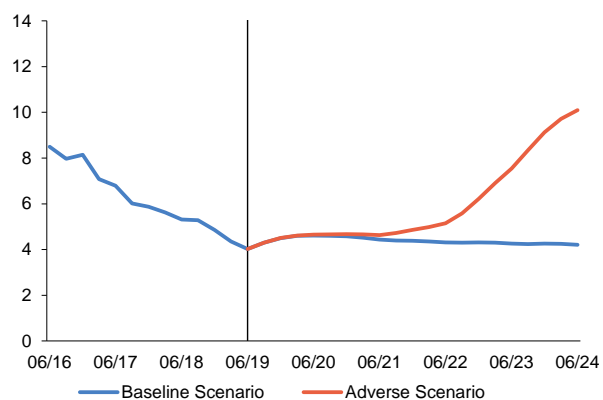


Source: CNB

Note: The chart includes all mortgage loan exposures to households (residents and non-residents).

Chart III.9 CB**NPL ratio for bank consumer credit to households**

(%)



Source: CNB

Note: The chart includes all consumer credit exposures to households (residents and non-residents).

CHARTBOOK – SECTION 4

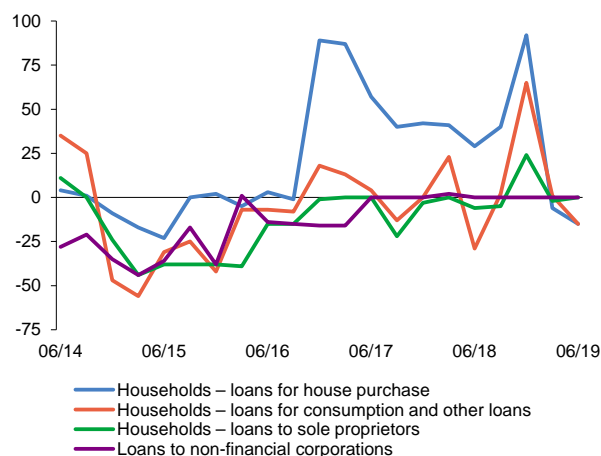
Table IV.1 CB
Conversion of FCI values into the countercyclical capital buffer rate

Range of FCI values		CCyB rate
from	to	
0.00	0.09	0.00%
0.09	0.11	0.25%
0.11	0.12	0.50%
0.12	0.15	0.75%
0.15	0.17	1.00%
0.17	0.19	1.25%
0.19	0.22	1.50%
0.22	0.26	1.75%
0.26	0.29	2.00%
0.29	0.33	2.25%
0.33	1.00	2.50%

Source: CNB

Note: The financial expansion in the domestic economy just before the onset of the global financial crisis was so strong that if the tool had been available, a CCyB rate of at least the “threshold” level of 2.5% would have been required. For this reason, the historical maximum of the FCI is linked with a CCyB rate of 2.5%. Input data are normalised in the FCI calculation using conversion into historical quantiles. The historical FCI values may therefore change as new data arrive, so the conversion table must be recalibrated regularly. The box displays the range that included the FCI value in mid-2019.

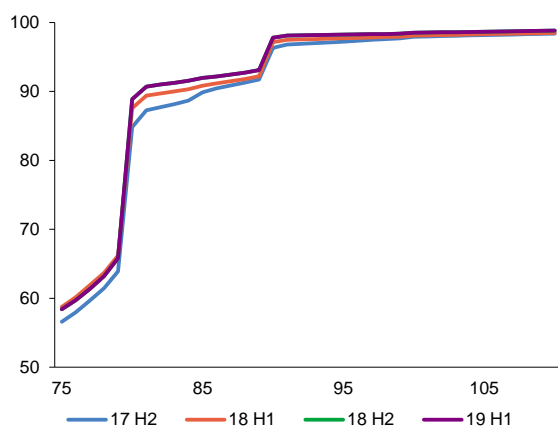
Chart IV.1 CB
Credit standards in the Czech Republic
 (differences in banks’ market shares in pp)



Source: CNB

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

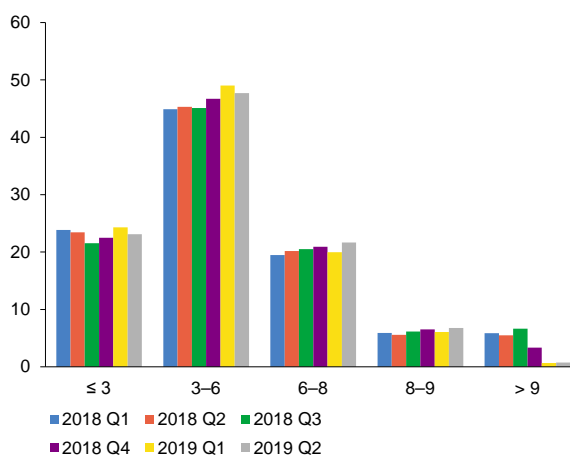
Chart IV.2 CB
Empirical cumulative distribution function of LTVs
 (x-axis: LTV in %; y-axis: accumulated percentage of loans)



Source: CNB

Note: The curves plot the percentage share of loans with the given or lower LTVs.

Chart IV.3 CB
LTI distribution of new loans
 (x-axis: LTI in years; y-axis: share of loans in volume in %)

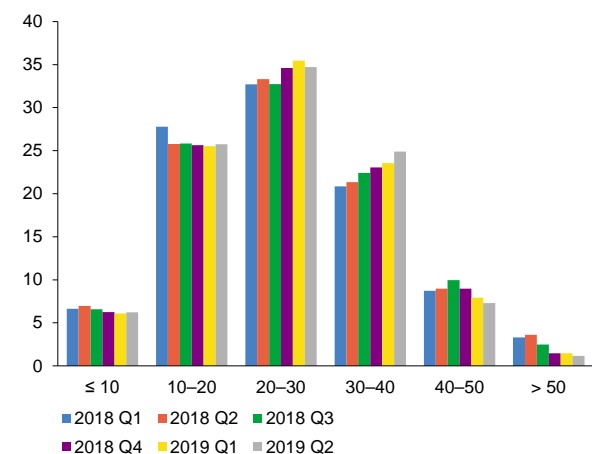


Source: CNB

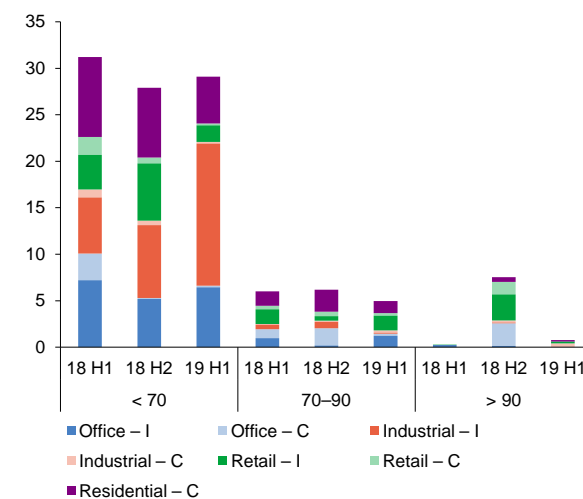
Note: Interval closed from the right.

Chart IV.4 CB**LSTI distribution of new loans**

(x-axis: LSTI in %; y-axis: share of loans in volume in %)

**Chart IV.5 CB****LTV distribution of new loans over time**

(x-axis: LTV in %; y-axis: CZK billions)



FINANCIAL STABILITY INDICATORS – PART 1

	2013	2014	2015	2016	2017	2018	2019		
							Q1	Q2	Q3
Macroeconomic environment									
ME.1 Real GDP growth (year on year, %)	-0,5	2,7	5,4	2,4	4,5	2,9	2,7	2,8	2,7
ME.2 Consumer price inflation (average annual index growth, %)	1,4	0,4	0,3	0,7	2,5	2,1	2,7	2,8	2,8
ME.3 General government balance / GDP (%)	-1,2	-2,1	-0,6	0,7	1,5	1,4			
ME.4 General government debt / GDP (%)	44,9	42,2	40,0	36,8	34,7	32,7			
ME.5 Trade balance / GDP (%)	4,1	5,1	4,1	5,2	5,1	4,1	5,6	5,6	3,6
ME.6 External debt in % of banking sector external assets	149,4	152,7	133,7	120,2	114,0	112,3			
ME.7 Balance of payments current account / GDP (%)	-0,5	0,2	0,2	1,6	1,7	0,3	3,4	2,4	-2,7
ME.8 Monetary policy 2W repo rate (end of period, %)	0,05	0,05	0,05	0,05	0,50	1,75	1,75	2,00	2,00
Non-financial corporations									
NC.1 Return on equity (%)	9,5	10,5	11,0	10,6	10,7	10,4			
NC.2 Debt (% of total liabilities)	56,9	57,2	56,3	56,9	56,3	55,7	55,5	55,1	
NC.3 Credit indebtedness (% of GDP)	56,7	53,8	51,1	51,5	49,4	50,2	50,3	50,0	
NC.4 – loans from Czech banks (% of GDP)	21,2	20,3	20,0	20,4	20,2	20,4	19,6	19,0	
NC.5 – loans from Czech non-bank financial corporations (% of GDP)	4,0	4,0	4,1	4,4	4,6	4,6	4,7	4,8	
NC.6 – other (including financing from abroad, % of GDP)	31,6	29,6	27,0	26,7	24,6	25,2	26,0	26,2	
NC.7 Interest coverage (pre-tax profit + interest paid / interest paid, %)	11,4	13,4	14,5	15,4	14,6	13,9	22,1	21,0	
NC.8 12M default rate (%)	1,4	1,5	1,4	1,1	1,2	1,2	1,3	1,2	
Households (including sole traders)									
H.1 Total debt / gross disposable income (%)	56,2	56,5	57,3	59,5	61,0	60,8	60,7	60,9	
H.2 Total debt / financial assets (%)	29,5	28,8	28,4	26,4	26,2	26,6	25,6	25,6	
H.3 Net financial assets (total financial assets – total liabilities, % of GDP)	81,4	83,3	83,7	84,9	84,5	85,0	88,4	88,8	
H.4 Debt / GDP (%)	30,7	30,3	30,1	31,2	31,7	32,3	31,9	32,1	
H.5 – loans from Czech banks to households (% of GDP)	26,7	26,5	26,9	27,9	28,5	29,2	29,0	29,1	
H.6 – loans from Czech non-bank fin. corporations to households (% of GDP)	1,8	1,8	1,3	1,3	1,2	1,2	1,2	1,2	
H.7 – loans from Czech banks to sole traders (% of GDP)	0,9	0,8	0,8	0,8	0,8	0,8	0,8	0,8	
H.8 – loans from Czech non-bank fin. corporations to sole traders (% of GDP)	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,3	
H.9 – other (including financing from abroad, % of GDP)	1,1	1,1	1,0	1,0	0,9	0,8	0,8	0,7	
H.10 Net interest expenses / gross disposable income (%)	3,2	3,0	2,8	2,6	2,4	2,4	2,5	2,6	
H.11 12M default rate (% , excluding sole traders)	4,3	4,0	3,1	2,4	1,9	1,6	1,5	1,4	
Financial markets									
FM.1 3M PRIBOR (average for period, %)	0,5	0,4	0,3	0,3	0,4	1,3	2,0	2,1	2,2
FM.2 1Y PRIBOR (average for period, %)	0,8	0,5	0,5	0,5	0,6	1,5	2,2	2,3	2,2
FM.3 10Y government bond yield (average for period, %)	2,1	1,6	0,6	0,4	1,0	2,0	1,8	1,8	1,2
FM.4 CZK / EUR exchange rate (average for period, %)	26,0	27,5	27,3	27,0	26,3	25,6	25,7	25,7	25,7
FM.5 Change in PX stock index (% year on year, end of period)	-4,8	-4,3	1,0	-3,6	17,0	-8,5	-5,0	-7,3	-2,1
Property market									
PM.1 Total change in residential property prices (transaction prices, % year on year)	0,1	3,7	4,5	10,9	8,4	9,9	9,6	8,7	
PM.2 Change in apartment prices (asking prices according to CZSO, % year on year)	0,8	2,1	4,3	15,4	10,3	10,8	9,6	8,2	7,9
PM.3 Apartment price / average annual wage	8,9	8,8	8,9	9,8	10,3	10,5	10,1	10,4	
PM.4 Apartment price / annual rent (according to IRI)	28,3	25,7	24,5	26,9	27,8	26,9	25,8	26,6	

Note: Owing to data revisions, some historical values of the indicators may not be comparable to those published in previous FSRs. Also, owing to the later date of table update, the values of the indicators may not be the same as those referred in the text of the document *Risks to financial stability and their indicators*. Missing values were unavailable at the time of preparation of the table.

FINANCIAL STABILITY INDICATORS – PART 2

	2013	2014	2015	2016	2017	2018	2019 Q1	2019 Q2	2019 Q3
Financial sector									
FS.1 Financial sector assets / GDP (%)	160,5	160,0	158,0	163,3	176,2	174,3	180,1	179,5	
FS.2 Shares of individual segments in financial sector assets (%)									
FS.3 banks	78,1	77,8	77,4	77,4	78,7	78,7	79,6	79,6	
FS.4 credit unions	0,5	0,5	0,5	0,4	0,3	0,2	0,1	0,1	
FS.5 insurance companies	7,3	7,1	6,8	6,4	5,7	5,6	5,1	5,0	
FS.6 pension management companies and funds	4,7	4,9	5,3	5,2	5,0	5,1	4,9	5,0	
FS.7 investment funds*	3,8	4,3	4,8	5,2	5,4	5,5	5,6	5,7	
FS.8 non-bank financial corporations engaged in lending	5,3	5,2	5,0	5,0	4,6	4,6	4,4	4,4	
FS.9 investment firms	0,4	0,3	0,3	0,3	0,3	0,3	0,3	0,3	
Banking sector									
BS.1 Bank assets / GDP (%)	125,5	123,1	119,0	125,0	138,7	137,3	143,7	143,2	
BS.2 Assets structure (% , end of period)									
BS.3 loans to central bank	12,9	13,0	16,0	21,5	32,8	31,6	33,7	34,2	34,4
BS.4 interbank loans	9,1	6,5	4,5	3,8	0,4	0,6	3,6	3,2	3,5
BS.5 client loans	50,0	50,7	51,8	50,8	45,3	46,7	44,7	44,7	44,7
BS.6 bond holdings	21,7	22,5	20,8	18,1	13,5	13,6	13,0	12,6	12,3
BS.7 – government bonds	15,8	16,2	14,1	11,4	7,9	8,2	8,1	7,7	7,3
BS.8 – Czech government bonds	14,6	14,8	12,5	10,0	7,0	7,4	7,4	7,0	6,7
BS.9 other	6,3	7,3	6,9	5,9	8,1	7,5	4,9	5,3	5,1
BS.10 Liabilities structure (% , end of period)									
BS.11 liabilities to central bank	0,0	0,1	0,2	0,2	0,3	0,2	0,2	0,2	0,2
BS.12 interbank deposits	11,3	10,3	7,4	10,2	16,2	15,1	14,6	13,1	13,5
BS.13 client deposits	67,8	66,3	65,9	65,2	61,2	62,8	63,1	64,7	64,2
BS.14 bonds issued	8,3	8,6	11,9	11,5	11,1	10,9	11,1	11,1	11,0
BS.15 other	12,5	14,7	14,6	13,0	11,2	11,0	11,0	10,9	11,0
BS.16 Client loans / client deposits (%)	73,8	76,4	78,6	77,9	74,0	74,4	70,9	69,2	69,6
BS.17 Sectoral breakdown of total loans (%)									
BS.18 non-financial corporations	34,5	33,2	33,1	33,1	33,1		32,5	32,8	
BS.19 households	43,4	43,3	44,4	45,1	46,6		46,9	46,8	
BS.20 sole traders	1,5	1,3	1,3	1,2	1,3		1,3	1,3	
BS.21 others (including non-residents)	20,6	22,1	21,2	20,6	19,0		19,3	19,1	
BS.22 Growth in loans (% , end of period, year on year):									
BS.23 total	6,5	4,8	5,6	6,0	4,6		5,1	4,1	
BS.24 non-financial corporations	3,8	0,9	5,3	6,0	4,7		3,5	3,3	
BS.25 – real estate activity (NACE L)	6,3	3,6	5,6	12,1	-1,7		3,1	6,0	
BS.26 households	4,5	4,5	8,2	7,7	8,0		7,0	6,6	
BS.27 – loans for house purchase	5,2	5,6	8,0	8,4	9,0		7,5	7,2	
BS.28 – loans for consumption	0,4	-0,6	8,9	4,5	4,1		6,0	7,2	
BS.29 sole traders	1,0	-4,0	0,0	4,4	10,1		6,4	7,4	
BS.30 Non-performing loans / total loans (%):									
BS.31 total	5,9	6,1	5,8	4,8	4,0		2,8	2,7	
BS.32 non-financial corporations	7,2	6,7	5,7	5,2	4,2		3,5	3,3	
BS.33 households	5,0	4,7	4,0	3,2	2,5		1,8	1,7	
BS.34 – loans for house purchase	3,3	3,1	2,6	2,0	1,8		1,4	1,3	
BS.35 – loans for consumption	12,2	12,0	11,1	8,9	6,0		4,2	3,9	
BS.36 sole traders	13,0	12,6	11,0	8,6	6,7		4,4	4,2	
BS.37 Coverage of non-performing loans by provisions (%)	55,0	55,6	54,6	57,2	54,8	58,5	56,4	56,8	
BS.38 Capital ratio (%)	17,1	18,0	18,4	18,4	19,3	19,6	19,6	20,2	
BS.39 Tier 1 capital ratio (%)	16,5	17,5	17,9	17,9	18,7	19,1	19,1	19,8	
BS.40 Leverage (assets as a multiple of Tier 1)	14,4	13,7	13,3	13,9	15,3	15,2	16,0	15,5	
BS.41 Leverage ratio (Tier 1 capital / total exposures)	n.a.	n.a.	n.a.	7,2	6,7	6,7	6,3	6,5	
BS.42 Return on assets (%)	1,3	1,2	1,2	1,2	1,1	1,1	1,1	1,1	1,1
BS.43 Return on Tier 1 (%)	18,6	16,8	16,7	17,7	16,9	17,5	15,2	18,6	25,5
BS.44 Quick assets / total assets (%)	30,6	31,0	32,0	34,4	41,9	41,2	43,0	43,0	43,0
BS.45 Quick assets / client deposits (%)	45,6	46,4	48,3	52,8	68,4	65,6	68,2	66,5	67,1
BS.46 Net external position of banking sector (% of GDP)	2,5	0,6	-2,2	-7,8	-21,4	-20,3	-20,7	-19,4	
BS.47 Banking sector external debt / banking sector total assets (%)	12,6	14,5	16,0	18,8	25,8	24,7	23,9	22,9	

Note: Owing to data revisions, some historical values of the indicators may not be comparable to those published in previous FSRs. Also, owing to the later date of table update, the values of the indicators may not be the same as those referred in the text of the document *Risks to financial stability and their indicators*. Missing values were unavailable at the time of preparation of the table.

FINANCIAL STABILITY INDICATORS – PART 3

	2013	2014	2015	2016	2017	2018	2019 Q1	2019 Q2	2019 Q3
Non-bank financial corporations									
NI.1 Share in financial sector assets (%)	21,0	21,5	21,9	21,8	21,0	20,8	20,0	20,0	
Insurance companies									
NI.2 Premiums written / GDP (%)	3,8	3,6	3,3	3,1	3,0	3,0	2,9	2,9	
NI.3 Ratio of eligible own funds to the solvency capital requirement (in %)	n.a.	n.a.	n.a.	238,1	230,0	229,4	225,7	231,4	
NI.4 Change in financial investment of insurance companies (% , year on year)	1,3	2,2	-1,6	0,9	4,2	-0,5	-2,5	-3,4	
NI.5 Return on equity of insurance companies (%)	16,7	16,4	17,0	15,7	14,7	15,9	18,5	20,7	
NI.6 Claim settlement costs / net technical provisions (life, %)	17,7	20,0	17,8	15,1	14,4	14,3	15,4	16,5	
NI.7 Claim settlement costs / net technical provisions (non-life, %)	54,6	51,5	55,6	58,1	59,4	59,5	57,0	57,0	
Pension management companies (PMCs) and PMC funds									
NI.8 Change in assets of funds managed by PMCs (%)	8,4	14,1	10,0	7,8	10,8	5,6	1,4	2,7	
NI.9 Nominal change in value of assets of PMC funds	-0,1	3,3	1,0	0,3	3,6	-1,7	-0,5	-0,7	
Investment funds									
NI.10 Growth in net assets (= equity; year on year, %)	20,5	19,6	18,5	17,7	20,9	17,9	13,1	14,3	
Non-bank financial corporations engaged in lending									
NI.11 Growth in loans from non-bank financial corporations engaged in lending (%):									
NI.12 total	-4,1	3,3	0,8	8,9	8,2	4,1	4,5	3,3	
NI.13 households	-2,3	5,0	-26,4	7,0	0,7	-2,0	1,1	0,8	
NI.14 non-financial corporations	-4,4	3,7	11,4	10,1	10,0	5,8	5,2	1,4	

Note: Owing to data revisions, some historical values of the indicators may not be comparable to those published in previous FSRs. Also, owing to data revisions and the later date of table update, values of the indicators may not be the same as those referred in the text of this document.

ADDITIONAL INFORMATION ON THE INDICATORS

ME.6	Total external debt in % of external assets held by MFIs and the CNB.
PM.1	Property prices based on the House Price Index, source: CZSO
PM.2	Apartment prices based on data from Společnost pro cenové mapy, s.r.o., apartment size 68 m ² .
FS.7	Act No. 240/2013 Coll., on Management Companies and Pension funds, was adopted in 2013, introducing the term "investment funds". Investment funds comprise collective investment funds and funds for qualified investors.
BS.25	Real estate activities (NACE L) comprise above all the activities of lessors, agents or brokers in the area of selling or purchasing property, renting property and the provision of other services related to property.
BS.37	Loans provided by the Czech Export Bank and the Czech-Moravian Guarantee and Development Bank were excluded from the calculation.
BS.44 – BS.45	Assets readily available to cover liabilities. They comprise cash and claims on central banks, claims on credit institutions and other clients payable on demand and bonds issued by central banks and general government.
NI.2 – NI.7	These indicators comprise domestic insurance companies (excluding the EGAP) and branches of foreign insurance companies.
NI.2	Premiums written include total gross premiums written for 12 months by domestic insurance companies including branches of foreign insurance companies (excluding EGAP).
NI.9	Change in the assets of pension funds adjusted for contributions and benefits.
NI.13	The change in the amount of loans provided to households by non-bank financial corporations engaged in lending in 2015 was due to the conversion of one of these lenders into a foreign bank branch.