

5 MACROPRUDENTIAL POLICY

The aim of this section is to describe the main risks to financial stability and to provide information about risk mitigation instruments. To this end, the text evaluates the current position of the Czech economy in the financial cycle, the resilience of the Czech financial sector to the risks identified, and the tasks and recommendations arising from analyses for the settings of the CNB's macroprudential policy instruments. The first part of this section briefly introduces the intermediate objectives of macroprudential policy and places the macroprudential policy instruments available for fulfilling those objectives into context with the conclusions of the assessment of the relevant risks. The second part describes the settings of the capital buffers used to enhance the resilience of the Czech banking sector. The third part provides detailed information about risks relating to property exposures and describes current and potentially applicable instruments for mitigating those risks. The final, fourth part describes macroprudential policy developments in the EU and developments in the national and international regulatory environment.

TABLE V.1

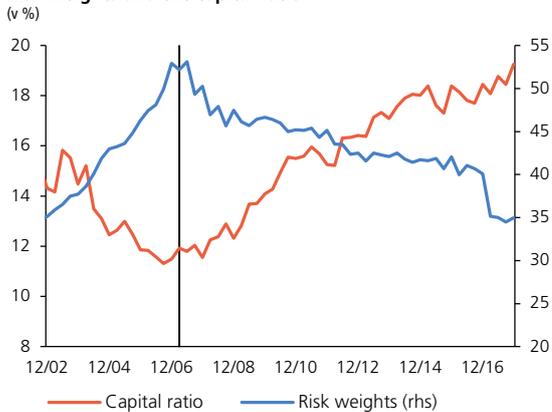
Summary of macroprudential instruments in the banking sector

Intermediate objectives	Key instruments	Specific risk	Existence of specific risk in CZ	Y-o-y change in intensity of specific risk	Applied in CZ	Detailed information
Mitigate excessive credit growth and leverage	Countercyclical capital buffer	Sizeable credit recovery accompanied by easing of credit standards	Yes		Yes, 0.5% since 2017; 1% from 2018; 1.25% and 1.5% from 2019	section 5.2.2
	Macroprudential leverage ratio	Rising leverage, low aggregate risk weights, rising off-balancesheet risk	Potential		Microprudential limit introduced in 2018	section 3.1
	Sectoral capital requirements (in particular real estate exposure)	Elevated growth of loans and risks in specific sector	Potential		Not as yet; CNB uses other instruments to respond to real estate exposure risks	section 5.3
	LTV caps	Risk of spiral between property prices and property financing loans	Yes		Yes, since 2015, tightened in 2016 and 2017	section 5.3
	LTI, DTI, DSTI caps	Risk of excessive household indebtedness and debt service	Yes		DTI and DSTI yes, since 2018	section 5.3
Mitigate excessive maturity mismatch and illiquidity	Macroprudential NSFR	Long-term liquidity risk	Potential		Microprudential component introduced in 2016	section 4.2
	Macroprudential LCR	Short-term liquidity risk	No		Microprudential component introduced in 2015	section 4.2
Limit exposure concentrations	Systemic risk buffer	Property exposure concentration	Potential		Not as yet; CNB reacts to property exposure risks with other instruments	sections 3.1 and 5.3
	Public finance stress test	Sovereign exposure concentration	Yes		Yes, option of additional capital requirements in event of elevated since 2015	section 4.4
Limit misaligned incentives	SIFI capital surcharges (G-SII and O-SII buffer)	Potential impacts of problems in SIFIs on financial market stability and real economy	Yes		No, O-SIIs identified, different instrument applied	section 5.2.3
	Systemic risk buffer		Yes		Yes, since 2014 for four banks, since 2017 for five banks	section 5.2.3
Strengthen resilience of financial infrastructures	Margin and haircut requirements on CCP clearing	Counterparty default risk, interconnectedness of financial infrastructures	No		No	-
	Increased disclosure				No	-
	Systemic risk buffer				No	-

Source: CNB

Note: 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). The macroprudential component of some instruments has not yet been incorporated into the legislation. The microprudential component of these instruments has been activated.

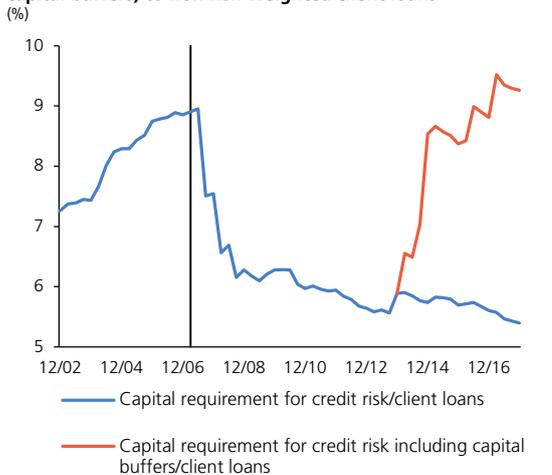
GRAPH V.1

Risk weights and the capital ratio

Source: CNB

Note: The vertical line marks the start of the switch of banks to the IRB approach.

GRAPH V.2

Ratio of the capital requirement for credit risk (including capital buffers) to non-risk-weighted client loans

Source: CNB

Note: The vertical line marks the start of the switch of banks to the IRB approach.

5.1 THE CNB'S MACROPRUDENTIAL POLICY OBJECTIVES AND INSTRUMENTS

Pursuant to Article 2 of the Act on the CNB, the CNB maintains financial stability and sees to the sound operation of the financial system in the Czech Republic. To achieve these objectives, it conducts macroprudential policy. To this end, it uses a number of macroprudential instruments focused mainly on the banking sector, which is the largest sector in the Czech financial system. The current settings of these instruments in the banking sector and their objectives are summarised in Table V.1. The growing importance of investment and pension funds, in particular, also highlights the importance of forming a basis for conducting macroprudential policy outside the banking sector (see section 5.4.4 for details).

5.2 MACROPRUDENTIAL CAPITAL BUFFERS**5.2.1 Overview of Capital Buffers**

The bank regulatory framework defined in CRD IV/CRR includes capital buffers, which are “stacked” on top of the required 8% capital minimum, and the Pillar 2 requirements. The capital requirement is risk-weighted and the minimum amount of capital is therefore derived from the level of the risks undertaken. These risks are determined on the basis of the level of risk-weighted exposures, i.e. on the volume of exposures and risk weights. The capital ratio is thus directly proportional to capital and indirectly proportional to the volume of exposures and risk weights (see Chart V.1).

Credit risk is the most important source of systemic risk for the domestic banking sector. Banks using the IRB approach (see section 3.2.1 for details) use internal models to set capital requirements (or rather implicit risk weights) for credit risk. Large domestic banks started to switch to the IRB approach in 2007 Q1. A decline in risk weights and a related increase in the capital ratio of the banking sector as a whole has been visible since then (see Chart V.1). On the other hand, as risk weights have declined, the ratio of the capital requirement for credit risk to the amount of non-risk-weighted client loans (the risky part of the exposures) has also fallen (see Chart V.2). This indicator is a modified version of the leverage ratio. After the completion of the switch of large banks to the IRB approach, the decline in risk weights and the ratio of the capital requirement (excluding capital buffers) to credit risk for client loans slowed, but it still persists. Initially, it was driven by the switch of other entities (and in some cases only parts of portfolios) to the IRB approach, which generally fosters a decrease in credit risk, as it is a tool for better managing individual and portfolio risks. In recent years, however, the decline in risk weights may also have been linked with the upward phase of the business and financial cycle, in which internal models allow capital

requirements to be reduced given the currently low risks.¹ A decline in risk weights to very low levels may become a source of systemic risk, especially its cyclical component. Sustained concurrence of these factors could therefore adversely affect the resilience of the banking sector. Capital buffers – especially the countercyclical capital buffer – allow the macroprudential authority to respond to these risks.

The CNB currently applies three capital buffers (see Table V.2) to increase the resilience of individual banks and the banking sector as a whole to any adverse developments. The buffer rates² reflect the cyclical and structural characteristics of the Czech banking sector.

The capital conservation buffer is used to absorb losses in adverse phases of the cycle. It has applied to all banks in the Czech Republic since 2014 at a rate of 2.5%.³ This rate will not change over time. The countercyclical capital buffer is intended to reduce the risks associated with excessive credit growth and leverage. The CNB set the countercyclical capital buffer rate at 0.5% at the end of 2015 and has increased it twice since then. At the time of publication of this FSR, the countercyclical capital buffer rate applied to exposures in the Czech Republic is 0.5%. It will move to 1.0% as from July 2018, 1.25% as from January 2019 and 1.5% as from July 2019 (see section 5.2.2 for details on the setting of the rate). The systemic risk buffer can be used to suppress various sources of non-cyclical risks to banking sector stability. The CNB uses this buffer to mitigate the risks associated with the existence of systemically important banks. Since 2017, five systemically important banks have been required to maintain a non-zero buffer, with rates ranging between 1% and 3% (see section 5.2.3 for details on the setting of the rate). The legislation favours the application of a buffer for other systemically important institutions (O-SIIs) to mitigate risks connected with systemic importance of banks. However, this buffer can be set at a maximum of 2%, which may not be sufficient in the case of the Czech Republic.⁴ The CNB therefore does not actively apply the O-SII buffer. However, it updates the list of other systemically important institutions every year (see section 5.2.3 for details).

Activation of macroprudential capital buffers fosters an increase in the overall capital requirement for credit risk. At the end of 2017, the requirement was at roughly the same level in relation to client loans as at the end of 2006, i.e. before the introduction of the IRB approach (see Chart V.2).

TABLE V.2

Summary of capital buffers in the Czech Republic (%)

Capital buffer	Rate	Year of effect	Rate applied at time of publication of FSR
Capital conservation buffer	2.5	2014	2.5
Countercyclical capital buffer	1.5	2019	0.5
Systemic risk buffer	1–3	2014	1–3
Buffer for other systemically important institutions	–	–	–

Source: CNB

1 For details on the risk of procyclicality of risk weights under the IRB approach, see Brož, V.; Pfeifer, L.; Kolcunová, D. (2017): *Are the Risk Weights of Banks in the Czech Republic Procyclical? Evidence from Wavelet Analysis*. CNB WP No. 15/2017.

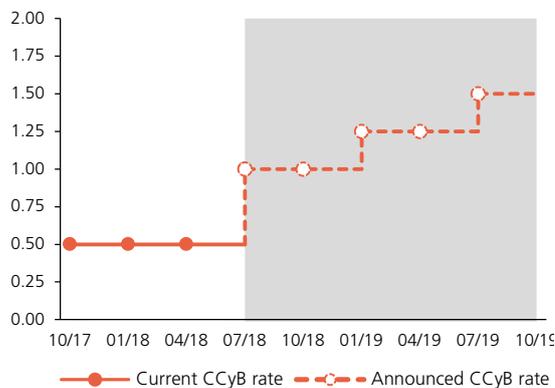
2 More detailed information about buffer rates and other macroprudential policy instruments in the Czech Republic can be found on the CNB website: http://www.cnb.cz/en/financial_stability/macroprudential_policy/index.html.

3 The buffer rate is expressed as the ratio of best-quality capital (Common Equity Tier 1) to the total risk exposure.

4 See Skořepa, M., Seidler, J. (2013): *An Additional Capital Requirement Based on the Domestic Systemic Importance of a Bank*, thematic article, FSR 2012/2013.

GRAPH V.3

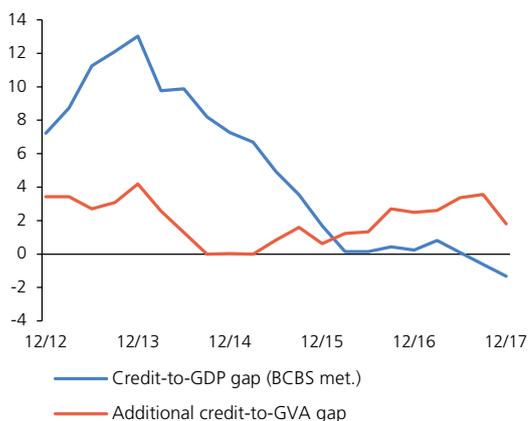
Current and announced CCyB rate in the Czech Republic (% of total risk exposure)



Source: CNB

GRAPH V.4

Credit-to-GDP gap and additional gap (pp.)



Source: CNB

Note: In the case of the standard deviation, the trend is estimated on the basis of the HP filter ($\lambda = 400,000$) over the entire time series. The additional gap – the expansionary credit gap – is calculated as the difference between the ratio of bank loans to the gross value added (GVA) of the non-financial private sector and the moving minimum over the last eight quarters.

5.2.2 The Countercyclical Capital Buffer

The countercyclical capital buffer (CCyB) is designed to protect the banking sector against risks arising from its behaviour over the financial cycle, especially excessive growth in lending, which creates systemic risks and increases the potential for sharp swings in economic activity. The CCyB rate is set every quarter (see Chart V.3) using an approach based on several sequential steps (see Figure V.1). The rate becomes legally binding on the institutions concerned upon the issuance of a provision of a general nature. Methodological information summing up the CNB's approach to the setting of the buffer rate was presented in detail in a thematic article published in FSR 2016/2017.⁵ An assessment of the relevant indicators, on the basis of which the Bank Board made a further decision on the CCyB rate in May 2018, is provided below.

An upward shift in the financial cycle and a rise in the domestic banking sector's vulnerability last year led to an increase in the CCyB rate

At its December meeting on financial stability issues, the CNB Bank Board decided to raise the CCyB rate to 1.25% with effect from 1 January 2019. It did so not only with regard to the upward shift of the economy in the growth phase of the financial cycle, but also on the basis of some banking sector vulnerability indicators. In March 2018, the CNB Bank Board confirmed the CCyB rate at 1.25%, stating that the CNB stood ready to increase the CCyB rate further in the event of continued rapid credit growth, increasing risks connected with property purchase financing, a strengthening of other cyclical sources of systemic risk and a rise in the vulnerability of the banking sector.

The deviation of the credit-to-GDP ratio from its trend remains an unreliable financial cycle indicator for the Czech Republic

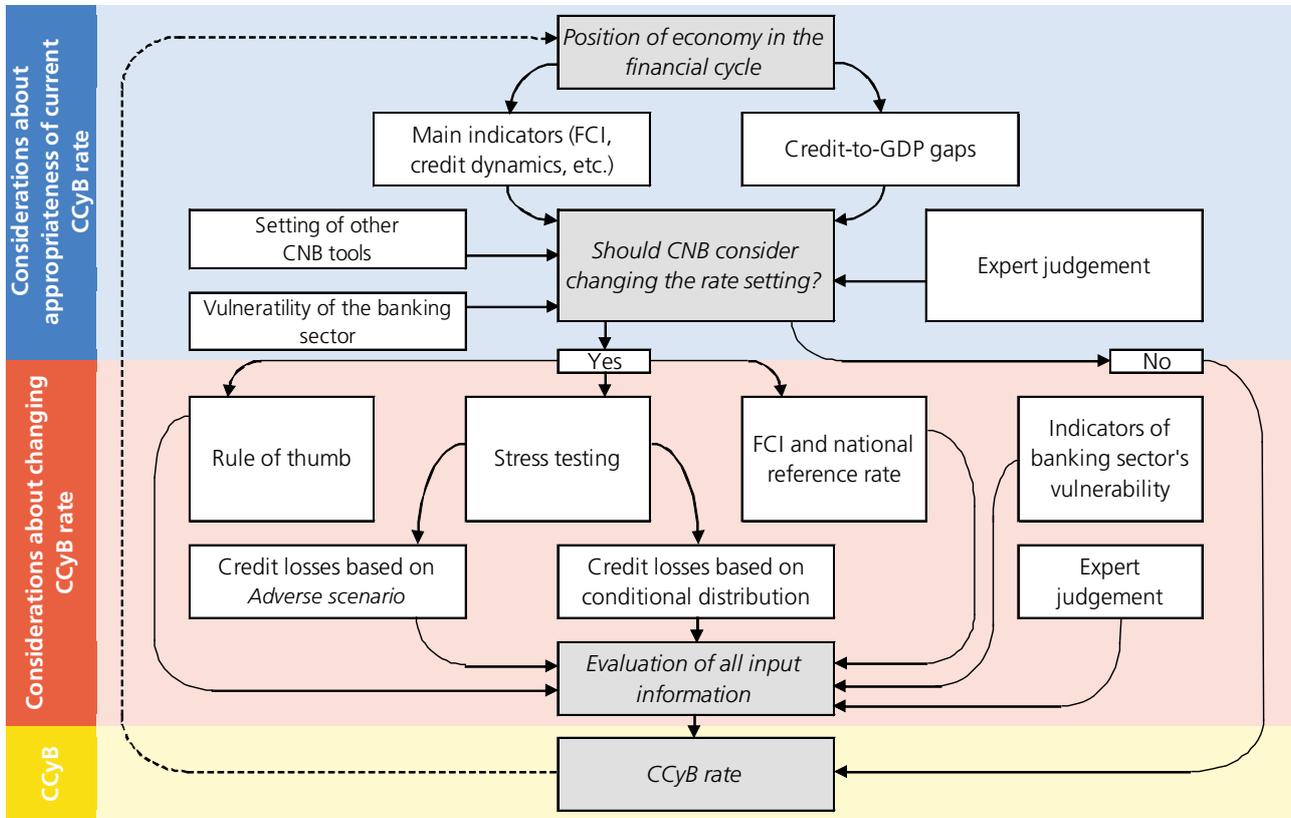
On the basis of an ESRB Recommendation,⁶ the CNB regularly publishes the ratio of total credit to the non-financial sector to GDP and the corresponding deviation of this ratio from its long-term trend. At the end of 2017, the ratio was 89.5% and the corresponding gap -1.3 pp. This value would indicate that the economy is in a downward phase of the financial cycle (see Chart V.4). However, the CNB considers this indicator to be unsuitable for converging economies with short time series containing structural breaks. The additional gap (the expansionary credit gap) indicated gradual growth in cyclical risks during 2017, but fell to 1.8 pp in Q4. This indicator must also be viewed as a very rough way of assessing the position in the financial cycle. Moreover, the picture provided by the two types of gaps is strongly affected by the surge in economic growth recorded in recent years, which is cyclical to a large degree. Consequently, these indicators do not provide a reliable guide for decisions on the CCyB rate.

5 Hájek, J., Frait, J., Plašil, M. (2017): *The Countercyclical Capital Buffer in the Czech Republic*, thematic article, FSR 2016/2017.

6 For details, see *Recommendation (ESRB/2014/1) on guidance to EU Member States for setting countercyclical capital buffer rates*.

FIGURE V.1

The CNB's approach to setting the CCyB rate



Source: CNB

The aggregate financial cycle indicator increased slightly in 2017

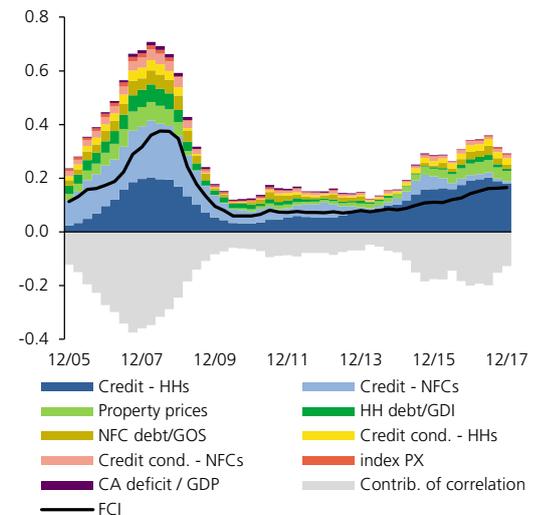
The aggregate financial cycle indicator (FCI), which combines signals of cyclical risks from various segments of the economy, showed a slight increase in 2017 (see Chart V.5). This was due mainly to the situation on the residential property market, where housing prices kept rising apace and new loans for house purchase remained elevated from a historical perspective. The growth in the FCI was also fostered by a higher correlation between the sub-indicators. This means that an increasing number of sub-indicators are jointly indicating a rise in cyclical risks. By contrast, weaker growth in new loans to non-financial corporations acted towards a decrease in the indicator compared to 2016.

Bank loans to the private sector grew faster than total loans

Growth in total loans to the private non-financial sector (comprising all loans plus bonds issued) accelerated year on year, reaching 6.0% in 2017 Q4. The growth rate of bank loans was slightly higher at 6.5% (see Chart V.6). As in previous years, this trend was driven by households' demand for debt financing (see Chart V.7). House purchase loans to households are recording the largest increases (8.6% in March 2018). Consumer credit to households has also maintained solid growth (4.6% in March 2018). In both segments, credit growth was above the relevant three- and five-year averages (see Chart V.8). By contrast, growth in lending to non-financial corporations slowed somewhat. The annual

GRAPH V.5

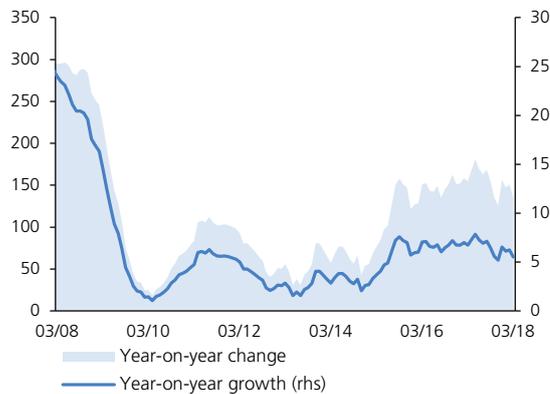
Decomposition of the financial cycle indicator (0 minimum, 1 maximum)



Source: CNB, CZSO

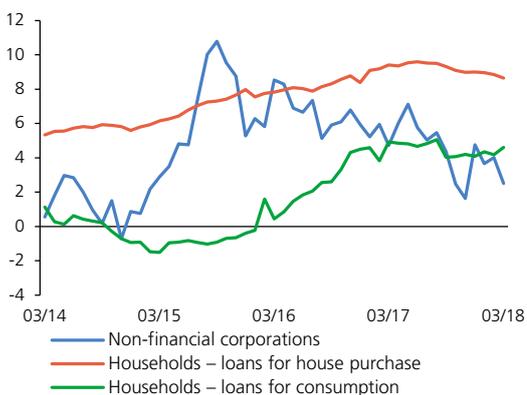
Note: GDI = gross disposable income of households, GOS = gross operating surplus of non-financial corporations. The negative contribution of the cross-correlation structure to the FCI value (the loss due to imperfect correlation of the subindicators) is due to the difference between the current FCI value and the (potential) upper bound, which assumes perfect correlation between all indicators. Weak correlation between the subindicators is reflected in growth in the negative contribution to the overall FCI value.

GRAPH V.6

Absolute year-on-year differences and growth in bank loans to the private non-financial sector
 (CZK billions; right-hand scale: %)


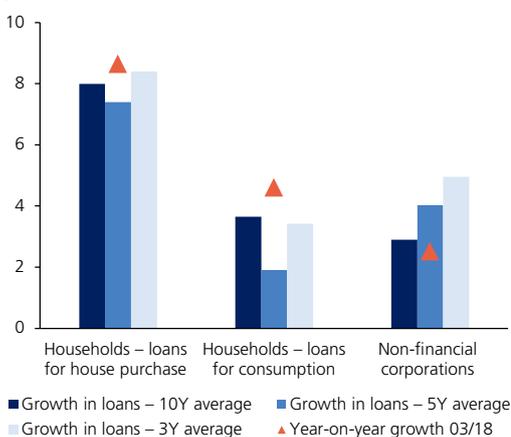
Source: CNB

GRAPH V.7

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


Source: CNB

GRAPH V.8

Average and current growth in bank loans to the private non-financial sector
 (%)


Source: CNB

growth rate of loans to non-financial corporations was still above the five- and ten-year averages in late 2017 (4.8% at the end of 2017), but fell to 2.5% in 2018 Q1. This can be partly explained by some non-financial corporations moving to bond-based funding. In a statistical survey conducted by the CNB and the Confederation of Industry of the Czech Republic, non-financial corporations are indicating a higher level of investment expenditure. The banking sector's expectations regarding growth in demand for investment loans are in line with this. Growth in bank loans to non-financial corporations can therefore be expected to accelerate again during 2018.

Growth in new bank loans was driven by the household sector

The higher lending activity is also evidenced by the evolution of new koruna bank loans (see Chart V.9). Genuinely new loans to households adjusted for refinanced and refixed loans were flat year on year in March 2018, owing to mixed trends in the housing and consumption segments (as measured by the three-month moving average of growth rates). Genuinely new loans to households for house purchase rose by 1.9% year on year in March 2018, whereas genuinely new consumer credit dropped by 2.6%. The strong growth has thus been cooling gradually, but the volumes of loans provided remain high. Genuinely new loans to non-financial corporations fell by 5.5%. This can be explained largely by some non-financial corporations shifting towards foreign currency and intra-company loans, which are not included in the statistics on new koruna bank loans. A higher degree of bond financing of non-financial corporations is having a similar effect.

The domestic economy recorded a further shift into a growth phase of the business and financial cycle...

The cyclical indicators presented above can be assessed overall as meaning that the domestic economy has shifted further upwards in the growth phase of the cycle, albeit at a slower pace. Despite partially tightening credit standards (see Chart V.13), higher lending activity can be observed in many credit segments. This activity is focused mainly on loans for house purchase. Optimistic expectations regarding income and the future evolution of housing prices, negative real interest rates on new loans for house purchase (taking into account wage inflation) and an undersupply of new apartments in cities are being reflected in a rise in residential property prices. The CNB currently considers these prices to be overvalued, and the estimated degree of overvaluation increased gradually during 2017 (see section 2.2). Despite the active application of macroprudential measures aimed at mitigating risks relating to the residential property market (see section 5.3), conditions are still in place for a spiral between property prices and property purchase loans. The potential systemic risks connected with the growth phase of the business and financial cycle are thus rising further owing to the cumulative effects of rising debt and asset prices and the high level of investment optimism.

Quantitative approaches confirm a need to create a CCyB for domestic exposures

Overall, the above-mentioned developments imply a need to create a CCyB for exposures located in the Czech Republic. The CNB uses a set of analytical approaches to obtain an indication of the CCyB rate.⁷ The first approach is based on the FCI. According to the conversion applied by the CNB, its current level of just over 0.16 corresponds to a CCyB rate of 1.0% (see Chart V.10 and Table V.3). According to the CNB's analyses, the Czech economy is in the third year of the expansionary phase of the financial cycle. According to a rule of thumb which states that the CCyB rate should be increased by 0.5 pp in each year of the expansionary phase of the financial cycle, this roughly corresponds to a CCyB rate of 1.5%.⁸ An approach based on the conditional loss distribution in a macro stress test of banks, which aligns modelled (unexpected) future credit losses with the capital buffer sufficient to cover them, indicates a need for a CCyB rate of 0.75%. To determine the final setting of the CCyB rate, banking sector vulnerability indicators need to be taken into account in addition to recommendations obtained from quantitative approaches (see Figure V.1).

The exceptionally low level of asset impairment losses may not be sustainable

Asset impairment losses remain exceptionally low (see Chart V.12). The risk mark-ups in interest rate margins are still very low as well. The ratio of the average interest rate margin to provisions created per unit of credit, which reliably captures cyclical developments in the banking sector, has also been rising since 2014 (see Chart V.11). Owing to the good shape of the economy and the favourable evolution of credit risk materialisation, aggregate risk weights are also continuing to fall. In the case of banks using the STA approach this fall is due to a change in portfolio structure (growth in exposures to the central bank), but in the case of IRB banks it also partly reflects the favourable economic developments, which are currently affecting the outcomes of the risk models applied (see Chart V.12).⁹

The potentially procyclical effects of the switch to IFRS 9 are increasing banks' vulnerability

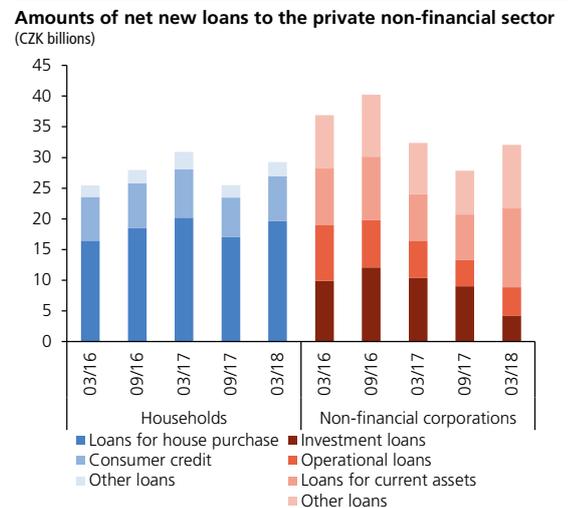
In a document *Risks to financial stability and their indicators – January 2018* published on 31 January 2018, the CNB pointed out that risk perceptions and risk pricing by banks may be becoming overly optimistic in the current favourable phase of the business and financial cycle. The exceptionally low asset impairment losses are enabling banks to report higher profitability in the current interest rate environment. If banks were to interpret the very low level of asset impairment losses as

7 Hájek, J., Frait, J., Plašil, M. (2017): *The Countercyclical Capital Buffer in the Czech Republic*, thematic article, FSR 2016/2017.

8 The domestic economy entered the expansionary phase in 2015 Q4 (see *Provision of a general nature on setting the countercyclical capital buffer rate* No. IV/2015 of 3 December 2015). If the rapid growth in lending continues, the economy will enter the fourth year of the expansionary phase at the end of 2018.

9 See section 3.2.1 for details.

GRAPH V.9

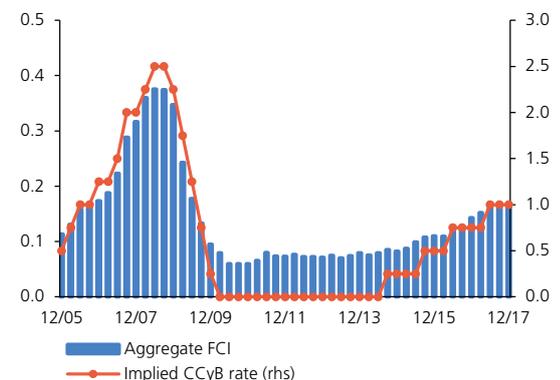


Source: CCR, CNB

Note: Net new loans also include increases in existing loans.

GRAPH V.10

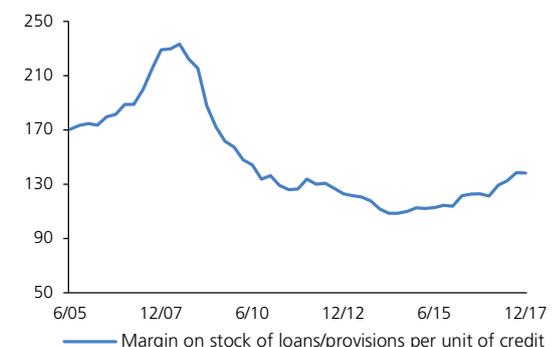
The FCI and the implied CCyB rate
(0 minimum, 1 maximum; rhs: % of total risk exposure)



Source: CNB

GRAPH V.11

Ratio of the interest rate margin to provisions per unit of credit
(%)



Source: CNB

Note: The margin on the stock of loans is the difference between the client lending rate and the client deposit rate.

GRAPH V.12

Aggregate risk weights and asset impairment losses

(%; right-hand scale: bp)

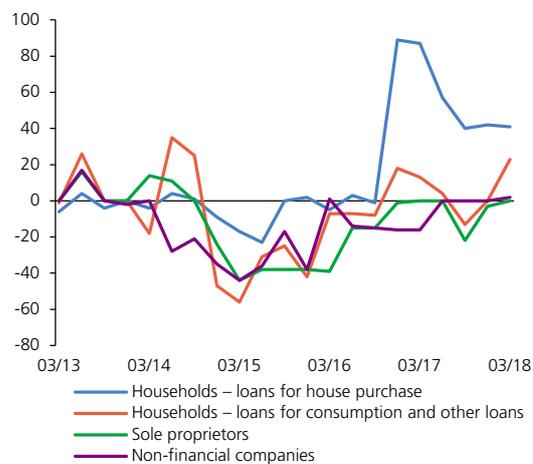


Source: CNB

GRAPH V.13

Credit standards in the Czech Republic

(net percentages)



Source: Bank Lending Survey, 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.

entirely non-cyclical, they might underestimate the amount of capital consistent with the systemic component of risks in the long run. One of the implications of the switch to the IFRS 9 accounting standard is now becoming an additional source of vulnerability. IFRS 9 was conceived to be beneficial to financial stability from the long-term perspective, because unlike the previous IAS 39 it creates conditions for early and sufficient provisioning against losses. However, the results of the current round of macro stress tests of banks support the view that IFRS 9 may have a procyclical effect in certain conditions (see section 4.1). Among others, an ESRB report¹⁰ also draws attention to this effect. In the *Adverse Scenario*, the application of expected credit losses under IFRS 9 leads to temporarily stronger impacts on capital than under the previously applied IAS 39 methodology. These impacts are concentrated in the initial period of the adverse shock. Following a sudden change in economic conditions leading to a marked reassessment of macroeconomic fundamentals, banks need to create a large amount of new provisions. This sharp increase may in turn cause sizeable losses and a fall in capital and contribute to a credit crunch.¹¹ This effect may be partly dampened by compensation for the rise in provisions in the amount of regulatory capital.¹²

This source of vulnerability increases the importance of the CNB's forward-looking reaction

The switch to the new IFRS 9 reporting standard thus increases the need for the macroprudential authority to react in time to cyclical risks so that sufficient resilience of the banking sector to adverse economic shocks is achieved. More specifically, it is necessary from the macroprudential perspective to build a sufficient capital buffer before the models of expected losses used under IFRS 9 lead to increased provisioning that could ultimately result in the credit supply to the sound part of the real economy being restricted.¹³ Given the uncertainty about some longer-term aspects of the implementation of IFRS 9, this effect should be reflected cautiously and gradually in the capital buffers. Based on the experience with the implementation of IFRS 9, the CNB will consider whether the extent of the coverage needs to be adjusted in either direction in subsequent years.

The CNB decided to increase the countercyclical capital buffer rate to 1.5% with effect from July 2019

As a result of the above assessment, the CNB Bank Board decided at its meeting on 17 May 2018 to increase the CCyB rate to 1.5% with effect from 1 July 2019. The CNB stands ready to increase the CCyB rate further in the event of continued rapid credit growth, increasing risks connected with property purchase financing, a strengthening of other cyclical

10 See ESRB: Financial stability implications of IFRS 9, July 2017.

11 See section 3.2.2 for details.

12 Up to 0.6 pp for banks using the IRB approach, due to the current regulatory approach to provisions (see Box 3.1).

13 The ESRB report *Financial stability implications of IFRS 9* states on page 6 and page 47 that the CCyB is one of the tools that could be used to mitigate risks associated with these effects.

sources of systemic risk and a rise in the vulnerability of the banking sector. On the other hand, the CNB is ready to immediately lower the buffer or release it fully and allow it to be used as a capital buffer to cover losses if the business and financial cycles reverse and financial market stress intensifies, jeopardising the smooth provision of loans to the sound part of the economy. In addition to growth in new loans, the CNB will use indicators of financial market stress and indicators of the general availability of (unsecured) financing (OIS and PRIBOR rates and OIS-PRIBOR spreads) to assess the need to release the CCyB. These indicators are able to indicate a significant change in market conditions without any delay.

The CNB considers the neutral level of the CCyB rate to be higher than zero

Ever since the CCyB was introduced, macroprudential authorities have been discussing how to approach it conceptually and how high the CCyB rate should be in the individual phases of the financial cycle. Some macroprudential authorities view the CCyB as a tool that should only be applied in a strongly expansionary phase of the financial cycle when systemic risks are already clearly visible. Other macroprudential authorities, among them the CNB, prefer a more prudential approach under which the macroprudential authority should begin creating the CCyB right at the start of the credit recovery when conditions are "normal". This means a situation where the financial sector exhibits neither elevated stress nor a higher propensity to take on risks. The concept of a non-zero CCyB rate in neutral conditions is applied, for example, by the Financial Policy Committee (FPC) in the UK.¹⁴ The CNB will discuss this issue and take into account a whole range of factors, including the impacts of the implementation of IFRS 9 in the domestic banking sector, when setting the appropriate neutral rate.

Other European countries also responded to the shifts in the financial cycle with changes in CCyB rates...

As of April 2018, a total of eight European countries had announced non-zero CCyB rates (see Chart V.14). In five of them, a non-zero rate is now being applied. In five countries, an increase within a time scale of one year has also been announced. The main arguments for increasing the CCyB rate were a further shift into the expansionary phase of the financial cycle, strong growth in loans to the private non-financial sector, high indebtedness of this sector and rising property prices.

...the CCyB rate on domestic exposures is in line with rates in countries with a similar level of cyclical risks

The CNB sets the CCyB rate in line with the standard practice applied in most European countries (see Chart V.15). The rate announced in the Czech Republic is not overly strict compared to other countries. From the perspective of medium-term growth in credit and property prices, the

TABLE V.3

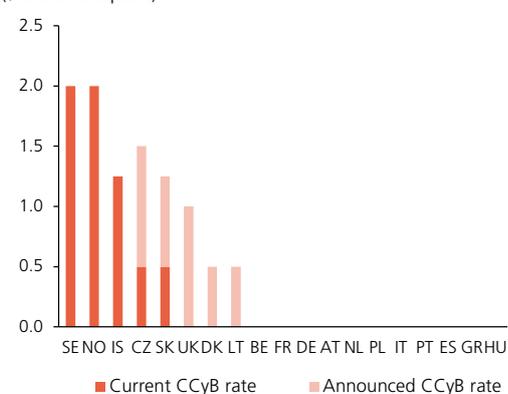
The implied CCyB rate based on various approaches
(% of risk-weighted assets)

Approach	Implied CCyB rate
Conversion based on FCI values	1.00%
Conditional distribution of future credit losses	0.75%
Duration of expansionary phase of cycle	1.50%

Source: CNB

GRAPH V.14

CCyB rates in selected European countries
(% of total risk exposure)

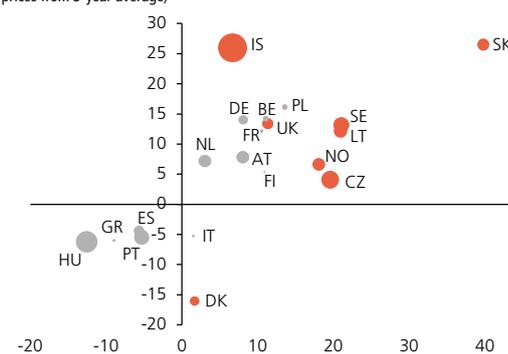


Source: ESRB

GRAPH V.15

Cyclical risks in Europe

(x-axis: households three-year growth in stock of loans in %; y-axis: non-financial corporations three-year growth in stock of loans in %; size of bubble: deviation of property prices from 3-year average)

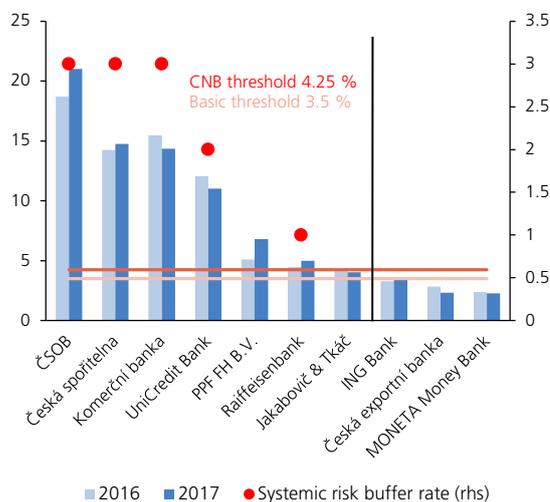


Source: BIS, Eurostat, NBS, NBI

Note: Countries with a non-zero announced CCyB rate are marked in red. With the exception of Greece (BIS), the source of the property price indices is Eurostat.

¹⁴ The FPC recommends maintaining the CCyB rate at 1% after the impacts of excessive stress have abated, even if systemic risks are at a normal level, i.e. neither elevated nor subdued. According to the FPC, a CCyB rate in this region, combined with other elements of the capital framework, provides sufficient capital to withstand a severe stress.

GRAPH V.16

Comparison of O-SIIs' scores as of mid-2016 and mid-2017 (%)


Source: CNB

Note: The black vertical line separates institutions included in the list of O-SIIs.

Czech economy is at a similar level to Norway, which applies a CCyB rate of 2%.¹⁵ On the other hand, differences in the setting of CCyB rates can also be observed across Europe. Denmark is an example of a more prudent and stricter authority. In Poland and Belgium, by contrast, the CCyB rate remains at zero despite strong and broad-based growth in credit to the whole private non-financial sector.

5.2.3 Capital Buffers of Systematically Important Institutions

The systemic risk buffer rate remains will be revised

CRD IV gives EU Member States the option of applying a systemic risk buffer (SRB) as a relatively flexible tool primarily for preventing non-cyclical risks.¹⁶ The CNB uses the SRB to prevent systemic risk arising from the potential destabilisation of systemically important banks. The destabilisation of any of these banks could undermine the banking sector's ability to provide its services effectively, which, in turn, could have serious repercussions for the financial system and the entire Czech economy.

The CNB's decisions on which banks will be required to maintain an SRB, and at what rate, are based on an estimate of the systemic importance of each bank. This estimate draws on a range of indicators describing four key parameters of the bank: size, complexity, substitutability for the economy and interconnectedness with other financial institutions.¹⁷

The CNB set non-zero SRB rates for the first time in 2014, specifically for four systemically important banks. The CNB is required by law to review its reasons for setting the SRB once every two years.¹⁸ The first review was conducted in 2016, using end-2015 data. On the basis of the review, the CNB increased the number of banks subject to the SRB to five and increased the buffer for two banks. With effect from 1 January 2017, the SRB is 3% for Česká spořitelna, ČSOB and Komerční banka, 2% for UniCredit Bank and 1% for Raiffeisenbank. The second review will be conducted in 2018, using end-2017 data. Based on the results of this assessment, the CNB will inform the relevant banks and authorities during the course of 2018 about whether it will be confirming or changing the existing SRB rates or introducing new ones for banks that have not previously been required to maintain an SRB.

¹⁵ The 2% CCyB rate in Norway has been effective since the end of 2017.

¹⁶ Article 133 of Directive 2013/36/EU states that Member States should have the option of requiring certain institutions to maintain, in addition to the capital conservation buffer and the countercyclical capital buffer, a systemic risk buffer in order to prevent and mitigate long-term non-cyclical systemic or macroprudential risks, in the meaning of a risk of disruption in the financial system with the potential to have serious negative consequences to the financial system and the real economy in a specific Member State.

¹⁷ See Skořepa, M., Seidler, J. (2013): *An Additional Capital Requirement Based on the Domestic Systemic Importance of a Bank*, thematic article, FSR 2012/2013.

¹⁸ In the event of potentially significant changes in the structure of the banking sector, the CNB stands ready to conduct a review immediately.

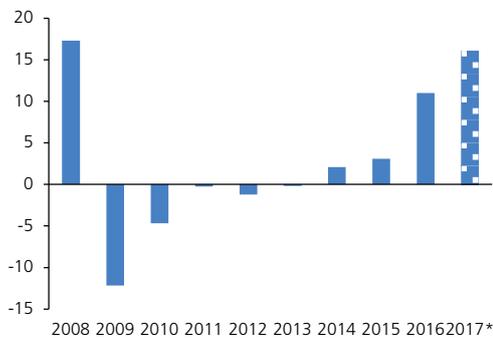
The list of other systemically important institutions is unchanged

According to the CNB's evaluation, there are still seven other systemically important institutions (O-SIIs) in the domestic financial sector, so the list of O-SIIs for 2018 is unchanged (see Chart V.16). Since the first evaluation in 2015, the methodology has been based fully on EBA guidelines (EBA/GL/2014/10, hereinafter the "Guidelines").¹⁹ Besides maintaining the highest possible degree of homogeneity of the O-SII group, the CNB intends to maintain stability in the case of institutions recording values close to the threshold. For this reason, one of the O-SIIs was not excluded from the list immediately after its score fell below the threshold set by the CNB (4.25%). 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 Guidelines. The EBA, the European Commission and the ESRB were notified of the result of the evaluation on 28 November 2017.

The CNB still does not consider it necessary to set an additional capital requirement for banks that are members of the relevant regulated consolidated groups due to their designation as O-SIIs. The CNB continues to apply the systemic risk buffer (SRB) to mitigate the structural component of systemic risk linked with the existence of systemically important institutions, even though the O-SII buffer should primarily be used for this purpose. The CNB has long pointed out in international forums that the use of the SRB as an alternative to the O-SII buffer is due to legislative restrictions on the latter. At present, the O-SII buffer cannot be higher than 2% (the "general cap"). If a bank is a part of a foreign group designated as an O-SII or G-SII, the buffer cannot exceed that of the parent bank, or 1% (the "subsidiary cap"). As the parent institutions of all systemically important domestic banks are either O-SIIs or G-SIIs, the subsidiary cap represents a significant contrast on the conduct of macroprudential policy in the Czech Republic. The planned review of the European macroprudential policy framework includes a change in the cap on the O-SII buffer. The Czech Republic, together with a number of other states, has proposed that the general cap be increased to at least 3% and that the subsidiary cap be abolished or, as a bare minimum, raised to at least 1.5% above the buffer of the parent. In the negotiation process there is strong pressure to set the subsidiary cap around 1% above the buffer of the parent. The CNB has intensively and consistently opposed this, as such a level would not be sufficient to cover the systemic risk that some large banks pose to the domestic economy.

¹⁹ More details on the evaluation methodology are available on the CNB website (*CNB > Financial stability > Macroprudential policy > List of other systemically important institutions*). The main methodological difference (in addition to slightly different thresholds) 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.

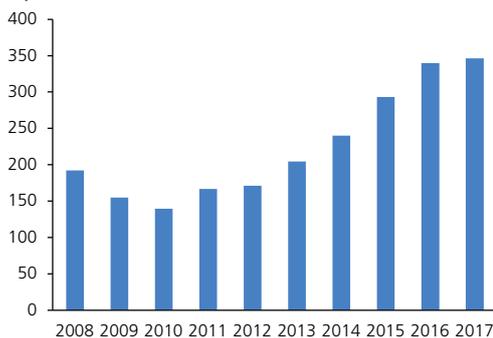
GRAPH V.17

Apartment price growth rate
(year-on-year growth in %)

Source: CZSO, CNB calculation

Note: Average growth in transaction prices of apartments in individual quarters of the year according to tax returns (CZSO). * For 2017 calculated from quarterly changes in transaction prices of older apartments from a survey and from asking prices (CZSO).

GRAPH V.18

New housing loans
(yearly totals in CZK billions)

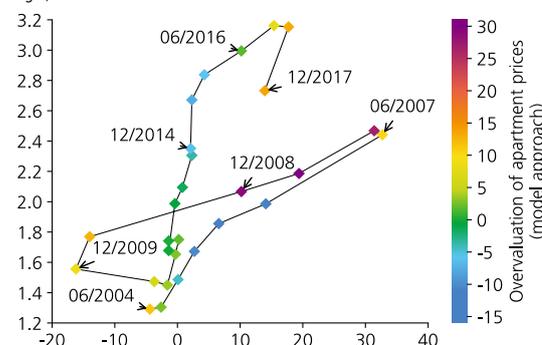
Source: CNB

Note: The data also include refixed and refinanced loans.

GRAPH V.19

The spiral and apartment price overvaluation

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



Source: CNB

Note: The spiral is derived on the basis of apartment price growth and the amount of new housing loans in relation to the level of wages.

5.3 RISKS ASSOCIATED WITH PROPERTY MARKETS**5.3.1 Risks Associated with Residential Property Markets****The overvaluation of housing prices increased further**

Transaction prices of housing in the Czech Republic grew at the fastest rate in the entire EU for most of 2017. The average year-on-year growth rate of apartment prices in the individual quarters of 2017 was almost 16% (see Chart V.17).²⁰ The year-on-year growth rate started to slow somewhat in 2017 Q4, but it remained relatively high. The CNB's model-based approach indicates that housing prices were overvalued by around 14% at the end of 2017 (see section 2.2). The degree of property price overvaluation may thus in some cases be higher than the level of over-collateralisation implied by the current LTV limits.

The volume of new housing loans reached a new record

Banks provided almost CZK 350 billion in new housing loans in 2017, a new all-time high (see Chart V.18). The warnings of market participants in spring 2017 that the CNB's measures would cause the market to slump thus did not materialise. Year-on-year growth in new housing loans came to a halt in mid-2017. However, the monthly volumes of such loans remain very high (around CZK 28 billion in 2018 Q1). The total stock of bank loans for housing increased by almost 10% (around CZK 100 billion) last year, reaching CZK 1,150 billion in March 2018. The stock of housing loans recorded a year-on-year increase of 8.6% (or 9.4% in the case of mortgage loans) in 2018 Q1.²¹

The spiral between property prices and house purchase loans ceased to develop...

In FSR 2016/2017, the CNB identified a continued spiral between property prices and property purchase loans as the most significant domestic risk. Charts V.19 and V.20 show the position of the economy in the spiral using half-yearly data from 2004 to the end of 2017. As regards apartment prices, the economy is not currently as far into the spiral as it was in the pre-crisis years, but as regards the volume of new loans it is much higher. The indicators in both charts started to return to less risky levels in the second half of 2017, due in part to faster income growth. These indicators can be interpreted overall as meaning that the nature of the current expansion in the property market differs from the previous episode in stronger credit growth. The colours of the points in Chart V.20 clearly show the financial stability paradox: the NPL ratio is very low at the times of strongest expansion. This tends to be interpreted

²⁰ Chart V.17 shows that before the crisis, apartment prices leapt by 17% in 2008 compared to 2007. However, apartment prices then recorded year-on-year declines for several years. Year-on-year price growth was renewed in 2017 and gradually gathered pace.

²¹ There are those who believe that a 9% growth rate is not high, as the pace of growth of housing loans exceeded 30% in the middle of the decade preceding the crisis. However, base effects must be taken into account: 9% growth would mean an increase of more than CZK 100 billion in the total stock of loans in 2018, CZK 65 billion in 2011, CZK 33 billion in 2007 and only CZK 14 billion in 2004.

as evidence of low risks. In reality, the risks are usually increasing invisibly in the background in such a situation.

...but the conditions for setting the spiral in motion persist

The CNB is limiting the systemic risks relating to the property market expansion using macroprudential policy instruments and microprudential supervisory tools. These are based on its Recommendation on the management of risks associated with the provision of retail loans secured by residential property (the "Recommendation"). It sets quantitative LTV limits and qualitative criteria for prudent provision of such loans, primarily in the area of assessing clients' ability to service loans. The CNB assesses the risks associated with mortgage lending and banks' compliance with the Recommendation twice a year. The assessment based on data on loans provided in 2017 as a whole reveals that despite the positive effects of the tighter LTV limits in effect since April 2017, credit financing remains a source of systemic risks. The conditions for financing housing purchases on credit remain attractive. Interest rates on loans for house purchase are well below the long-term average and, accounting for wage inflation, are still negative in real terms. The tightening of monetary policy through three increases in the monetary policy rate and the communications hinting at a further increase have so far only resulted in a slight increase in rates on client loans (see Chart II.14). Given the observed growth in household income, the incentive for credit financing may remain strong for some households. At the same time, households remain optimistic about how easy loans will be to repay and about property purchase prices continuing to rise in the long term.

Growth in residential property prices was accompanied by an increase in the average size of new loans for house purchase

According to data from the Survey of new loans secured by residential property (referred to below as the "Survey" and "loans" respectively), the average size of loans granted rose further in 2017 H2 (see Chart V.21). This is consistent with the continued growth in housing prices and households' willingness to finance property purchase using debt. Although the total volume of new loans slowed slightly in H2, it remains at levels that can be labelled as very high in historical terms (see Chart V.21)

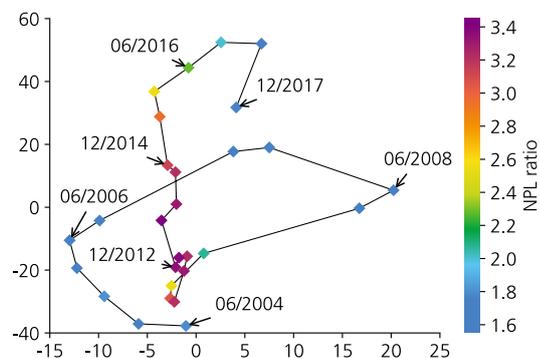
The CNB responded on an ongoing basis to risks associated with the property market

The existence of conditions for a spiral between property prices and property purchase loans identified in FSR 2016/2017 necessitated an appropriate response from the CNB. Tighter recommended limits for the LTV ratio therefore took effect at the start of 2017 Q2. They prevent the provision of individual loans with LTVs of over 90% (the "individual limit") and limit the provision of loans with LTVs of 80%–90% to a maximum of 15% of new loans in the quarter (the "aggregate limit"). In June 2017, the CNB recommended that lenders should monitor the DTI and DSTI ratios, set internal limits for them and prudently assess loan applications based on them. The CNB also defined levels for the DTI (debt-to-income) ratio and the DSTI (debt-service-to-income) ratio above

GRAPH V.20

The spiral and the NPL ratio

(x-axis: Overvaluation (price to income) in %; y-axis: New loans in relation to wages (deviation from mean) in %)



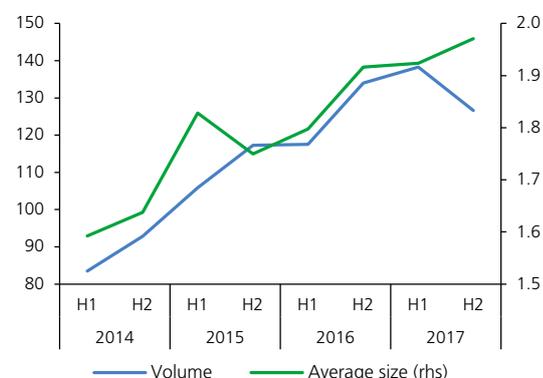
Source: CNB

Note: The spiral is derived on the basis of apartment price overvaluation and the gap in the amount of new housing loans in relation to the level of wages.

GRAPH V.21

Volume and average size of new loans

(CZK billions; right-hand scale: CZK millions)

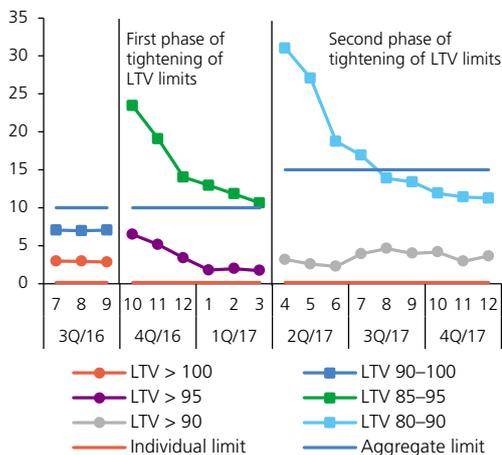


Source: CNB

GRAPH V.22

Fulfilment of the recommended LTV limits

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

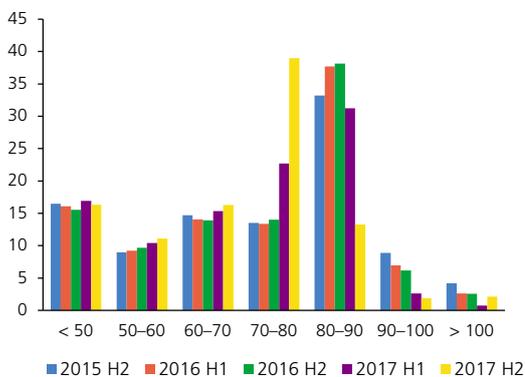


Source: CNB

GRAPH V.23

LTV distribution of new loans

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

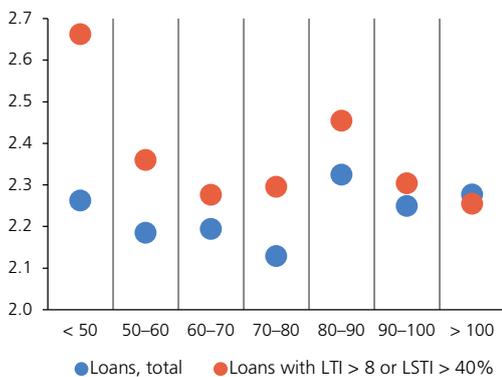


Source: CNB

GRAPH V.24

Average interest rates by loan characteristics

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



Source: CNB

which lenders should particularly prudently assess loan applications. The CNB also extended the scope of application of the Recommendation to other loans provided to clients who already have a loan secured by residential property and also to all lenders. In November 2017, the CNB published a Supervisory benchmark on the provision of loans to households by credit institutions summarising prudential lending principles for banks. CNB microprudential supervision responds to risk profiles differing from the CNB Recommendation (the volume of risk) and/or insufficient risk management processes relative to the Supervisory Benchmark using an additional capital requirement under SREP.

Institutions' compliance with the stricter recommended LTV limits improved...

Data from the Survey for 2017 H2 indicated gradual convergence between banks' lending practices and the tighter recommended LTV limits. Despite a delayed start, the institutions concerned were broadly compliant with the Recommendation in force as regards LTV limits at the end of 2017. Loans with LTVs of 80%–90% accounted for 15% and 12% of lending in 2017 Q3 and Q4 respectively and were thus compliant with the maximum recommended ratio of 15% at the aggregate level (see Chart V.22). Loans with LTVs of over 90%, which, under the Recommendation, should not be provided at all, accounted for around 4% of credit production in the two quarters. Although institutions exceeded the individual limit quite frequently, in most of them the proportion of loans in excess of the limit did not go over 5% of credit production.

...and changes in the LTV distribution of new loans affected interest rates

The adjustment by institutions to the recommended limits led to a significant increase in the proportion of loans with LTVs of 70%–80% at the expense of loans with LTVs of 80%–90%, to which the aggregate limit is applied (see Chart V.23). The LTV distribution of new loans was almost unchanged from 2017 H1. Institutions reflected the aggregate limit for loans with LTVs of 80%–90% in higher interest rates in that category (see Chart V.24). Those rates also recorded the biggest year-on-year increase across all LTV categories (see Chart V.25). In 2017, there was also higher growth in rates on loans with riskier LTI (loan-to-income) and LSTI (loan service-to-income) ratios. In year-on-year comparison, lenders thus started to take more account of clients' risk characteristics when setting interest rates.

Formal compliance with the recommended limits may not imply an absence of risk in all cases...

The shift towards lower LTV levels in response to the stricter LTV limit (see Chart V.23) can generally be interpreted as a reduction of risks on the side of lenders. However, the effectiveness of LTV limits in limiting systemic risks also depends on how the collateral value of property is determined and on compliance with the principle of conservative property valuation by lenders. In some cases, lenders may have an incentive to reduce the LTV level through an optimistic assessment of a property's value in order to get just below the individual or aggregate

limit. The data presented in Box 5.1 suggest that this may be happening in some cases. The CNB will therefore monitor compliance with the principle of conservative collateral valuation and will require consistent reporting by lenders of purchase price data and the estimated values of properties being purchased.

...and some practices may be non-compliant with the Recommendation in force

For the recommended LTV limits to be effective, it must likewise be ensured that they are not circumvented through concurrent provision of unsecured (consumer) loans used to part-finance property purchases, which would not be in line with to the Recommendation. The CNB now has data on mortgages in respect of which clients took out an unsecured loan from any financial institution a year before or after the mortgage was provided (see Chart V.26). The data do not enable it to determine whether the taking out of an unsecured loan is linked directly with the part-financing of property. Despite the relatively low volume of concurrently provided unsecured loans, however, the increase in such loans recorded at the time the stricter LTV limits took effect prompts a need to address this issue and take action to prevent circumvention of the Recommendation in this way.

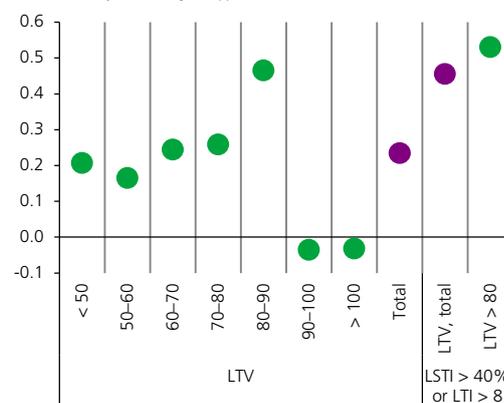
BOX 5.1: ASSESSMENT OF PROPERTY PRICE VALUATION BY BANKS

The LTV caps contained in the Recommendation²² are an important instrument for reducing systemic risks associated with credit financing of housing and property market developments. To assess the effectiveness of this instrument and its configuration, it is important to monitor how banks determine the value of underlying property²³ in the denominator when calculating the LTV ratio (the “value”, “estimated value” or “valuation”) and whether the effectiveness of LTV limits is being weakened by modifications to the valuation methods. According to the Recommendation, providers “*should determine collateral value for the purposes of calculating the LTV ratio in a conservative manner, taking into account the risk of property price overvaluation*” (Article IV(4) of the Recommendation).²⁴ They should thus respond to excessive property price growth by

GRAPH V.25

Year-on-year changes in average interest rates by loan characteristics

(x-axis: LTV in %; y-axis: changes in pp; 2017 H2)

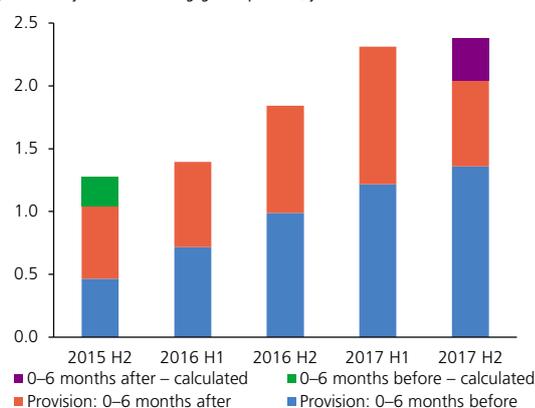


Source: CNB

GRAPH V.26

Parallel provision of an unsecured loan and a mortgage

(x-axis: half-year in which mortgage was provided; y-axis: unsecured loans in CZK billions)



Source: CNB

Note: The terms “before” and “after” relate to the time of provision of the mortgage. For the first and last period under review, the data are calculated for the whole period, as the known data do not cover the entire six months. The data for the time ranges of one year before and one year after provision of the mortgage offer a similar picture.

22 The Recommendation published as Official Information of the Czech National Bank of 16 June 2015, 14 June 2016 and 13 June 2017. LTV limits are discussed in Recommendation A: Compliance with LTV limits for new retail loans secured by residential property (Article IV). For the setting of LTV limits see also 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 in this Report.

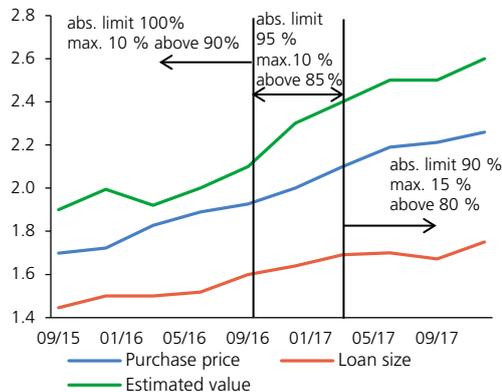
23 One or more properties used to secure a loan.

24 The collateral value means the estimated value of the property as determined by a prudent assessment of the future marketability of the property by taking into account long-term sustainable aspects of the property, the normal and local market conditions, the current use and alternative appropriate uses of the property (Article III(8) of the Recommendation).

GRAPH V.1 BOX

Comparison of the median purchase price, the loan size and the estimated property value from the Survey

(CZK millions)



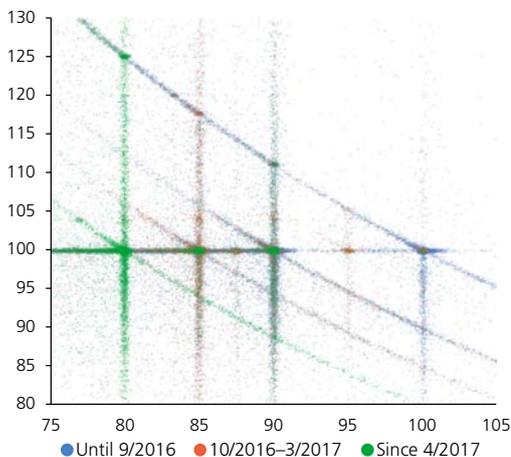
Source: CNB

Note: For new loans excluding refinanced loans with a non-zero purchase price available. The vertical lines separate the periods when the various LTV limits were in effect.

GRAPH V.2 BOX

Comparison of the relationship between the LTV ratio and the ratio of the estimated value to the purchase price

(x-axis: LTV in %; y-axis: Ratio of estimated value to purchase price in %)



Source: CNB

Note: For new loans excluding refinanced loans with a non-zero purchase price available. The colours indicate the periods when the various LTV limits were in effect.

reducing the estimated value of the underlying property relative to the purchase price.

The data sources used by the CNB to assess banks' approaches to determining the estimated value include figures obtained from the Survey. In addition to the LTV ratio and the estimated collateral value, banks also state the property purchase price for about one-third of loans.²⁵ These figures show that they set the estimated value higher than the purchase price on average (see Chart V.1 Box). The estimated value remains set at the purchase price level for the bulk of new loans (the estimated value was set to the purchase price for 44% of loans with the specified purchase price in the period from April 2017 to the end of 2017). The growth in the median estimated value was meanwhile 3.8 pp higher than the increase in the median purchase price in the period of 2015 Q3–2017 Q4. The faster growth in the median estimated value than the median purchase price may mean that for some loans, compliance with the LTV limits might have been achieved by increasing the estimated value. Since the increase in the median purchase price was in line with the growth in official property price indices, the approach of some banks to valuing property used as collateral may in some cases not be in conformity with the relevant provision of the Recommendation. If this approach proved to be dominant, the macroprudential authorities would have to consider lowering the LTV cap.

In a growth phase of the financial cycle, characterised by property prices rising above levels consistent with fundamentals, it is important as regards reducing systemic risks to ensure that size of mortgages does not grow at the same pace. The data show that the median purchase price rose by 10 pp more than the median loan size in 2015 Q3–2017 Q4. The increase in the gap between the median estimated value and the median loan size may be banks' response to the gradual lowering of the LTV cap.

To assess how the introduction of LTV limits affected banks' property price valuations, the relationship between the LTV ratio (the horizontal axis) and the ratio of the estimated value to the purchase value for individual new loans is shown in a chart (see Chart V.2 Box)²⁶. Different colours are used for the points to differentiate between the periods of effect of the LTV limits. The chart reveals a gradual decrease in LTVs for new loans. It also

²⁵ For example, the property price tends not to be given where the loan is for the construction of a new property rather than the purchase of an existing one. Similarly, the price is usually not available where an existing loan is being refinanced. Refinanced loans account for 23% of the total number of loans in the Survey. Loans with a price make up 39% of new loans.

²⁶ The jittering method was used, i.e. small random noise was added to data in order to prevent overplotting.

shows concentrations of points (loans) along parallel lines reflecting different types of behaviour of mortgage applicants and providers. As mentioned above, in most cases the estimated property value is set at or close to the purchase price level, i.e. the property purchase price is seen as a benchmark. This is expressed by the horizontal line at the 100% level. After the property transfer tax payer was changed (on 1 November 2016²⁷), a faint horizontal line at 104% can be observed in the chart. This might imply that in some cases the estimated property value is increased to include the 4% tax.

Another visible relationship is the inverse proportion between the LTV ratio and the ratio of the estimated value to the property purchase value (the downward sloping curves). This may be due to the fact that when negotiating the loan, the applicant only knows the purchase price, not the estimated property value, and is thus applying for a loan expressed as a percentage of the purchase price. If the size of the loan is not altered after the assessment, an inverse relationship arises between the LTV ratio and the ratio of the estimated value to the purchase price.²⁸

The last relationship identified occurs when the loan size depends primarily on the estimated property value (the vertical line). This situation may arise for various reasons, the common feature of which is applicants trying to obtain credit right up to the maximum LTV. This may involve them trying to raise additional cash when the estimated property value is unfavourable for them (for example through consumer credit) or to make use of the possibility of obtaining relatively cheap funds for household equipment or other outgoings indirectly related to the property purchase. A common feature of such loans is that their size depends not on the property purchase price but on the estimated value and the LTV limit in effect. This behaviour is represented in the chart by vertical lines at the LTV limits in effect in the given time periods (i.e. 80%, 85%, 90% and 100%).²⁹

27 Under Act No. 357/1992 Coll., “the payer of the property transfer tax shall be the assignee of the right to real property” (Article 1(1)). Before 31 October 2016, the payer of this tax was usually the assigner of the right to real property.

28 If the size of the loan is set proportionally to the purchase price, i.e. as $U = LTV_{limit} * P$, where U is the loan size, LTV_{limit} is the LTV limit in effect (i.e. 80%, 85%, 90% or 100% in individual years) and P is the property purchase price, the following holds for the resulting ex-post LTV: $LTV = LTV_{limit} * P/V = LTV_{limit}/(V/P)$. The relationship between the ratio of the estimated value and the purchase price V/P and the LTV ratio is thus an inverse proportion. So, for example, if the value of the underlying property turns out to be higher than the purchase price, or if the borrower provides additional collateral increasing the collateral value, the reported LTV ratio decreases.

29 The green line corresponds to the LTV limit of 80% in effect since April 2017, the red line to the 85% limit in effect from October 2016 to March 2017 and the blue line to the limit in effect until September 2016. Lines for the absolute LTV limits (90%, 95% and 100%) are also partially visible.

The parts of the vertical lines where the ratio of the estimated value to the purchase price is higher than 100 % can be interpreted favourably in terms of financial stability as situations where banks require additional collateral from a loan applicant where the applicant hits the LTV limit, thereby reducing their loss given default (LGD). A ratio of the estimated value to the purchase price of over 100% may also arise when the purchase price does not correspond to the actual property value, such as in a sale between relatives connected with probate proceedings or when a combined loan is provided for the purchase and renovation of an old property. However, a ratio of the estimated value to the purchase price of over 1 may also reflect circumvention of the LTV limit by setting the estimated property value so that the loan falls into a category with a lower LTV ratio.

The results of the analysis should not be interpreted as meaning that banks responded to the gradual lowering of the LTV cap by being less prudent when providing mortgage loans. Most loans are negotiated for 80% of the purchase price, and the estimated property value is mostly in line with the purchase price. Nevertheless, the share of loans for which the estimated value exceeds the purchase price is not negligible, even after the CNB tightened the rules for the provision of loans secured by residential property in April 2017. Loans with an estimated property value of more than 110% of the purchase price account for around 11 % of loans with LTVs of over 70%. Part of the data also contain information on whether only the estimated value of the property being purchased, i.e. unaffected by any additional collateral, was used for the loan.³⁰ Even in this category of loans, the share of loans with an estimated value of more than 110% of the purchase price also accounted for around 11% of loans with LTVs of over 70%.

The CNB responded to the risk of a price spiral by tightening the LTV limits

The CNB responded on an ongoing basis to the increasing overvaluation of property prices, the high growth rates of new loans and the significant share of new loans with a combination of high LTV, LTI and LSTI levels by gradually lowering the LTV limits in the Recommendation. The CNB assesses the effect of the stricter LTV limits and some other parameters of the Recommendation as positive. They have caused year-on-year growth in new mortgages to halt and made loans with high LTVs more expensive. The tightening of the LTV limits has so far been consistent

³⁰ According to the available data, additional property was used as collateral for less than 20% of loans for which the estimated value of only the property being purchased was given.

with the rise in the estimated overvaluation of apartment prices, which is increasing the riskiness of mortgages for mortgage lenders. Given the current estimated overvaluation of housing prices, the existing LTV limits are at their border values from the point of view of prudential hedging of potential risks. However, given the signs of slowing growth in housing prices and the favourable trend in household income, the CNB does not deem it necessary to further tighten the recommended LTV limits at present.

The CNB is not changing the Recommendation regarding buy-to-let loans and views standardisation of this product by lenders as the appropriate solution

One of the existing recommendations is that the LTV ratio should not exceed 60% for certain categories of buy-to-let loans. Such loans accounted for less than 4% of new loans in 2017 H2 and have long been reported at low levels in the Survey. Information from the market often indicates that the actual share is much higher. The provision of such loans under the recommended conditions for financing owner-occupied residential property may lead to incomplete or distorted assessment of the related risks. The CNB therefore believes that extending banks' product ranges to include specific loans for buy-to-let purchases, which would also include detailed master credit standards, would help increase the transparency of the credit market and improve the system for managing the relevant risks. The long-term objective should be to cultivate a credit market where buy-to-let loans are financed mostly by credit products fully reflecting the nature of such loans and their risks.

Institutions are providing a substantial amount of mortgages with risky characteristics in terms of borrowers' debt servicing capacity

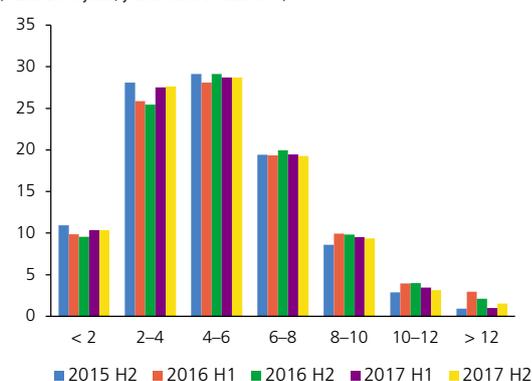
In FSR 2016/2017, the CNB identified loans with a DSTI ratio of over 40% and an LTI ratio of over 8 as risky. Lenders should be particularly prudent when assessing applications for loans with these or worse values. This applies especially when the recommended LTV limits are also exceeded. The results of the Survey indicate that loans with simultaneously risky LTV, LTI and LSTI levels continue to be provided to a significant extent. The share of loans with an LSTI ratio of over 40% and/or an LTI ratio of over 8 remained broadly stable in 2017 (see Charts V.27 and V.28). When reducing the volume of loans with LTVs of 80%–90%, institutions did not significantly reduce the volume of loans that simultaneously had an LSTI ratio of over 40% or an LTI ratio of over 8. Loans with a high probability of default and a potentially large loss given default were thus not eliminated. Almost 10% of loans had both ratios above the said levels. The percentage of risky loans in the category of loans with LTVs of over 80% and that in total loans remained roughly the same. From this perspective, the results do not indicate that lenders were stricter in approving risky loans with higher LTV ratios.

The financial reserve may be decreasing for applicants for new loans

Despite a gradual increase in the average size of new loans, the LTI and LSTI distribution remains stable over time (see Chart V.30), due in part to the fact that as the loan size increases, the amount of net income

GRAPH V.27

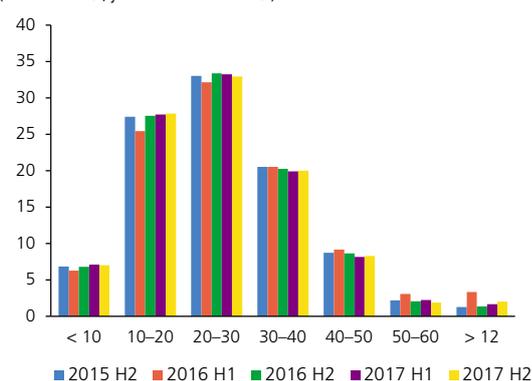
LTI distribution of new loans
(x-axis: LTI in years; y-axis: share of loans in %)



Source: CNB

GRAPH V.28

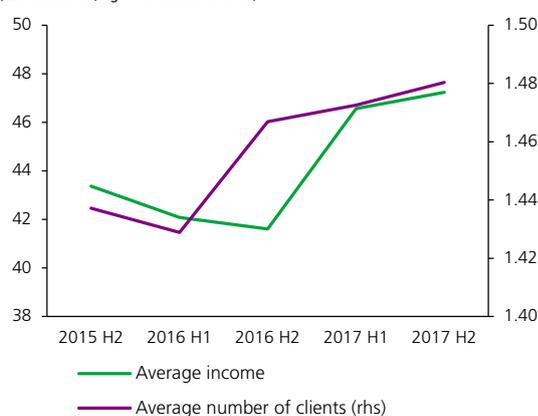
LSTI distribution of new loans
(x-axis: LSTI in %; y-axis: share of loans in %)



Source: CNB

GRAPH V.29

Average documented income and number of clients included
(CZK thousands; right-hand scale: in units)

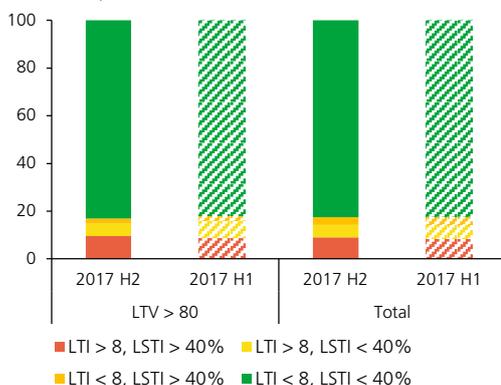


Source: CNB

GRAPH V.30

Breakdown of the riskiness of loans by LTV category in the Recommendation

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

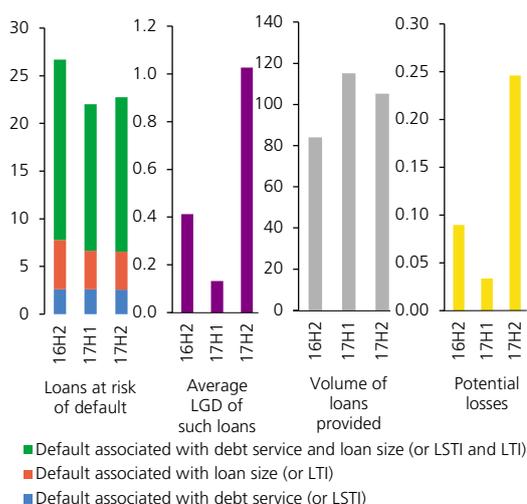


Source: CNB

GRAPH V.31

Indicator of potential losses on new loans and its components

(%; CZK billions; CZK billions)

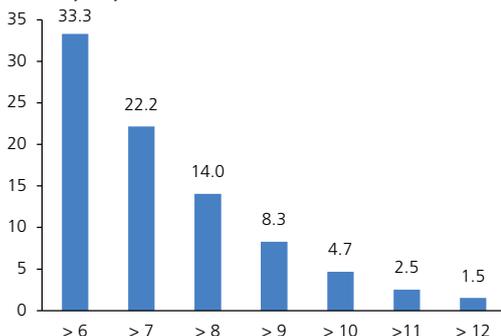


Source: CNB

GRAPH V.32

LTI distribution of new loans

(x-axis: LTI in years; y-axis: share of loans in %; 2017 H2)



Source: CNB

declared in the loan application also rises. Although this can be partly explained by the improving income situation of households, the higher declared income is also partly due to a rising average number of applicants included in the documented income (see Chart V.29). This tendency may indicate that for a growing number of clients, documenting only one person's income is not sufficient to obtain a loan of the required size.

The CNB continues to regard loans with DSTIs of over 40% and DTIs of over 8 to be risky

The CNB regularly assesses the riskiness of loans according to their LSTI and LTI ratios using data on individual loans from the Survey (for details see the thematic article *The introduction and calibration of macroprudential tools targeted at exposures secured by residential property in the Czech Republic* in this Report). The results of analyses conducted for loans provided in 2017 H2 and the stress tests of households (see section 4.3) confirm that loans with LSTIs of over 40% and LTIs of over 8 can still be assessed as risky. The stress tests also show that loans with DSTIs at 30% may be a major risk for households with relatively low income. Exceeding these limits significantly increases the probability of loan applicants being exposed to an increased risk of default in the future (see Charts 3 and 4 in the above-mentioned thematic article).

The risks associated with the provision of new loans increased slightly overall in 2017 H2

The summary indicator of potential losses on new loans, which assesses the risks associated with the provision of housing loans in terms of financial stability, rose slightly compared with previous rounds of the Survey (see Chart V.31).³¹ This is due mainly to a rising estimate of the average loss given default, which reflects increasing overvaluation of housing prices in relation to the LTV limits in effect. However, the component of the indicator that assesses the risks associated with borrowers' loan servicing capacity is also rising moderately. Conversely, a slight decline in the total volume of new loans reduced the growth in absolute potential losses for the banking sector.

The potential risks in the area of borrowers' vulnerability necessitate an extension of the scope of application of the CNB Recommendation

Housing prices in the Czech Republic tend to grow faster than the disposable income of households. This is being reflected in an increase in the loan amounts needed to purchase housing and hence in the relative indebtedness of borrowers. Borrowers are thus becoming more vulnerable. Given the current housing prices and optimistic income expectations, the likelihood of problem applicants with lower risk

³¹ The methodology relating to the construction and logic of the indicator is described in Hejlová, H., Holub, L., Plašil, M. (2018): *The introduction and calibration of macroprudential tools targeted at exposures secured by residential property in the Czech Republic*, thematic article in this Report.

aversion seeking loans to an increasing extent is meanwhile rising. Based on a risk assessment, the CNB considers it necessary to further extend the Recommendation in this area to include instruments targeted at risks which lenders as a whole are exposed to indirectly through borrowers' balance sheets and their potential reaction to worsening economic conditions.

Given the growing risks in the areas of household debt and debt service, the Recommendation has been extended to include DTI and DSTI caps...

Based on the finding that a significant percentage of loans are displaying risky characteristics in terms of applicants' income (see Charts V.32 and V.33), the CNB is extending the Recommendation to include the setting of upper DTI and DSTI limits. Both recommended ratios are of critical importance. The DTI ratio is designed primarily to mitigate risks associated with excessive household debt, while the DSTI ratio is targeted at risks connected with excessive debt service of households. The indicator of potential losses proves the importance of setting limits on these ratios (see Chart V.31). It shows that risks associated with borrowers' ability to repay loans are elevated and the share of potentially endangered loans in respect of which repayment problems may occur is high.

...which may also have a favourable effect on the fulfilment of the LTV limits

Compliance with the DTI and DSTI limits by lenders can reduce the risks associated with loans with high LTV levels where loan applicants reduce their financial reserves in order to bring the LTVs for their loans below the recommended limits. Loans with high LTVs also bear the highest interest rates, which increases the debt service of these applicants. Setting DTI and DSTI caps will reduce the risk of circumvention of the LTV limits through the parallel provision of other consumer loans (see Chart V.26). Previously, when additional loans were provided by a lender other than the mortgage-providing bank, the provider of the additional loan did not formally breach the rules set out in the Recommendation. Under the new rules, however, such lenders will be bound by the recommended DTI or DSTI limits. An additional loan should not be provided if it would cause one or both ratios to increase above the recommended levels.

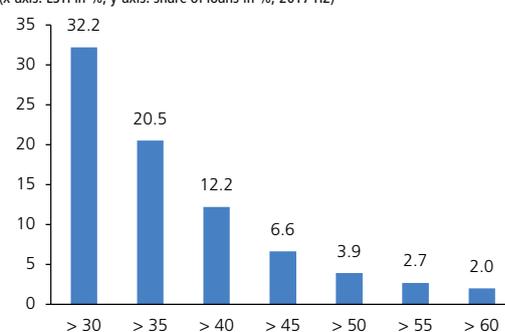
The upper limit on the DTI ratio is set at 9 times and that on the debt-service ratio at 45% of the applicant's net annual income with effect from 1 October 2018

According to CNB analyses conducted using LTI and LSTI data, many clients do not have a sufficient financial reserve. Such a reserve is important for maintaining their ability to service their loans in the event of adverse changes in their income situation or in the level of interest rates. To mitigate these risks while not reducing the availability of loans, the CNB is supplementing its warning about the riskiness of loans with DTIs of 8 and DSTIs of 40% by setting upper limits on the DTI and DSTI ratios of 9 times and 45% of the applicant's net annual income respectively. However, applications for loans with DTIs of 8 and DSTIs of 40% should still be assessed with an increased degree of prudence. In

GRAPH V.33

LSTI distribution of new loans

(x-axis: LSTI in %; y-axis: share of loans in %; 2017 H2)

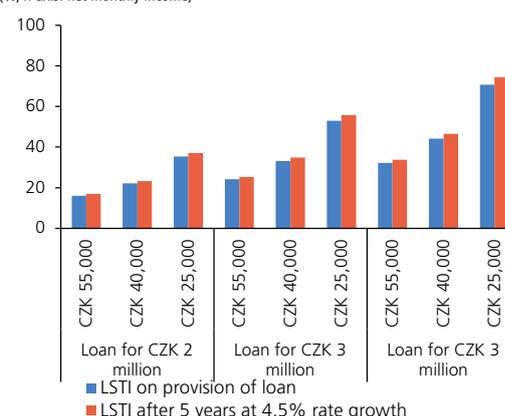


Source: CNB

GRAPH V.34

LSTI on the provision and refixation of loans as a function of income and interest rates (rising income)

(%; x-axis: net monthly income)



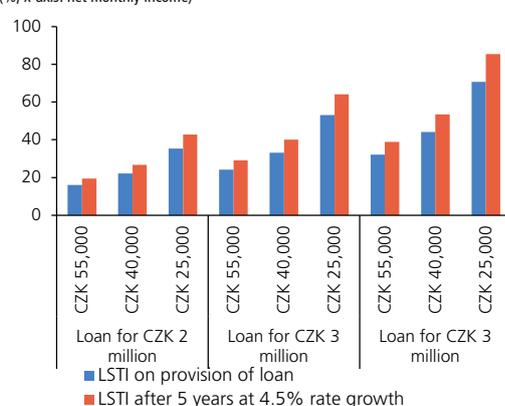
Source: CNB

Note: The interest rate on provision of the loan corresponds to interest rates on new loans to households for housing in 2017 Q4 (2.37%). Loan maturity considered: 25 years. Five-year income growth considered: 15%.

GRAPH V.35

LSTI on the provision and refixation of loans as a function of income and interest rates (constant income)

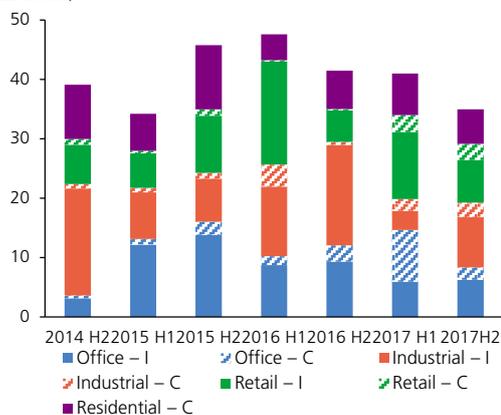
(%; x-axis: net monthly income)



Source: CNB

Note: The interest rate on provision of the loan corresponds to interest rates on new loans to households for housing in 2017 Q4 (2.37%). Loan maturity considered: 25 years.

GRAPH V.36

Amount of new loans secured by commercial property
(CZK billions)


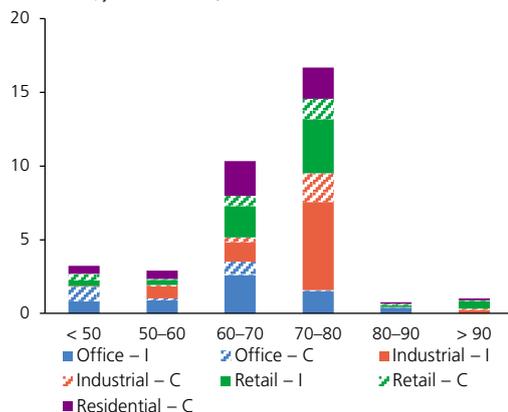
Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

GRAPH V.37

LTV distribution of new loans in 2017 H2

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



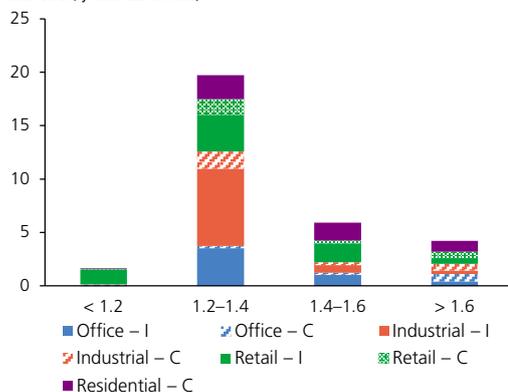
Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

GRAPH V.38

DSCR distribution of new loans in 2017 H2

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



Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

countries which apply DTI and/or DSTI limits, the relevant limits are set at similar or stricter levels.³²

It is admissible to exceed the limits on the two ratios for a maximum of 5% of the total volume of loans provided

The CNB respects the fact that a small proportion of credit cases have specific characteristics and that strict insistence on the application of the set caps could lead to excessive regulatory hardship. Lenders are hence given the option to cover these specific cases under a 5% exemption. Charts V.32 and V.33 show that even if the DTI and DSTI ratios exceed the reported LTI and LSTI levels, the set limits for both ratios in combination with the 5% exemption should cover most previously provided loans.

Lenders should assess clients' loan servicing capacity if lending rates increase by 2 pp

Since 2015, the CNB Recommendation has contained a provision that institutions should assess clients' ability to service loans from their own resources under adverse conditions (i.e. they should stress-test clients' ability to service the loan). A standard risk which should be tested is that of a rise in interest rates, which can occur in the event of loan refixation or refinancing. Given the need for equal treatment, the CNB has reconfigured the rule for this test so that lenders use an interest rate at least 2 pp above the planned contractual rate. This rule also responds to the finding that there is a still significant share of loans with a high LSTIs. Some borrowers may reach risky DSTI levels even with a relatively small increase in interest rates (see Chart V.34), especially in the event of an adverse change in their income (see Chart V.35).

The CNB will again seek the statutory power to set upper LTV, DTI and DSTI limits for mortgages

An amendment to the Act on the CNB containing these powers was in the legislative process in 2017. Owing to the end of the parliamentary term of the Chamber of Deputies, however, it was not finalised. The new draft that the CNB and the Czech Ministry of Finance will put into the legislative process this year will be based on a compromise wording incorporating proposed amendments approved in the parliamentary budget committee in 2017. Its objectives include ensuring a level playing field on the market and prevent unfair competition among lenders. Banks currently fear losing market share to other institutions observing the Recommendation to a lesser extent. Banks and building societies suspect non-banks of providing part-financing of loans and encumbering clients with excessive debt and high interest payments. Foreign institutions not be subject to CNB supervision may also start to provide mortgages to a much greater extent in the future. The only way to ensure a level playing field on the market in this situation is to set universal conditions for all lenders by law. This would enable the CNB to respond directly and

³² In Norway, for example, the DTI ratio is set at 6-7 depending on the borrower's income. There is also a DSTI limit in Switzerland in the form of self-regulation by the Swiss Bankers Association. The maximum DSTI is set at 33% of gross income (just under 45% when converted to net income).

quickly to non-compliance with the rules by applying remedial measures to all types of lenders. It is also vital for the CNB to have access to data on loans provided, as this will enable it to conduct effective checks of compliance with the relevant rules. The CNB will base the setting of LTV, DTI and DSTI caps on an assessment of housing loan developments, indicators of potential overvaluation of housing prices and indicators of the vulnerability of the banking sector and the household sector to adverse economic shocks.

Numerous national authorities are vested with statutory powers regarding credit ratios

Limits on credit ratios are applied in various forms in numerous EU countries. The LTV ratio, for example, is currently limited in one way or another in 15 EU countries. The possibility of limiting credit ratios has been enacted in a number of countries. In Slovakia, the central bank may limit LTV, DSTI and loan maturity. In some EU countries, macroprudential authorities have the right to set ratios but have not exercised it yet due to low risks. In Austria, a law allowing limits to be put on LTV, DTI, DSTI, maximum maturity and the loan repayment method was adopted in 2017. Legislative processes are ongoing in other EU countries. In Luxembourg, for example, lawmakers are debating a bill containing the power to limit LTV, LTI, DTI and DSTI and to set the initial regular loan instalment.

5.3.2 Risks Associated with Commercial Property Markets

The volume of new loans secured by commercial property provided by banks in the Czech Republic did not increase

In 2017 H2, loans secured by commercial property provided by banks in the Czech Republic³³ amounted to around CZK 35 billion, i.e. almost 30% of new loans secured by residential property, and thus remained slightly below the levels observed in 2017 H1 and 2016 H2 (see Chart V.36). The various types of commercial property were represented quite evenly in the financing structure.

Credit standards eased in 2017...

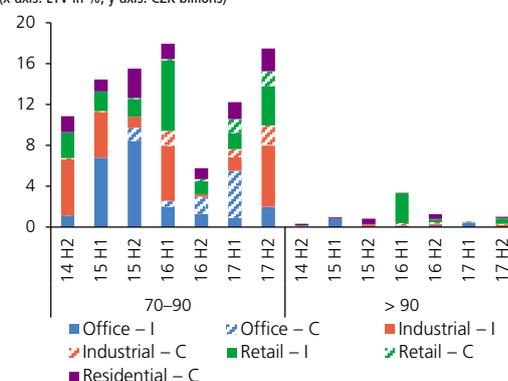
Most of the new loans were provided with LTVs of 70%–80% and DSCRs of 1.2–1.4 (see Charts V.37 and V.38). Compared to previous half-years, the current amount of new loans with LTVs of over 70% is close to that observed in 2016 H1, which was the easiest to date in terms of credit standards (see Charts V.39 and V.40). The volume of loans with a combination of very risky characteristics as regards loan security and the ability to generate income to cover debt was limited in 2017 H2: loans with LTVs of over 70% combined with a DSCR of below 1.2 accounted for less than 3% of new loans (see Chart V.41). However, the determination of DSCR values entails estimating the future income arising from the construction or possession of property and is thus subject to subjective assessment by the lender. Perceptions of property market developments tend to be strongly procyclical. For example, expected

33 According to data from a regular survey of eight banks covering around 70% of the market as of 30 June 2015.

GRAPH V.39

LTV distribution of new loans over time

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



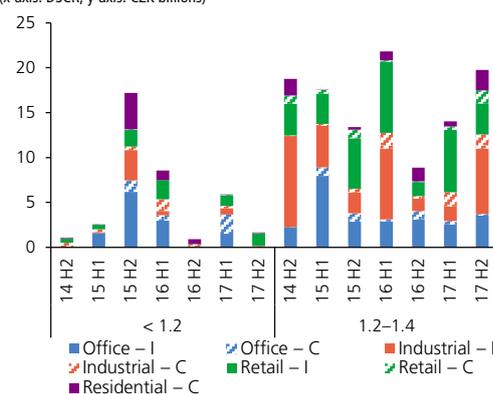
Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

GRAPH V.40

DSCR distribution of new loans over time

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



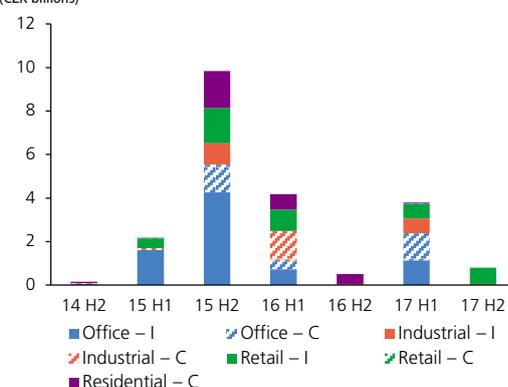
Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

GRAPH V.41

Amount of new loans with an LTV of more than 70% and a DSCR of less than 1.2 in 2017 H2

(CZK billions)



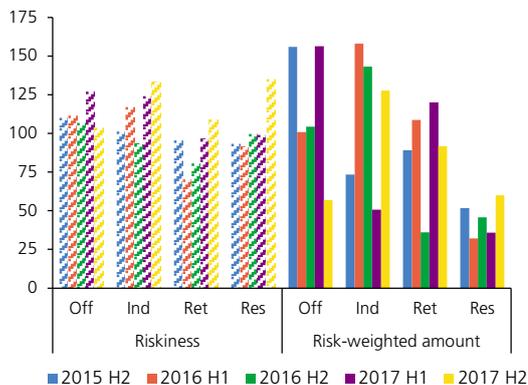
Source: CNB

Note: I: investment in commercial property, C: construction of commercial property.

GRAPH V.42

Indicator of the riskiness and risk-weighted amount of new loans

(average across property types in 2015 H2 = 100)



Source: CNB

Note: Off: office property, Ind: industrial property, Ret: retail property, Res: residential property. The indicator of the riskiness of new loans secured by commercial property was created using data on the estimated overvaluation of prices for each property type and the LTV and DSCR of loans in the individual categories of values, weighted by the share of loans in those categories. The indicator of the risk-weighted amount of new loans was created by multiplying the previous indicator by the amount of new loans.

property rental income or the future vacancy rate may be set on the basis of currently high levels.

...and the riskiness of new loans increased

As growing optimism prevailed in the commercial property market in the period under review (see section 2.2),³⁴ loans provided with the same credit ratios may currently be riskier than loans provided in previous half-years. Taking into account the estimated degree of property price overvaluation (see Chart II.33 in section 2.2), the riskiness of new loans provided in 2017 H2 was the highest in the period under review for all types of property except office property. This is suggested by both indicators of the riskiness of new loans secured by commercial property (see Chart V.42). The risks of these loans are partially reduced relative to previous half-years by a lower volume of loans granted (except for loans for the construction of residential property; see Chart V.42).

The Czech Republic mostly exports risks associated with commercial property markets

The limited share of exposures secured by commercial property in the balance sheets of banks in the Czech Republic is one of the reasons why risks associated with commercial property markets do not pose an immediate threat to the financial stability of the Czech banking system. The risks associated with the systemic importance of exposures secured by commercial property and the potential spillovers of negative developments in the commercial property market to other parts of the Czech economy were also assessed by the ESRB as being negligible in 2018. In 2018, it conducted a statistical assessment of a series of ratios across EU states for four categories of risks using data available at the end of 2017, or 2016 in the case of commercial property. In the Czech Republic, collateral value was assessed as being a medium risk, while debt financing and the ability to generate income to service loans were classed as low risks.

³⁴ See, for example, ARTN (2018). *Trend Report 2018*, available at <http://artn.cz/trend-report/tr-2018/>.

5.4 MACROPRUDENTIAL POLICY AND THE REGULATORY ENVIRONMENT IN THE EU

5.4.1 An Overview of Macroprudential Measures in the EU

Macroprudential authorities in EU countries mostly use instruments to prevent misaligned incentives and curb excessive credit growth and risks in the property market. Non-euro-area countries are more active in applying macroprudential instruments. The CNB ranks among the most active macroprudential authorities in the EU. Table V.4 summarises the application of the instruments as of the end of 2017 and any tightening of the settings of macroprudential policy in the European countries under review (the EU plus Norway). Fewer measures (38 in total) – most of them directed towards tightening macroprudential policy – were notified in the EU as a whole in 2017 compared to 2016 (54 in total). The number of measures was lower mainly because the ESRB did not issue any recommendations for reciprocation in 2017. Western and Southern European countries generally adopted a lower number of measures. This may be due to lower risks or higher macroprudential policy risk tolerance, or to a tendency to put off necessary measures (inaction bias). See Table II.1 in section 2 for details on risks in selected Member States.

Most Member States, including the Czech Republic, have introduced the capital conservation buffer at the highest permissible rate. The remaining countries will make it up by the end of 2018. Four countries (CZ, SK, UK and LT) increased the countercyclical buffer rate. This indicates perceptions of an upward shift in the phase of the financial cycle in some economies. Norway, Sweden and Iceland also have non-zero CCyB rates. Macroprudential authorities adopt national CCyB decision-making methodologies based on a number of indicators other than the credit-to-GDP ratio.³⁵

Misaligned incentives can be prevented by means of a buffer for O-SIIs or the SRB. All Member States completed the process of identifying systemically important institutions back in 2016. There were 202 systemically important institutions in 2017, twelve of which were global systemically important institutions (G-SIIs). Two of these are parent banking groups of domestic systemically important banks.³⁶ The CNB drew up a list of O-SIIs in 2015 and regularly reviews its composition (see section 5.2.3). Like several other EU countries, it uses the SRB to mitigate risks associated with domestic systemically important banks. The SRB rate is no more than 3% in the countries under review. Other Member States have reduced the risks associated with domestic systemically important banks using a capital buffer for O-SIIs, which can be no more than 2%. In some countries, a combination of an SRB and an O-SII buffer is used. The identified G-SIIs started to fill up the buffer during 2016. The buffer should reach full capacity corresponding to their systemic importance by

³⁵ Annex 2 of *Review of Macroprudential policy in EU 2017* deals in more detail with the issue of the approach to setting the CCyB. The CNB describes the current framework for setting the countercyclical buffer in the first thematic article of FSR 2016/2017 *The countercyclical capital buffer in the Czech Republic*.

³⁶ Société Générale as the parent banking group of Komerční banka and UniCredit Group as the parent banking group of UniCredit Bank CZ/SK.

2019. The gradual filling of capital buffers in other Member States is one reason why the capital adequacy of foreign EU banks has recently exceeded that in the Czech banking sector (see section 3.1 for details).

The residential property sector continues to be a source of risks to financial stability in many Member States. Around 70% of the Member States use at least one measure targeted at risks arising in the residential property sector. The most common measure is an upper LTV limit combined with an LTI/DTI limit or an LSTI/DSTI limit. A minimum risk weight increasing the capital requirements for mortgage loan providers is also used. The residential property sector is thus the area where macroprudential policy instruments are most often applied (ten measures in 2017). Some of them, however, are not governed by CRD/CRR, so national legislative frameworks necessary for the use of such measures are being created. Austria and Luxembourg, for example, undertook such initiatives in 2017, possibly also in response to the warnings issued to these and other countries by the ESRB in 2016.

The CNB monitors the activities, risk assessment approaches and measures of foreign macroprudential authorities. It also analyses their possible cross-border effects in connection with the framework for mutual recognition of macroprudential measures. Based on voluntary reciprocity,³⁷ the Member States did not decide on the reciprocation of any macroprudential measures in 2017.

³⁷ For details see FSR 2015/2016, section 4.4.2.

TABLE V.4

Overview of active macroprudential instruments in the EU and Norway

Risk Measure	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
Capital conservation buffer			•	•	•	•	•	•	•	•		•				•	•	•	•			•	•	•	•	•	•	•	•
Countercyclical capital buffer (CCyB)					•																								•
Leverage ratio																													•
Loan-to-value (LTV)					•					•																			•
Debt-service-to-income (DSTI) or loan-service-to-income (LSTI)								•																					•
Loan-to-income (LTI) or debt-to-income (DTI)							•																						•
Loss-given-default (LGD)																													•
Risk weights			•							•																			•
Systemic risk buffer (SRB)			•		•					•																			•
Global systemically important institution buffer (G-SII buffer)						•					•																		•
Other systemically important institution buffer (O-SII buffer)			•																										•
Liquidity ratio					•																								•
Loan-to-deposit (LTD)																													•
Pillar II					•																								•
Loan amortisation																													•
Loan maturity									•																				•
Stress test					•																								•
Other measures			•		•																								•

Source: ESRB, adapted by CNB

Note: The table is derived from the overview of macroprudential measures published on the ESRB website. It is a simplified list of measures. Red dots denote a tightening of the measures in 2017.

5.4.2 The Basel Committee on Banking Supervision Has Completed the Basel III Reform Package

At the end of 2017, the Basel Committee on Banking Supervision (BCBS) presented a package of proposals aimed at strengthening the Basel III risk capital framework. These proposals follow up on the first phase of Basel III launched in 2010³⁸ and are thus sometimes referred to as Basel IV. While the initial Basel III reforms concentrated largely on the capital side of the capital ratio calculation, the 2017 set of proposals mainly covers the calculation of risk weights. The common denominator of the proposed measures is that they improve the stability and credibility of Basel III, especially in the area of capital for credit risks, and facilitate the comparability of banks' capital ratios.

One of the key instruments is a newly presented set of minimum limits for risk weights and parameters in banks' internal models (IRB approach). The basic backstop as regards prudential risk assessment will be a lower limit for risk weights under the IRB approach (the output floor), which should correspond to 72.5% of risk-weighted assets under the standardised approach (STA approach). This value redefines the relationship between the two approaches.³⁹ The second backstop involves the adoption of minimum estimates of probability of default and loss given default. In the case of probability of default, the floor is 0.05% for corporate and most retail exposures, including mortgages. The floor for loss given default ranges between 0% and 50% depending on the exposure category and collateral type.

The emphasis on greater stability and comparability of risk weights is also reflected in a shift towards more robust approaches for calculating risk weights. For selected exposures⁴⁰ the reform package constrains the application of internal models for calculating capital requirements. It no longer allows the use of the advanced IRB approach for exposures to financial institutions and large corporations while permitting only the STA approach for equity exposures.

Another substantial change is an effort to take a more faithful account of risks in the STA approach for credit risk, which is used by most banks around the world.⁴¹ In the case of the STA approach, it will be possible to apply different weights to exposures that are currently subject to a flat risk weight. The risk weights for housing and commercial property loans will thus depend on the loan-to-value ratio.⁴² For other types of exposures, the revised Basel III framework applies a more granular approach and assigns risk weights in a more detailed breakdown in the STA approach.

38 At the same time, the BCBS postponed the finalisation of reforms in the area of market risk (Fundamental Review of the Trading Book, FRTB) until 2022 and put off further work on the regulatory approach to sovereign risk.

39 The differences between the STA and IRB approaches are discussed in more detail in Box 5.3.

40 For example, exposures with low default occurrence.

41 Such exposures account for 29.2% of the Czech banking sector's exposures.

42 The potential impacts of the new approach on future risk weights are presented in Box 3.2.

BOX 5.2: THE REVISED BASEL III RULES AND THE CAPITAL INTENSITY OF RETAIL EXPOSURES SECURED BY RESIDENTIAL PROPERTY

This box presents the revised approach for setting risk weights for retail loans secured by residential property as proposed by the BCBS in December 2017 and to be implemented by 2022. The new rules should significantly change both approaches to setting risk weights. This box shows how these revised rules would affect the average risk weight in the category of retail exposures secured by residential property using data as of 31 December 2017.

STA approach

Under the current Basel III rules, the STA risk weight in this exposure category is 35% up to an LTV of 80%. The part of the exposure above this LTV level is treated as an unsecured loan and assigned a risk weight of 75%. By the CNB's calculation, the estimate of the resulting average risk weight in this exposure category is 35.9%.

Under the revised Basel III rules, exposures in this category, where debtors' ability to repay is not materially dependent on the cash flows generated by the residential property securing the loan, should be risk-weighted according to the LTV ratios as set out in Table V.1 Box.

The LTV ratio for this approach will have to be set in a prudent manner and the value of the collateral entering the denominator of the LTV calculation will be limited from above by its initial value when the loan was provided (more detailed information can be found in Basel Committee on Banking Supervision, 2017).⁴³ Alternatively, an approach can be applied where the part of the exposure up to an LTV ratio of 55% is assigned a risk weight of 20% and the part above this level a risk weight of 75%.⁴⁴ Calculations made using data as of 31 December 2017 show that the application of the revised rules would lead to the average risk weight in this category dropping by 17.5% (6.3 pp) to 29.6% if the approach in Table V.1 Box were used and by 20.3% (7.3 pp) to 28.6% if the alternative approach were used.

The revised Basel III rules imply lower risk weights for more mature loan portfolios with a lower average LTV ratio. However, the mortgage portfolio of banks in the Czech Republic is still relatively young, so there could be a much larger decline in risk weights relative to the current regulatory approach than that estimated using the end-2017 data.

TABLE V.1 Box

Risk weights for retail loans secured by residential property	
LTV	Risk weight
LTV ≤ 50%	20%
50% < LTV ≤ 60%	25%
60% < LTV ≤ 80%	30%
80% < LTV ≤ 90%	40%
90% < LTV ≤ 100%	50%
LTV > 100%	70%

Source: BCBS

⁴³ Basel Committee on Banking Supervision (2017): *Finalising post-crisis reforms*, Bank for International Settlements, <https://www.bis.org/bcb/publ/d424.htm>.

⁴⁴ According to the revised Basel III rules, the competent regulator should decide on which approach to use.

IRB approach

One of the most significant changes for IRB banks under the revised Basel III rules is the output floor proposed to be phased in between 1 January 2022 and 1 January 2027. The output floor sets a lower limit for the aggregate risk-weighted exposures of IRB banks at 72.5% of aggregate risk-weighted exposures calculated using the STA approach. The average output floor for IRB banks and the category of retail exposures secured by residential property would be 21.7% if the approach in Table V.1 Box and the data as of 31 December 2017 were used. For comparison, the average risk weight in this exposure category is currently 22.6%.

The reform package also focuses on the leverage ratio, where it proposes the introduction of an additional capital buffer to limit the leverage of global systemically important banks (the leverage ratio buffer). Other areas addressed by the reform package include the regulation of operational risk and credit valuation adjustment (CVA) risk. All the changes should be implemented by 1 January 2022. The only exception is the phase-in period of the output floor, which should end on 1 January 2027. In addition, national supervisors may cap the increase in banks' risk-weighted assets during the phase-in period at 25%.

5.4.3 The ESRB Has Clarified the Framework for Voluntary Reciprocity of Macroprudential Measures

Voluntary reciprocity (i.e. mutual recognition of measures) is an important means to maintain a level regulatory playing field and prevent undesirable cross-border leakages of EU Member States' macroprudential measures. The macroprudential authorities of a Member State that has activated a measure can request reciprocal application in other EU countries through the ESRB under Recommendation ESRB/2015/2.⁴⁵ The ESRB will assess the request and, if it regards it as being justified, issue a recommendation to the EU's macroprudential authorities to recognise the measure of the activating state.

Relevant authorities in Member States do not have to recognise the macroprudential requirements of the activating country across the board. In accordance with the *de minimis* principle, a recognised macroprudential measure may be applied only to financial institutions with material exposures to the activating country. However, the ESRB set no threshold defining material exposures in the context of voluntary reciprocity. Moreover, the initial experience with the application of the framework for voluntary reciprocity in the EU revealed a need to clarify the conditions under which the *de minimis* principle can be applied.

⁴⁵ Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures (https://www.esrb.europa.eu/pub/pdf/recommendations/2015/ESRB_2015_2.en.pdf).

In 2017, therefore, the ESRB clarified the voluntary reciprocity framework and the application of the *de minimis* principle. Under Recommendation ESRB/2017/4,⁴⁶ a Member State seeking reciprocity should now set a materiality threshold at the financial service provider level. This quantitative value proposed by the activating Member State is then assessed by the ESRB's permanent Assessment Team, which may recommend a different threshold if deemed necessary. The relevant authorities in Member States may apply the resulting threshold for their jurisdiction, set a lower threshold where appropriate or reciprocate the measure without any materiality threshold.

Of the EU Member States, voluntary reciprocity had been applied by the macroprudential authorities of Belgium and Estonia by the end of 2017. The CNB decided not to apply the measures reciprocally in either case⁴⁷ given domestic banks' minimal exposures to the activating countries. The CNB publishes its positions on proposed reciprocations on its website.⁴⁸

The concept of reciprocity is crucial for the conduct of macroprudential policy in the case of foreign bank branches, to which some macroprudential policy tools can be applied only through reciprocity, not directly. See Box 5.3 for more details.

BOX 5.3: THE CONVERSION OF SUBSIDIARIES INTO BRANCHES AND ITS CONSEQUENCES FOR THE EFFECTIVENESS OF MACROPRUDENTIAL POLICY

The low profitability of European banks, which is due, among other things, to the low interest rate environment, is encouraging banks to look for ways to increase their profits. One such way, leading through cost reductions and more relaxed regulatory requirements, is to convert a bank with legal personality in a given country (a subsidiary) into a branch of a foreign bank (a branch). In the past, such conversions usually concerned small subsidiaries and had no major impact on the effectiveness of the regulatory mechanisms in host countries' financial systems. Recently, however, financial institutions with significant market shares in host countries have been converted into branches. In early 2017, for example, Swedish bank Nordea announced the conversion of its subsidiaries in Northern Europe into branches. Their shares in total banking sector assets stood at 40% (Finland), 10% (Denmark) and 9% (Norway) on the date of the announcement.

46 Amending Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures (OJ C 431 of 15.12.2017); see https://www.esrb.europa.eu/pub/pdf/recommendations/2017/ESRB_2017_4.en.pdf.

47 The request of the Estonian macroprudential authority to apply a systemic risk buffer of 1% was reciprocated indirectly through the setting of a systemic risk buffer rate in the Czech Republic applying to all exposures, including cross-border ones.

48 See: http://www.cnb.cz/en/financial_stability/macroprudential_policy/mutual_recognition_macroprudential_measures.html.

TABLE V.2 Box

Macroprudential measures and foreign bank branches		
Macroprudential measures (legal basis)	Applicability to branches	Reciprocity under EU law
O-SII buffer (Art. 131 CRD)	Not applicable	Not reciprocal
Systemic risk buffer (Art. 133–134 CRD)	Indirectly (reciprocity)	Voluntary (Art. 134 CRD)
Countercyclical capital buffer (Art. 130, 135–140 CRD)	Indirectly (reciprocity)	Mandatory up to 2.5%, Voluntary above 2.5% (Art. 140 CRD)
National macroprudential methods (Art. 458 CRR)	Indirectly (reciprocity)	Voluntary (Art. 458 CRR)
LTV/LTI/DSTI and other national measures (national law)	Directly (under national law)	Voluntary*/ Not necessary
	Indirectly (reciprocity)	
Regulation of risk weights for STA banks (Art. 124 CRR)	Indirectly (reciprocity)	Mandatory (Art. 124 CRR)
Regulation of risk weights for IRB banks (Art. 164 CRR)	Indirectly (reciprocity)	Mandatory (Art. 164 CRR)
Pillar II measures (Art. 103 CRD)	Indirectly (reciprocity)	Voluntary*

Source: CNB

Note: * Voluntary reciprocity under Recommendation ESRB/2015/2 also applies to instruments that do not explicitly fall under voluntary reciprocity as defined in CRD IV/CRR.

The subsidiaries also rank among other systemically important banks (O-SIIs) in the countries concerned. The bank's headquarters are expected to be moved to Finland at the end of this year. Other banking groups in this region are also considering converting systemically important subsidiaries into branches.⁴⁹ In the Czech banking sector, five of the seven O-SIIs – accounting for 64.1% of total assets – are foreign subsidiaries.⁵⁰ If a group was to consider converting domestic subsidiaries into branches, the potential impacts on the effectiveness of macroprudential policy would be a very important issue from the CNB's perspective.

The conversion of subsidiaries into branches may not have clear-cut impacts on the host country's financial stability. Unlike subsidiaries, branches are not independent legal entities and form an integral part of the parent company. Developments in other parts of the company or the group as a whole thus have a more immediate impact on its business. This can be reflected, for example, in increased sensitivity of credit supply to external economic developments and amplification of the host country's credit cycle. However, financial stability is affected more strongly by the parent company's solvency and exposures than by legal form.⁵¹ They depend to a large extent on the branch's position in the strategic plan, its profitability and its reputational risk for the parent group as a whole.

From the macroprudential policy perspective, the conversion of subsidiaries into branches could significantly affect the choice and effectiveness of the instruments used by domestic macroprudential authorities to maintain financial stability, as most macroprudential measures can be applied directly only to institutions established under national law, not to branches. In this case, macroprudential instruments are applied to branches only indirectly through reciprocity (i.e. mutual recognition of measures). European legislation distinguishes between mandatory and voluntary reciprocity. Mandatory reciprocity applies to just a few instruments defined in CRD IV/CRR, whereas voluntary reciprocity allows macroprudential authorities to request reciprocation of measures even if they have not been harmonised in the EU (see Table V.2 Box).⁵²

49 One example is Luminor, which was established through the merger of the businesses of Nordea and DNB in the Baltic States. The conversion into branches may start in 2019–2020.

50 Foreign subsidiaries account for 9.5% of the banking sector's total assets.

51 For more details see, for example, Cerutti, E. and Claessens, S. 2014. *The Great Cross-Border Bank Deleveraging; Supply Constraints and Intra-Group Frictions*, IMF Working Papers 14/180, International Monetary Fund.

52 See Recommendation ESRB/2015/2 on the assessment of cross-border effects of and voluntary reciprocity for macroprudential policy measures. https://www.esrb.europa.eu/pub/pdf/recommendations/2015/ESRB_2015_2.en.pdf.

However, indirect application of macroprudential measures through reciprocity faces a number of restrictions. Measures relating to a specific institution that cannot be reciprocated (such as the O-SII buffer) are one example. In other cases, application of the instruments of the activating macroprudential authority may not be recognised because of the voluntary nature of reciprocity, or their effectiveness may be limited by the absence of an equivalent instrument in the country where the parent company is established. In its positions, the CNB therefore advocates a strengthening of mandatory reciprocity and an extension of macroprudential powers (including LTV, DTI and DSTI) in EU legislation, as this would facilitate reciprocation in the European context. At the national level, it will always be generally conducive to the effectiveness of macroprudential policy to anchor the key macroprudential instruments not covered by EU legislation in law so that they also apply to foreign bank branches.⁵³ This limits regulatory arbitrage and establishes true enforceability of macroprudential measures.

Last but not least, the issue of the conversion of systemically important subsidiaries into branches is linked with that of the availability of reliable and timely information for macroprudential policy purposes. Compared to subsidiaries, branches have limited information duties towards host country supervisory authorities. Close cooperation and exchange of information between the supervisory and macroprudential authorities of international banks are therefore crucial for high-quality analyses of systemic risks and the formulation of effective macroprudential policy. This should be aided by the EBA's guidelines on supervision of significant branches,⁵⁴ which take into account the importance of very significant ("significant-plus") branches as regards their potential impact on the host country's financial stability and substantially expand cooperation and exchange of information in colleges of supervisors. Where foreign branches hold a significant position in the national banking system, effective cooperation between supervisory and macroprudential authorities also gains in importance.

⁵³ This applies to the proposed amendment to the Act on the CNB, which provides for the use of credit ratios (LTV/DTI/DSTI) if systemic risk materialises in the area of consumer credit secured by residential property.

⁵⁴ These guidelines took effect on 1 January 2018. For more details, see https://www.eba.europa.eu/documents/10180/2126653/Guidelines+on+supervision+of+significant+branches+%28EBA-GL-2017-14%29_EN.pdf.

5.4.4 The CNB as a Resolution Authority

The CNB became a resolution authority for credit institutions and some investment firms and their groups in the Czech Republic on 1 January 2016, when Act No. 374/2015 Coll., on the Recovery and Resolution, came into effect.

The main purpose of the European⁵⁵ resolution framework is to establish a system providing relevant authorities with a credible set of tools to intervene sufficiently early and quickly in an unsound or failing institution so as to ensure the continuity of the institution's critical financial and economic functions, while minimising the impact of an institution's failure on the economy and financial system.

In its areas of responsibility, the CNB therefore prepares resolution plans for institutions and groups, or is involved in their preparation within colleges in the case of cross-border entities.

Planning and assessment of resolvability

In order to avoid moral hazard, any failing institution should be able to exit the market, irrespective of its size and interconnectedness, without causing systemic disruption. A failing institution should in principle be liquidated under normal insolvency proceedings. However, liquidation under normal insolvency proceedings might in some cases jeopardise financial stability, disrupt the provision of critical functions and affect the protection of depositors. In such cases there is a public interest⁵⁶ in placing the institution under resolution and applying resolution tools.

Therefore, if the CNB concludes that the liquidation of an institution or group entities under normal insolvency proceedings may not be feasible and credible or that it may be necessary to take resolution action in the public interest because liquidation under normal insolvency proceedings would not achieve the resolution objectives⁵⁷ to the same extent, it will choose a suitable resolution strategy for the institution or group.

The feasibility and credibility of liquidation under normal insolvency proceedings is thus, among other things, part of the regular assessments of the resolvability of institutions and groups⁵⁸ which the CNB conducts in the process of preparing plans and before making actual decisions on the use of resolution tools and powers.

55 Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC, and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU, and Regulations (EU) No 1093/2010 and (EU) No 648/2012, of the European Parliament and of the Council.

56 See Article 80 of the Recovery and Resolution Act.

57 See Article 75 of the Recovery and Resolution Act.

58 Especially with reference to Articles 22 et seq. of the Recovery and Resolution Act and the related Commission Delegated Regulation (EU) 2016/1075.

Indicative thresholds for determining the basic approach and resolution strategy

Having regard to the differences in the nature of their business, their shareholding structures, legal forms, risk profiles, sizes and interconnectedness to other institutions, and the scope and the complexity of their activities, it is obvious that different institutions and groups require different approaches.

Any failure of an institution or group in the Czech Republic will therefore probably proceed under one of three basic strategic approaches to resolution: (i) liquidation or procedures under the Insolvency Act, (ii) the use of the tool for the (partial) transfer of the business to a private acquirer (the sale of business tool),⁵⁹ or (iii) strategy involving the application of the bail-in tool.⁶⁰

For this reason, the CNB has set general thresholds serving as a guide to selecting the preferred approach. However, since each such decision is specific to the given situation, institution or group, these internally set thresholds are only indicative.

TABLE V.5

General thresholds for determining the basic approach and resolution strategy		
Category	Thresholds, criteria	Basic strategic approach
Small and systemically insignificant institutions and groups which the CNB has not identified as significant providers of critical functions.	The existence of a public interest in taking resolution action is not anticipated, mainly because such institutions are not systemically significant and not significant providers of any critical functions. Liquidation under normal insolvency proceedings is assessed as credible and feasible by the CNB. Simplified obligations can be applied to the institution or group (Article 8 of the Recovery and Resolution Act).	Liquidation of the institution or group entities under normal insolvency proceedings. If an institution fails, the Financial Market Guarantee System will compensate depositors for insured deposits up to the amount stipulated by law (Act No. 21/1992 Coll.).
Institutions and groups which the CNB has identified as significant providers of one or a very limited number of critical functions, especially in the area of accepting deposits and making related payments.	The existence of a public interest in taking resolution action is anticipated, mainly because of the critical functions identified. Liquidation under normal insolvency proceedings is assessed as not credible by the CNB. Simplified obligations cannot be applied to the institution or group. Number of transaction accounts * > 50 000 – 70 000 Covered deposits > CZK 30 – 40 billion Total assets < CZK 150 – 200 billion	Resolution strategy using the sale of business tool. Given the specificities of the local market and the size of the institution, there is still high probability that a potential private acquirer will be found relatively quickly. Alternatively, the tool for the transfer of (part of) the business to a bridge institution can be applied (Articles 102 et seq. of the Recovery and Resolution Act).
Complex and systemically important institutions and groups which the CNB has identified as significant providers of a large number of critical functions and whose potential failure would lead to a serious threat to or disruption of financial stability.	The existence of a public interest in taking resolution action is anticipated, mainly because of the large number or complex nature of the critical functions provided and the high risk of financial stability being threatened or disrupted in the event of default. Liquidation under normal insolvency proceedings is assessed as not credible by the CNB. Simplified obligations cannot be applied to the institution or group. Total assets > CZK 150 – 200 billion	Resolution strategy using the bail-in tool.

Source: CNB

Note: * See Article 24 of Commission Delegated Regulation (EU) 2015/61. The number of transaction accounts criterion is related to the assessment of the critical function of accepting deposits and the anticipated significant negative impact of disruption to it on third parties. The same applies to the size criterion expressed in relation to total compensation for insured deposits and the related potential significant negative impact of the institution's failure and liquidation under normal insolvency proceedings on third parties, market trust and contagion risk.

⁵⁹ See Articles 96 et seq. of the Recovery and Resolution Act.

⁶⁰ Interference with property rights through the use of resolution action (instead of normal insolvency proceedings) should not be disproportionate. Affected shareholders and creditors should not incur greater losses than those which they would have incurred if the institution had been wound up at the time that the resolution decision is taken.

5.4.5 Macroprudential Policy Beyond Banking

The debate about systemic risk in insurance is gaining in intensity at the EU level

As non-bank segments of the financial sector increase in importance, macroprudential and supervisory authorities are starting to focus on systemic risk beyond banking.⁶¹ The European Insurance and Occupational Pensions Authority (EIOPA) published two documents on systemic risk in insurance in the first quarter of 2018. The first document presents the sources of and channels for the spread of systemic risk in the insurance sector and the role of macroprudential policy.⁶² The second document provides an overview of the existing Solvency II tools that have a macroprudential dimension.⁶³ A third document presenting potentially suitable new macroprudential instruments will be finalised in 2018. The ESRB sees systemic risk in insurance from a rather different perspective. It is preparing a document examining the systemic importance of insurance companies in both the financial sector and the real economy. It derives two main types of systemic risks and presents both the existing and potentially new macroprudential tools suitable for mitigating these risks.

Systemic risk has different sources in insurance than in banking

The EIOPA identified three main sources of systemic risk – transmission channels and mechanisms of action – in insurance.⁶² The first is the channel of fire sales, which affects the industry through a fall in market prices of investment assets. Repricing of insurance companies' unit-linked products affects their clients. Clients may terminate their policies in response to a drop in the value of life insurance units. Insurance companies may then be forced to sell investment assets to be able to pay redemption amounts. This may exacerbate the initial fall in asset prices and cause it to take on a systemic dimension. The second channel of systemic risk can arise if the insurance sector as a whole faces adverse conditions (such as a low-yield environment) or increased competition. This can result in a decline in the profitability of some insurance products and a decrease in available capital. This may lead to the termination of the provision of economically vital insurance products and the failure of one or more insurance companies, which may have systemic impacts. The third channel of systemic risk is the interconnectedness of insurance companies with the rest of the financial sector. Insurance companies may spread an initial local shock across the entire financial sector through direct balance-sheet interconnectedness, their position in financial groups, the provision of non-traditional insurance services and products, and common exposures.

61 In 2016, the European Systemic Risk Board (ESRB) published a strategic document defining systemic risks and macroprudential policy beyond banking (*Macroprudential policy beyond banking: an ESRB strategy paper*. ESRB, July 2016). The document concludes that certain systemic risks originate in the non-bank sector. However, they are smaller in significance and different in nature, emergence and effect than those in banking. An introduction to the issue of systemic risks for the Czech insurance sector is presented in the thematic article *Could the Czech insurance sector be a source of systemic risk?* in FSR 2015/2016.

62 *Systemic risk and macroprudential policy in insurance*. EIOPA, 2018.

63 *Solvency II tools with macroprudential impact*. EIOPA, 2018.

The current insurance legislation already offers tools with macroprudential elements...

The current Solvency II legislation offers some instruments containing macroprudential elements. One of the main tools is volatility adjustment. It was originally used as a microprudential instrument to reduce the volatility in insurance companies' profits caused by excessive changes in bond prices. Likewise, symmetric adjustment introduces a countercyclical capital requirement in relation to equity exposures. Both these instruments should reduce the procyclicality in insurance companies' investment decision-making and thus dampen the transmission and impacts of risks associated with fire sales. The current insurance legislation also increases the significance of qualitative instruments (such as ORSA⁶⁴) and vests supervisory authorities with the power to restrict certain financial activities or the provision of investment products by insurance companies. These types of instruments may potentially also have macroprudential applications.

...and possible new macroprudential tools are being debated at the EU level.

Instruments that might curb the impact of yet unregulated systemic risks in insurance (see Table V.6) have been presented in Europe as a follow-up to the already existing regulatory options.⁶⁵ Their specific form, effectiveness and operationalisation have only started to be debated. The current proposals for the introduction and calibration of these instruments emphasise the need to maintain the significant role of national macroprudential authorities. The most important tools considered include additional macroprudential capital requirements which could, like in banking, function in relation to procyclicality risk and take into account risks associated with systemically important insurance companies. Instruments related to liquidity risks are also being considered. Instruments that would enable insurance companies to slow or defer the payment of redemption amounts in the event of increased terminations of investment products are intended to prevent fire sales. Limits on excessive concentrations are targeted at concentration risk in relation to individual counterparties and sectors (especially government and corporate bonds, property exposures, loans provided and exposures to individual banks). The proposals also consider the establishment of a framework for the resolution of insurance companies.

64 The own risk and solvency assessment (ORSA) under Solvency II requires every insurance company to create an internal procedural framework for regularly assessing its solvency needs, risk profile, capital structure, methodology for calculating technical provisions and so on. The ORSA should be integrated with the insurance company's medium to long-term strategic planning. The framework should also include internal stress testing and sensitivity analyses. Insurance companies submit reports on the results of ORSAs to supervisory authorities.

65 See the above-mentioned EIOPA and ESRB initiatives.

TABLE V.6

Overview of potential macroprudential instruments in insurance

INSTRUMENT	DESCRIPTION, SETTINGS UNDER CONSIDERATION
Capital instruments	
Leverage ratio	Ratio of Tier I capital to exposures.
Minimum solvency capital requirement	Additional minimum solvency capital requirement set in relation to minimum capital requirement.
Variable capital requirement similar to CCyB	Targeted at cyclical risks.
Additional capital requirement for systemic risk	Should cover requirements for systemically important institutions and requirements in relation to certain activities or products.
Measure preventing inadequate creation of provisions	For example, in the form of binding values of certain parameters entering calculation of technical provisions.
Liquidity instruments	
Enhanced reporting and monitoring duties in relation to liquidity risk	
Liquidity coverage ratio	Requirement for coverage of liquidity needs using available liquidity sources.
Liquidity buffer requirement	Requirement to maintain sufficient cash or other highly liquid assets, set on the basis of needs considered in stress situations.
Concentration limits and restrictions on certain activities	
"Soft" measures against excessive concentrations	For example, inclusion of risks associated with excessive concentration in stress tests and own risk assessments (ORSAs).
Concentration limits	Explicitly set limits.
Temporary restrictions on some types of transactions or activities, including payment of redemption amounts	In particular, limits on payment of redemption amounts where amount of exit requests could lead to growth in systemic risk (in the event of fire sales).
Preventive planning	
Recovery planning requirement	Aimed at reducing probability of default in systemically important insurance companies.
Resolution planning requirement	Aimed at reducing impacts of failure of systemically important insurance companies.
Systemic risk management planning requirement	Insurance companies' own plans for mitigating systemic risks in financial groups; currently only required of global systemically important insurance companies.
Liquidity risk management planning requirement	Insurance companies' own plans for mitigating liquidity risks in financial groups.

Source: EIOPA, ESRB, adapted by CNB

Systemic risk in the investment fund segment arises from liquidity transformation and leverage...

The ESRB presented an analysis of systemic risk in the investment fund segment in 2016. The first source of systemic risk is liquidity transformation in open-ended funds, where investors' highly liquid shares are placed in less liquid assets. The second source of systemic risk is leverage. Alternative investment funds may be partly financed by loans. Leverage increases the risk of illiquidity in the event of uncertainty on financial markets. Loan financing interlinks investment funds with other segments of the financial market, thereby contributing to the structural element of systemic risk.

...the ESRB issued recommendations focusing on risks in this segment

The ESRB issued five specific recommendations for the European Commission and the ESMA in 2017 in connection with the risks identified.⁶⁶ These recommendations are aimed at reducing the potential systemic consequences of liquidity transformation and leverage of investment funds. They contain (1) a broadening of the portfolio of liquidity management tools used by open-ended investment funds in the event of an increase in exit requests, (2) an extension of the reporting duty to limit liquidity mismatches at the asset level, (3) guidance for stress testing by investment funds, (4) an extension of the reporting duty for

⁶⁶ Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds (ESRB/2017/6).

standard funds to a level equivalent to that applying to alternative funds, and (5) clarification of the methodology for the assessment and management of systemic risks arising from leverage of alternative funds. The proposals maintain the significant role of national authorities and are generally accepted positively at the European level. The CNB supports these initiatives.