Macroprudential Diagnostics

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Introductory remarks

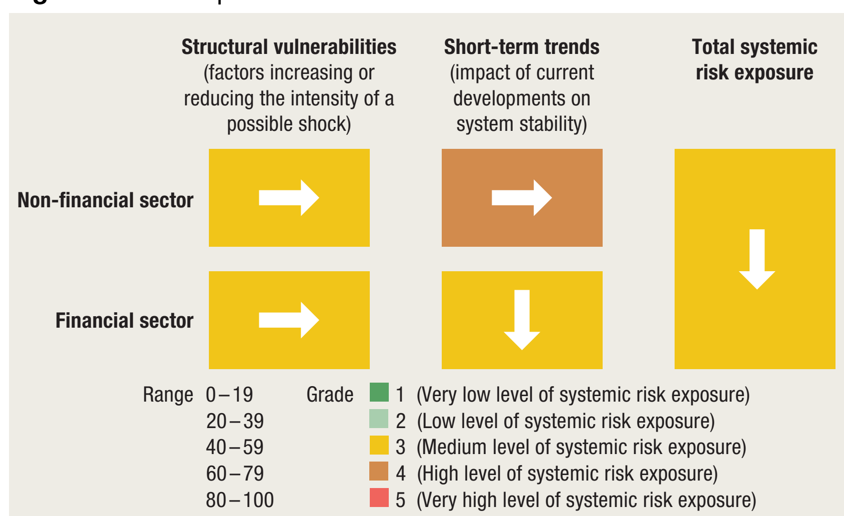
The macroprudential diagnostic process consists of assessing any macroeconomic and financial relations and developments that might result in the disruption of financial stability. In the process, individual signals indicating an increased level of risk are detected, according to calibrations using statistical methods, regulatory standards or expert estimates. They are then synthesised in a risk map indicating the level and dynamics of vulnerability, thus facilitating the identification of systemic risk, which includes the definition of its nature (structural or cyclical), location (segment of the system in which it is developing) and source (for instance, identifying whether the risk reflects disruptions on the demand or on the supply side). With regard to such diagnostics, instruments are optimised and the intensity of measures is calibrated in order to address the risks as efficiently as possible, reduce regulatory risk, including that of inaction bias, and minimise potential negative spillovers to other sectors as well as unexpected cross-border effects. What is more, market participants are thus informed of identified vulnerabilities and risks that might materialise and jeopardise financial stability.

1 Identification of systemic risks

The overall risk exposure of the financial system decreased slightly at the end of last year, the outlook being favourable in the short term (Figure 1). Domestic economic activity remained strong even in the context of unfavourable developments in the international environment owing to the momentum in domestic demand. This, with the parallel decline in the prices of raw materials, the normalisation of supply chains and the weakening of imported inflation, meant that domestic inflationary pressures eased considerably. The short-term risks for inflation trends in the current year reduced and became more balanced. The resilience of the non-financial sector to tightening financing conditions is supported by the robust labour market and institutional protection from interest-rate risk in the form of a broad use of loans with fixed interest rates, and the cap on the maximum variable interest rate on consumer loans, as well as the good business performance of the corporate sector[1]. Residential

1 See HNBlog: Lukinić Čardić, G. and J. Zrnc: *Where do higher prices come from?* Role of profits and markups, December 2023.

Figure 1 Risk map



Note: The arrows indicate changes in relation to the risk map published in Macroprudential Diagnostics No. 21 (October 2023).
Source: CNB.

real estate prices stabilised in the third quarter of 2023 amid the gradual reduction in turnover, while the strong growth in economic activity and income reduced the risk of a more radical cycle reversal in the residential real estate market. The high level of short-term liquidity increases bank resilience to potential liquidity challenges and favourably affects interest income, which in turn decreases the exposure of the banking sector to short-term risks. The main risks to financial stability continue to stem from geopolitical uncertainty, weak activity in the euro area and tightened financing conditions.

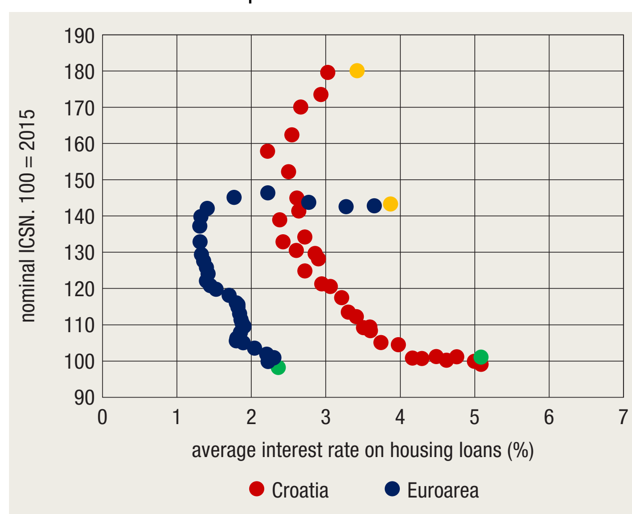
After a short deceleration in the third quarter, the growth in economic activity strongly accelerated at the end of 2023, while the risks to continued dynamic growth have eased and become more balanced this year. This growth was predominantly spurred by favourable results in tourism, stronger absorption of EU funds and strong growth of personal consumption driven by favourable labour market developments. Strong domestic demand and services exports thus overcame the modest performance in goods exports resulting from the weakening of foreign demand. The robust labour market marked by the continued increase in the number of the employed, record low unemployment and fast increase in real wages all support domestic demand. Improved consumer optimism and rising consumption spurred by the growth in employment and income also contributed to strong growth in demand for consumer loans. The expected resurgence of economic activity in the euro area and stronger global economic growth decrease negative risks to the domestic economy associated with weak foreign demand amid considerably tightened monetary policy and financing conditions. In these circumstances, the main negative risks arise from a possible further deterioration in geopolitical tensions and

from the undermining of trade relations among the major blocs (see chapter 2).

The slowdown in the current inflationary pressures that started in the second half of last year continued in January 2024. Over the last few months, the momenta (quarterly rates of change on an annual level) of all major inflation components were below their long-term averages, decreasing additionally in January (except for services). Amid the low current inflationary pressures and favourable base effect, the annual inflation rate, measured by the HICP, slowed down to 4.8% in January. If the global markets face no new disturbances and there is no strengthening of domestic inflationary pressures, the slowdown in inflation is expected to continue. However, the announced strong wage growth and further increase in demand might mitigate the intensity of this reduction.

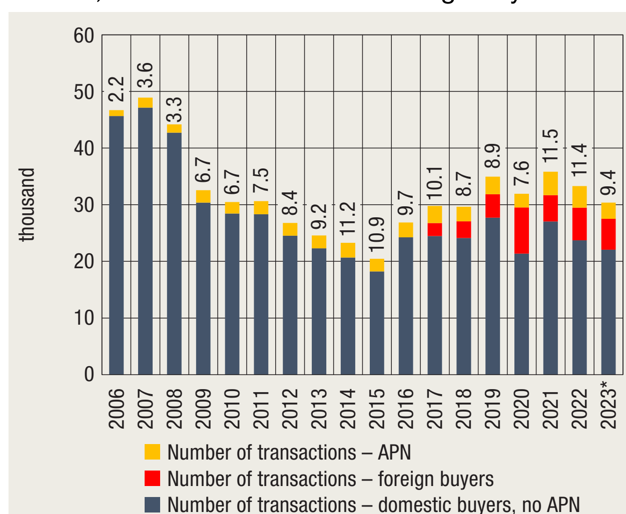
The downward tendency in demand and turnover in the residential real estate market was reflected in the stagnation of the prices of real estate in the third quarter of 2023 (Figure 2). For the second consecutive year the number of completed purchase and sale transactions was in decline, going down by 13.5% in the twelve months to September 2023. The decline particularly reflected the decrease in foreign demand amid the stagnation in the euro area economy, as well as a slightly stronger increase in interest rates in most euro area member states. Year-on-year in September 2023, the share of transactions with non-residents declined to 9.4%, 2.6 percentage points down on the same period last year (Figure 3). The decreased activity of non-residents

Figure 2 Interest rate tightening in the euro area affected real estate prices



Notes: The green dot refers to Q1 2015, while the yellow dot refers to Q3 2023. ICNS is the real estate price index which measures the trends in market prices of residential real estate purchased by households, irrespective of the previous owner or purpose of use.
Sources: Eurostat, CBS and CNB.

Figure 3 Number of real estate transactions in decline, with a smaller share of foreign buyers

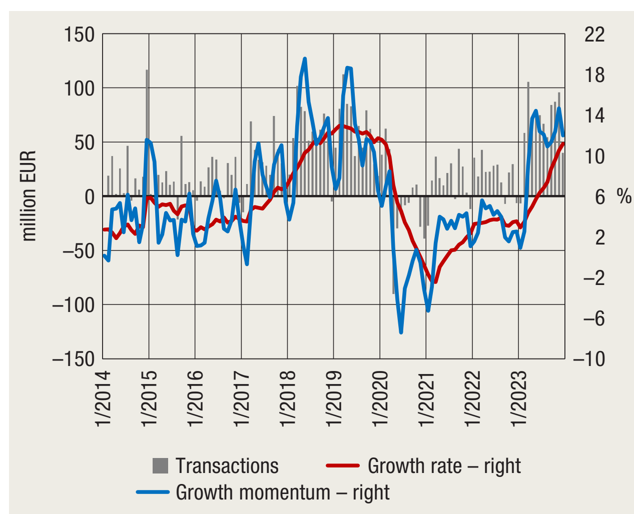


Notes: 2023* refers to the sum of four quarters up to Q3 2023 (Q4 2022 to Q3 2023). The numbers above the columns show the percentages of all sale-and-purchases accounted for by non-residents.
Source: CNB.

resulted in lower prices of residential real estate along the Adriatic coast in the third quarter compared to the previous quarter; this is the region in which these buyers have accounted for a significant portion of the market for a number of years. On the other hand, prices in Zagreb, where there is less foreign demand but domestic demand is steady, increased slightly in the third quarter from the second quarter, while they fell in the rest of Croatia. The relatively mild increase in interest on new housing loans in Croatia in comparison to the rest of the euro area, fiscal stimulus and the growth of consumer optimism due to the strong labour market mitigated the intensity of the decline in domestic demand for residential real estate. The total number of newly-granted housing loans thus went down in 2023 by some 10% from the previous year, predominantly in the segment of loans granted without subsidies, while the total amount of housing loans continued growing at stable rates, largely under the influence of the growth in the prices of residential real estate and higher average loan amounts.

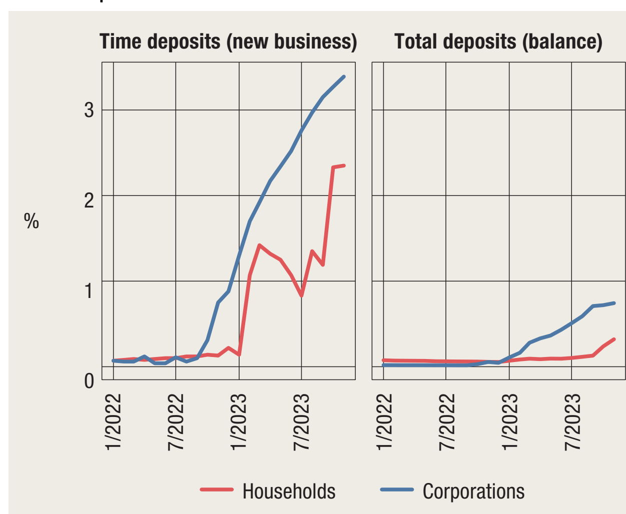
The growth of general-purpose cash loans to households accelerated strongly in 2023, contributing to the acceleration of total lending to this sector. The momentum in the growth of consumer loans, expressed as an annualised quarterly rate of transactions growth, gained considerable strength early in 2023, so the annual rate of growth increased gradually from 3.6% in 2022 to a two digit 11.1% at the end of 2023. (Figure 4). The demand for consumer loans was spurred by the robust labour market paired with rising real wages and an improvement in consumer optimism. The Bank lending survey singled out consumption of durable goods as the main generator of consumer lending. The faster growth of loans in 2023 was also affected by inflation,

Figure 4 Strong acceleration of general-purpose cash loans to households



Notes: Shows monthly amounts of HCL transactions. The momentum of HCL growth is the annualised quarterly rate of change in HCL transactions
Source: CNB.

Figure 5 Stronger growth of interest rates on new time deposits in the household sector

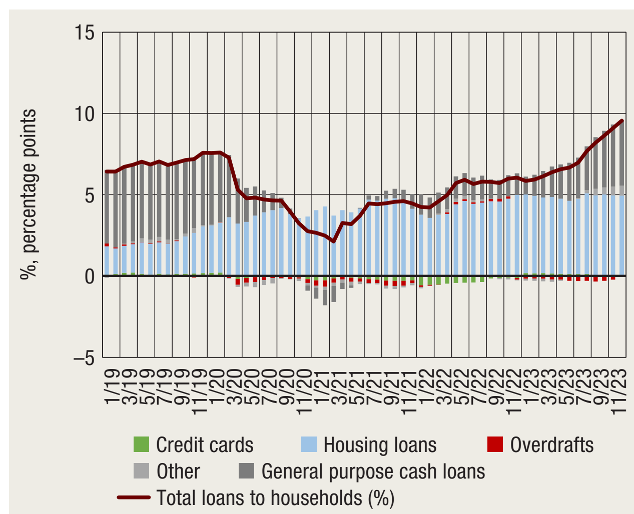


Source: ECB.

as seen in the increase of the average amount of loans, which lagged slightly behind the growth of the general price level. Noticeable was also a higher number of newly-granted loans, which means that faster growth is not solely a consequence of inflation but also of stronger demand. Increased consumer lending, with a stable growth in housing loans, raised the annual rate of growth of household loans from 6% in 2022 to 9.6% at the end of 2023 (Figure 6.a). According to the results of the Bank lending survey, at the beginning of the year banks expect further growth in this loan segment.

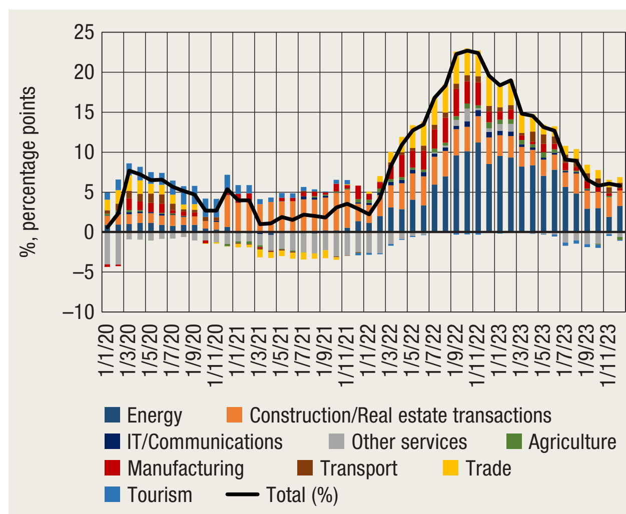
Figure 6 The growth of household loans accelerated, while lending to corporates neared the dynamics registered just before the onset of the energy crisis

a) Households



Source: CNB.

b) Corporations



Source: CNB.

The deterioration in financing conditions and the reduction in the need for working capital financing amid the conditions of decreased prices of crude oil and energy diminished the corporate need for new financing (Figure 6.b). The annualised quarterly rate of growth in loans to non-financial corporations started decreasing at the beginning 2023, which resulted in the continued decline of their annual growth rate from the high 19.5% in 2022 to the moderate 5.8% at the end of 2023. Loan growth slowed down the most in energy, construction and trade, with the increase in investment loans to construction being associated with the mature phase of the expansion cycle in the real estate market. In the first ten months, corporate loans associated with commercial real estate (CRE) grew by 7.7%, slightly stronger than total corporate loans. This lending segment accounted for 55% of total placements to non-financial corporations at the end of November and some 10% of total bank assets (see Box 1). According to the results of the Bank lending survey, corporate demand for loans in 2023 was predominantly curbed by the general level of interest rates, which grew by 3.5 percentage points from the mid-2022 to the end-2023. It can therefore be expected

that this again year corporate loans will be strongly affected by the increased costs of financing.

Favourable business results of non-financial corporations mitigate the risks to financial stability stemming from this sector. Robust economic growth amid the circumstances of strong domestic demand enabled corporations to achieve good business results with stable profit margins, which increase their resilience to deterioration in the economic outlook or to the strengthening of cost pressures, such as higher costs of financing and further growth of labour costs. Favourable developments are also reflected in the lower number of corporate exits from the market and the increase in the number of newly established companies, primarily in construction. Thus, the overall number of active companies rose again in 2023. On the other hand, the risks to the operations of non-financial corporations are associated with the potentially stronger-than-expected slowdown in economic growth amid the slowdown in key economies in the euro area, which are important trading partners.

The slightly slowed and delayed transmission of monetary policy tightening to domestic financing conditions reduces the risks to financial stability. The transmission of monetary policy tightening to corporate financing conditions was relatively strong, for new and existing loans alike. The interest rate on pure new corporate loans reached 5.5% at the end of 2023, up some 220 basis points on the end of 2022. On the other hand, the transmission to household financing conditions was much milder so the interest rate on housing loans went up by 110 basis points in 2023, to 3.8%. The transmission to interest rates on general-purpose cash loans was even more subdued (70 basis points), while the average rate reached 6.1% at the end of 2023. The gradual increase in the practice of interest rate fixation on household loans over the last few years, paired with restrictive caps on the highest rates on loans granted at variable interest rates contributed to interest rates on existing loans to households registering almost no growth, on average. All this also led to almost a complete shift towards granting new household loans at fixed interest rates.

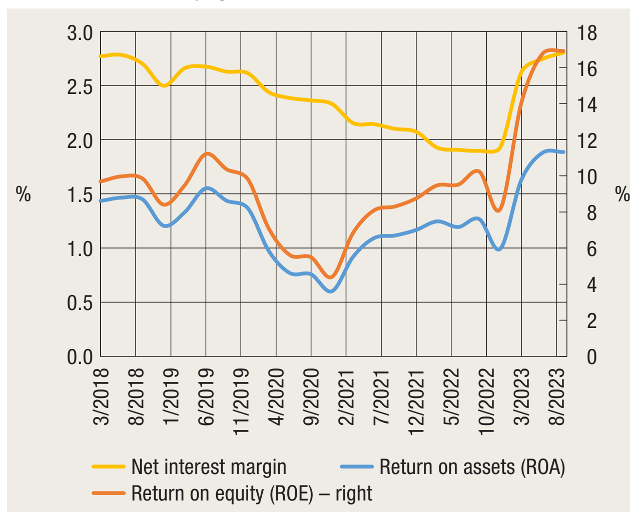
Banks' loan portfolio quality continued to improve (Figure 8). In the first nine months of 2023 the share of non-performing loans of households decreased by 0.6 percentage points, pushing this indicator down to 4.4% at the end of September. At the same time, the share of non-performing corporate loans decreased by 1.35 percentage points, to 5.1% at the end of September. The share of loans with increased credit risk from initial approval (the so-called stage 2 loans) in total loans to households increased as well, from 14.2% at the end of 2022 to 13.4% at the end of September. In addition to the decline in the nominal amount

of these loans, especially in the segment of housing loans, the decline in this ratio was also aided by the more intensive credit activity. In contrast, the share of stage 2 loans in total corporate loans remained almost unchanged, holding steady at about 23%.

The capitalisation of credit institutions remained relatively stable at high levels. After dividend payments in the first half of the year pushed the capital adequacy ratio down by 1.6 percentage points, capitalisation stagnated in the third quarter, maintaining the level of slightly above 23%. Own funds remained unchanged, while a substantial growth in assets over the same quarter was neutralised by the reduction in the average risk weight. Banking sector liquidity indicators are also exceptionally high (the liquidity coverage ratio, LCR, is 236.9% and the net stable funding ratio (NSFR) is 173.9%) indicating high banking sector resilience to risks associated with insufficient liquidity.

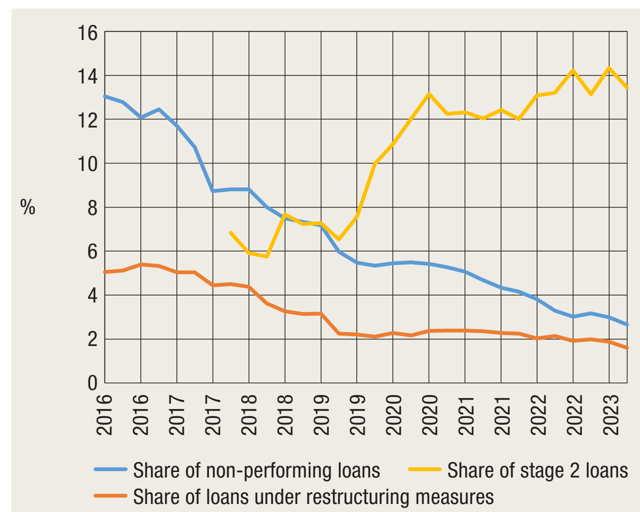
Profitability reached record highs (Figure 7). In the first three months of 2023 banks generated a net profit after tax of EUR 1.1bn, up 64% from the same period the year before. The key returns indicators grew substantially as well: return on assets (ROA) from 1.0% at the end of 2022 to 1.9% in September and return on equity (ROE) from 8.2% to 16.9%. The greatest contribution to profitability growth came from income from highly liquid assets that react quickly to changes in market rates, such as deposits with the central banks and placements to other financial institutions. In addition, the continued release of provisions for credit losses formed over the past years also had a positive effect. Net interest income from corporates grew as well, because the growth in interest income in this sector outstripped interest expenses. The growth in interest rates and yields on government bonds also contributed to

Figure 7 Interest rate growth contributed strongly to bank profitability growth



Note: Net interest margin was calculated in relation to average interest-bearing assets over the observed period.
Source: CNB.

Figure 8 Credit risk indicators continue to decrease



Note: Loans in stage 2 are performing loans witnessing a considerable increase in credit risk since initial recognition.
Source: CNB.

the strong growth in interest income from the central government, while banks practically generate no interest income from the government because government deposits are held with the central bank. On the other side, the contribution of the household sector to the change in net interest income was slightly negative.

The rise in interest rates on household time deposits intensified at the end of the year. While interest rates on corporate time deposits followed monetary tightening relatively quickly and strongly, interest rates on time deposits of households were quite low until the end of 2023. The pass-through of monetary tightening was mitigated by substantial liquidity surpluses, additionally amplified by the harmonisation of the set of monetary policy instruments within the scope of the adoption of the euro, as well as the relative reduction in the risk premium. Nevertheless, increased competition in the financing market from the issued "retail" government bonds and treasury bills, as well as the increase in interest rates offered by some systemically important banks led to a noticeable increase in average interest rates on household time deposits (Figure 5). Interest rates offered, of 3% or more, despite noticeable inertia when it comes to arbitrage among the offers of different banks, nevertheless prompted the movement of deposits among banks, as well as reactions of banks that faced outflows.

The rise in interest expenses associated with higher interest rates on time deposits will contribute to a decline in bank profitability. The intensity of the decline will however predominantly depend on the speed of the shift of funds from overnight transaction to time deposits. The simulations conducted showed that, under the moderate scenario, which envisaged an increase of the share of time deposits in total deposits from the current 25 percent to 40 percent for corporates and 50 percent for households, bank profit could decrease by EUR 500 million, i.e., by one third from the level registered in the first three quarters of 2023. Under the extreme scenario, which assumed the share of time deposits returning to its historic highs (of 58.5% for corporates and 80.4% for households), which is unlikely in the short term, bank profit might decrease by almost two thirds (see HNBlog *Grains of sand make mountains – how does interest rate growth affect bank profitability,* February 2024*).*

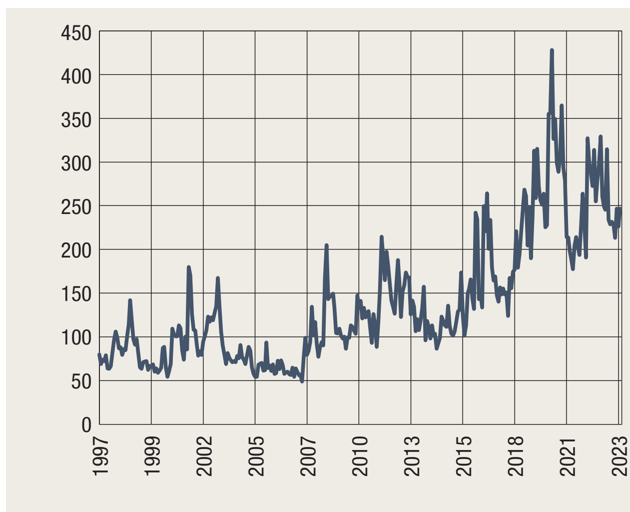
The rise in interest rates on household time deposits will directly contribute to the increase in the national reference rate (NRR), and consequently to the increase in interest rate on the share of existing loans linked to this parameter. The rise in interest rates on new time deposits paired with the increase in the share of time deposits contributes to the gradual increase in the average interest rate on the stock of total household deposits that determine the NRR level. In 2024,

this growth might be gradual and relatively mild because the share of time deposits in total deposits has been rising gradually and depositor inertia has thus far made it possible even for banks with noticeably lower interest rates to preserve their market shares. NRR growth might intensify only if depositors start to transfer their funds from overnight transaction to time deposits on a larger scale, and, in particular, to transfer their deposits to banks offering higher interest rates on time deposits. Although some three quarters of existing housing loans granted at a variable interest rate are linked to the NRR, for a substantial portion of these loans the period of interest rate fixation has not yet expired, which additionally mitigates the growth of interest rates on existing loans. In addition, the increase in NRR will translate, although with a lag, to interest rates on housing loans with a variable interest rate being capped, thus contributing to the rise in interest rates on other loans, primarily those linked to the EURIBOR.

2 Potential risk materialisation triggers

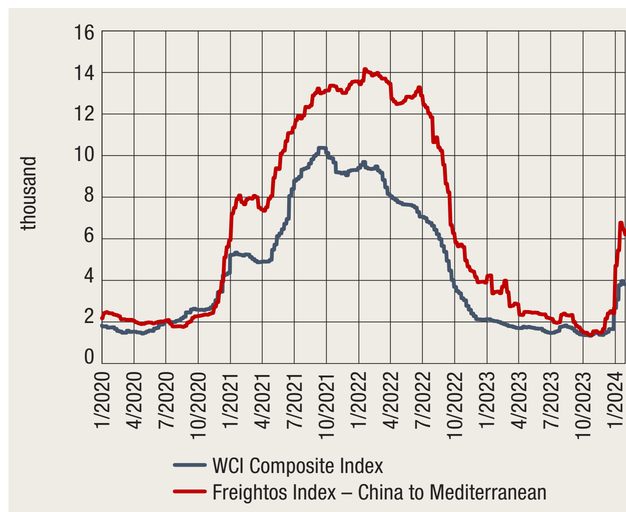
The prolonged military conflict in Ukraine and the escalation of the conflict in the Middle East are events that could greatly negatively impact the world's economy and financial system. Two regions key to the global energy and food supply are affected by war – Eastern Europe and the Middle East. Any expansion of the conflict in the Middle East might cause disruptions in the energy market due to the importance of the region in global oil production. Attacks on merchant ships in the Red Sea over the past two months have disrupted transport through the Suez Canal, the main trade link between Asia and Europe. The combination of these factors has the potential to increase the already high level of global geopolitical risk (see Figure 9). The fear created by these attacks on merchant ships spurred large shipping companies to change their routes and opt for an alternative route, extending transport periods by some ten days. The delays caused do not only affect supply chains, by causing bottlenecks in ports and potential ship shortage, but longer routes entail additional costs, already reflected in increased shipping prices (Figure 10). The end effect on inflation and the EU economy will largely depend on the time needed for trade transport to normalise. A more substantial decline in transport or even suspension of the route through the Red Sea will probably not prevent the fall in inflation already begun but it could slow down the speed at which prices will be returning to normal.

Figure 9 Geopolitical risks held at an elevated level



Source: Davis, S. J. (2016): An index of global economic policy uncertainty (Br. w22740), National Bureau of Economic Research.

Figure 10 Amid uncertainty in the Red Sea, container shipping rates rise again



Notes: The World Composite Index (WCI) is a composite index that reports spot container freight rates for major East West trade routes for forty-foot equivalent units (FEU). The index consists of the volume-weighted average of 8 specific indices for each sea route. The Freightos index is based on aggregated and anonymised real-time business data from global freight carriers, freight forwarders, and shippers that use WebCargo by the company Freightos freight.
Source: Bloomberg.

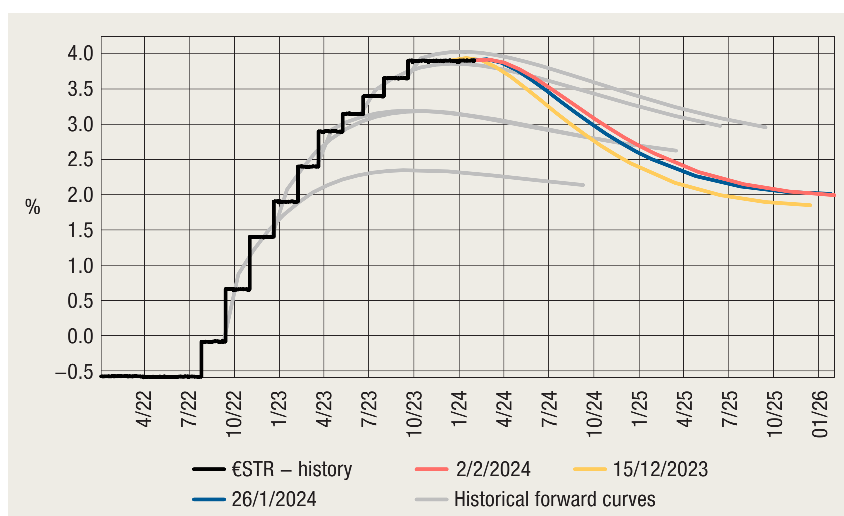
This might spur central banks to hold interest rates at higher levels for a longer period of time.

The uncertainties regarding the outcome of this year's political elections in multiple large economies add to the uncertainty as regards the direction of economic policies over the upcoming years. The elections to be held across the globe in 2024 will involve almost a half of the world, including the US, Russia, Iran, India and the EU This will not only shape the direction of global events but also determine the intensity of the observed trend of isolationist policies. Although the process of global fragmentation into several rival blocs is in its early stages, the policy of reshoring production and redefining global trade conditions among these blocs might greatly affect global economic developments. Faced with uncertainties investors become more cautious, which might result in the reduction of foreign investments and halts in capital flows. Growing political instability often results in lower economic activity by slowing down growth and creating unfavourable business conditions.

Persistent inflationary pressures might spur markets to change their current expectations of a strong and speedy easing of monetary policy, which might additionally tighten financing conditions. In the months to come, central banks will focus on developments in the inflation rate, which will be determined by two opposite trends: deflationary – resulting from the weakening of aggregate demand and

the fading of the base effect of the growth in the prices energy at the end of last year[2], and the contrasting trend of the broadening spectrum of potential risk sources for the strengthening of inflationary pressures. They include, among other things, the termination of fiscal measures activated to mitigate the consequences of shocks in energy prices, heightened geopolitical tensions that could raise the prices of energy in the short term and extreme weather conditions that might spur a new rise in food prices. Inflation might also be higher than expected if wages or profit margins in the current year increase more than expected. The current continued presence of inflation risks is indicated by the latest upward correction of the euro short-term rate €STR (Figure 11).

Figure 11 Markets expect interest rate easing in the euro area from mid-2024



Notes: The forward curve is estimated with the help of the overnight indexed swap rate (OIS) and the Nelson-Siegel-Svensson model. The grey curves show the selected curves formed on the day of the ECB Governing Council meeting at which the decision was made to raise the benchmark rate.
Source: Refinitiv.

Mounting new challenges, such as climate change and cyber threats, might have complex and long-term implications for the global economy and financial systems. Climate challenges in the form of extreme weather conditions, such as more frequent floods, fires and hurricanes, have serious consequences for agriculture, infrastructure and the general stability of global markets, which increases the risk of disturbances in inflation and the usual supply chains. Cyber-attacks pose a rising threat to digital security, while widespread dependence on information technology makes economies and financial institutions increasingly more vulnerable to sophisticated threats potentially causing serious damage, including data loss, business disruptions and financial losses, and having high financial system contagion potential.

2 HNBlog: Kunovac, D., and M. Luketina: *On the way down – the role of base effects in the slowdown of consumer inflation inflacije*, January 2024.

Box 1 Analysis of banks’ exposures to non-financial corporations associated with commercial real estate

Placements related to commercial real estate[3] make up roughly a half of all placements to non-financial corporations in Croatia, which is above the euro area average. Considering that these placements are exposed to a series of structural and cyclical risks their regular monitoring is key to systemic risk management. The introduction of the AnaCredit reporting system following Croatia’s entry in the euro area enables their detailed monitoring. However, the significant heterogeneity that characterises this segment of the financial market continues to make detailed monitoring difficult. Although the collateral coverage of these placements is high, it is currently favourably affected by the growth in the value of commercial real estate. As a result, when assessing risk in this segment of the financial market its cyclicality needs to be taken into consideration.

Placements associated with the commercial real estate market (hereinafter referred to as ‘CRE placements’ make up a substantial share of placements to non-financial corporations in Croatia. In international comparison, Croatia belongs to the group of countries with a relatively high share of such placements in total bank placements (Figure 1). Placements associated with the commercial real estate market are exposed to a series of cyclical risks[4], such as the effects of price shifts and/or monetary policy changes, as well as structural factors, such as climate change policies, the move towards e-business and the need for greater flexibility in renting office space. Due to their possible impact on financial stability, it is necessary to monitor these risks systematically within the framework of assessment of exposure to systemic risks that will be made easier by the data the CNB started collecting in 2023 as part of the euro area common reporting system AnaCredit. At the end of November 2023, the dataset encompassed almost 83 thousand loan accounts to non-financial corporations, worth EUR 14.6bn, of which more than a half were CRE loans, i.e., loans extended to legal entities aimed at acquiring commercial real estate or secured by commercial real estate.

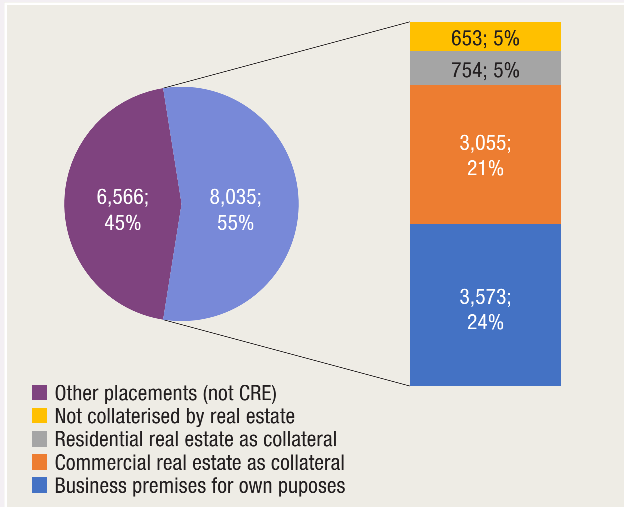
With the exception of tourism-related activities and energy, the distribution of CRE placements corresponds to the distribution of total corporate placements (Figure 2, left panel). The share of CRE

3 These loans are defined in line with Recommendation ESRB/2016/14 of the European Systemic Risk Board on closing real estate data gaps and Recommendation ESRB/2019/3 amending Recommendation ESRB/2016/14 on closing real estate data gaps as placements extended to legal entities aimed at acquiring commercial real estate or secured by commercial real estate. Commercial real estate by type is broken down into office, retail, industrial, residential and other.

4 The ESRB Report: Vulnerabilities in the EEA commercial real estate sector (January 2023).

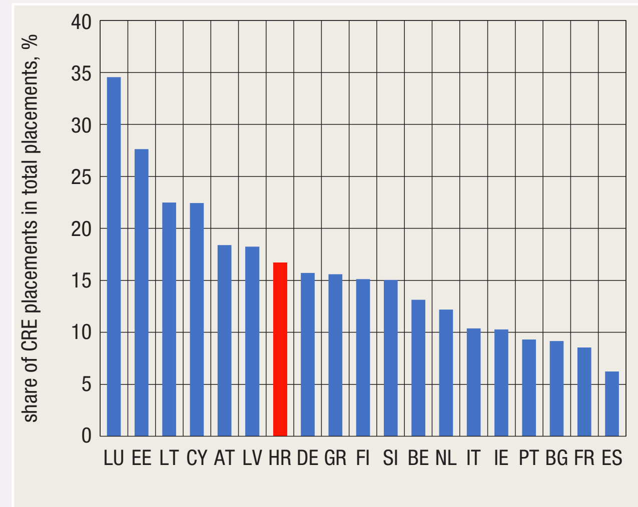
Figure 1 More than a half of bank placements to corporates in Croatia are associated with the commercial real estate market, above the euro area average

a) The structure of placements to non-financial corporations, by value



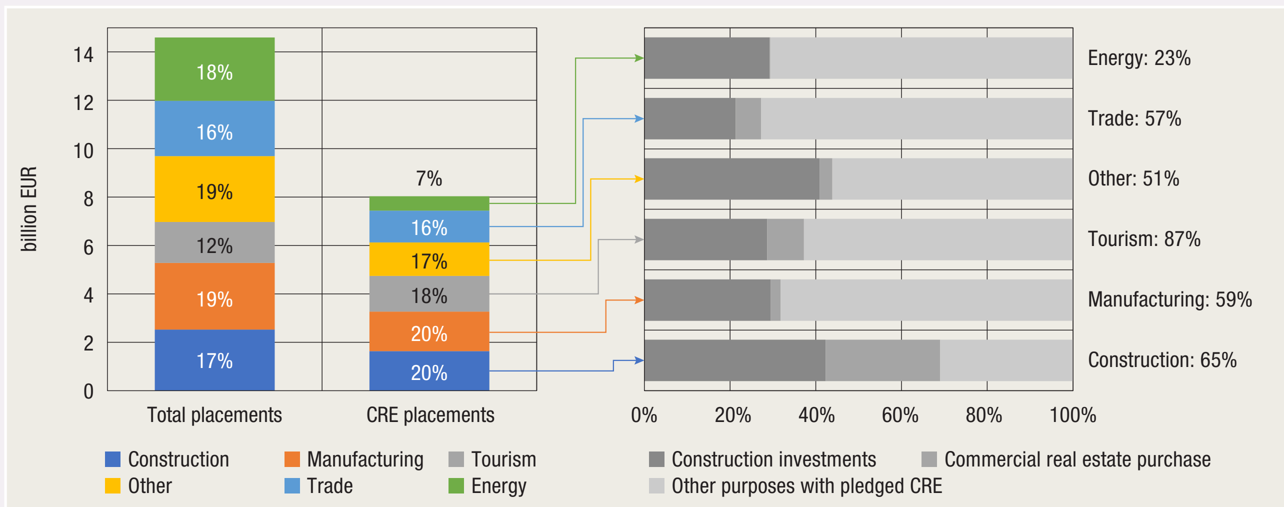
Notes: Instrument of collateral for exposure or collateral in the form of real estate refers to commercial and residential real estate producing income from rent or sale (other operating income) thus improving a debtor's creditworthiness, while business premises for own purposes (AnaCredit category 'offices or other commercial premises') refer to real estate property used for performing the main activity and the income from such property does not significantly affect the creditworthiness of the debtor based on the main activity.
Source: CNB – AnaCredit.

b) The share of CRE placements in total bank placements in the euro area



Notes: CRE placements are associated with the commercial real estate market. The data for Croatia include all credit institutions from Croatia, excluding branches of foreign banks. The data for other euro area countries are based on a sample of the 100 largest banks, which account for the bulk (77%) of credit placements of euro area banks.
Source: CNB – AnaCredit.

Figure 2 The most CRE placements are used by corporations from the tourism segment, while for the majority of corporations, excluding those in construction, their purpose is not primarily for construction or purchase of real estate



Notes: The structure of total placements and CRE placements as at 30 November 2023. 'Tourism' refers to accommodation and food services activities. CRE placements are placements associated with the commercial real estate market.
Source: CNB – AnaCredit.

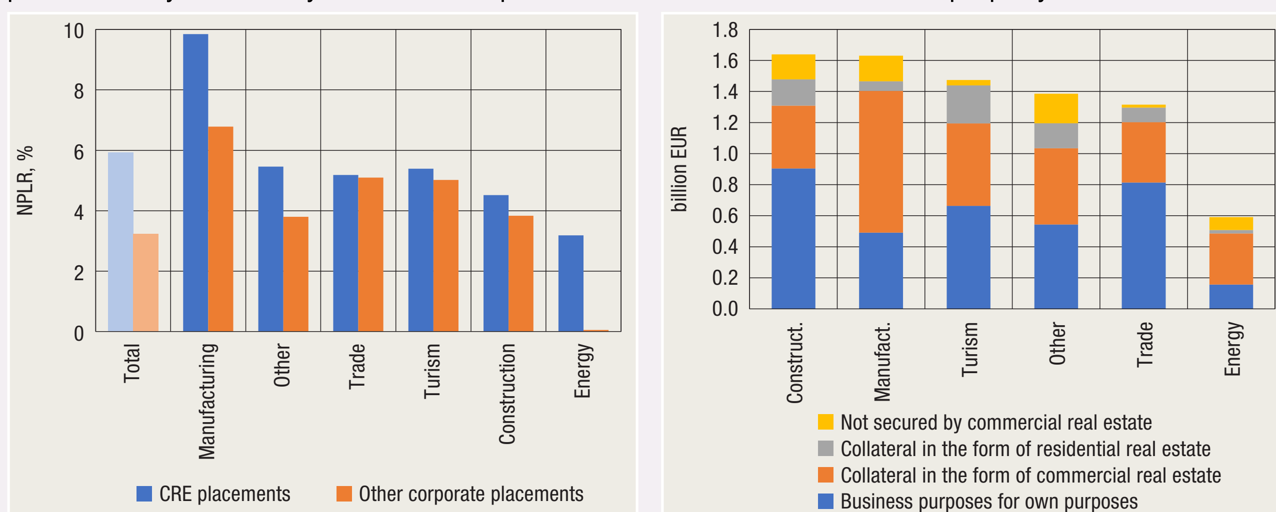
Notes: The values shown in the figure represent the shares of CRE placements in total placements in that activity. 'Other purposes with CRE as collateral' relate to loans for working capital, financing imports/exports, margin loans, investment loans excluding those for the purchase of commercial real estate and other purposes. 'Tourism' refers to accommodation and food services activities.
Source: CNB – AnaCredit.

placements in tourism-related activities was higher and in energy lower than in total corporate placements. Broken down by purpose (Figure 2, left panel), in all activities, except construction, CRE placements are predominantly used for purposes not directly related to the real estate property provided as collateral. As a result, some 70% of the amount of CRE loans is used for financing other purposes (for instance for working capital, funding imports/exports etc.), while the remaining amount is used for construction investments or purchase of commercial real estate. When it comes to construction, as expected, the largest portion of the amount of CRE loans is used for construction investment or purchase of commercial real estate, and only a smaller portion for financing of other purposes.

The quality of CRE placements is slightly below the quality of total corporate placements. The share of non-performing placements (NPLR) in the CRE segment of approximately 6% is some 1 percentage point higher than that of total placements to non-financial corporations. The greatest contribution to the difference comes from manufacturing, accounting for a high share in CRE loans and from a slightly lower rate of these loans being secured by own commercial real estate. At the same time, although the share of non-performing placements in energy is quite low, for placements associated with commercial real estate this ratio is much higher than for other placements (Figure 3).

The ratio of the amount of loan to the value of the real estate (Loan-to-Value, LTV)[5] indicates the riskiness of a placement from the creditor's perspective, but this indicator is sensitive to multiple

Figure 3 The quality of CRE placements is slightly lower than that of other corporate loans and they are predominantly secured by own business premises and commercial real estate property



Note: CRE placements are placements associated with the commercial real estate market and NPLR is the ratio of stage 3 placements to total placements.
Source: CNB – AnaCredit.

Notes: Shows CRE placements (November 2023) by activity; 'Tourism' refers to accommodation and food services activities. The definitions of the CRE placements category by instrument of collateral are shown in the note below Figure 1 of this Box.
Source: CNB – AnaCredit.

factors. Firstly, the LTV ratio naturally decreases over time, that is, with the decrease in the ratio of the remaining to original maturity (at unchanged estimated value of the real estate). Subsequent value assessments of the real estate value may change the amount of the LTV ratio in both directions, as a result of the characteristics of the real estate property itself, as well as of the changes in the financial cycle. Lastly, in addition to being secured by real estate property CRE placements may be secured by other instruments, which can diminish the LTV required by the creditor[6].

The LTV ratio of loans associated with commercial real estate ended November 2023 averaging some 75%, with pronounced heterogeneity (Table 1). The distribution of placements at the end of November indicated that the LTV of some 60% of placements was

Table 1 The current Loan-to-Value ratio (LTV)

LTV	Number of accounts [pcs]	Placements [million EUR]	Share in total CRE placements [%]	Allocated value of collateral [million EUR]	Current value of collateral [million EUR]	Value of collateral at approval [million EUR]
Up to 60%	11,265	4,787	59.6%	7,638	18,324	16,004
60% – 90%	1,042	947	11.8%	837	1,212	1,150
90% – 100%	156	240	3.0%	118	200	195
100%	821	1,261	15.7%	351	517	682
CRE placement not secured by real estate	1,572	800	10.0%	4	0	47
Total sum	14,856	8,035	100.0%	8,948	20,254	18,079

Notes: Shows only placements for the purchase of commercial real estate and those secured by at least one commercial real estate property. The current value of collateral is the last assessed value of the commercial real estate property applicable at the reporting date (30 November 2023). The allocated value of collateral excludes the existence of priority third-party claims under other instruments of the same or other reporting credit institution and most often corresponds to the pledge entered in the land registry.
Source: CNB – AnaCredit.

5 LTV ratio is calculated as follows: $LTV = \frac{amount\ of\ placement_i}{\Sigma\, value\ of\ commercial\ real\ estate_i}$.

Since one instrument of collateral may serve as collateral for more than one placement to a debtor and one placement may be secured by multiple instruments of collateral, the calculation of the LTV ratio must be defined in unambiguous terms. Due to data availability, this analysis employed the calculation that focuses on the placement (to what extent it is secured by real estate as collateral) and not the instrument of collateral (to what extend a real estate property is burdened by various claims). Under both approaches, the LTV may be reported as at the moment the placement is granted (the contracted amount of placement / value of the real estate property at the moment of assessment) and at the moment of analysis (the balance of the placement as at the reporting date / the last available assessment of the real estate pledged). More conservative approaches provide for an additional adjustment of the value of the real estate in the denominator (if there are multiple assessment methods, to the lower value) or placements in the numerator, including third-party claims. No adjustments of the denominator or the numerator were made in this Box.

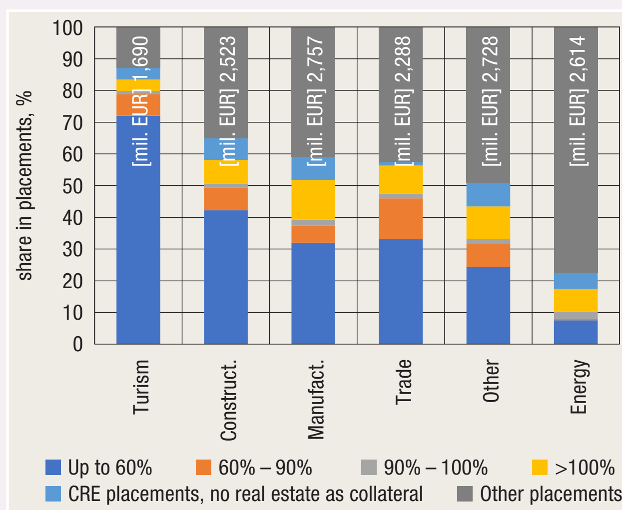
6 Placements to non-financial corporations are often covered by multiple instruments of collateral, which in addition to real estate property include financial guarantees, other material collateral (mostly movable property, machinery, etc.), guarantee deposits. In this case, in addition to the LTV ratio it is necessary to monitor the LTC ratio, which is calculated as: $LTC = \frac{placement_i}{\Sigma\, value\ of\ collateral_i}$.

Since the LTC ratio in the denominator includes the values of all instruments of collateral (including real estate) it is always lower than the LTV ratio.

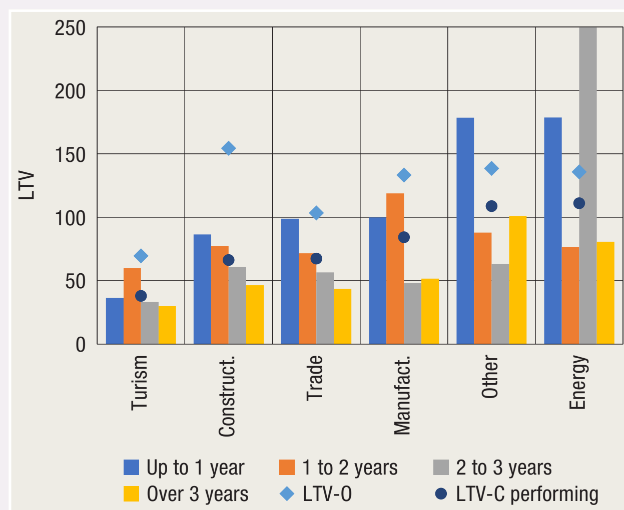
below 60%. On the other hand, the current LTV of almost 16% of CRE placements was higher than 100%, which means that the value of placements outstripped the value of pledged real estate, which might indicate the use of other instruments of collateral. Finally, it needs to be stressed that some 10% of placements for the purchase of commercial real estate were not secured by real estate so their LTV is not calculated.

Broken down by activity, the lowest LTV ratios at the end of November 2023 where those of placements to corporations from the tourist segment (Figure 4), whose weighted average at approval was much below 100%. In contrast, in other activities the LTV ratio declines below 100% only with time. Although, at the moment of approval the highest LTV ratios were those of placements to construction companies, they decreased the most with time so their current values are among the lowest. The purchase of real estate in this activity is often connected with the purchase of land or existing real estate, followed by investments in their reconstruction (often also their demolition and new construction) which considerably increases their value and reduces the LTV ratios of such placements. On the other hand, in the tourist segment other (attractive) commercial real estate property is often provided as collateral, which is used for own purposes, resulting in significantly lower LTV rations even at the moment of approval.

Figure 4 Corporations from the tourist sector have the highest coverage of placements by the value of the pledged commercial real estate (the lowest LTV ratio).



Notes: The structure of total placements by category of coverage by the value of the real estate, that is, by the LTV ratio. The numbers in columns indicate the total amounts of placements in million euro as at 30 November 2023. 'Tourism' refers to accommodation and food services activities.
Source: CNB – AnaCredit.

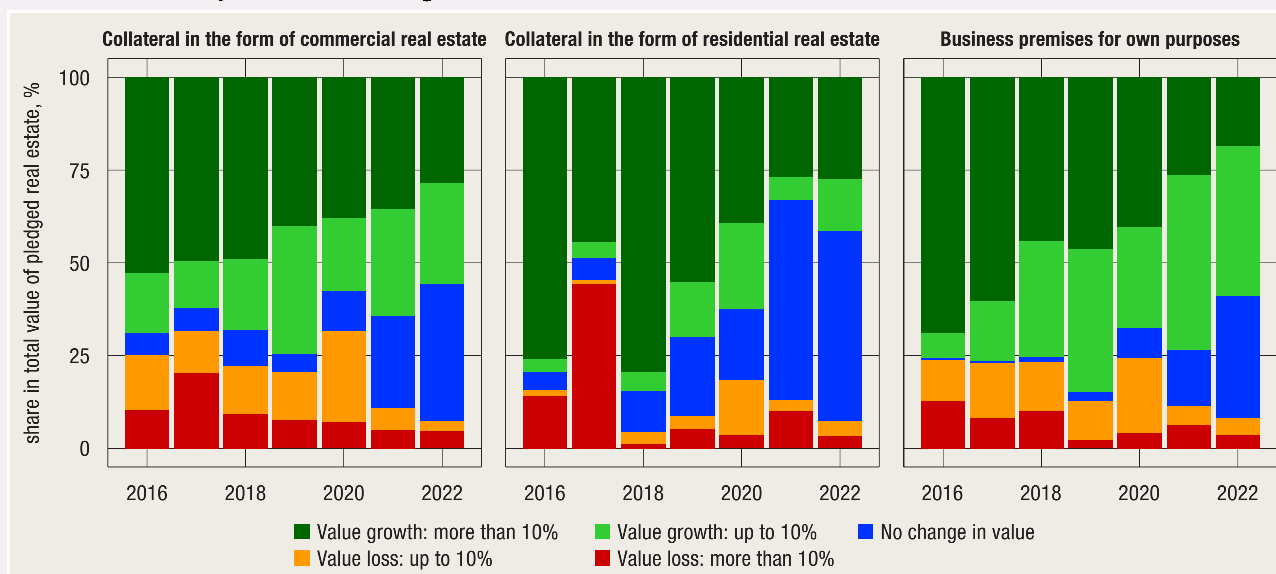


Notes: Columns and dots indicate the current LTV for performing placements by the age of the placement and overall, for the activity, while diamond shapes indicate the LTV at the moment of approval (LTV-O). LTV ratios are weighted by the amount of granted (LTV-O) or current (LTV-C) placements. The figure does not include placements not secured by commercial real estate, or placements with exceptionally low value of real estate pledged in relation to the placement (<5%) and low assessed value of commercial real estate (<5000 EUR). 'Tourism' refers to accommodation and food services activities.
Source: CNB – AnaCredit.

In the previous period of rising real estate prices, the LTV ratio of active CRE loans declined. Namely, since the value of real estate depends on idiosyncratic factors and the phase of the real estate market cycle, banks are obligated to regularly monitor and re-assess the value of real estate serving as collateral (for commercial real estate as frequently as each year) which affects the LTV ratio. As the assessed value of the real estate increases, the current LTV ratio declines, thus decreasing the Loss Given Default and the total Expected Loss if the debtor defaults. In contrast, if the value of the real estate decreases, at a stronger pace than the amount of the remaining debt, the current LTV will be higher than the one at the moment of loan approval. Nevertheless, it should be kept in mind that during periods of change in the cycle phase (for example, when expansion switches to a downward phase) market prices might significantly diverge from assessed values, which decreases the informative value of the LTV ratio. According to data on placements active at the end of November 2023, granted over the previous years, banks assessed that the value of real estate pledged as collateral for CRE placements mostly increased compared to their value at the moment when the placement was granted (Figure 5). Therefore, the current LTV ratio was also lower than the one at the moment of approval (Figure 4, right).

The analysis of risks to financial stability associated with the commercial real estate market will soon be expanded by additional financial indicators. In addition to the data on active loans associated with the real estate market shown here, the AnaCredit reporting system will provide for future monitoring of new loans granted after January 2023 and their lending conditions. In addition to the amount of new

Figure 5. The value of real estate pledged as collateral for CRE placements mostly increased from the moment the placement was granted



Note: The figure does not include placements granted in 2023 given the small number of new assessments.
Source: CNB – AnaCredit.

loans, the system will provide for the monitoring of changes in credit risk and associated costs of value adjustments, the LTV ratio at the moment the loan is granted, fees for real estate value assessment, as well as provide for the breakdown of new loans by purpose and by type of real estate, and its location (whether first class or not, in the country or abroad), etc.

3 Recent macroprudential activities

In the remainder of the mature phase of the financial cycle that marked the end of 2023, the CNB maintained the countercyclical buffer rate at the announced level of 1.5% to preserve the resilience of the banking sector in the event of a possible materialisation of cyclical risks. Following the regular annual review, the status of seven previously identified other systemically important credit institutions was confirmed, and total prescribed capital buffer rates for these institutions were raised.

3.1 Announced countercyclical capital buffer rate to remain at 1.5%

The countercyclical buffer rate of 1.5% announced in June 2023 continues to be appropriate to preserve the resilience of the banking system in the event of sudden shocks or the materialisation of systemic risks. The regular quarterly assessment of systemic risks of a cyclical nature suggests the stabilisation of the financial cycle in the mature phase, with lending to households remaining strong and general-purpose cash loans rising increasingly faster, while corporate lending remained subdued. Activity in the residential real estate market continued to decline with average prices stagnating, which could be indicating the end of the expansionary phase. In view of the above, at the end of November 2023 the CNB assessed that the announced countercyclical capital buffer rate of 1.5%, which is to apply as of 30 June 2024, is still adequate.

Table 1 Countercyclical buffer rates

Applicable rate:	1.0% as of 31 December 2023
Announced rate:	1.5% as of 30 June 2024

Source: CNB.

3.2 Review of the systemic importance of credit institutions

As part of its regular annual review, the CNB confirmed the status of seven previously identified other systemically important credit institutions (hereinafter referred to as 'O-SIIs') and raised the total prescribed capital buffer rates for these institutions. The review of systemic importance was carried out in October 2023 based on data from the end of 2022 in line with the guidelines of the European Banking Authority and with internal methodology. Compared with the previous year, the countercyclical buffer rate to be maintained by O-SIIs in 2024 changed for four institutions. The rate was increased for three institutions and decreased for one (see Box 2). The prescribed rates are also in line with the new methodology of the European Central Bank, which prescribes stricter minimum thresholds for this buffer rate depending on the systemic importance scores of O-SIIs as of 1 January 2024 for the entire euro area.

Table 2 O-SIIs in the Republic of Croatia and buffer rates

O-SII credit institutions	Systemic importance score as at 31 Dec. 2022	CCyB rate as of 1 Jan. 2024 (%)		CCyB rate in 2023 (%)	
		Set	Applicable[a]	Set	Applicable[a]
Zagrebačka banka d.d., Zagreb	3,079	**2.5↑**	**2.5↑**	2.0	2.0
Privredna banka Zagreb d.d., Zagreb	2,298	2.0	**2.0↑**	2.0	1.75
Erste&Steiermärkische Bank d.d., Rijeka	1,846	2.0	2.0	2.0	2.0
Raiffeisenbank Austria d.d., Zagreb	929	1.5	1.5	1.5	1.5
OTP banka Hrvatska d.d., Split	733	1.5	1.5	1.5	1.5
Hrvatska poštanska banka d.d., Zagreb	479	**1.0↑**	**1.0↑**	0.5	0.5
Addiko Bank d.d., Zagreb	198	**0.25↓**	**0.25↓**	0.5	0.5

[a] The rate the O-SII is actually obligated to apply considering the regulatory limit linked to the rate for the parent O-SII or G-SII in the EU, where applicable.
Notes: CCyB rates in bold (set and/or applicable) where different from the rates in 2023. The arrows indicate the direction of the change.
Source: CNB.

3.3 Actions taken at the recommendation of the European Systemic Risk Board

In November 2023, the CNB adopted the decision on the non-reciprocity of the macroprudential policy measure adopted by Sweden, recommended for reciprocation by the ESRB[7], since the exposures of domestic credit institutions do not exceed the prescribed materiality threshold. The Swedish Financial Supervisory

7 Recommendation ESRB/2023/4 of 6 July 2023.

Authority adopted the measure prescribing the minimum levels (floor) for average risk weights for the portfolio of exposures to corporates secured by commercial real estate (35%) and residential real estate for commercial use (25%), located in Sweden. The measure applies to credit institutions authorised in Sweden and using the IRB approach and the Swedish supervisory authority requested the ESRB to recommend to all members the reciprocation of this measure to avoid regulatory arbitrage and cross-border spillovers. As there are no credit institutions in the Republic of Croatia that would exceed the materiality threshold of SEK 15bn, using the *de minimis* principle, the CNB did not prescribe the reciprocation of the macroprudential measure adopted by the designated authority in Sweden.

3.4 Implementation of macroprudential policy in other European Economic Area countries

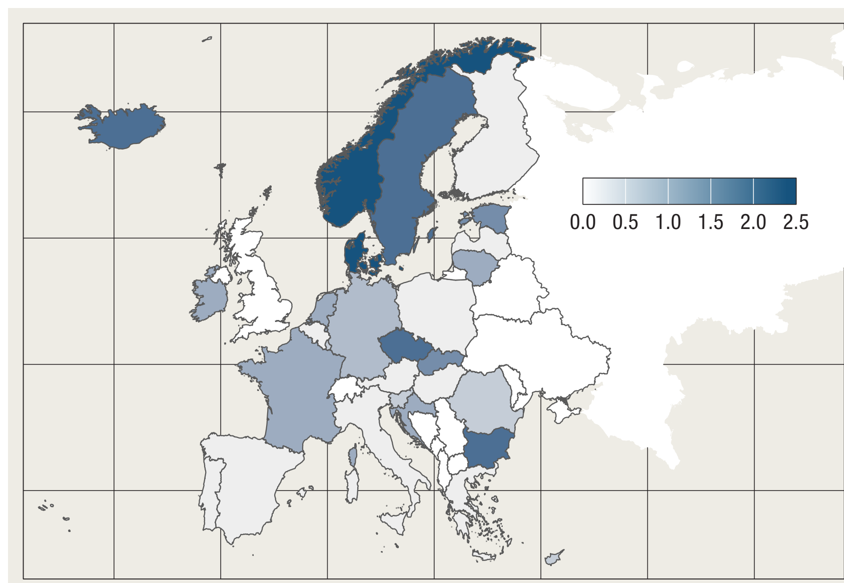
In the fourth quarter of 2023, most EEA countries kept the macroprudential measures already in force, while a smaller number announced a tightening of the measures targeting cyclical systemic risks and risks in the residential real estate market.

Latvia changed its approach to the application of the countercyclical capital buffer and announced the introduction of a positive neutral rate of 1%. As part of the strategy of a positive neutral rate the countercyclical buffer rate is maintained above zero in the neutral phase of the financial cycle, that is, in the conditions of moderate cyclical risks. Its objective is to create an additional capital buffer in the event of sudden shocks that were not preceded by the phase of mounting cyclical risks. The countercyclical buffer rate in Latvia will be gradually increased, to 0.5% in December 2024 and then to the targeted 1% in June 2025.

Within the framework of the announced transfer to a more active macroprudential policy aimed at increasing the resilience of the system, **Slovenia** also announced the introduction of a positive neutral countercyclical buffer rate to be applied as of January 2025. At the same time, in order to mitigate the existing risks in the residential real estate market the sectoral structural systemic risk buffer rate for exposures to natural persons secured by residential real estate property was reduced from 1% to 0.5%.

Portugal announced that it would introduce a sectoral systemic risk buffer of 3% to be applied to exposures to consumers secured by

Figure 12 Applied countercyclical buffer rates in EEA countries at the end of 2023



Note: Nine EEA countries apply the strategy of positive neutral countercyclical buffer rates: the Czech Republic, the Netherlands, Sweden, Ireland, Estonia, Lithuania, Latvia, Cyprus and Slovenia.
Source: ESRB.

residential real estate property in Portugal. This buffer will be applied by credit institutions using the IRB approach as of 1 October 2024.

As of 1 January2024, the **Czech Republic** deactivated the upper threshold of the total debt service to income ratio (DTI) for loans to consumers secured by residential real estate and kept in place the limit on the LTV ratio, taking into consideration the assessment of the financial cycle, the vulnerability of the banking sector and other factors. At the same time, it announced that the countercyclical capital buffer rate would be kept at the level of 2%.

For the third time in a row, **Sweden** extended the application of the temporary national macroprudential measure relating to the application of stricter risk weights to the portfolio of retail exposures to obligors residing in Sweden secured by real estate. This measure has been in force since the end of 2018 and is applied to credit institutions that use IRB approach.

Box 2 Increase in the buffer rate for systemically important credit institutions at system level

Each year the Croatian National Bank assesses the systemic importance of credit institutions and determines the level of additional capital buffer they are obligated to maintain as additional protection against elevated risk to financial stability stemming from the size of such an institution, its position in the banking system of the Republic of Croatia and the EU, the scope of its cross-border activities and its interconnectedness with the rest of the financial system.

The assessment of the systemic importance of credit institutions is conducted in accordance with the European Banking Authority's Guidelines (hereinafter referred to as 'Guidelines'), which envisage two steps. In the first step, each credit institution with a systemic importance score above the prescribed threshold, calculated in line with the Guidelines, is automatically awarded O-SII status. The Croatian National Bank applies the adjusted lower threshold of 275 points, which caters for the specifics of the domestic banking sector and better differentiates two groups of credit institutions in terms of their systemic importance. In the second step, pursuant to expert judgement and based on a series of mandatory or additional indicators provided in the Guidelines, O-SII status may also be awarded to credit institutions with a score below the threshold but above the score of 4.5. As a result, in the last review cycle, following the scoring process six credit institutions were automatically identified as O-SIIs, while expert judgement was applied in awarding O-SII status to Addiko Bank d.d., whose systemic importance score was below the threshold for the second year in a row. The decision was reached taking into consideration the continuity principle and was underpinned by the analysis of individual and additional systemic importance indicators, indicating its relatively higher systemic importance in eastern Croatia.

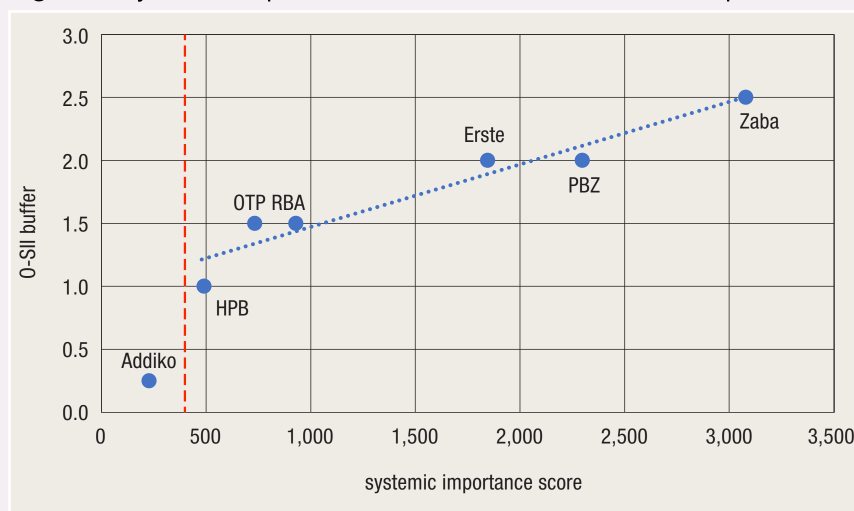
When determining the capital buffer rate for O-SIIs, the factors taken into concern are the relative systemic importance of each O-SII, historical losses in the banking system and expert assessment in relation to other macroprudential instruments and capital requirements. The level of the rate is determined in a range between the minimum rate for euro area O-SIIs prescribed under the revised methodology of the European Central Bank (see Box 2 of Macroprudential Diagnostics No. 19) and the maximum legally prescribed rate of 3% of the total amount of exposure[8]. The applied rate (the one that banks will maintain) also depends on the

8 Article 137, paragraph (4) of the Credit Institutions Act.

regulatory limit applied to O-SIIs that are subsidiaries of O-SIIs or Global systemically important institutions (G-SIIs) in the European Union, so in some cases it may be lower than prescribed (as was the case with some banks in Croatia over the past years).

The prescribed capital buffer rates for O-SIIs for 2024 are adjusted so as to take into account changes in their market position and to better link the buffers to the systemic importance of each institution. The adjustment resulted in increased resilience (of total buffers) at system level and the increase in the range of determined rates: the buffer rate for the largest O-SII was thus increased from 2% to 2.5%, nearing the highest permissible rate of 3%, while the buffer rate for the smallest O-SII, as identified by expert assessment, was slightly reduced, from 0.5% to 0.25%). In addition, for one O-SII the buffer rate was increased as a reflection of its greater systemic importance after the merger with another credit institution.

Figure 1 Systemic importance scores of O-SIIs and their capital buffer rates



Notes: The red dashed line indicates the score threshold for identifying other systemically important credit institutions (O-SIIs). O-SII buffer is short for the capital buffer rate for O-SIIs.
Source: CNB.

Table 1 Overview of macroprudential measures applied by EEA countries and the United Kingdom

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
Capital and liquidity buffers																															
CCoB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CCyB rate applied (%)	0	0	2.0	0.5	2.0	0.75	2.50	1.5	0	0	1.0	0	1.0	0	1.0	2.0	0	0	1.0	0.5	0	0	1.0	2.5	0	0	1.0	2.0	0.5	1.5	2.0
CCyB rate pending (%)		1.0		1.0									1.5	0.5	1.5	2.5					1.0		2.0						1.0		
G-SII						●			●		●						●						●								●
O-SII	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SRB	●		●				●			●			●	●		●							●	●	●		●	●			
Sectoral SRB		●				●					●							●	●			●				●			●		
Liquidity ratio														●										●	●			●			
Caps on prudential ratios																															
DSTI	●			●				●		●	●			●		●			●		●	●			●	●	●		●	●	
DTI/LTI							●								●						●			●						●	●
LTV	●	●		●	●		●	●		●				●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	
Loan amortisation					●													●						●				●		●	
Loan maturity	●				●			●		●	●								●		●	●	●		●	●	●		●	●	
Other measures																															
Pillar II		●		●																									●		
Risk weights								●					●					●		●	●	●	●	●	●		●	●	●		●
LGD																								●							
Stress/sensitivity test			●	●	●					●					●									●							●
Other measures	●		●				●						●		●							●			●		●	●		●	●

Disclaimer: of which the CNB is aware.
Notes: The listed measures are in line with Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms (CRR) and Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms (CRD IV). The definitions of abbreviations are provided in the List of abbreviations at the end of the publication. Green indicates measures that have been added since the last version of the table. Light red indicates measures that countries have released in response to the crisis triggered by the coronavirus pandemic, which were not re-applied as at 1 February 2023.
Sources: ESRB, CNB and notifications from central banks and websites of central banks as at 11 January 2024.
For details, see: https://www.esrb.europa.eu/national_policy/html/index.en.html and https://www.esrb.europa.eu/home/coronavirus/html/index.en.html.

Table 2 Implementation of macroprudential policy and overview of macroprudential measures in Croatia

Measure	Primary objective	Year of adoption	Description	Basis for standard measures in Union law	Activation date	Frequency of revisions
Macroprudential measures implemented by the CNB prior to the adoption of CRD IV						
Prior to the adoption of CRD IV, the CNB used various macroprudential policy measures, of which the most significant ones are listed and described in: a) Galac, T., and E. Kraft (2011): http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-5772 b) Vujčić, B., and M. Dumičić (2016): https://www.bis.org/publ/bppdf/bispap86l.pdf						
Macroprudential measures envisaged in CRD IV and CRR and implemented by the competent macroprudential authority						
CCoB	Credit growth and leverage following Recommendation ESRB/2013/1	2014	Early introduction: at 2.5% level	CRD, Art. 160(6)	1 Jan. 2014	Discretionary
		2015	Exemption of small and medium-sized investment firms from the capital conservation buffer	CRD, Art. 129(2)	17 Jul. 2015	Discretionary
CCyB	Credit growth and leverage following Recommendation ESRB/2013/1 and implementing Recommendation ESRB/2014/1	2015	CCyB rate of 1% as of 31 Dec. 2023; announcement of CCyB rate of 1.5% to be applied as of 30 Jun. 2024.	CRD, Art. 136	1 Jan. 2016	Quarterly
		2015	Exemption of small and medium-sized investment firms from the countercyclical capital buffer	CRD, Art. 130(2)	17 Jul. 2015	Discretionary
O-SII	Limiting the systemic impact of misaligned incentives with a view to reducing moral hazard following Recommendation ESRB/2013/1	2015	Seven O-SIIs identified by review in late 2023, with corresponding buffer rates: 2.5% for Zagrebačka banka d.d., Zagreb, 2.0% for Privredna banka Zagreb d.d. i Erste&Steiermärkische Bank d.d., Rijeka, 1.5% for Raiffeisenbank Austria d.d., Zagreb i OTP banka Hrvatska d.d., Split, 1.0% for Hrvatska poštanska banka d.d., Zagreb, 0.25% for Addiko Bank d.d., Zagreb.	CRD, Art. 131	1 Feb. 2016	Annually
SRB	Credit growth and leverage following Recommendation ESRB/2013/1	2014	Two SRB rates (1.5% and 3%) applied to two sub-groups of banks (market share < 5%, market share ≥ 5%). Applied to all exposures	CRD, Art. 133	19 May 2014	Annually
		2017	The level of two SRB rates (1.5% and 3%) and the application to all exposures remain unchanged. Decision (OG 78/2017) changes the method for determining the two sub-groups to which the SRB is applied. Sub-groups are determined by calculating the indicator of the average three-year share of assets of a credit institution or a group of credit institutions in the total assets of the national financial sector (indicator < 5%, indicator ≥ 5%). The review conducted in 2019 determined that the rates for the two sub-groups remain unchanged.	CRD, Art. 133	17 Aug. 2017	At least on a biennial basis
		2020	Under the Decision (OG 144/2020), a uniform buffer rate (SRB) was introduced in the amount of 1.5% of the total amount of exposure. Since the buffers for SIIs and for the systemic risk are additive as of the beginning of the application of the AACIA, there is no more need for the systemic risks stemming from the size of individual credit institutions and banking sector concentrations to be covered by a higher of the systemic risk buffer rate because these risks will be covered by OSII buffers.	CRD V, Art. 133	29 Dec. 2020	At least on a biennial basis
Risk weights for exposures secured by mortgages on residential property	Credit growth and leverage following Recommendation ESRB/2013/1	2014	Maintaining a stricter definition of residential property for preferential risk weighting (e.g. owner cannot have more than two residential properties, exclusion of holiday homes, need for occupation by owner or tenant)	CRR, Art. 124, 125	1 Jan. 2014	Discretionary
Risk weights for exposures secured by mortgages on commercial property	Mitigating and preventing excessive maturity mismatch and market illiquidity pursuant to Recommendation ESRB/2013/1	2014	CNB's recommendation issued to banks (not legally binding) on avoiding the use of risk weights of 50% to exposures secured by CRE during low market liquidity	CRR, Art. 124, 126	1 Jan. 2014	Discretionary
		2016	Decision on higher risk weights for exposures secured by mortgages on commercial immovable property. RW set at 100% (substituted CNB's recommendation from 2014, i.e. effectively increased from 50%)	CRR, Art. 124, 126	1 Jul. 2016	Discretionary
Other measures and policy actions whose effects are of macroprudential importance and are implemented by the macroprudential authority						
Consumer protection and awareness	Raising risk awareness and creditworthiness of borrowers following Recommendation ESRB/2011/1	2013	Decision on the content of and the form in which consumers are provided information prior to contracting banking services (credit institutions are obliged to inform clients about details on interest rate changes and foreign currency risks)		1 Jan. 2013	Discretionary
		2013	Amended Decision from 1 Jan. 2013 (credit institutions were also obliged to provide information about the historical oscillations of the currency in which credit is denominated or indexed to vis-à-vis the domestic currency over the past 12 and 60 months)		1 Jul. 2013	Discretionary
Information list with the offer of loans to consumers aimed at consumer protection and awareness raising	Raising risk awareness of borrowers pursuant to Recommendation ESRB/2011/1 and encouraging price competitiveness in the banking system	2017	The Information list with the offer of loans to consumers, available on the CNB's website, provides a systematic and searchable overview of the conditions under which banks grant loans. With the Information list, standard information available to the consumers are extended with information regarding interest rates.		14 Sep. 2017	Discretionary
Consumer protection and awareness	Financial stability concerns regarding risk awareness of borrowers	2016	Borrowers are strongly recommended (publicly) by the CNB to carefully analyse the available information and documentation on the products and services offered prior to reaching their final decision, as is customary when concluding any other contract		1 Sep. 2016	Discretionary
Recommendation to mitigate interest rate and interest rate-induced credit risk	Mitigation of the interest rate risk in the household sector and the interest-induced credit risk in the banks' portfolios and enhancing the price competition in the banking system	2017	Credit institutions providing consumer credit services are recommended to extend their range of credit products to fixed-rate loans, while minimising consumer costs.		26 Sep. 2017	Discretionary
Additional criteria for assessing consumer creditworthiness in granting housing consumer loans	Credit risk management in housing consumer loans pursuant to EBA Guidelines on creditworthiness assessment (EBA/GL/2015/11) and EBA Guidelines on arrears and foreclosure (EBA/GL/2015/12)	2017	Decision on the additional criteria for the assessment of consumer creditworthiness and on the procedure for the collection of arrears and voluntary foreclosure		1 Jan. 2018	Discretionary

Measure	Primary objective	Year of adoption	Description	Basis for standard measures in Union law	Activation date	Frequency of revisions
Recommendation on actions in granting non-housing consumer loans	Financial stability concerns due to credit risk in banks' housing loan portfolios and protection of consumers excessive debt taking	2019	All credit institutions granting consumer loans in Croatia are recommended to apply, in determining a consumer's creditworthiness for all non-housing consumer loans with original maturity equal to or longer than 60 months, the minimum costs of living that may not be less than the amount prescribed by the act governing the part of salary exempted from foreclosure.		28 Feb. 2019	Discretionary
Decision on collecting data on standards on lending to consumers	Establishment of an analytical basis for the monitoring of systemic and credit risk and the calibration of borrower-based measures and for meeting the requirements from the ESRB recommendations on closing real estate data gaps (ESRB/2016/14 and ESRB/2019/3)	2020	A new reporting system is introduced which provides for a monthly collection of individual data on all newly-granted consumer loans at the individual loan level and the annual collection of data on all individual consumer loan balances. The collected data will be used for the analysis and the regular monitoring of systemic risk, the monitoring of credit risk, the calibration of macroprudential measures and, where necessary, the monitoring of actions by credit institutions against which measures have been imposed.		2 Apr. 2020	Discretionary
Other measures whose effects are of macroprudential use						
Amended Consumer Credit Act	Financial stability concerns due to interest rate risk and currency risk	2013	Fixed and variable parameters defined in interest rate setting, impact of exchange rate appreciation for housing loans limited, upper bound of appreciation set to 20%		1 Dec. 2013	Discretionary
Amended Consumer Credit Act	Financial stability concerns due to interest rate risk and currency risk	2014	Banks are obliged to inform their clients about exchange rate and interest rate risks in written form		1 Jan. 2014	Discretionary
Amended Consumer Credit Act	Financial stability concerns due to currency risk	2015	Freezing the CHF/HRK exchange rate at 6.39		1 Jan. 2015	Discretionary
Amended Consumer Credit Act	Financial stability concerns due to currency risk	2015	Conversion of CHF loans		1 Sep. 2015	Discretionary
Consumer Home Loan Act	Financial stability concerns due to interest rate risk and currency risk	2017	To establish the variable interest rate, the interest rate structure was defined through reference variable parameters and the fixed portion of the rate; for foreign currency consumer home loans, clients were offered one-off conversion of loans, from the currency a loan was denominated in or linked to, to the alternative currency without additional costs		20 Oct. 2017	Discretionary
Act on Amendments to the Credit Institutions Act	Compliance with the requirements for close cooperation with the ECB and the legal basis for imposing legally binding borrower-based measures	2020	Detailed provisions on the CNB's powers regarding the adoption and implementation of macroprudential measures that for the first time explicitly stipulate borrower-based measures. The ECB may issue instructions to the CNB if it assesses that a Croatian macroprudential measure, which is based on harmonised European rules and aimed at credit institutions, is not strict enough		15 Apr. 2020 (some provisions enter into force on 1 October 2020, with the beginning of close cooperation with the ECB)	Discretionary
Act on Amendments to the Credit Institutions Act	Compliance with CRD V	2020	Regulation of the provisions on capital buffers; increased maximum O-SII buffer rate; sectoral SRB; O-SII buffer and SRB additivity; changes to the notification system; determination of the CNB as the designated authority for the assessment of the adequacy of the risk weights referred to in Article 125(2) or Article 126(2) of Regulation (EU) No 575/2013		29 Dec. 2020	Discretionary

Note: The definitions of abbreviations are provided in the List of abbreviations at the end of the publication.
Source: CNB.

Glossary

Financial stability is characterised by the smooth and efficient functioning of the entire financial system with regard to the financial resource allocation process, risk assessment and management, payments execution, resilience of the financial system to sudden shocks and its contribution to sustainable long-term economic growth.

Systemic risk is defined as the risk of events that might, through various channels, disrupt the provision of financial services or result in a surge in their prices, as well as jeopardise the smooth functioning of a larger part of the financial system, thus negatively affecting real economic activity.

Vulnerability, within the context of financial stability, refers to the structural characteristics or weaknesses of the domestic economy that may either make it less resilient to possible shocks or intensify the negative consequences of such shocks. This publication analyses *risks* related to events or developments that, if materialised, may result in the disruption of financial stability. For instance, due to the high ratios of public and external debt to GDP and the consequentially high demand for debt (re)financing, Croatia is very vulnerable to possible changes in financial conditions and is exposed to interest rate and exchange rate change risks.

Macroprudential policy measures imply the use of economic policy instruments that, depending on the specific features of risk and the characteristics of its materialisation, may be standard macroprudential policy measures. In addition, monetary, microprudential, fiscal and other policy measures may also be used for macroprudential purposes, if necessary. Because the evolution of systemic risk and its consequences, despite certain regularities, may be difficult to predict in all of their manifestations, the successful safeguarding of financial stability requires not only cross-institutional cooperation within the field of their coordination but also the development of additional measures and approaches, when needed.

List of abbreviations

AACIA	Act on Amendments to the Credit Institutions Act
Art.	Article
bn	billion
b.p.	basis points
CB	central bank
CCoB	capital conservation buffer
CCyB	countercyclical capital buffer
CEE	Central and Eastern European
CES	Croatian Employment Service
CHF	Swiss franc
CNB	Croatian National Bank
CRD IV	Directive 2013/36/EU on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms
CRR	Regulation (EU) No 575/2013 on prudential requirements for credit institutions and investment firms
d.d.	dioničko društvo (joint stock company)
DSTI	debt-service-to-income ratio
EBA	European Banking Authority
EBITDA	earnings before interest, taxes, depreciation and amortisation
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
Fed	Federal Reserve System
FINA	Financial Agency
FOMC	Federal Open Market Committee
GDP	gross domestic product
G-SII	global systemically important institutions buffer
HANFA	Croatian Financial Services Supervisory Agency
HRK	Croatian kuna
IRB	internal ratings-based
LGD	loss-given-default
LTD	loan-to-deposit ratio
LTI	loan-to-income ratio
LTV	loan-to-value ratio
no.	number
NRR	national reference rate
OG	Official Gazette
O-SII	other systemically important institutions buffer
O-SIIs	other systemically important institutions
Q	quarter
SRB	systemic risk buffer

Two-letter country codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
ES	Spain
FI	Finland
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IS	Iceland
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
NL	Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

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