HNB
EUROSYSTEM

Macroprudential Diagnostics

Year IX · Number 24 · October 2024

CROATIAN NATIONAL BANK
EUROSYSTEM

Contents

PUBLISHER
Croatian National Bank
Trg hrvatskih velikana 3, 10000 Zagreb
Phone: +385 1 45 64 555

info@hnb.hr, **www.hnb.hr**

Those using data from this publication are requested to cite the source.

ISSN 2459-8887

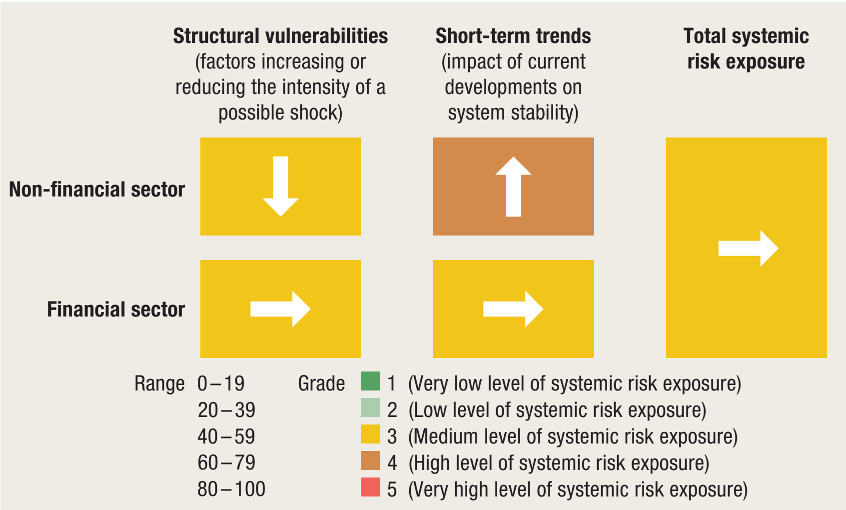
Introductory remarks

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

At the end of the second quarter of 2024, total exposure to systemic risks remained at a moderate level amid robust economic growth. The strong rise in income and consumer confidence imparted momentum to consumer lending, while housing lending stabilised on an elevated level, reflecting growing residential real estate prices and a reduced number of housing loans. On the other hand, corporate lending has remained subdued. Favourable economic developments are reflected in the continued improvement in the performance of non-financial corporations, and, in turn, in the operation of credit institutions. The share of non-performing loans dropped further from a historically low level, contributing to the maintenance of the high profitability generated by increased interest rates. This, in addition to favourable capital and liquidity positions, strengthens the resilience of the banking system to potential shocks. The greatest risks to the stability of the financial system stem from developments in the international environment and on financial markets. As for domestic risks, the aforementioned strong growth in consumer loans and the worsening of the debt servicing ratio for new housing loans stand out. On the other hand, the decrease in the number of purchase and sale transactions and the slowdown in the growth of residential real estate prices are mitigating the risks related to the housing market.

Figure 1 Risks to financial stability remain moderate



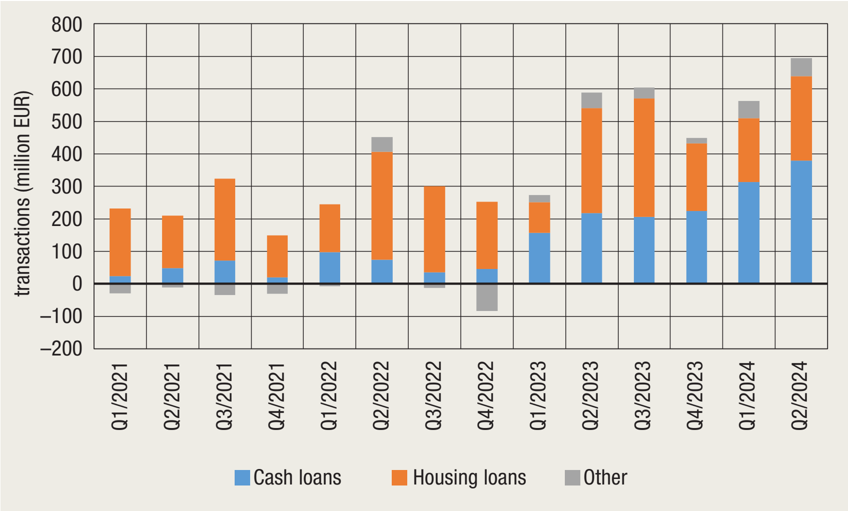
Note: Arrows indicate changes from the risk map published in Macroprudential Diagnostics No. 23 (July 2024).
Source: CNB.

The brief period of increased volatility on global financial markets seen in early August shows that market developments are exceptionally vulnerable to any significant deviation of economic indicators from expectations and to changes in the direction of economic policy. The unexpectedly poor figures from the US market during the summer and the decision of Japan's central bank to raise the key interest rate triggered a change in the expectations of financial market participants, accompanied by a widespread reaction. The value of shares on the global market fell, yields on bonds of major global economies shrank, the US dollar weakened against the majority of global currencies and the Japanese yen strengthened significantly. Volatility also increased on the goods markets, which points to a strong interconnectedness between various segments of the global financial system. The financial system showed a certain resilience even in such circumstances, and prices of shares and yields on bonds rapidly returned to initial levels, proving that fears of a significant deterioration of the economic outlook were exaggerated. However, financial market participants remain exceptionally vulnerable to sudden changes in economic policies and signals from key economies, which may aggravate the effects of possible unfavourable economic developments.

The growth of the Croatian economy continues to accelerate, reflecting strong domestic demand. The continued strong increase in employment and the higher real increase in wages are boosting consumer confidence and supporting the growth in personal consumption. Investments are growing as well, supported by the inflow of EU funds and vigorous activity in the residential construction sector. On the other hand, foreign demand remains weak amid subdued euro area growth and unfavourable trends witnessed by certain important trading partners, such as Germany. Weakness is particularly noticeable in the manufacturing sector, which, compounding weak global demand, may be linked to structural difficulties, such as higher energy prices on the European market and lower competitiveness in the area of new technologies. Inflation continued to decelerate, with a slowdown seen in all inflation components except the inflation of service prices, which remained elevated amid the increase in wages and strong demand for services. Inflation in the euro area also decreased, but the most recent projections still suggest that the inflation target will only be reached by the end of 2025. Therefore, the Governing Council of the European Central Bank reduced the interest rate by 25 basis points on two occasions, in June and in September, which resulted in improved financing conditions in the euro area.

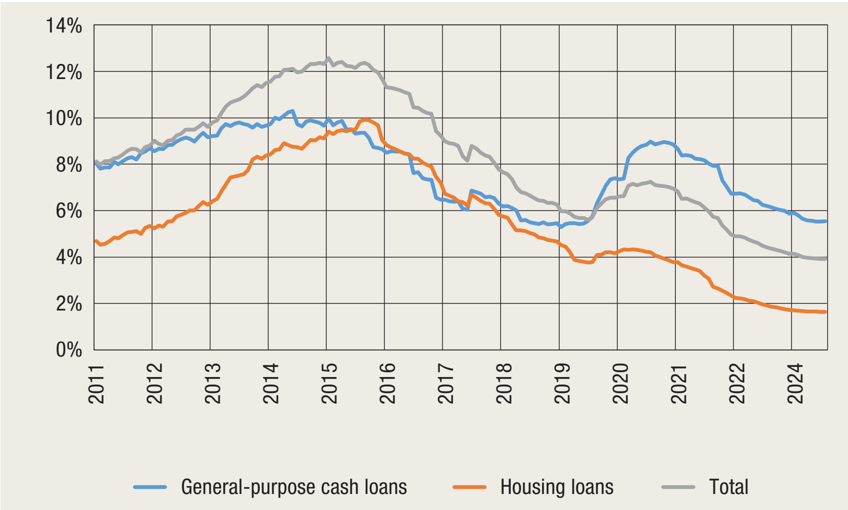
Household lending picked up further in the segment of general-purpose cash loans, while in housing loans, the repayment burden increased noticeably. The strong growth in employment and wages coupled with increased consumer optimism triggered an upswing in consumer lending in the second quarter of the current year. The momentum in consumer loans, i.e., the quarterly rate of growth in annual terms, reached almost 20% in mid-2024, so that the annual growth rate picked up to 15.5% in August (see Box 1 *Does history repeat itself or does it rhyme only? Risks associated with excessive growth in general-purpose cash loans*, Figure 1). The growth in housing loans stabilised on a high single-digit level, with the growth reflecting higher amounts of individual loans in the context of increasing residential real estate prices and elevated interest rates, while the actual number of loans granted decreased. The average debt service-to-income ratio (DSTI) for newly-granted loans increased by two percentage points in annual terms, reaching 40%, and almost half of the loans were granted with a DSTI of above 40%. At the same time, the average loan-to-value ratio (LTV) for new housing loans dropped, with a significant decrease in the share of loans with an LTV ratio above 90%, which reflects the abolition of the government housing loans subsidy programme, under which loans were typically granted with an LTV ratio above 90%. The quality of household loans is continuously improving and the share of non-performing loans and loans with increased credit risk since initial recognition (so-called stage 2 loans) is declining. However, the strong growth in cash loans coupled with an increase in the share of housing loans granted with elevated debt servicing ratios may pose a risk for the stability of the financial system.

Figure 2 Cash loans have been contributing the most to the increase in household loans for the third consecutive quarter



Note: Transactions are calculated as new business in a given month, reduced by repayments.
Source: CNB.

Figure 3 The share of non-performing household loans decreased further from a historically low level

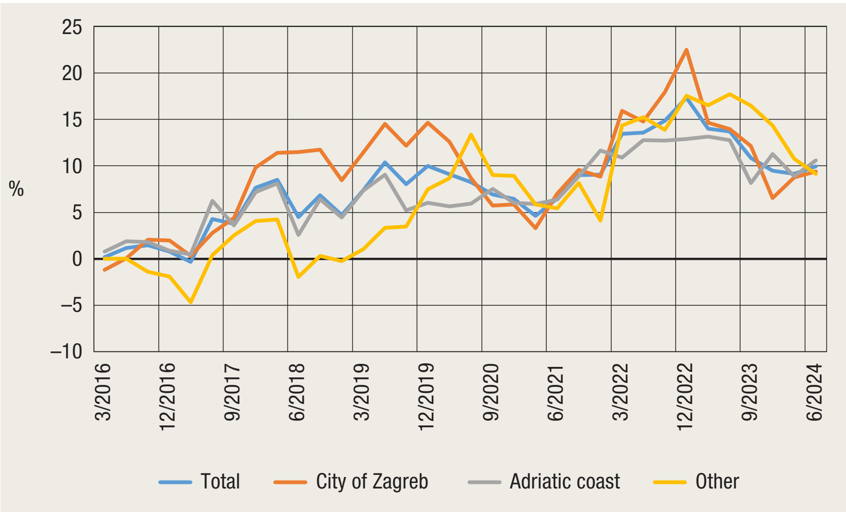


Source: CNB.

The slowdown in the residential real estate market reflects a decrease in domestic, and to an even greater extent, foreign demand. The number of purchase and sale transactions continued to drop, with foreign demand decreasing faster than domestic demand

and the decrease in transactions being more prominent on the Adriatic coast. Residential real estate prices in Croatia continue to grow faster than in most other EU member states (in the second quarter of 2024 they increased by 10%, versus 2.9% on average in the EU), supported by the strong growth in economic activity and the relatively moderate deterioration of financing conditions. Current developments point to a gradual easing of risks related to elevated residential real estate prices in relation to fundamental variables determining them. However, in the case of a strong macroeconomic or financial shock, the possibility of a rapid reversal of residential real estate market trends resulting in a decrease in prices and, consequently, the value of collateral in the balance sheets of banks cannot be excluded. The commercial real estate market is still characterised by a stable increase in prices and low availability of free space. Still, the shallow and inactive market makes turnover and prices very vulnerable to various disruptions.

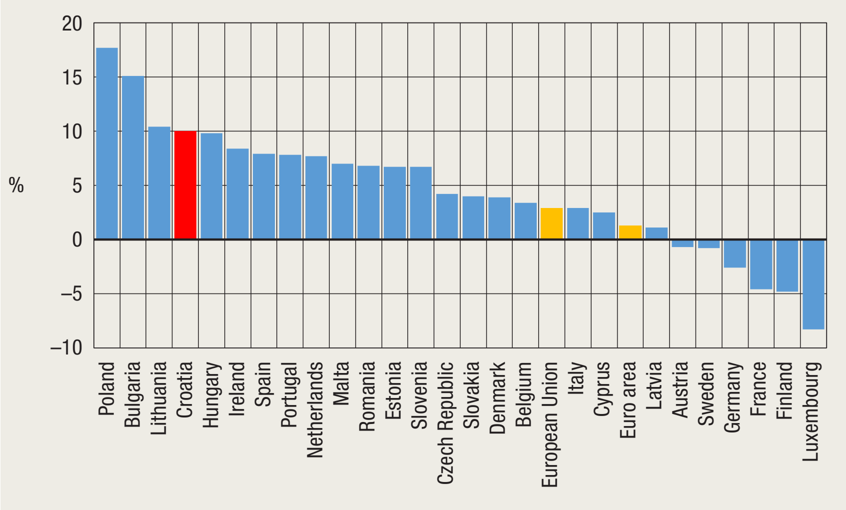
Figure 4 The increase in residential real estate prices is slowing down



Source: CBS.

Corporate lending is still subdued, with a noticeable increase in loans to the construction and real estate sectors and to particular activities of the services sector (Figure 6). Firms are still recording favourable performance, reflected in the significant increase in the amount of fiscalised invoices, although due to inflation, the increase is somewhat lower than in 2023 (Figure 7). The number of active firms also continues to grow. Still, banks covered by the Bank Lending Survey carried out in the second quarter of 2024 report a decline in the corporate demand for loans. The drop in demand is mostly related to reduced needs for financing investments as the drop of interest rates from elevated levels remains moderate. A significant portion of investments is likely financed from own funds, facilitated by favourable corporate business performance. At the same time, banks reported further moderate tightening of corporate lending standards, which could

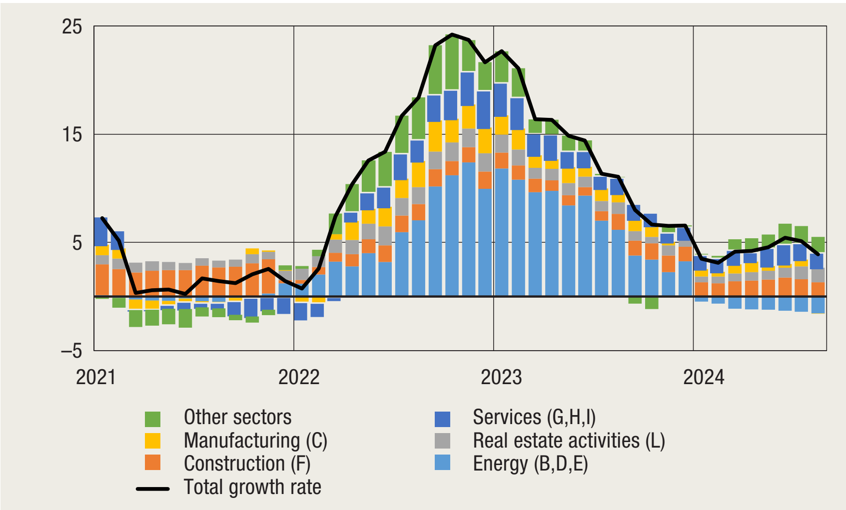
Figure 5 In the 2nd quarter of 2024, the annual rate of growth of residential real estate prices in Croatia remains one of the highest in the EU



Source: Eurostat.

continue in the third quarter. Corporate lending remains subdued amid elevated interest rates, weak demand and tightened lending standards. Lately, more considerable lending activity has been noticeable only in sectors related to housing and construction and certain activities in the services sector (Figure 6).

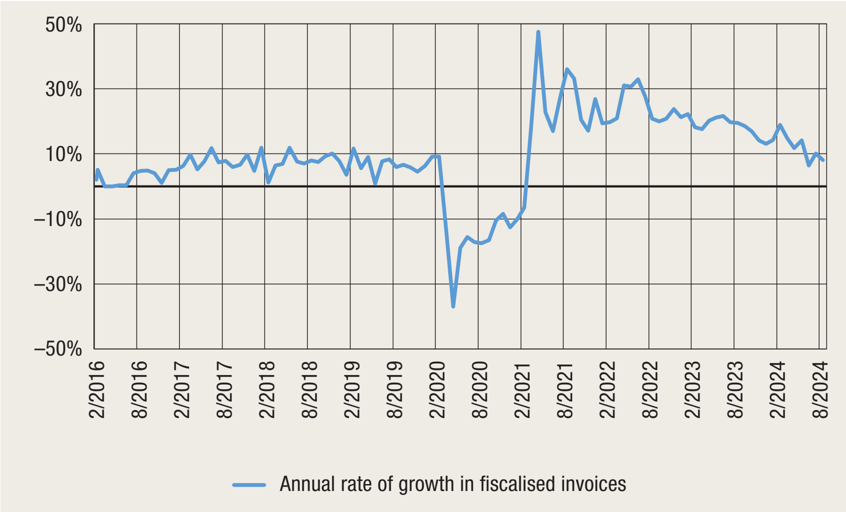
Figure 6 Lending is mostly directed at construction and real estate activities



Source: CNB.

Indicators of credit risk continue to improve against the backdrop of robust economic growth, employment and wage increase and good corporate business performance. The share of stage 2 loans decreased significantly after a temporary increase in 2023 (in the first half of 2024, it went down by over seven percentage points). The risk perception of firms from the energy and manufacturing sectors decreased the most, and, to a lesser extent, that of firms from the

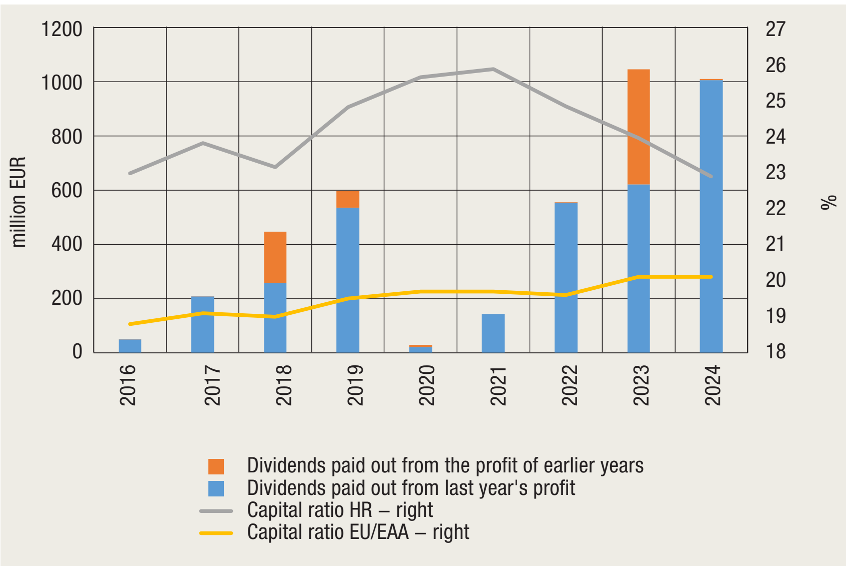
Figure 7 The amount of fiscalised invoices is still growing relatively strongly



Source: Tax Administration.

tourism and construction sectors. In addition, the share of non-performing loans continued to decline both in the corporate and the household sector. Although this indicator, observed at the level of total loans, decreased slightly from an already historically low level to below 2.6%, it is still higher than the EU average.

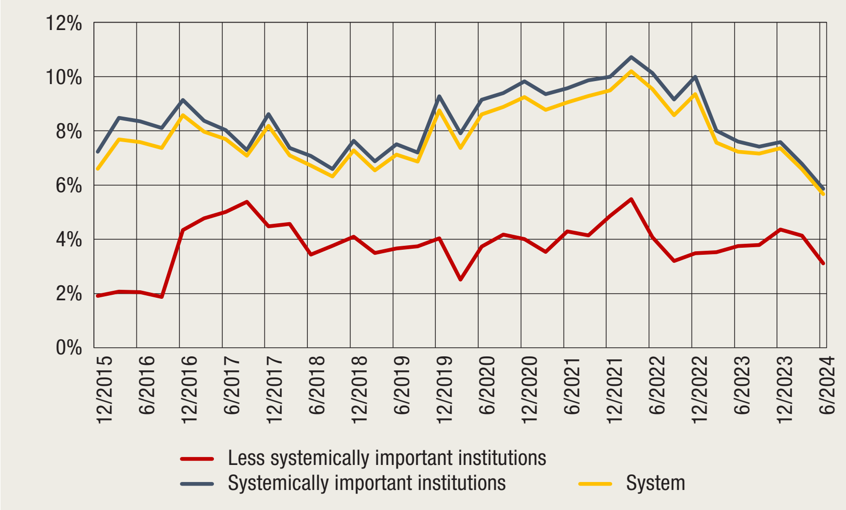
Figure 8 Total capital ratio continued to decline



Sources: CNB and EBA (Risk Dashboard).

The capitalisation rate of the banking system is still significantly above regulatory requirements, although it is decreasing slowly as a result of an increase in assets (Figure 9). Strong lending activity, particularly in portfolios with greater risk weights, such as consumer loans, and the placement of a portion of funds that were deposited with the central bank and considered non-risky to foreign financial

Figure 9 Capital in excess of regulatory requirements almost halved from March 2022



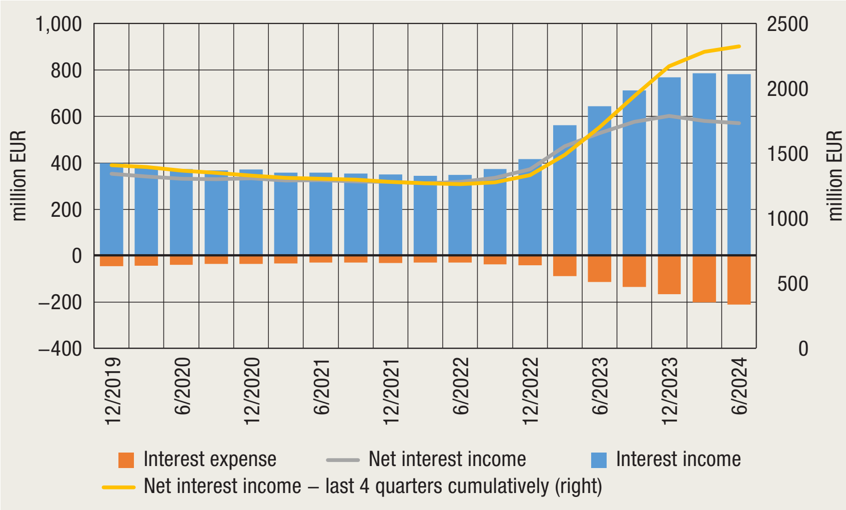
Note: The calculation of capital surplus does not include the minimum requirement for own funds and eligible liabilities (MREL).
Source: CNB.

institutions, noticeably increased the risk-weighted assets in the first half of 2024. At the same time, own funds increased, albeit slightly, as dividends in the amount of 70% of the previous year's profits were paid out in the first half of the year (Figure 11). The downward trend in capital adequacy thus continued, with the capital ratio having gone down by 2.1 percentage points over the past two years, from 25% in mid-2022 to 22.9% in mid-2024, the lowest level since the first quarter of 2019. Since capital requirements grew at the same time as well (the combined capital buffer has increased by 1.64 percentage points since the beginning of 2023 due to the introduction and subsequent increase of the countercyclical capital buffer and the recalibration of buffers for some systemically important banks), the capital in excess of regulatory requirements almost halved from mid-2022, so that the capital surplus ratio above regulatory requirements[1] amounted to 5.7% in June 2024, or 5% if Pillar II requirements are included in accordance with the guidelines (P2G).

Indicators of banking system liquidity are stable and high. The liquidity of credit institutions, measured by the liquidity coverage ratio (LCR), stood at 224% at the end of July, and the net stable funds ratio (NSFR) was 169% at the end of June. Both indicators are at exceptionally high levels, significantly above regulatory limits, which points to the domination of stable funding sources and significant amounts of liquid assets.

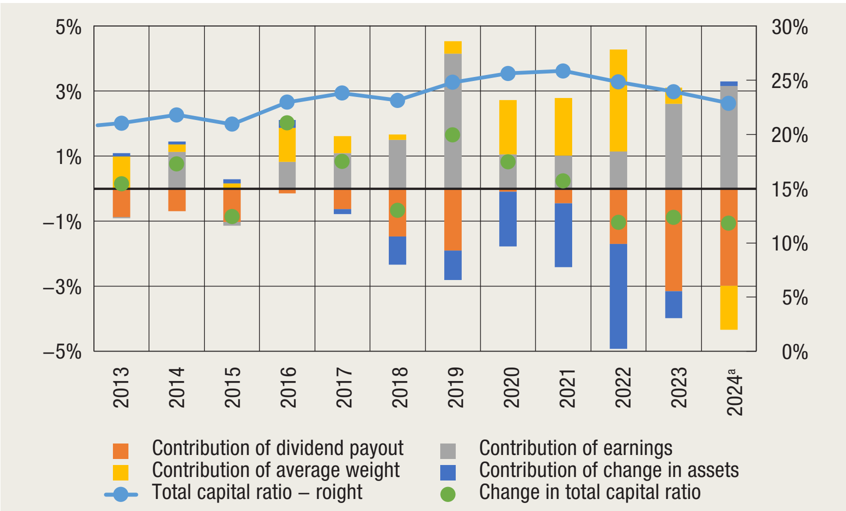
1 The calculation of capital surplus does not include the minimum requirement for own funds and eligible liabilities (MREL).

Figure 10 Net interest income is beginning to decline due to the increase in interest expense



Source: CNB.

Figure 11 Dividend payments and the increase in the average risk weight contributed to the drop in the total capital ratio



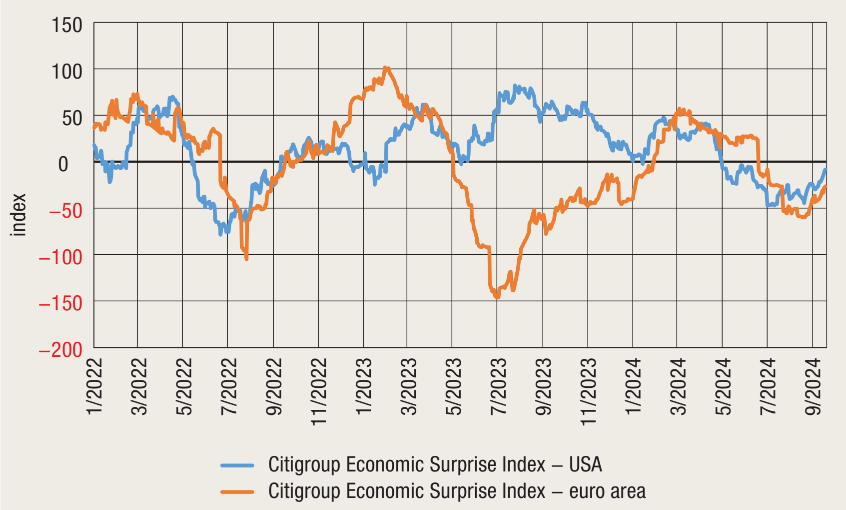
Note: Data for 2024 cover the first half of the year.
Source: CNB.

Bank profitability could decrease slightly after peaking in the first half of 2024, depending on the developments in key interest rates and the intensity of the increase in operating expenses. In the first half of 2024 banks generated record profits, with a return on equity of 18.5% and a return on assets of 2.1%. The exceptionally high level of profitability reflects a rise in net interest income amid elevated interest rates as well as the increase in non-interest income and an additional release of impairments against the backdrop of strong economic growth. Administrative expenses also went up, mainly due to the increase in expenses on employees, which grew by almost 10%; however, operating income grew more strongly. Bank profitability thus peaked with noticeable first signs of trend reversal in terms of stagnating interest income, which, coupled with a continued increase in interest expenses in the second quarter, led to lower net interest income relative to the first quarter of the current year (Figure 10). The lowering of ECB key interest rates in June and September and the possible additional decreases will continue to have an unfavourable effect on net interest income. Banks will continue to face growing operating expenses in terms of demands for wage increase and need for additional investments in digitalisation. In addition, exceptionally low levels of non-performing loans left no room for further reduction of impairments, which could even increase in an environment of pronounced uncertainty. All this could have an unfavourable effect on bank profitability in the upcoming years.

2 Potential risk materialisation triggers

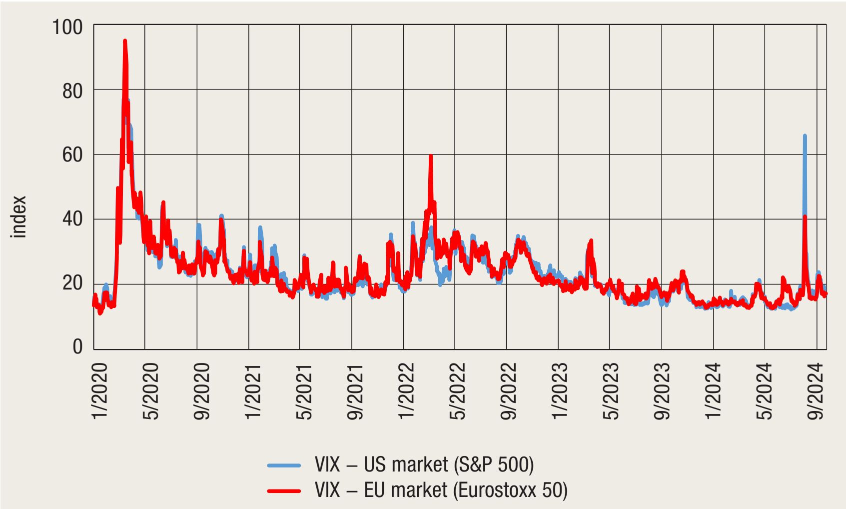
Financial markets are exceptionally sensitive to unexpected news and sudden events, which, in addition to the activation of risk of contagion, can lead to rapidly occurring systemic disruptions. The market turmoil seen in August (Figure 13) highlighted the strong interconnectedness of global markets, where unexpected changes in monetary policy direction, such as the recent move by the central bank of Japan and poor economic indicators in the US (Figure 12), can have a rapid and strong effect on changes in the valuation of various asset classes on a global scale. A high valuation of shares makes investors even more sensitive to unfavourable macroeconomic data (Figure 13) and poor corporate financial performance. Such news is reflected in expectations of future monetary policy, which, if liquidity continues to gradually decline, could further enhance market volatility. In addition, new fiscal expenditures faced by governments amid geopolitical and climate threats could hamper the attainment of long-term public debt sustainability in many countries and increase the risk premium on their debt, particularly for countries which already have a weak fiscal position, which could have an additional unfavourable effect on market developments.

Figure 12 Over the recent months, economic results were continuously lower than expected



Notes: Citigroup Economic Surprise Index (CESI) measures the difference between actual economic results and market expectations. A positive index points to results exceeding expectations, which usually has a positive effect on market sentiment, while a negative index means that results have fallen short of expectations, which may signal poor economic performance and have a negative impact on markets.
Source: Refinitiv.

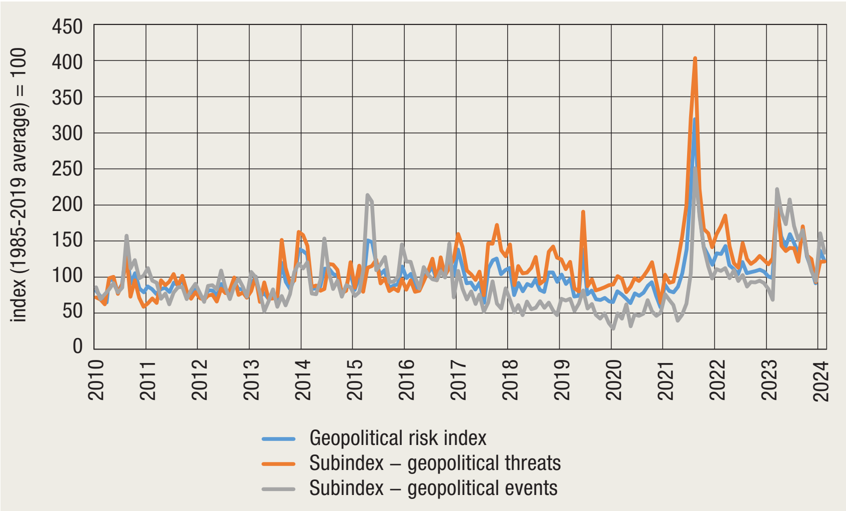
Figure 13 Strong increase in market volatility in early August



Notes: The VIX for the US measures the weighted average of the 30-day implicit volatility of S&P 500 options, while the same indicator for the euro area is equivalent for Eurostoxx 50. The figures refer to the maximum daily value.
Source: Bloomberg.

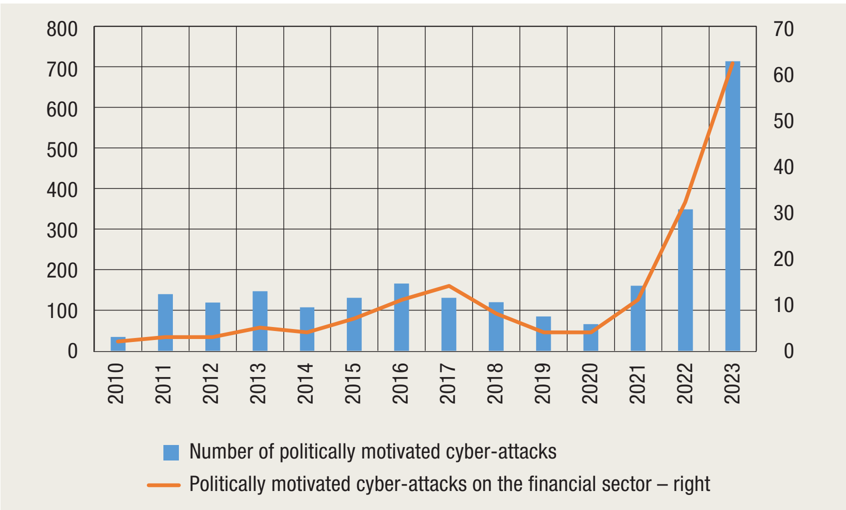
Geopolitical risks, primarily linked to conflicts in Ukraine and the Middle East, remain a significant source of systemic risks and a possible trigger of their materialisation (Figure 14). Although the initial shocks of increases in food and energy prices caused by the war in Ukraine have mostly waned, their possible intensification could have significant negative effects, particularly on the European economy. In the Middle East, conflict spreading could seriously threaten global oil and gas flows considering the key role of that area in the global energy supply system, increasing the risk of price increases and inflationary pressures in most countries in the world. In addition, the Asia-Pacific region is still an area of high geopolitical tensions, particularly in the relations between China and Taiwan and stakeholders in the region such as the USA and Japan. Although the risk of immediate escalation remains relatively low, a potential conflict in that region would have far-reaching consequences for global trade considering the key roles of China and ASEAN countries in global manufacturing and logistic chains.

Figure 14 Geopolitical risk index is elevated



Notes: Caldara, D. and M. Iacoviello (2022), *Measuring Geopolitical Risk*, American Economic Review, April, 112(4), pp. 1194-1225. The geopolitical risk index reflects the results of an automated text-search of the electronic archives of ten newspapers.
Source: Data taken from https://www.matteoiacoviello.com/gpr.htm

Figure 15 The number of politically motivated cyberattacks worldwide is growing



Note: Data collected from more than 200 public reports about cyber incidents.
Source: European Repository of Cyber Incidents (EuRepoC).

Possible sudden changes in economic policies that could ensue after elections are an additional source of potential disruptions in the global economy and the financial system. Particularly noteworthy in that respect are US elections, especially in the context of a possible change in the direction of the new US administration which could take a turn towards a more pronounced bloc division and new protectionist measures, disrupting global trade flows and, consequently, impacting the technology, manufacturing and energy sectors.

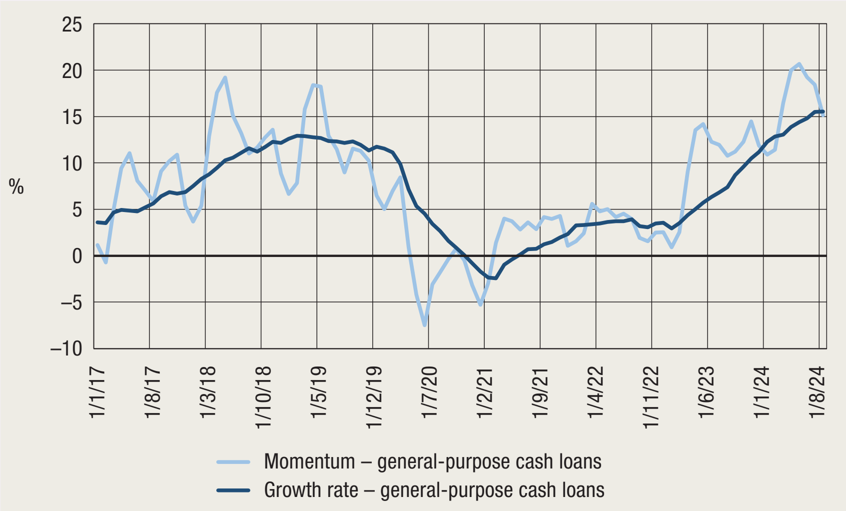
The increasing reliance of the financial sector on technology is accompanied by a rise in cyber-attacks that may activate systemic risks. Although digitalisation leads to increased efficiency and flexibility of services, it also creates new challenges in terms of security. Cyber-attacks, the number of which has increased significantly over the past years (Figure 15), may result in operational disruptions, particularly due to the dependency on key infrastructures and third-party service providers, and jeopardise critical functions such as payment systems. The undermined trust of market participants may cause panic and trigger a massive sale of assets, deepening financial instability.

Box 1 Does history repeat itself or does it rhyme only? Risks associated with excessive growth in general-purpose cash loans

Strong growth in general-purpose cash loans strengthens systemic risks to financial stability. Real wage growth coupled with a strong rise in employment spurred an increase in consumer confidence and personal consumption in early 2023. At the same time, growth in general-purpose cash loans picked up significantly. The increase received an additional boost in the first half of 2024 (Figure 1), when wage system reform in the public sector pushed wages further up. In the first wave of acceleration, the momentum of general-purpose cash loans, i.e., the quarterly rate of growth on an annual basis, oscillated between 10% and 15%, while in the second wave, the momentum briefly exceeded 20% before slowing down in August to some 15%. This matches the annual rate of growth in general-purpose cash loans, which, if current activity remains the same, could stabilise at around 15% in the upcoming months. Housing loans are also growing in parallel with consumer loans and, although their growth rate has stabilised a lower level, this also contributes to the acceleration in the growth of total household loans.

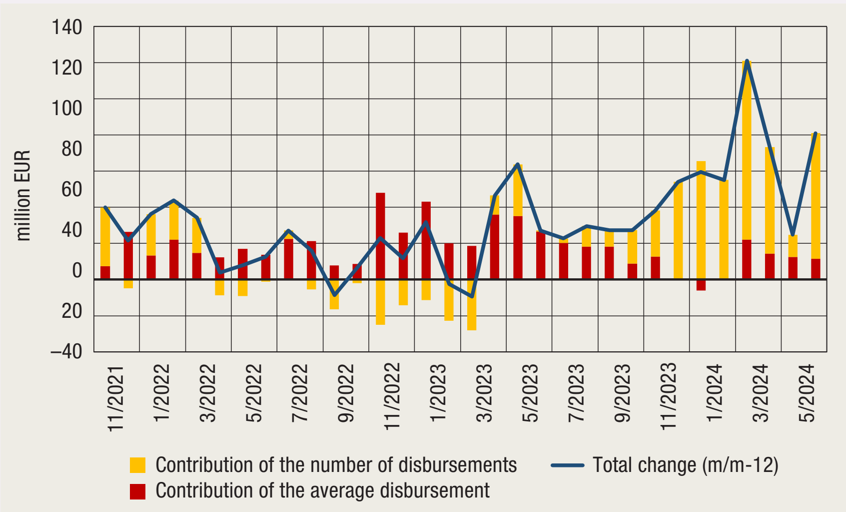
The risks associated with the strong growth in general-purpose cash loans are highlighted by the high, albeit stable, debt servicing

Figure 1 Growth in general-purpose cash loans picked up substantially



Source: CNB.

Figure 2 Growth picked up mainly as a result of a larger number of loans granted

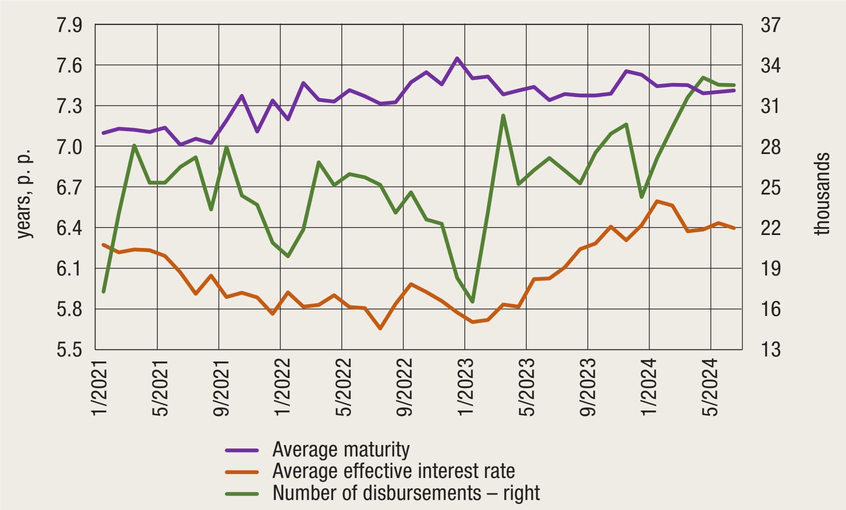


Source: CNB (consumer lending standards).

ratios for new loans, mitigated by the relatively low total debt of households. Accelerated growth in general-purpose cash loans in early 2023 was mostly linked to higher amounts of individual loans (Figures 2 and 4), which may increase the loan repayment cost. However, the number of granted loans began to increase very fast, so that in the first six months of 2024, 186,000 cash loans were disbursed, up by a quarter from the same period in 2023. On the other hand, the average disbursement increased only slightly, reaching around EUR 9,350 in the first six months of 2024, up by only around 6% from 2023. With a stable average maturity of almost seven and a half years and a moderate increase in interest rates (from 5.6% in April 2023 to around 6.3% in January 2024), the increase in annuities related to higher principals and interest kept pace with the increase in consumer income so that the average debt service-to-income ratio (DSTI) remained between 33% and 35% (Figure 6). The annual inflow of household debt (measured by transactions) increased by mid-2024 to a level of 3% of GDP, the highest level in the past 15 years, although it amounts to only one half of the strong increase in debt from the period preceding the global financial crisis (Figure 5). The ratio of household debt to GDP decreased continuously from 2010, and the downward trend continued after a brief jump at the onset of the coronavirus pandemic, after which, from 2022 onwards, amid strong credit growth, the ratio remained around 33% thanks to the strong growth in income.

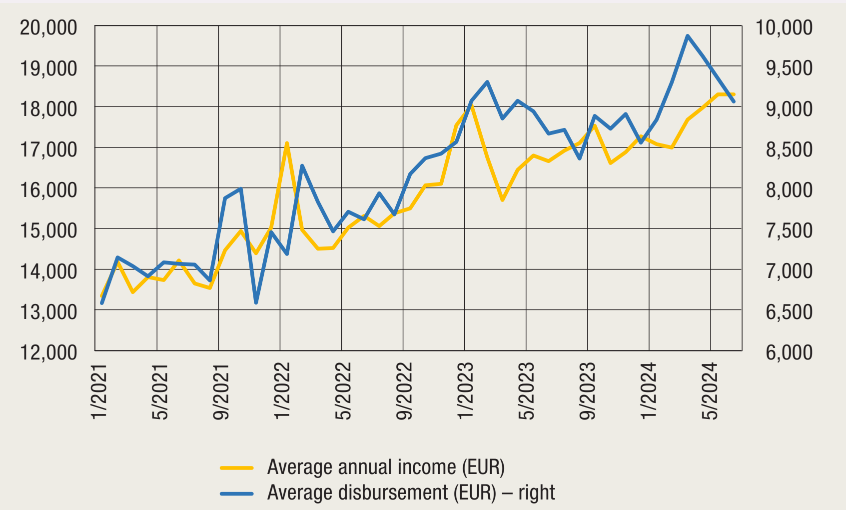
Risks associated with high DSTI ratio values have been, to a certain extent, mitigated by the CNB's recommendation from 2019. The

Figure 3 Interest rates on general-purpose cash loans stabilised in early 2024



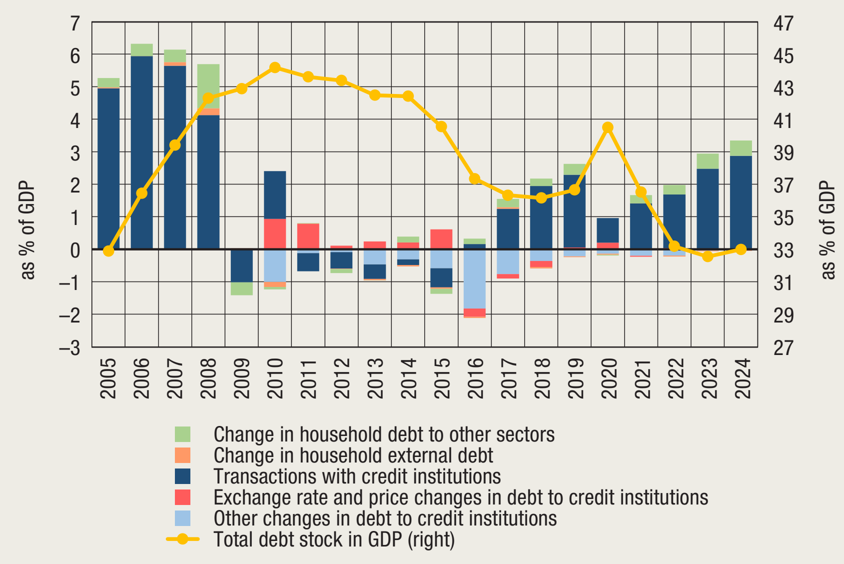
Source: CNB (consumer lending standards).

Figure 4 Average disbursements and consumer incomes are growing at approximately the same pace



Source: CNB (consumer lending standards).

Figure 5 Net inflow of household loans reached the highest level in the past 15 years



Notes: Changes in debt to other sectors and the rest of the world are shown as the difference between the end of the previous year and relativised as a share in GDP. The data on the ratio of household debt to GDP for 2024 refer to the end of the second quarter and the data on transactions to the cumulative sum of transactions in the last two quarters of 2023 and the first two quarters of 2024.
Source: CNB.

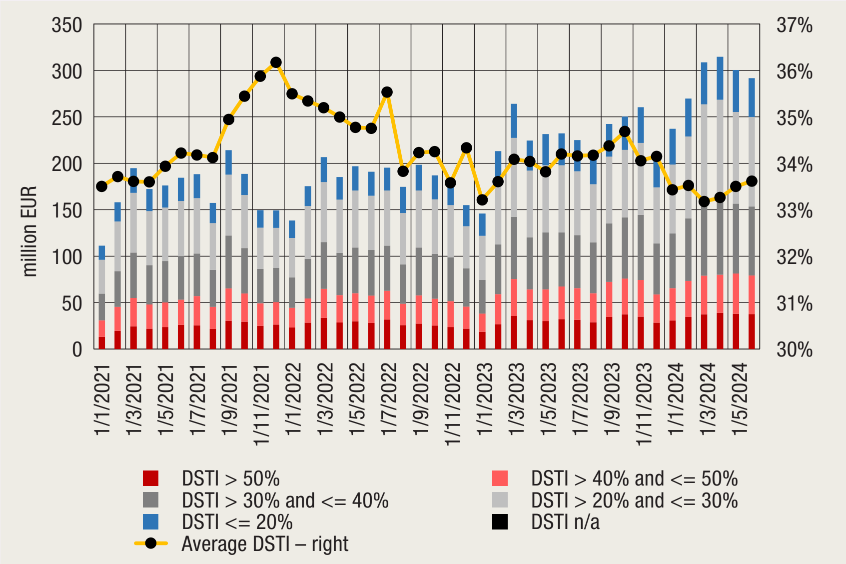
DSTI ratio for loans with a maturity shorter than five years, which are not covered by the CNB's Recommendation[2], is noticeably higher than for loans covered by the Recommendation (the average DSTI for loans covered by the Recommendation is some four basis points lower than the average DSTI for loans not included in the Recommendation). In addition, loans with shorter maturity (loans with maturity shorter than five years) are more frequently granted with higher DSTI ratios, with around 38% individual loans with a shorter maturity having a DSTI ratio of over 40%, while the share of such loans with a longer maturity equals 22%. The DSTI ratio is particularly high in loans with a maturity of just below five years, which account for slightly less than one fifth of new loans (Figure 7). In the event of unfavourable macroeconomic trends, such consumers are exposed to a higher risk of debt repayment difficulties, i.e., of needing to significantly cut down on consumption[3], which increases risks in the banks' balance sheets and may further deepen

2 IRecommendation on actions in granting non-housing consumer loans of February 2019, credit institutions are recommended "that, in determining a consumer's creditworthiness for all non-housing consumer loans with original maturity equal to or longer than 60 months, they apply minimum costs of living that may not be less than the amount prescribed by the act governing a part of salary exempted from foreclosure. This ensures the consistency of criteria for determining a consumer's creditworthiness for housing loans and non-housing consumer loans with longer initial maturities."

3 See, for example Mian, A. and Sufi, A. (2014): *House of Debt: How They (and You) Caused the Great Recession, and How We Can Prevent It from Happening Again*, Chicago and London: The University of Chicago Press and Bunn, P. and Rostom, M. (2015): *Household Debt and Spending in the United Kingdom*, Bank of England Working Papers, p. 554.

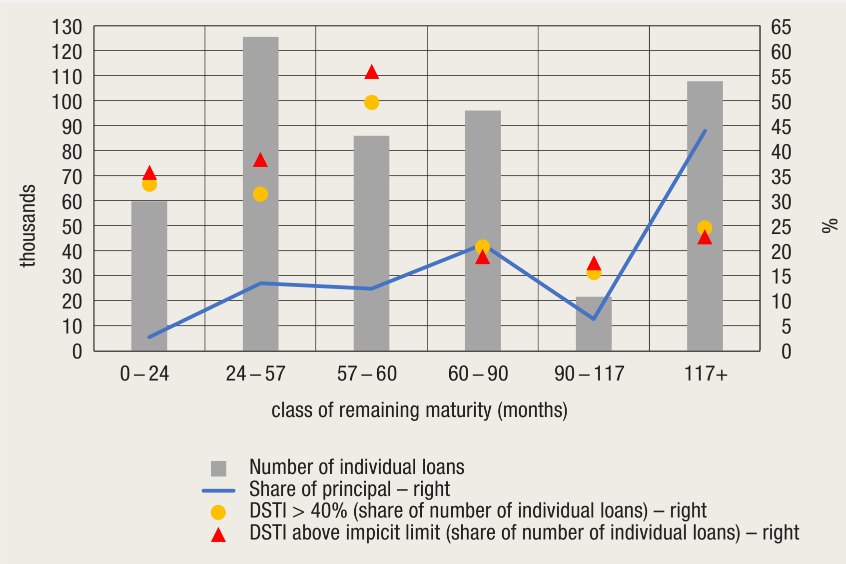
unfavourable economic developments. In addition to the somewhat shorter maturity of loans with higher DSTI ratios, risks are mitigated by the fact that almost a half of repayments are linked with previously granted loans, which have an even shorter remaining maturity, and repayments of credit card debt and transaction account overdrafts, which are amortised within a year in the calculation of the DSTI ratio, and repayment within a longer period may lower the actual repayment burden.

Figure 6 General-purpose cash loans are frequently granted with elevated DSTI ratios



Source: CNB (consumer lending standards).

Figure 7 Cash loans with a maturity just below five years have the highest average DSTI



Notes: Lower limit is included, while the upper is not. The maximum maturity for cash loans is around ten years.
Source: CNB (consumer lending standards).

The CNB will continue to carefully monitor the evolution of consumer lending and related systemic risks and, where necessary, adjust measures aimed at preserving financial stability. If the strong household lending continues, household debt indicators will worsen amid slower than expected nominal GDP and disposable income growth. Long periods of strong growth in household debt are one of the indicators signalling financial crises. Even if the financial system successfully absorbs potential losses related to a pronounced credit cycle, high household debt may extend and deepen a possible recession[4]. The CNB therefore continuously carefully monitors indicators and consumer lending standards, particularly in the segment of consumers with the highest debt indicators, who are most exposed to the risk of default on liabilities under loans in unfavourable macroeconomic scenarios, as this may have an unfavourable effect on financial stability.

3 Recent macroprudential activities

Cyclical risks remained moderately high in the mature phase of the financial cycle characterised by a continued decline in activity, a further slowdown in the growth of prices on the residential real estate market and strong bank lending to households. In such circumstances, the countercyclical capital buffer rate of 1.5% continues to apply with a view to preserving the resilience of the banking system to the potential materialisation of systemic risks. The stricter approach to calculating the riskiness of exposures secured by immovable property also continues to apply, as the CNB, in performing the regular annual review, assessed that it adequately reflects existing risks and contributes to the strengthening of capital buffers in relation to risks associated with the real estate market.

3.1 The countercyclical capital buffer rate to remain at 1.5%

Against the backdrop of increasingly stronger consumer lending and the simultaneous slowdown in activity on the residential real

4 See, for example, Jorda, O, Schularick, M. and Taylor, A. M. (2013): *When Credit Bites Back*, Journal of Money, Credit and Banking, Volume 45, pp. 3-28 and Jorda, O., Schularick, M. and Taylor, A. M. (2015): *Leveraged Bubbles*, Journal of Monetary Economics, Volume 76, pp. 1-20

estate market, the CNB assessed that the countercyclical capital buffer rate of 1.5%, effective from the end of June of the current year, still corresponds to the level of cyclical vulnerability. The domestic financial cycle is still in the mature phase of expansion in which risks mostly stem from relatively strong household lending. The robust growth in employment and wages and high consumer confidence contributed to the pick-up in general-purpose cash loans. In contrast, the rise in housing loans stabilised on an elevated level, with a noticeable increase in the average loan amount, while the number of loans is decreasing. Lending to non-financial corporations remains subdued. On the residential real estate market, the number of transactions continued to decline with a gradual slowdown in the growth of prices, a trend noticeable from the beginning of 2023 (see Chapter 1). While the current level of the countercyclical capital buffer was assessed as commensurate with accumulated cyclical vulnerabilities, if vulnerabilities continue to deepen (especially the accelerated growth in general-purpose cash loans), an additional increase of the buffer could be necessary.

3.2 Annual assessment of appropriateness of risk weight for real estate-secured exposures

The CNB continues to require credit institutions to apply the stricter approach in calculating the riskiness of exposures secured by immovable property, to ensure that capital requirements remain commensurate with the elevated level of systemic risks associated with the real estate market. Stricter measures are part of the national discretions under the European Capital Requirements Regulation[5], which allow competent national authorities to apply stricter parameters in the calculation of riskiness of exposures secured by immovable property on the territory of a Member State if the authorities assess that the measures envisaged by the Regulation do not adequately reflect associated risks. In relation to exposures secured by residential real estate, in 2014 the CNB laid down stricter criteria for the application of the preferential risk weight (35%) than those specified in the Regulation, while in 2016, it prescribed the application of a risk weight of 100% instead of 50% for exposures secured by commercial real estate[6]. In June 2024, the CNB performed the annual review of the adequacy of

5 Regulation (EU) 2024/1623 of the European Parliament and of the Council

6 https://www.hnb.hr/c/document_library/get_file?uuid=cfe344f7-2616-2d85-8acc-c35df2fe3477&groupId=20182&p_auth=jSgUhza4

applicable risk weights, taking into consideration actual and expected losses under these exposures as well as systemic risks associated with real estate market trends. As regards exposures of credit institutions to the residential real estate market, losses recorded at system level were low (0.24% of total exposures secured by residential real estate as at 31 December 2023) and are not expected to increase significantly in the upcoming period. Considering that systemic risks associated with the residential real estate market are assessed as moderately elevated (see Financial Stability No. 25), the system could generate more substantial losses, so that the application of the preferential weight remains justified only under the stricter definition of residential real estate. On the other hand, losses recorded in bank exposures to the commercial real estate market at system level are somewhat higher (1.04% of total exposures secured by commercial real estate as at 31 December 2023), while the shallowness of the market increases its vulnerability to possible shocks, which justifies the application of the higher weight of 100%. The aforementioned national discretions remain in application by the end of the year, when the amended Capital Requirements Regulation enters into force [7] which, among other things, will contain significant changes with regard to provisions related to exposures secured by real estate under the application of the standardised approach for credit risk.

3.3 Implementation of macroprudential policy in other European Economic Area countries

Against the backdrop of an orderly contraction of the financial cycle, after significant vulnerabilities were accumulated in the earlier phase of the cycle, most EEA countries continued to apply the existing macroprudential instruments in the second quarter of 2024. With a view to reinforcing the resilience of the financial system, some countries introduced new capital-based measures, which was enabled, among other things, by the favourable business performance of banks.

The **Czech Republic** introduced a systemic risk buffer of 0.5% for all credit institutions, to be applied as of the beginning of 2025 to all domestic exposures. The reasons for introducing this buffer are elevated structural systemic risks in the banking sector, primarily linked with the openness of the Czech economy and the high concentration of

7 https://eur-lex.europa.eu/eli/reg/2024/1623/oj

its foreign trade and economy. Systemic risks are also intensified by possible costs stemming from the green transition and the increase in cybercrime and further strengthened by geopolitical tensions and growing uncertainty. In addition, the countercyclical capital buffer rate in application was reduced to 1.25% from July 2024 due to the assessed decrease of cyclical risks in the banking sector amid falling housing prices and lower credit activity.

The central bank of **Hungary** decided to introduce the positive neutral countercyclical capital buffer rate strategy, with the rate set at 1% in a neutral risk environment. The rate applicable from 1 July 2024 stands at 0.5%, while the target level of 1% will start to apply as of 1 July 2025.

Spain announced the activation of the countercyclical capital buffer of 0.5%, to be applied as of 1 October 2025 with the intention of gradually building up the target positive neutral rate of 1%, which, based on stress testing, the central bank of Spain deemed to be an adequate capital buffer rate for the standard level of risk. The target rate of 1% is planned to enter into force in the last quarter of 2026.

Belgium started to apply the higher countercyclical capital buffer rate of 1%, as announced earlier, from 1 October 2024, with the aim of boosting the resilience of its banking system.

The Netherlands announced the extension of the application of its macroprudential measure aimed at addressing the risks associated with the real estate market, in force since the beginning of 2022, for two more years. The measure lays down the average risk weight floor for credit institutions that are authorised in the Netherlands and apply the internal ratings-based (IRB) approach for exposures to natural persons secured by immovable property in the Netherlands.

Table 1 Overview of macroprudential measures in EEA member countries and the United Kingdom

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IS	IT	LT	LU	LI	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Capital and liquidity buffers																														
CCoB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CCyB rate applied (%)	0	1.0	2.0	1	1.25	0.75	2.50	1.5	0	0	1.0	0	1.5	0.5	1.5	2.5	0	1.0	0.5	0	0	0	2.0	2.5	0	0	1.0	2.0	0.5	1.5
CCyB rate pending (%)									0.50					1.0							0.5								1.0	
G-SII						●			●		●												●							
O-SII	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SRB	●		●		●		●			●			●	●		●							●	●			●	●		
Sectoral SRB		●				●	●				●						●	●		●		●				●			●	
Liquidity ratio														●										●	●			●		
Caps on prudential ratios																														
DSTI	●			●				●		●	●	●		●		●		●			●	●			●	●	●		●	●
DTI/LTI							●								●						●			●						●
LTD																													●	
LTV	●	●		●	●		●	●		●		●		●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Loan amortisation					●															●				●				●		●
Loan maturity	●				●			●		●	●							●			●	●	●		●	●	●		●	●
Other measures																														
Pillar II		●		●																									●	
Risk weights								●					●						●	●	●	●	●	●	●		●	●	●	
LGD																								●						
Stress/sensitivity test			●	●	●					●					●									●		●				
Other measures	●		●				●						●		●							●			●		●	●		●

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 10 September 2024.
Sources: ESRB, CNB and notifications from central banks and websites of central banks as at 10 September 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 set at 1.5% as of 30 June 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 O-SII buffer rates: 2.5% for Zagrebačka banka d.d., Zagreb, 2.0% for Privredna banka Zagreb d.d. and Erste&Steiermärkische Bank d.d., Rijeka, 1.5% for Raiffeisenbank Austria d.d., Zagreb and 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. All credit institutions having their head office in the RC have been required to maintain a uniform systemic risk buffer rate since the end of 2020.	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
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 in Croatia granting consumer loans 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

Measure	Primary objective	Year of adoption	Description	Basis for standard measures in Union law	Activation date	Frequency of revisions
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 entered 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

Notes: 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.
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.

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.

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 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.

List of abbreviations

Art.	Article
ASEAN	Association of Southeast Asian Nations
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
DTI	debt-to-income ratio
EEA	European Economic Area
EBA	European Banking Authority
EBITDA	earnings before interest, taxes, depreciation and amortisation
ECB	European Central Bank
ESRB	European Systemic Risk Board
EU	European Union
EUR	euro
Fed	Federal Reserve System
FINA	Financial Agency
GDP	gross domestic product
G-SII	global systemically important institutions buffer
HANFA	Croatian Financial Services Supervisory Agency
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
m	million
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
LI	Liechtenstein
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

ISSN 2459-8887