



Macroprudential Diagnostics

third quarter of 2019

Year III · Number 9 · September 2019



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Introductory remarks

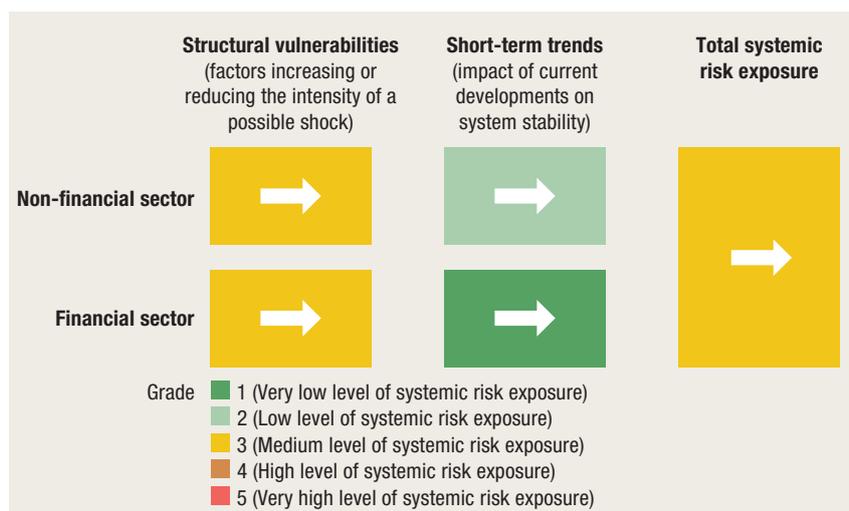
The macroprudential diagnostic process consists of assessing any macroeconomic and financial relations and developments that might result in the disruption of financial stability. In the process, individual signals indicating an increased level of risk are detected based on calibrations using statistical 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

Total systemic risk exposure has remained moderately high (Figure 1). Structural weaknesses of the financial and non-financial sectors are unchanged from the previous assessment ([Macroprudential Diagnostics No. 8](#)), with favourable developments continuing in the financial sector due to an improvement in asset quality, increase in solvency and lower dependency on external financing.

Continued economic growth and favourable financing conditions have alleviated the structural vulnerabilities of domestic non-financial sectors. Despite the economic slowdown in the second quarter of 2019 caused by decreases in goods exports and capital investments, real economic activity growth is expected to accelerate in the remaining part of the year, which will have a favourable effect on debt indicators. General government and private sector debt to GDP ratios could thus continue declining. The still high level of debt is a major structural risk, even more so as it includes high shares of external debt

Figure 1 Risk map, second quarter of 2019



Note: The arrows indicate changes from the risk map in the first quarter of 2019 published in *Macprudential Diagnostic No. 8* (July 2019).

Source: CNB.

and foreign currency-indexed debt. Household sector debt increased slightly to 33.4% of GDP at mid-year, but has remained lower than the EU average. However, non-financial corporate debt, although reduced, has remained quite high (81.9% of GDP, on an unconsolidated basis). Along with economic growth, the currently favourable international market conditions have also contributed to improved debt sustainability. Still, the economy's exposure to changes in financing conditions will remain high as long as the debt level is high.

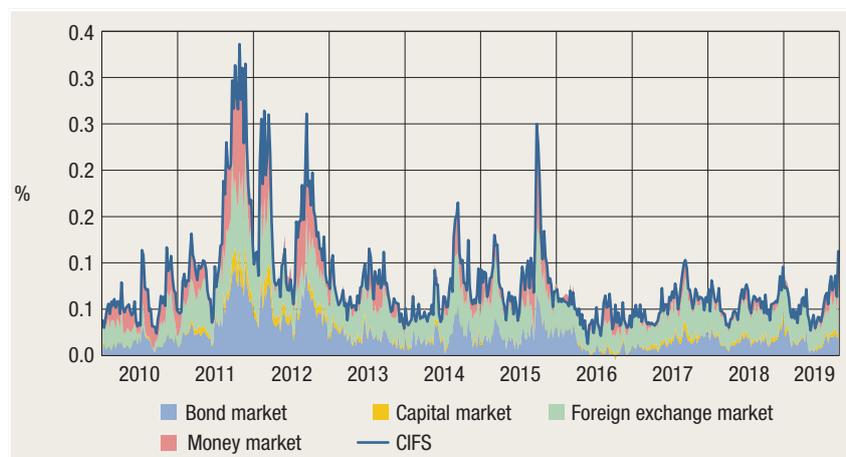
Structural weaknesses in the financial sector are still assessed as moderately high. Despite the favourable impact of a continuing decrease in the share of non-performing loans and the increase of their coverage on the financial sector's stability, Croatia has remained among the EU countries with the highest share of non-performing loans in total bank loans. In addition, the long-standing growth trend in the share of kuna and fixed interest rate household financing has had a positive impact on currency and interest rate induced credit risk, with the stability and solvency of banks (measured by the Z-index) underpinned by the high level of capitalisation and an increase in current earnings. The banking sector's continuing consolidation increases market concentration, which could limit the degree of competition in the system, accelerating and stimulating the spillover of any difficulties experienced by one bank to the whole banking system. However, the sector's resilience has been strengthened by the gradual exit of banks with poorer asset quality and performance indicators from the market. In addition, a higher sectoral concentration can help enhance the cost effectiveness of banks through economies of scale. Also, bank balance sheet concentration in terms of exposure to groups of connected clients and the government sector continues to be high. However, the

sector's structural vulnerabilities have been mitigated by the increasing diversification of financing, i.e., a greater reliance on domestic, diffused sources and a lower reliance on foreign owners.

The cyclical vulnerabilities of the financial sector are assessed as low. Value adjustment expenses measured in relation to bank assets are at their lowest level since the pre-crisis period, a typical characteristic of the late stage of the credit cycle. High bank liquidity levels and declining interest rates have boosted transaction account deposits. With the maturity of liabilities shortened as a result and an increase in general-purpose and housing loans with increasingly longer initial maturities, the assets and liabilities maturity gap has grown. The factors alleviating the impact of a decrease in the net interest margin on bank profitability in the last two years have included lower value adjustment expenses and unit administrative costs, with the latter due to continuing market consolidation and the digitalisation of business operations.

Short-term risk continues to be assessed as very low. The financial stress index, showing current developments in the Croatian financial market, has increased slightly from the previous report. However, this can be attributed solely to the shallowness of the money and bond markets, where new government bond issues and short-term interbank financing led to a rise in the indicators of interest rate differentials, i.e., increased the measure of volatility (Figure 2). The country's risk perception is reduced, with CDS spreads on Croatian government bonds standing at all-time lows, and August saw government borrowing through issuing foreign currency-indexed kuna T-bills at a negative interest rate.

Figure 2 Croatian index of financial stress and the contributions of individual markets



Source: CNB.

The currently favourable financing conditions facilitate household debt servicing, but a prolonged period of low interest rates could

result in an increase in vulnerabilities. The negative consequences of such trends include a further increase in financial and real assets prices, which raises the risk of a sudden and steep fall in prices. The debt of the household sector has been on the increase, driven mainly by the growth of general-purpose cash loans, most of which are non-collateralised loans maturing in five or more years. A number of banks continue to grant such loans applying more lenient criteria than when granting housing loans, thus not acting in compliance with the [CNB Recommendation](#). The increase in general-purpose lending could partly be linked with real estate investments, as may be concluded from the extension of the initial maturities of loans, whose individual amounts are relatively high. This, and the growth of real estate prices cause the accumulation of credit risk, which can materialise in the case of a contraction of economic activity and growth in the unemployment rate. Especially vulnerable are households with below average incomes and no savings, as, despite lower interest rates, their debt servicing burden is not alleviated due to the increasingly high amounts of loans granted. Box 1, Components and distribution of net household assets in Croatia, gives an overview of the household distribution of income, savings and all other components of real and financial assets.

The non-financial corporations sector has recorded positive trends due to a lower debt burden and capital growth. The growth of capital and gross operating surplus has been reducing debt burden and corporate debt indicators. Specifically, a continuing decrease in interest rates and good business results have reduced the solvency and liquidity risks of the corporate sector. However, there are still uncertainties looming over the future business results of the Fortenova Group (former Agrokor) and legal issues related to the settlement reached. In addition, adverse demographic and migration trends weigh down on the future business performance of corporations, already faced with a qualitative and quantitative labour shortage and increased labour costs.

2 Potential risk materialisation triggers

The main potential triggers for risk materialisation in Croatia lie in external developments. The escalation of protectionism, that is, the so-called trade war between China and the USA, has increased geopolitical uncertainties. Risks in the EU are further aggravated by the continuing uncertainty surrounding Brexit and fiscal sustainability in some large member states (Italy, France, Spain). The German economic slowdown,

so far evident in manufacturing, poses another risk to the European and Croatian economies, which could spill over through trade channels as well as through investments, tourism and EU funds.

Given the start of monetary easing in the EU and USA, interest rates could remain low. As anticipated, euro area economic growth has decelerated, and is expected to stand at 1.5% in the medium term, with significant negative risks and an inflation rate remaining below the target of 2%. Under such circumstances, the ECB continues pursuing an expansionary monetary policy, introducing a two-tier system to penalise excess liquidity in order to lessen the consequences of low or negative interest rates threatening bank profitability. As regards the USA, the yield spread between the ten-year and two-year bond almost disappeared by the end of August, and such a yield-curve flattening trend indicates uncertainty regarding future trends, i.e., an increased risk of recession, which may also be triggered by a stronger Chinese economic slowdown.

Domestic factors are at the moment less likely to trigger a contraction of the domestic economy and unemployment growth capable of leading to credit risk materialisation. However, despite positive macroeconomic projections, there are still uncertainties regarding future economic growth, which will increasingly depend on the possibilities of increasing the labour participation rate. The favourable condition of public finances, reflected in the currently low country risk premium, could be deteriorated by the accumulation of additional arrears in the health sector, a sharp increase in expenditures on wages and various transfers in the pre-election period, legal actions and international arbitrations (e.g. the legal action taken by banks regarding the conversion of Swiss franc-denominated loans, the MOL legal action and the trade unions' legal action about the implementation of collective agreements) and, in the long term, the anticipated changes to be introduced to the pension system following the Government's announcement renouncing the key elements of the last year's reform. As regards the financial sector, some banks are exposed to an additional risk stemming from the indefinite amount of total costs of anticipated consumer legal actions related to the pronouncement of the contracted variable interest rate and the currency clause for loans granted in Swiss francs null and void.

3 Recent macroprudential activities

3.1 Continued application of the countercyclical capital buffer rate for the Republic of Croatia for the fourth quarter of 2020

On the basis of a new quarterly analytical assessment of the development of cyclical systemic risks, the CNB has announced that the countercyclical capital buffer rate of 0% will continue to be applied in the fourth quarter of 2020. Specifically, the economic slowdown in the second quarter of 2019 was accompanied by a slightly decelerated growth in placements to the private sector, measured by both stocks and transactions. This led to a further decrease in the standardised relative debt indicator (the ratio of total placements to nominal annual GDP), which remained below its long-term trend, with the result that the credit gap calculated on the basis of this ratio has remained negative. The specific relative debt indicator, i.e. the ratio of domestic credit institutions' loans to the non-financial sector to seasonally adjusted quarterly GDP, continued to decrease in the second quarter, and the credit gap calculated on the basis of this indicator is also negative. As other important indicators, such as credit growth dynamics, real estate price developments or current account balance trends also do not point to risks of excessive credit growth, corrective interventions on the part of the Croatian National Bank are still not necessary.

3.2 Continued application of the structural systemic risk buffer

At mid-2019, the CNB carried out a regular biennial review of the requirement to maintain the structural systemic risk buffer, confirming the need for the continued application of the structural systemic risk buffer at the previously set rates for two types of credit institutions. Credit institutions that have their head office in the Republic of Croatia are required to maintain the structural systemic risk buffer rate of 1.5% and 3% of their total risk exposure amount (as defined in Article 3 of the Decision on the application of the structural systemic risk buffer, Official Gazette 78/2017).

An analysis of the structural elements of financial stability and systemic risk in the economy shows that structural vulnerabilities and systemic risk exposure have remained at a moderately high level (see chapter 1 Identification of systemic risks). Despite the alleviation of structural imbalances, brought about by the continued

economic growth, both public and private sector debt as well as external imbalances have remained substantial, exceeding those in other CEE countries, which makes the domestic economy vulnerable to possible changes in financing conditions in international markets. In addition, adverse demographic and migration trends have a negative effect on the Croatian economy's growth potential and the sustainability of debt of all sectors. Despite having been in decline for several years due to economic growth and the mentioned migration trends, Croatia has continued to have a noticeably higher unemployment rate than other CEE countries. In the financial sector, which is stable and well-capitalised, the continued consolidation of credit institutions has led to an increase in the already high concentration, which significantly exceeds the EU average, making the system sensitive to potential vulnerabilities of individual banks.

3.3 Recommendations of the European Systemic Risk Board (ESRB)

3.3.1 Recommendation of the European Systemic Risk Board amending Recommendation ESRB/2016/14 on closing real estate data gaps (ESRB/2019/3)

In August 2019, the ESRB published the Recommendation amending Recommendation on closing real estate data gaps, adopted in late 2016, in order to harmonise data required for the assessment and monitoring of risks to financial stability associated with real estate markets. The amendments, aimed at facilitating the establishment of a harmonised data collection system at the EU level, were adopted because soon after the adoption of Recommendation ESRB/2016/14 it became obvious that most EU countries would find harmonisation difficult due to a large number of missing data and their various definitions. Some of the important amendments include a recommendation to the European Commission to establish a common minimum framework for EU statistics on the physical commercial real estate market (such as the price index, rental index, vacancy rates, etc.), to amend certain definitions and indicators for the monitoring of the residential and commercial real estate markets for the purpose of harmonisation with definitions from existing EU regulations (AnaCredit, CRD/CRR), and to extend initial deadlines for the delivery to the ESRB and the Council of interim reports on the information already available or expected to be available (from end-2018 to end-2019) and for the delivery of final reports (from end-2020 to end-2021 for financial indicators for the commercial real estate market and to 2025 for some countries' physical market indicators; the deadline for the residential real estate market remained end-2020).

The Recommendation and amendments thereto were discussed at the sessions of the Financial Stability Council and at the meetings of the representatives of Croatian institutions engaged in data collection (the Croatian National Bank, the Ministry of Finance, the Croatian Financial Services Supervisory Agency and the Croatian Bureau of Statistics). The conclusion was that more effort should be put into the collection of missing data on the real estate market. With this aim in view, the CNB is setting up a new system for the collection of granular data on consumer lending conditions, which will enable the monitoring of risks associated with the residential real estate market in line with the requirements set forth in the Recommendation. The activities on the collection of data on the commercial real estate market are planned to be linked with future data collection pursuant to the requirements of the European Reporting System (Finrep, AnaCredit, Eurostat).

3.3.2 Implementation of Recommendation ESRB/2012/2 on funding of credit institutions

The CNB carried out a regular assessment of the funding plans of credit institutions for the end of 2018, delivered by significant credit institutions in Croatia pursuant to the [Decision on the reporting of funding plans \(Official Gazette 76/2015\)](#). The monitoring and assessment of the feasibility of funding plans are in compliance with the [Recommendation on funding of credit institutions \(ESRB/2012/2\)](#) and take into account the [Guidelines of the European Banking Authority](#) in order to improve the risk assessment of funding and liquidity sources as well as the impact of the implementation of these financing plans on the flow of credit to the real economy (for more details, see [Macroprudential Diagnostics No. 1](#), chapter 3.4.4).

The assessment shows that at present there are no risks related to the unsustainability of the funding or liquidity structures or an adverse impact on credit to the real economy. Banks are planning to continue meeting their funding needs primarily by relying on their clients' deposits, with most of household deposits to remain covered by the deposit insurance system. They are also planning to partly fund the flow of credit to the private sector by the existing excess liquidity. This, and the continued growth of private sector deposits, will enable banks to continue deleveraging against parent banks and further reduce (deposit and lending) interest rates. Although such bank strategies tend to lead to a decrease in short-term liquidity indicators, they are expected to remain above the prescribed minimum because of the currently high liquidity levels. Banks' reliance on public sector sources is mostly accounted for by CBRD credit support to the real sector. Their share in total liabilities is therefore not significant, and, what is more, banks do not rely on innovative financial instruments. Given the above, banks do not see any

objective impediments on the supply side precluding the planned credit flow and expect lending to the private sector to continue to rise.

3.4 Macroprudential policy implementation in other European Economic Area countries

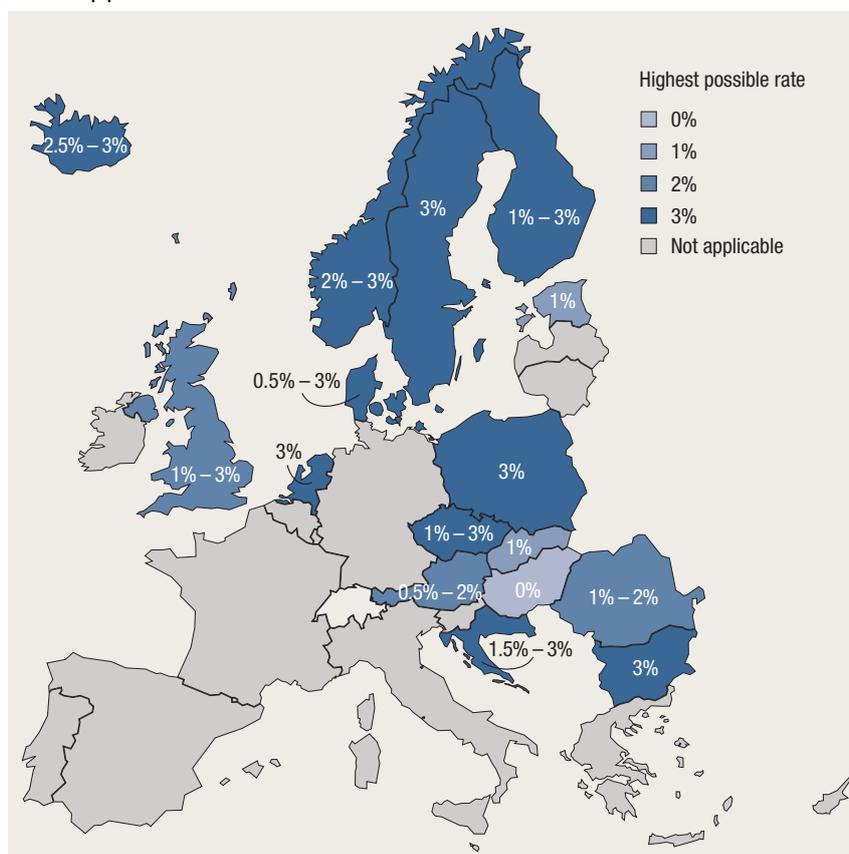
Due to their strong credit growth having continued for some time, coupled with real estate price growth, an increasing number of EEA countries have embarked on macroprudential policy measures aimed at alleviating related systemic risks, and the countries already using these measures have additionally tightened them. The most actively applied measure, i.e. the non-zero countercyclical capital buffer rate, was in September 2019 applied by ten countries (ranging from 0.25% in France to 2% in Norway and Sweden). They were in October joined by Bulgaria, which applied the rate of 0.5%, having already announced that it would raise it to 1% in 2020, and three more countries will apply the non-zero rate in the first half of the following year: Luxembourg (0.25%), Belgium (0.5%) and Germany (0.25%). In addition, Sweden and Norway will increase the countercyclical buffer rate to the already announced 2.5% by the end of 2019, while Denmark, the Czech Republic and Slovakia announced in the summer that they would raise it to 1.5% and 2% respectively as of mid-2020.

The structural systemic risk buffer was in September applied by 16 EEA countries, with the rates ranging from 0.5% to 3% (Figure 3). The United Kingdom activated the structural systemic risk buffer for the first time in late July, applying it to ring-fenced bodies¹ and large housing savings banks whose assets exceeded GBP 175bn. The prescribed rate ranges from 1% to 3%, depending on the amount of assets of a particular institution, and is currently applied to the five largest banking groups and one housing savings bank. The measure was introduced to contain systemic risk to the financial sector and the real economy that could arise owing to the operational problems of these large institutions and to mitigate a potential contraction in credit to households and non-financial corporations. In Hungary, the requirement to maintain the structural systemic risk buffer was, after a new review, revoked for a bank that had been required to maintain it in the previous period. The

1 On 1 January 2019, structural reform requirements came into effect in the United Kingdom for banks with more than GBP 25bn of retail deposits. These banks were required to separate, in terms of financing, operation and organisation, the provision of core retail services (deposit-taking, payment operations and financing households and small businesses) from other banking activities (investment banking and international financial market trading) in order to reduce risks and increase the retail banking's resilience to shocks originating in other areas of operation or in global financial markets. Banks' core retail activities that have been separated in this way are known as ring-fenced bodies.

amount of the prescribed and annually reviewed buffer rate depends on the level of the so-called problematic exposures² secured by real estate pursuant to Pillar 1 capital requirement, with the exception of credit institutions having exposures of such kind lower than HUF 5bn.

Figure 3 Distribution of the application of the systemic risk buffer and rates applied in EEA countries



Source: ESRB.

With a view to increasing banks' resilience to systemic risks associated with the real estate market, Estonia and Finland have announced the implementation of macroprudential measures pursuant to Article 458 of Regulation (EU) No 575/2013 (hereinafter: Regulation) related to an average risk weight floor for real estate-secured exposures for credit institutions using internal rating based approaches for the calculation of own funds. As macroprudential measures under Article 458 of the Regulation cover a period of two years, which can be extended, Finland, due to the continued increased level of systemic risk stemming from the fast growth of housing loans to already debt-burdened households, announced that it would extend for one year the application of the 15% average risk weight floor for residential real estate-secured exposures, applied since the beginning of 2018 and due to expire at the end of this year. Estonia, on the other hand, due to

² The Central Bank of Hungary defines these problematic exposures as the sum of non-performing and restructured gross loans secured by commercial real estate and the gross value of domestic commercial real estate held for sale on credit institutions' balance sheets.

Table 1 Overview of macroprudential measures by EU member states, Iceland and Norway

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IS	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK	
Capital and liquidity buffers																															
CB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
CCB rate applied (%)	0	0	0.50	0	1.50	0	1.00	0	0	0	0.25	0	0	0	1.00	1.75	0	1.00	0	0	0	0	2.00	0	0	0	2.50	0	1.50	1.00	
CCB rate pending (%)	0.50	1.00	1.00	2.00	2.00	0.25	1.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.25	2.00	0.25	0.25	0.25	0.25	0.25	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.00	
G-SII						●		●			●				●						●					●				●	
O-SII	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
SRB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Liquidity ratio	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Caps on prudential ratios																															
DSTI				●				●						●				●						●						●	
LTD																															
LTI				●																											
LTV				●																											
Loan amortisation																															
Loan maturity																															
Other measures																															
Pillar II		●		●																											
Risk weights	●	●						●					●																		
LGD																															
Stress/sensitivity test			●	●																											
Other measures	●		●	●																											

Notes: The measures listed 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. For CCB, green marks the rates applied or announced after 1 July 2019.

Disclaimer: of which the CNB is aware.

Sources: CNB, ESRB and notifications from central banks and websites of central banks as at 26 September 2019. For more detailed data, see: https://www.esrb.europa.eu/national_policy/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 by CRD IV and CRR and implemented by the competent macroprudential authority						
CB	Credit growth and leverage following Recommendation ESRB/2013/1	2014	Early introduction: at 2.5% level	Art. 160(6) CRD	1 Jan. 2014	Discretionary
		2015	Exemption of small and medium-sized investment firms from the capital conservation buffer	Art. 129(2) CRD	17 Jul. 2015	Discretionary
CCB	Credit growth and leverage following Recommendation ESRB/2013/1 and implementing Recommendation ESRB/2014/1	2015	CCB rate set at 0%	Art. 136 CRD	1 Jan. 2016	Quarterly
		2015	Exemption of small and medium-sized investment firms from the counter-cyclical capital buffer	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 of 8 Jan. 2019, with corresponding buffer rates: 2.0% for O-SIIs: Zagrebačka banka d.d., Zagreb, Erste&Steiermärkische Bank d.d. Rijeka, Privredna banka Zagreb d.d., Zagreb, Raiffeisenbank Austria d.d., Zagreb, Addiko Bank d.d., Zagreb; OTP banka Hrvatska d.d. Split; 0.2% for O-SIIs: Hrvatska poštanska banka d.d., Zagreb	Art. 131 CRD	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	Art. 133 CRD	19 May 2014	Annually
		2017	The level of two SRB rates (1.5% and 3%) and the application to all exposures have remained 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%)	Art. 133 CRD	17 Aug. 2017	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)	Art. 124, 125 CRR	1 Jan. 2014	Discretionary
Risk weights for exposures secured by mortgages on residential 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	Art. 124, 126 CRR	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%).	Art. 124, 126 CRR	1 Jul. 2016	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
Other measures and policy actions whose effects are of macroprudential use 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 (banking 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 oscillation of the currency in which credit is denominated or indexed to against 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
Structural repo operations		2016	Market operations are aimed at providing banks with longer-term sources of kuna liquidity at an interest rate competitive with interest rates on other banks' kuna liquidity sources, with debt securities of issuers from Croatia to be accepted as collateral		1 Feb. 2016	Discretionary
		2017	The aim of structural operations is to provide banks with longer-term sources of kuna liquidity. The Decision on monetary policy implementation of the Croatian National Bank (OG 94/2017) envisages the use of a pool of eligible assets as collateral for all central bank credit operations, including structural operations, thus opening up the possibility of using short-term securities for long-term CNB operations		20 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	The CNB issued the Recommendation to mitigate interest rate and interest rate-induced credit risk in long-term consumer loans by which 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

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	CNB adopted the Recommendation on actions in granting non-housing loans to consumers, recommending all credit institutions in Croatia that grant consumer loans 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 a part of salary exempted from foreclosure.		28 Feb. 2019	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
Amended Execution Act	Financial stability concerns due to credit risk	2017	Increase in the share of income exempt from execution, relating to debtors with below-average net salary		22 Jul. 2017 (1 Sep. 2017)	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 is 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 is denominated in or linked to, to the alternative currency without additional costs		20 Oct. 2017	Discretionary

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

Source: CNB.

Box 1 Components and distribution of net household assets in Croatia³

In mid-2017, the Croatian National Bank carried out the first Household Financial and Consumption Survey (HFCS). The results of the survey have already been used in the analyses published in CNB's publications this year ([Financial Stability No. 20](#) and [Macroprudential Diagnostics No. 8](#)). The survey, carried out on a sample of households in Croatia⁴, contains detailed data on the real and financial assets of households, their liabilities, incomes and consumption as well as various socio-demographic characteristics. Before this survey, the assets of Croatian households could be analysed only on the basis of aggregate data sources, such as financial accounts containing data on total financial assets and liabilities, while there was no adequate source for the analysis of household real assets. In addition, the available aggregate sources of data did not contain information on the distribution of assets and liabilities among households and underlying inequalities. Household inequality in Croatia used to be analysed only using data on incomes as data on the distribution of assets and liabilities were not available.⁵ This Box uses the results of the survey to describe the main types of real and financial assets and analyse total household net assets and their distribution. The Box concludes with a discussion on the implications of inequalities in the distribution of net assets for central bank measures and policies.

1 Main components of household assets

The structure of the assets and liabilities of households in Croatia, represented in Table 1, shows that 98% of Croatian households own

- 3 The Box shows the preliminary results of a working paper by M. Kunovac: What affects the net wealth of households in Croatia?
- 4 The Household Financial and Consumption Survey was conducted in coordination with the European Central Bank. The European Central Bank had already coordinated two HFCS waves in some EU member states, the first one in the period from 2008 to 2010 and the second one in 2013. As Croatia joined the EU in July 2013, the Croatian National Bank (CNB) joined the third wave of the survey, in 2017, when data on net household assets for 2016 were collected. The survey was carried out in cooperation with Ipsos agency and the Croatian Bureau of Statistics (CBS) on a gross sample of 4 070 households. The realised sample comprised 1 357 households, which means that the response rate was 33%. Jemrić, I., and I. Vrbanc (CNB working material) provide a detailed sampling procedure, a description of the survey, a summary overview of the main results and their comparison with the results of the previous waves of the survey.
- 5 For more details, see Nestić, D. (2005), Rubil, I. (2013), Rubil, I., P. Stubbs, and S. Zrinščak (2018), based on the Household Budget Survey of the CBS.

some kind of assets (real or financial). Real assets account for 97% of the total asset value and financial assets for the remaining 3%. However, when interpreting these figures it is important to note that the survey strongly underestimates the value of financial assets, as the value of household-owned financial assets shown by financial account statistics is approximately seven times higher. However, other data collected by the survey that allow for comparison with other data sources (e.g. the socio-demographic characteristics of households, the total income value and the share of household main residence ownership) are in line with the figures recorded in alternative data sources (Jemrić and Vrbanc). Unfortunately, some data, such as data on the value of real assets, lack data sources with which they could be compared.

The most significant component of real assets is main residence, owned by 85% of households, which is considerably above the EU average. Specifically, a comparison with data [collected in the EU during the second wave of the survey in 2013](#) shows that an average of 62% of

Table 1 Components of household assets and liabilities

Components of net assets	Share of households, in%	Median, in thousand euro	Mean, in thousand euro
Real assets	94	70	114
Main residence	85	66	94
Other real estate	23	20	54
Vehicles	69	4	6
Other valuables	4	2	6
Self-employment businesses	5	25	209
Financial assets	82	0.5	5
Current accounts	80	0.2	9
Savings account	14	5	13
Voluntary pension/life insurance	6	5	6
Mutual funds	1.4	3	4
Money owed to household	3	2	6
Shares	5	2	4
Bonds	0.4	0.1	69
Other types of financial assets	0.7	0	0.2
Liabilities	41	2	10
Mortgage debt	9	20	30
for main residence	9	20	30
for other real estate	0.4	16	26
Non-mortgage debt	36	2	4
credit lines/overdrafts	27	1	1
credit card debt	6	0.4	0.8
other non-mortgage loans	13	5	8
Gross assets	98	67	111
Net assets	100	61	107

Notes: Gross assets are calculated as the sum of real and financial assets. Net assets equal the amount of gross assets net of household liabilities. The survey has been harmonised among EU member states and its values are expressed in euros.

Sources: HFCS and authors' calculations.

EU households own a main residence. Household financial assets are very homogenous. The bulk is accounted for by deposits, primarily current account deposits, owned by 81% of households. The survey also collected detailed data on the liabilities of Croatian households (described in [Financial Stability No. 20, Box 3](#)) required for the assessment of total household net assets (the sum of all types of assets net of total household liabilities). Table 1 shows a more detailed overview of household assets and liabilities and their median and mean value per household.

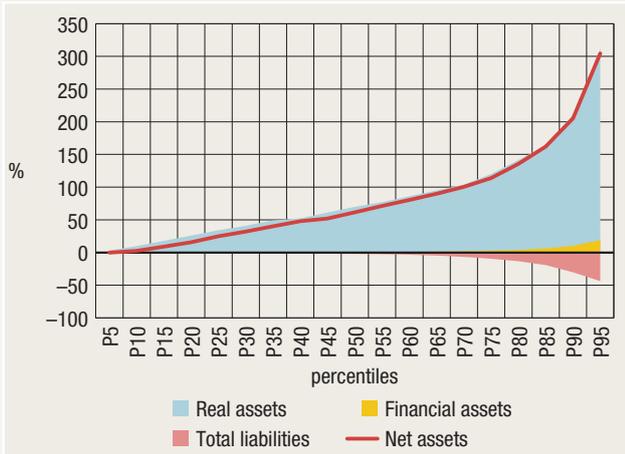
2 Inequality in the distribution of household net assets

Data collected by the survey can be used to analyse the distribution of household net assets, which shows that 5% of the poorest households have almost no assets (Figure 1.a). Above the 5th percentile the value of net assets gradually increases up to the 70th percentile. Above the 70th percentile, the increase becomes more pronounced, especially at the distribution tail above the 90th percentile. In addition, the values of various types of assets are unequally distributed among households, with financial assets and liabilities concentrated among wealthier households. Figure 1.b therefore shows inequality in the distribution of various types of assets using the Lorenz curve. Inequality in asset distribution is much more pronounced as regards financial assets than real assets, which is typical of countries with a high share of household main residence ownership, that is, a large prevalence of real asset ownership among households.⁶ Such marked inequality in the distribution of financial assets is consistent with the results presented in [Financial Stability No. 16, Box 3](#), in which the Lorenz curve shows transaction savings and time deposits of natural persons in the Republic of Croatia in 2014. Furthermore, a comparison of the distribution of net assets and incomes among households suggests that inequality in the distribution of net assets is more pronounced than inequality in the distribution of incomes.⁷

6 An interesting example is provided by Austria, where inequality in the distribution of financial assets is lower than inequality in the distribution of real assets, as shown by the low share of main residence ownership (45%). For more details, see [Fessler P., P. Lindner, and M. Schurz \(2019\)](#).

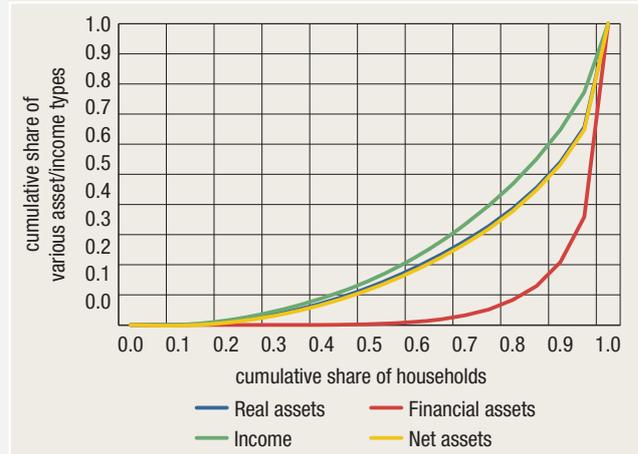
7 The survey probably overestimates inequality in the distribution of income as its sample comprises 7% of households that responded that they had no income of any kind and that their annual gross income is zero. EU-SILC 2016 data suggest a slightly lower income inequality distribution among Croatian households (EU SILC has a Gini income coefficient of 0.3 and the HFCS 0.5).

Figure 1.a Distribution of real and financial assets and liabilities, in thousand euro



Sources: HFCS and authors' calculations.

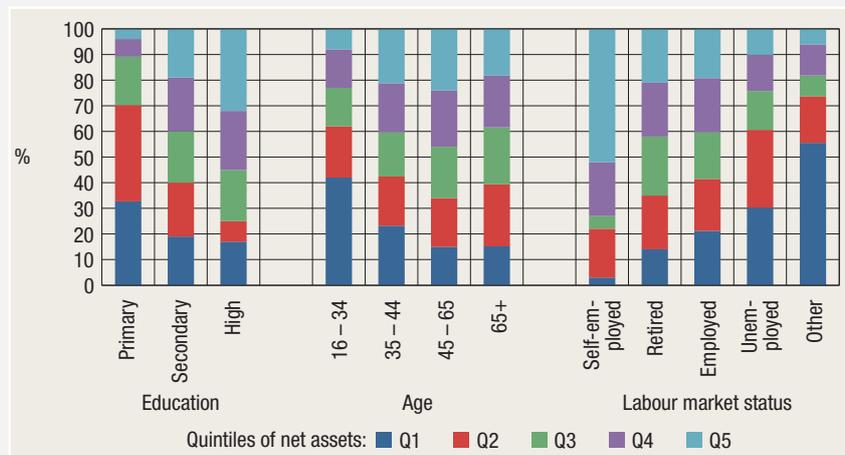
Figure 1.b Lorenz curve for real, financial and net assets and income



Sources: HFCS and authors' calculations.

An analysis of the main socio-demographic characteristics of the household reference person, such as the educational level, age or labour market status, presented in Figure 2, shows that the educational level can be related to the value of net assets, so that households with highly educated reference persons have the largest share (30%) of persons with net asset value in the highest, 5th quintile. The share of persons in the highest asset quintile increases in proportion with the reference person's age and decreases slightly once the reference person retires. As regards the labour market status, the share of self-employed persons is the largest in the highest asset quintile, with over 50% of the self-employed belonging to the fifth net asset quintile. Over 50% of households in which the reference person has the labour status "other", primarily referring to non-active persons who have left the labour market, are in the lowest net asset quintile.

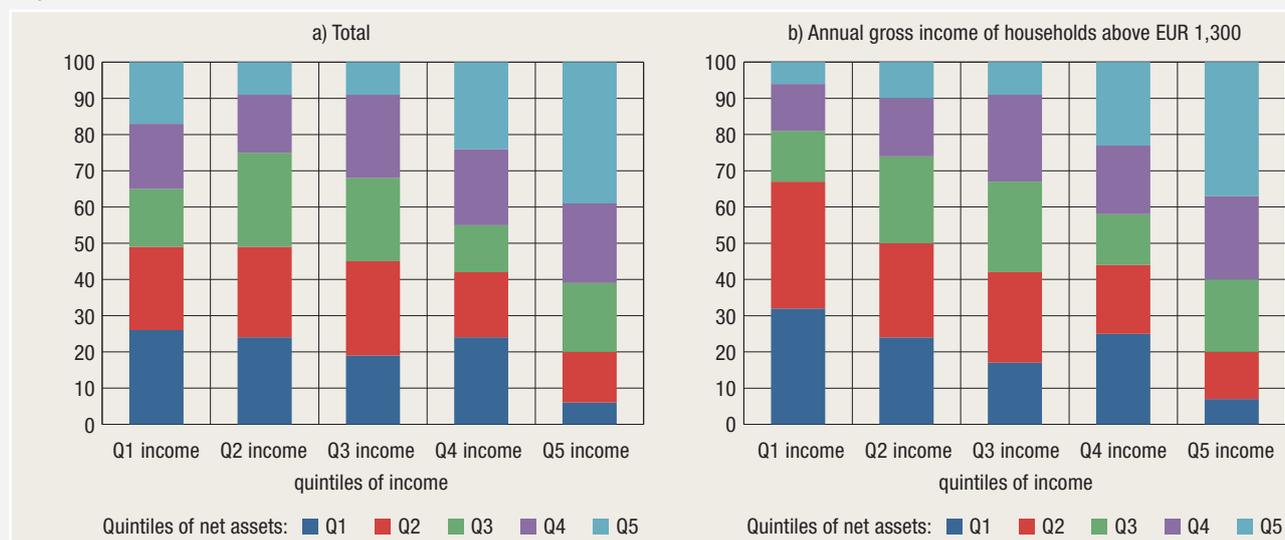
Figure 2 Socio-demographic characteristics of households and quintiles of net assets



Sources: HFCS and authors' calculations.

The educational level, labour market status and age are also connected with the level of household income, this income being a determinant of the value of net assets, which can be approximated by the savings from current income accumulated through time and increased by intergenerational transfers and gifts (for a detailed discussion, see [Du Caju P., 2016](#)). The interconnection between income level and inequality in the distribution of net assets among households is shown in Figure 3.a. Households with the highest income (in the highest income quintile) are also among the wealthiest: 40% of them are in the highest net asset quintile. Households in the lowest income quintile most often own net assets of low value. However, the share of low income households with a high value of net assets is also not negligible (17% of households are in the lowest income quintile and the highest asset quintile). The literature offers several explanations of why some households are in the lowest income quintiles and the highest asset quintiles: a high share of pensioners in the first income quintile, who, despite having low current incomes, have accumulated a considerable amount of assets, or a potential impact of intergenerational transfers that are not related to the income level. Still, a detailed decomposition of data has shown that these explanations do not apply to Croatian households. Specifically, in the survey carried out in Croatia, among a large number of households that responded that they did not have income of any kind, and that have zero gross annual income (7%), there are some that have large values of assets. Given that the total annual gross income comprises employment income, rent, income from financial assets, pensions, social transfers or any other sources of income, this result indicates that the actual value of data presented in the responses was deliberately omitted. Figure 3.b therefore shows the distribution of assets and incomes for the households whose annual gross income exceeds EUR 1 300 (a one-person household at a minimum receives HRK 800 per

Figure 3 Joint distribution of income and net assets



Sources: HFCS and authors' calculations.

month, the amount of the [guaranteed minimum benefit](#)). However, even when households whose gross annual income is lower than EUR 1 300 are excluded from the sample, there are still households with very low incomes and high net asset values. This is why other factors that may influence inequality in the distribution of net assets are also examined.

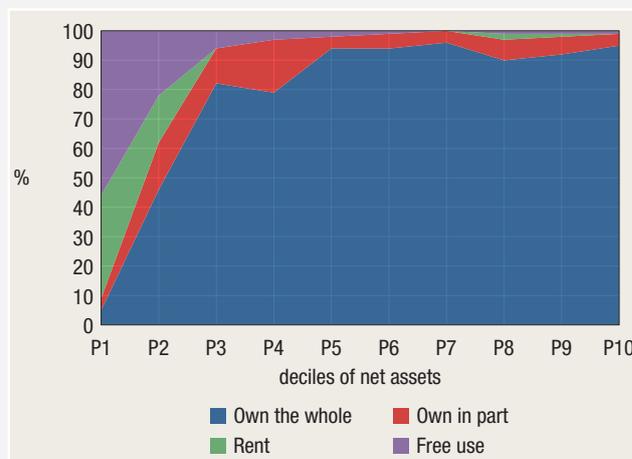
Recent research ([Piketty, T., 2013](#), [Zucman, G., and T. Piketty, 2015](#)) suggests that there is a growing influence of intergenerational transfers on inequality in the distribution of net assets. As to the acquisition of main residence, Figure 4.a shows that households in the lowest deciles of net assets include a very small share of those that have bought or inherited the main residence and a prevailing share of those without a main residence, which is not surprising as this is the most valuable asset determinant. The average share of households that have inherited or bought a residence increases in other deciles and remains the same in various deciles of assets (around 30% and 60%). Figure 4.b shows that households that rent or use the main residence are among the poorest, while the share of households owning the main residence increases from 5% among households with the lowest net assets to 95% among households whose net assets are the highest.

Figure 4.a Way of acquiring the household main residence and deciles of net assets



Sources: HFCS and authors' calculations.

Figure 4.b Household main residence – tenure status and deciles of net assets



Sources: HFCS and authors' calculations.

Due to the marked regional heterogeneity and price differences of the Croatian real estate market (for more information, see [Financial Stability No. 20](#)), the geographic location of a residence also has a significant effect on the value of total net household assets. Figure 5.a shows that on the Adriatic Coast and in the City of Zagreb more than 50% of households can be grouped among the 40% wealthiest households, while the share of such households in Eastern Croatia is lower than 20%. The poorest municipalities in Eastern Croatia are those with over 60% of households classified in 40% of households with the lowest value of net assets at the level of Croatia. Figure 5.b presents a further breakdown of

inequality among various geographical locations in Croatia: areas below the slope of 45 degrees in each observed percentile of assets have net asset values that are lower than the value of the sample of the whole of Croatia. For example, a household in the 50th percentile according to the net asset value in the municipalities of Eastern Croatia is in the 30th percentile according to the net asset value on the level of Croatia. In contrast, a household in the 50th percentile according to the net asset value in a geographical area comprising municipalities on the Adriatic Coast is in the 65th percentile according to the net asset value on the level of Croatia.

Figure 5.a Regional heterogeneity of households with regard to the value of net assets

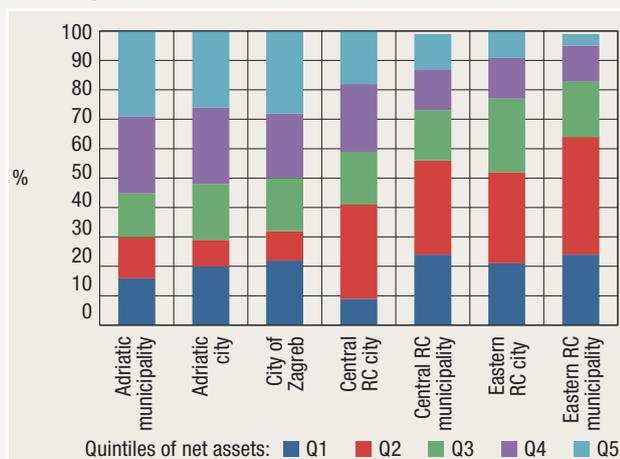
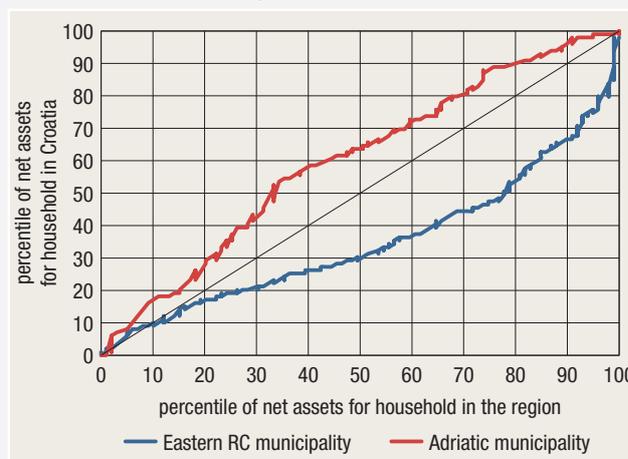


Figure 5.b Comparison of net asset percentiles for households in the region and at the level of Croatia



Notes: The geographic location the Adriatic Coast includes: the Primorje-Gorski Kotar County, Zadar County, Šibenik-Knin County, Split-Dalmatia County, Istra County and Dubrovnik-Neretva County. The geographic location East Croatia includes: the Sisak-Moslavina County, Karlovac County, Bjelovar-Bilogora County, Virovitica-Podravina County, Požega-Slavonia County, Brod-Posavina County, Osijek-Baranja County and Vukovar-Srijem County. The geographic location Central Croatia includes: the County of Zagreb, Krapina-Zagorje County, Varaždin County, Koprivnica-Križevci County and Međimurje County.
Sources: HFCS and authors' calculations.

In conclusion, the analysis shows that there is inequality in the distribution of assets among Croatian households. Real assets are relatively widespread among households and have a considerably higher share than in other EU countries: 85% of households own the main residence, which accounts for the largest portion of the household net asset value. However, the value of total net assets of households varies, depending on their socio-demographic characteristics, income, owner-occupancy and the geographical location of a particular household. The greatest inequality is observed in the possession of financial assets: these assets are owned only by some households. The analysis of the distribution of assets among households is especially important in the context of the assessment of effects of certain monetary and macroprudential policy measures, which may further deepen the existing inequalities. For example, macroprudential policy measures aimed at the alleviation of systemic risks arising from the fast growth of household lending and the growth of real estate prices may be focused both on bank capital and on loan users. An example of such measures is the

limitation of the maximum loan or loan installment amount relative to the debtor's income or assets. These measures are likely to affect the redistribution of income and wealth in a society, which has to be taken into account in their formulation. This is the reason why they are often introduced with exemptions for first-time buyers, the buyers of real estate in underdeveloped areas or buyers of residential real estate (in contrast with the buyers of real estate to let).

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 an event 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, in 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.

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

Art.	Article
bn	billion
b.p.	basis points
CB	capital conservation buffer
CCB	countercyclical capital buffer
CEE	Central and Eastern European
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
NBB	National Bank of Belgium
no.	number
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	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

