Macroprudential Diagnostics

third quarter of 2017

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Contents

PUBLISHER
Croatian National Bank
Trg hrvatskih velikana 3, 10000 Zagreb
Phone: +385 1 45 64 555, Contact phone: +385 1 45 65 006, Fax: +385 1 45 64 687

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Introductory remarks

The macroprudential diagnostic process consists of assessing the 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

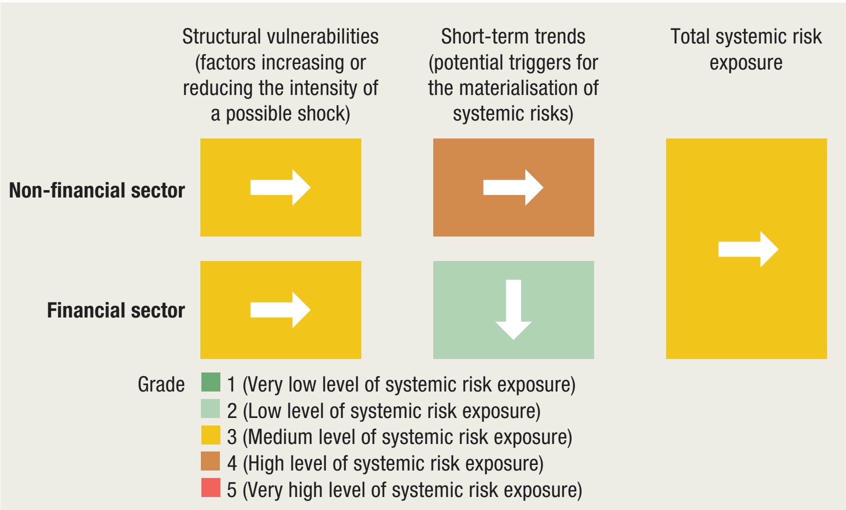
Economic developments in the third quarter of the current year were characterised by continued accelerated growth in economic activity and improved perception of the country's degree of risk. In addition to the successful tourist season and the related increase in the exports of services, the growth was driven, in line with expectations, by the continued recovery of personal consumption and government spending. CNB projections suggest that the favourable economic trends will continue in the upcoming period.

The several-year long trend of improvement of economic indicators and the related risk perception of Croatia led to an upward revision of the outlook for Croatia's credit rating by the rating agency S&P in September this year.

Not only has there been a significantly more favourable risk perception of Croatia in the recent period[1], but overall systemic risk decreased slightly from Macroprudential Diagnostics No. 2, mainly as a result of the somewhat more favourable short-term developments in the financial sector. Although the orderly restructuring of the Agrokor Group is expected to continue, there is still a certain risk of disorderly restructuring, which may affect associated suppliers and creditors with an unpredictable final effect on their business. The overall rating of the system's exposure to systemic risks thus remains unchanged, moving within the medium degree of risk exposure.

The recently materialised risks associated with the Agrokor Group have been recognised and partially covered by value adjustments, reducing the intensity of a potential additional effect of the concern's restructuring process on the banks' balance sheets. Moreover, the improved domestic component of the financial stress index is also contributing to the reduction of short-term risks in the financial sector (Figure 1, lower right corner) owing to stronger appreciation pressures on the domestic currency and less capital market volatility.

Figure 1 Risk map for the third quarter of 2017



Source: CNB (for details on the methodology, see Financial Stability No. 15, Box 1 Redesigning the systemic risk map)

The high level of concentration of the banking sector and its unfavourable trend[2] and the concentration of banks' exposure remain the sector's structural vulnerabilities, while the continued increase in the share of kuna funds in transaction accounts still reflects risks associated with maturity transformation (for more details, see Financial Stability No.

1 The country's risk premium (measured by CDS) has dropped by half since the beginning of the year, having gone down by more than 100 p. p. and currently standing close to 100 p. p., a level comparable to that of peer countries (Hungary, Romania, Bulgaria).

2 Intesa Sanpaolo Spa acquired Veneto Banca Spa in Italy, whereby Veneto banka in Croatia merged with Privredna banka Zagreb d.d.

18, Box 3 Change in the structure of bank funding sources and potential risks to financial stability). On the other hand, the continued rise in new kuna funding of domestic sectors in the recent period decreases the currency and currency-induced credit risk (particularly in the household sector).

Furthermore, lending to the private non-financial sector at a fixed interest rate continued to trend up, reducing the clients' interest rate risk. However, the share of existing loans linked to variable interest rates is still substantial (for more details, see Exposure of the Private Non-Financial Sector to Interest Rate Risk), making the sector vulnerable should there be a change in reference interest rates. The CNB therefore issued the Recommendation to mitigate interest rate and interest rate-induced credit risk in long-term consumer loans. In addition, by introducing changes to monetary policy instruments, the CNB facilitated the access to favourable long-term kuna funding of banks (structural operations), which should ultimately result in the decrease of the aforementioned risks.

To conclude, the degree of risk in the total non-financial sector (Figure 1, upper left corner) saw no significant changes. Even though trends within the sector point to the continuation of favourable developments, uncertainties described above pull in the opposite direction.

2 Potential triggers for risk materialisation

Currently, the most noticeable potential triggers for risk materialisation stemming from the domestic environment are related to the current restructuring of the Agrokor Group. Even though the risks of disorderly restructuring have been greatly reduced, its final outcome and its effect on the non-financial corporate sector are still unknown. On the other hand, economic recovery, i.e. improved corporate performance, contributes to the reduction of corporate risk (for more details, see Macroprudential Diagnostics No. 2), positively affecting the developments related to non-performing placements. In spite of an inflow of non-performing placements related to the current situation in the Agrokor Group, which increased the share of non-performing loans in the corporate sector, their share in the total placements of the banking sector has not increased, owing to the improvement in the quality of other loans. The significance of non-performing placements for financial stability is described in more detail in Box 1 below.

Other noteworthy potential triggers include risks related to global economic developments, notably those associated with the rise of protectionism, i.e. restrictions on free trade which could have the most substantial impact on economic developments in the world's largest export economies.

Besides having potentially negative effects on international capital flows and possibly causing instability on international markets and contributing to an overall rise in global risk aversion, the aforementioned events could, through the investment channel and the higher cost of government and private sector funding, have a negative impact on European countries as well, Croatia included.

The continued tightening of the Fed's monetary policy and the possible negative effects of the rise in dollar interest rates could have negative economic effects, particularly in countries with emerging markets that are financed in dollar markets. In that respect, a possible change of course in the ECB's monetary policy in the upcoming period could be even more significant for Croatia, although the Governing Council of the ECB expects key interest rates, currently at exceptionally low levels, to remain as they are for an extended period of time.

Finally, uncertainties regarding global geopolitical events that may affect economic developments remain pronounced, and a possible materialisation of that risk would primarily be reflected in a rise in global risk aversion.

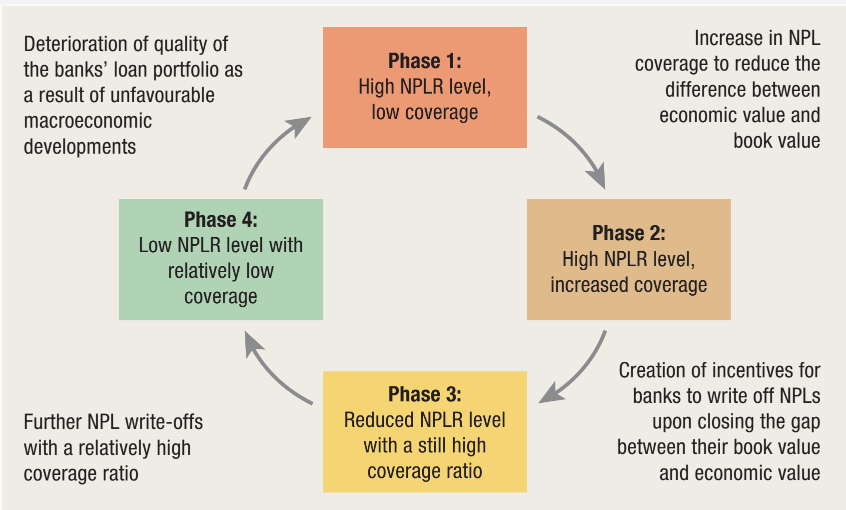
Box 1 Cyclical movement of loan quality in Croatia

An elevated level of non-performing loans (NPL) in the loan portfolio of banks has a negative effect on the stability of the financial system and through several channels hinders the financial intermediation process. According to a report by the ESRB, non-performing loans increase insecurity regarding the stability of the banks' operations. This, in turn, is reflected in the higher cost of banks' funding sources on the market, and, consequently, in the potentially higher price of loans on the asset side, which ultimately impedes lending to the real sector. Furthermore, non-performing loans require a large amount of capital and operative resources of banks that could alternatively be used for granting new loans, which, again, has a negative effect on lending to the real sector. Moreover, a high level of non-performing loans is also a signal of problems in the real sector and its reduced capability of debt repayment. All of the above negatively affect potential economic growth.

Economic literature concerning the issue of non-performing loans, such as a report by the EU Council, identifies the life cycle of non-performing loans, which consists of four phases. The phases can be qualitatively defined based on the share of non-performing loans in total loans (the non-performing loan ratio, NPLR) and the non-performing loan coverage level (Figure 1), as the combination of these two indicators is well suited to describe the life cycle of non-performing loans. In the observed period from 2001 to the end of June 2017, the Croatian banking system went through all four phases of the NPL life cycle (Figure 2). In early 2001, the system was still recovering from the banking crisis that had begun in 1998, and the data suggest that the period could correspond to the third phase of the NPL life cycle, i.e. to the phase characterised by the decreased level of non-performing loans with a still high coverage ratio. A significant loan expansion ensued as a result of economic growth and transferred the system to the fourth phase of the life cycle, where the non-performing loan ratio stood below five percentage points. The global financial crisis that broke out in 2008 was quickly reflected in the deterioration of the quality of the banks' loan portfolio in Croatia, causing the non-performing loan ratio to increase by nearly 12 percentage points in only five years and exceed 17% at end-2014, after which the system gradually entered the third stage of the aforementioned life cycle.

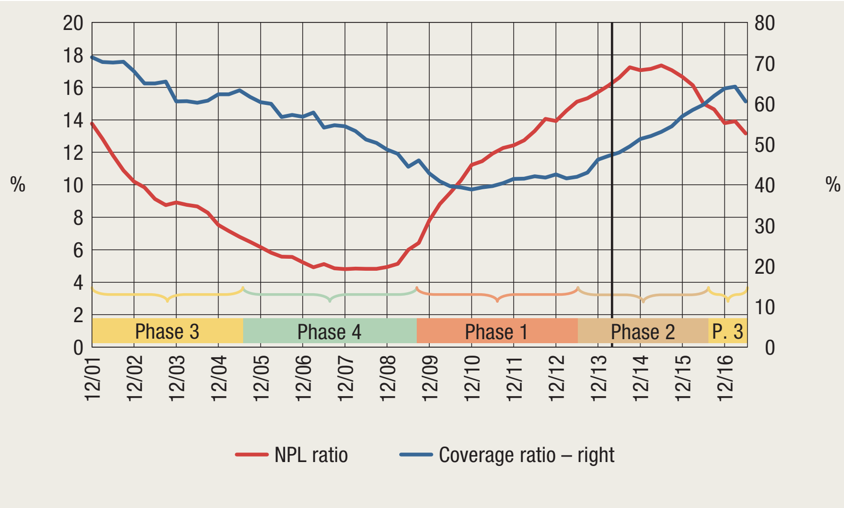
A more detailed analysis of the developments in the non-performing loan ratio and its components reveals the main patterns of change between

Figure 1 Schematic representation of NPL life cycle



Source: CNB processed data based on a report by the EU Council.

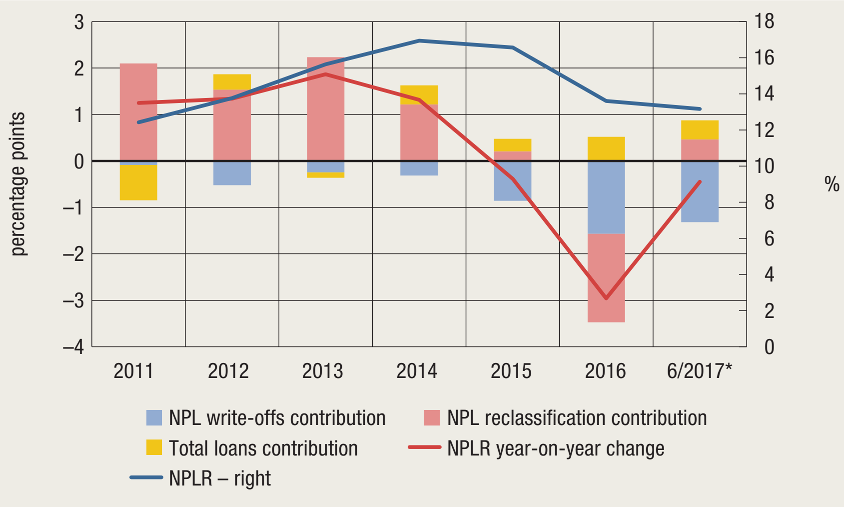
Figure 2 NPL life cycle in Croatia



Notes: NPL life cycle distribution in Croatia is a CNB assessment based on qualitative definitions of particular phases. The vertical broken line indicates the entering into force of the Decision on the classification of placements and off-balance sheet liabilities of credit institutions (OG 41A/2014).
Source: CNB.

particular life cycle phases in the recent period (from 2011 onwards). In the 2011–2014 period, the non-performing loan ratio grew by an average of 1.44% annually and the rise was primarily a result of the deterioration in the quality of the loan portfolio, i.e. of the accelerated growth in the volume of non-performing loans (Figure 3). The rise in the coverage of non-performing loans intensified in early 2014 when the Decision on the classification of placements and off-balance sheet liabilities of credit institutions (OG 41A/2014) entered into force, based on which the banks are required to progressively adjust values of exposures depending on the number of delinquency days. Consequently, the coverage of non-performing loans rose by 18 percentage points from end-2013 to end-2016, exceeding 60%. Growing costs of loan value adjustments in the observed period reduced the gap between the book value and the economic value of non-performing loans, motivating the banks to clean up their balance sheets. However, structural difficulties in resolving the issue of insolvency hampered the banks' internal resolution of non-performing loans, as suggested by the World Bank assessment of the ease of resolving insolvency pointing to the relatively low efficiency of the practice in Croatia compared with other CEE countries. The appearance of enterprises specialised in the collection and management of claims increased the demand for the purchase of non-performing exposures of banks. Preconditions for the intensified sale of non-performing exposures of banks were thus created on both the supply and the demand side. The process particularly gained pace from 2015 onwards, when HRK 11bn of non-performing exposures of banks were sold on a cumulative basis. Write-offs of non-performing loans that are predominantly related to sales in the observed period thus became the main determinant of the trends in their share in total loans. Furthermore, the quality of the loan portfolio improved in 2016[3], suggesting that the creditworthiness of the real sector improved as a result of positive trends in the real economy and reinforced recovery (Figure 3). The contribution of the reclassification of non-performing loans in the first half of 2017 was positive, primarily under the influence of the deterioration of the loan portfolio quality in the non-financial corporate sector, which, in turn, was predominantly caused by the materialisation of the credit risk of Agrokor Group. In the household sector, the loan portfolio continued to recover.

Figure 3 Decomposition of the non-performing loan ratio change in the recent period



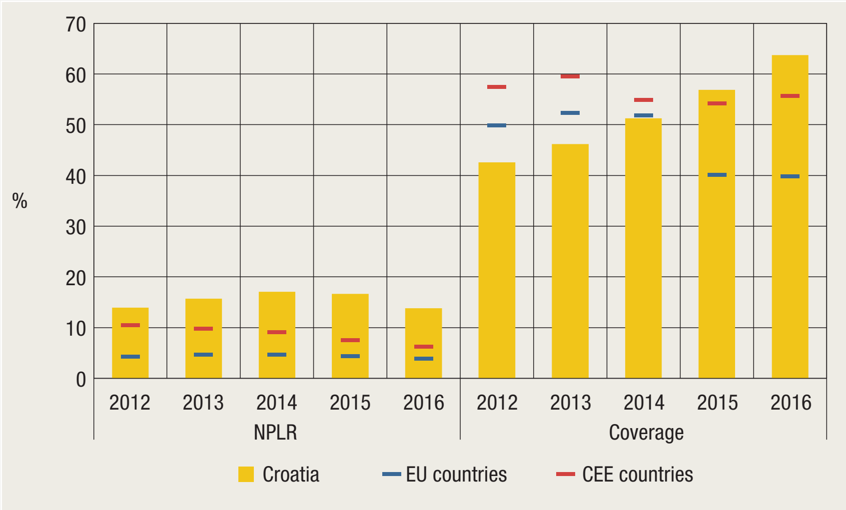
Notes: The symbol * indicates a semi-annual change, i.e. the change from 31 December 2016. The positive contribution of the reclassification of non-performing loans indicates deterioration in loan portfolio quality and vice versa.
Source: CNB.

Although the aforementioned trends are encouraging, certain economic sectors and banks themselves are still under increased pressure from credit risk. Notably, banks in Croatia still have a relatively high non-performing loan ratio compared with peer countries (Figure 4). Realised credit risk is higher in the non-financial corporate sector, where the non-performing loan ratio stood at 27.1% at end-June 2017. Despite the high level, it is noteworthy that positive trends in resolving the issue of non-performing loans are particularly pronounced in the non-financial corporate sector and have continued over the first half of 2017 despite the materialisation of credit risk of the Agrokor Group. Still, the outcome of the concern’s restructuring remains uncertain, and due to its significance for the entire economy, the continuation of positive trends recorded in the non-financial corporate sector is open to question.

Resolving the issue of non-performing loans is one of the preconditions for achieving sustainable credit growth, and the banks’ initiative to

3 A part of the reclassification in 2016 is related to the conversion of loans indexed to the Swiss franc into loans denominated in euro, prescribed in the Act on Amendments to the Consumer Credit Act (OG 102/2015); however, the quality of the loan portfolio of banks improved in 2016 regardless of that effect.

Figure 4 Comparison of NPLR and NPL coverage among EU member states



Notes: Values of regional indicators were calculated as the asset-weighted average of indicators of particular countries. According to available data, CEE countries include: BG, EE, HR, HU, LT, LV, PL, RO, SI and SK, while EU countries, in addition to the aforementioned ones, include: AT, BE, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MT, NL, PT and SE.
Sources: CNB and ECB (Consolidated Banking Data).

resolve the issue and the improvement seen in the quality of the loan portfolio provide a positive contribution to such efforts.

Note on methodology

Decomposition of the year-on-year change in the non-performing loan ratio (NPLR) is estimated as:

$$NPLR_t - NPLR_{t-1} = \frac{\Delta(\textit{non-performing loans})_t}{\textit{total loans}_{t-1}} + \textit{total loans contribution}_t$$

$$= \frac{(\textit{NPL write-offs})_t}{\textit{total loans}_{t-1}} + \quad \Big\} \text{ NPL write-offs contribution}$$

$$+ \frac{(\textit{NPL reclassification})_t}{\textit{total loans}_{t-1}} + \quad \Big\} \text{ NPL reclassification contribution}$$

$$+ \textit{total loans contribution}_t, \quad \Big\} \text{ total loans contribution} \quad ,$$

where *(NPL write-offs)*$_t$ indicates the amount of NPLs written off in year *t*, and *(NPL reclassification)*$_t$ indicates all other changes in the volume of NPLs occurring in year *t*. Contributions of NPL write-offs and reclassification are estimated by considering the volume of total loans fixed, i.e. the same as in the previous year, in order to exclude the effect of change in the volume of total loans, while the contribution of the change in total loans was estimated as the remaining amount up to the recorded change in the NPLR in year *t* not included in the two contributions mentioned above.

3 Recent macroprudential activities

3.1 Recommendation to mitigate interest rate and interest rate-induced credit risk in long-term consumer loans

In September 2017, the CNB introduced measures aimed at mitigating interest rate risk in the household sector and interest rate-induced credit risk in the banks' portfolio. Referring to the Act on the Croatian National Bank, the Croatian National Bank issued the Recommendation to mitigate interest rate and interest rate-induced credit risk in long-term consumer loans recommending credit institutions that provide credit services to consumers to take action to mitigate risks related to a possible rise in interest rates.

The Recommendation consists of six parts directed at increasing the transparency of information provided to consumers in order to enable them to compare costs and benefits resulting from interest rate fixing more easily and at providing the option of substituting loans with fixed interest rates for loans with variable interest rates . When offering a fixed interest rate, banks are expected not to deviate from the one they currently offer or the market interest rate if they previously did not offer fixed interest rates. The CNB recommends credit institutions to extend their offer of credit products with loans having fixed interest rates and, in doing so, to minimise related expenses for consumers, i.e. to refrain from charging fees, such as the early repayment charge (applying to loans granted prior to 2010 as well). Besides encouraging banks to extend their loan offer with new loans to be granted at fixed interest rates, the Recommendation primarily targets loans with the remaining maturity equal to or longer than seven years.

Simultaneously with the recommendation referred to above, the CNB presented its Information list with the offer of loans to consumers. The list contains a systematic and searchable overview of the basic data on the conditions under which banks grant loans. The list is available on the CNB's website and as a mobile phone application entitled mHNB.

Furthermore, the CNB enabled easier access to the favourable kuna funding of banks by amending the regulatory framework for monetary policy operations. The Decision on monetary policy implementation of the Croatian National Bank (OG 94/2017) provides for more flexibility and accessibility of the central bank's monetary policy instruments and their use and enables banks to access even more favourable long-term funding. The Decision envisages the formation of a pool of eligible assets to be used as collateral in all central bank credit operations, enabling the use of short-term securities in CNB long-term operations.

3.2 Continued application of the countercyclical capital buffer rate for Croatia for the fourth quarter of 2018

In line with the results of the implemented analytical assessment of the evolution of cyclical systemic risks, the CNB announced in September that the Decision on the countercyclical buffer rate (OG 9/2015), which sets a 0% countercyclical buffer rate, will continue to apply in the fourth quarter of 2018. To explain, according to the data for the second quarter of 2017, gross domestic product continued to grow and the debt of non-financial corporations and households continued to decline, resulting in the continued decrease of the standardised credit-to-GDP ratio. At the same time, the credit gap calculated on the basis of this standardised ratio remained negative. Moreover, similar developments were observed in the specific indicator of relative indebtedness as well (based on a narrower definition of credit, including only the claims of domestic credit institutions considered in relation to the quarterly, seasonally adjusted GDP).

3.3 Information on the structural systemic risk buffer level

Based on the Credit Institutions Act and the Decision on the application of the structural systemic risk buffer (OG 61/2014), the CNB prescribed a structural systemic risk buffer that credit institutions having their head office in the Republic of Croatia are required to maintain in the amount of 1.5% and 3% of their risk exposure respectively. Considering the expected changes in system characteristics and the systemic importance of particular institutions, in August 2017 the CNB adopted the new Decision on the application of the structural systemic risk buffer (OG 78/2017) in order to eliminate the possibility of regulatory arbitrage. The level of the two previously set rates and their application to all exposures have remained the same, while the new Decision changed the manner of determining the two subgroups to which the structural systemic risk buffer is applied.

The Decision adopted in August this year is based on an assessment of the elements of financial stability and the risks present in the economy, which suggests that structural vulnerabilities still exist in the domestic economy, arising primarily from the high level of external and public debt and the relatively high unemployment rate as well as the high level of debt of the domestic private sector compared with that of other new EU member states. At the same time, the high concentration of the financial system continued to increase in 2016, noticeably exceeding the European average, and the process of banking system consolidation will continue with the forthcoming merger of two systematically important institutions. In addition, the real estate market is still characterised by low liquidity. In light of the above, there is still a need to maintain a structural systemic risk buffer at previously set rates for two types of credit institutions depending on the nature, scope and complexity of the credit institution's activities, as defined by Article 3 of the Decision.

The CNB will continue regularly to monitor the evolution of structural systemic risks in the future and review the level of the structural systemic risk buffer every two years at a minimum.

3.4 Overview of macroprudential measures in EU countries

EU countries have adopted and put to use the new institutional and technical aspect of capital and liquidity risk management policies in the domestic financial system enabling the prevention, mitigation and avoidance of systemic risks and the strengthening of the system's resilience to financial shocks. The tables below show macroprudential measures currently applied by EU member states in order to ensure the financial stability of the system (Table 1) and an overview of macroprudential measures applied in Croatia (Table 2), including those outside the CNB's mandate as the macroprudential authority and their amendments from the last issue of Macroprudential Diagnostics No. 2.

Table 1 Overview of macroprudential measures in EU countries

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IT	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK	UK
Capital and liquidity buffers																													
CB			●	●	●		●	●		●			●			●	●	●	●	●		●	●	●	●	●		●	●
CCB	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
G-SII						●			●		●					●					●					●			●
O-SII	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
SSRB	●		●		●		●	●					●	●							●	●	●		●	●		●	
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	●		●		●		●							●	●					●			●			●		●	●

Disclaimer: of which the CNB is aware.
Notes: Listed measures are in line with EU regulations, namely 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). Definitions of abbreviations are provided in the List of abbreviations at the end of the publication. Green indicates measures that have been activated since the last version of the table, while yellow indicates measures that have been supplemented or corrected.
Sources: CNB, ESRB and notifications from central banks and websites of central banks as at 1 September 2017.
For more details see: https://www.esrb.europa.eu/national_policy/other/html/index.en.html

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

Measure	Year of adoption	Primary objective	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 implemented by the competent macroprudential authority						
CB	2014	Credit growth and leverage following Recommendation ESRB/2013/1	Early introduction: at 2.5% level.	Art. 160(6) CRD	1 Jan. 2014	Discretionary
CB	2015	Credit growth and leverage following Recommendation ESRB/2013/1	Exemption of small and medium-sized investment firms from the capital conservation buffer	Art. 129(2) CRD	10 Jun. 2015	Discretionary
CCB	2015	Credit growth and leverage following Recommendation ESRB/2013/1 and implementing Recommendation ESRB/2014/1	CCB rate set at 0%	Art. 136 CRD	1 Jan. 2016	Quarterly
CCB	2015	Credit growth and leverage following Recommendation ESRB/2013/1	Exemption of small and medium-sized investment firms from the countercyclical capital buffer	Article 130(2)	10 Jun. 2015	Discretionary
O-SII	2015	Limiting the systemic impact of misaligned incentives with a view to reducing moral hazard following Recommendation ESRB/2013/1	Identification of nine O-SIIs with corresponding buffer rates: 2.0% for O-SIIs: Zagrebačka banka d.d., Zagreb, Erste&Steiermärkische Bank d.d. Rijeka, Privredna banka banka Zagreb d.d., Zagreb, Raiffeisenbank Austria d.d., Zagreb, Société Générale-Splitska banka d.d., Split, Addiko Bank d.d., Zagreb; 0.2% for O-SIIs: OTP banka Hrvatska d.d., Zadar, Sberbank d.d., Zagreb, Hrvatska poštanska banka d.d., Zagreb	Art. 131 CRD	1 Feb. 2016	Annually
SSRB	2014	Credit growth and leverage following Recommendation ESRB/2013/1	Two SSRB 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

Measure	Year of adoption	Primary objective	Description	Basis for standard measures in Union law	Activation date	Frequency of revisions
SSRB	2017	Credit growth and leverage following Recommendation ESRB/2013/1	The level of two SSRB 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 SSRB 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	On a biannual basis at a minimum
Risk weights for exposures secured by mortgages on residential property	2014	Credit growth and leverage following Recommendation ESRB/2013/1	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 commercial property	2014	Mitigating and preventing excessive maturity mismatch and market illiquidity following Recommendation ESRB/2013/1	CNB's recommendation issued to banks (not legally binding measure) 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
Risk weights for exposures secured by mortgages on commercial property	2016	Mitigating and preventing excessive maturity mismatch and market illiquidity following Recommendation ESRB/2013/1	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
Other measures and policy actions whose effects are of macroprudential use and are implemented by the macroprudential authority						
Consumer protection and awareness	2013	Raising risk awareness and creditworthiness of borrowers following Recommendation ESRB/2011/1	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 rates changes and foreign currency risks)		1 Jan. 2013	Discretionary
Consumer protection and awareness	2013	Raising risk awareness and creditworthiness of borrowers following Recommendation ESRB/2011/1	Amended Decision from 1 Jan 2013 (banking institutions were also obliged to provide information about the historical oscillation of the currency in which credit is denominated or is indexed to against the domestic currency over the past 12 and 60 months)		1 Jul. 2013	Discretionary
Consumer protection and awareness	2017	Raising risk awareness of borrowers following Recommendation ESRB/2011/1 and enhancing price competition in the banking system	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
Structural operations	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 colletaral 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	2016	Financial stability concerns regarding risk awareness of borrowers	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 a final decision, as is customary when concluding any other contract.		1 Sep. 2016	Discretionary
Consumer protection and awareness	2017	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	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. 2016	Discretionary
Other measures whose effects are of macroprudential use implemented outside the scope and mandate of the CNB						
Consumer protection and awareness	2013	Financial stability concerns due to interest rate risk and currency risk	Amended Consumer Credit Act: 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
Consumer protection and awareness	2014	Financial stability concerns due to interest rate risk and currency risk	Amended Consumer Credit Act: banks are obliged to inform their clients about exchange rate and interest rate risks in a written form		1 Jan. 2014	Discretionary
Consumer protection and awareness	2015	Financial stability concerns due to currency risk	Amended Consumer Credit Act: freezing the CHF/HRK exchange rate at 6.39		1 Jan. 2015	Discretionary
Consumer protection and awareness	2015	Financial stability concerns due to currency risk	Amended Consumer Credit Act: conversion of CHF loans		1 Sep. 2015	Discretionary

Notes: Definitions of abbreviations are provided in the List of abbreviations at the end of the publication. Green indicates measures that have been activated since the last version of the table, while yellow indicates measures that have been supplemented or corrected.
Source: CNB.

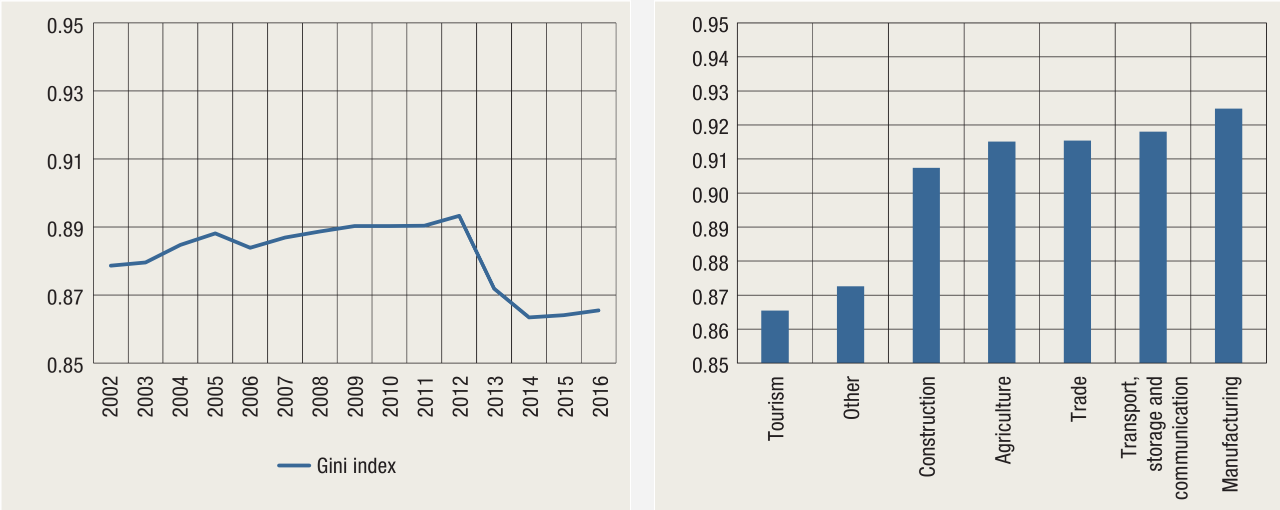
4 Analytical annex: Risk of non-financial corporations providing accommodation and food services

Over the last fifteen years, the Croatian economy underwent periods of intensive growth, prolonged recession and gradual recovery. However, such dynamics affected accommodation and food service activities, through which services in tourism are provided, to a somewhat lesser extent. Notably, in the 2002–2016 period, the share of the number of corporations and the share of persons employed in the aforementioned activities in the total employment in the non-financial corporate sector almost doubled as a result of continuous growth. At end-2016, the share of persons employed in accommodation and food service activities stood near 7%, and the share of the number of corporations such services hovered around 8%. In absolute terms, this accounts for over 63,000 persons employed in over 9,200 corporations. The economic significance of the activities is visible in the rise in the share of exports of services in GDP (mainly attributable to tourism) from 21.5% in 2002 to 26.8% in 2016, as well as in the increase in the direct share of accommodation and food service activities in the total gross value added, from 4.0% in 2002 to 5.5% in 2015.

Still, from the financial stability perspective, the rise in the significance of these activities makes the economy more exposed to changes in demand for tourism services via multiplicative effects, while excessive investments financed through loans may create an unstable capital structure which could lead to a rise in the share of non-performing placements of banks should circumstances change. Accordingly, the aim of this analytical annex is to provide insight into the degree of risk in the sector.

The majority of net revenues in the activities were generated in several larger (primarily hotel) corporations. Almost three quarters of total net revenues in 2016, i.e. over HRK 16bn, was generated by the 7% largest tourism corporations (approximately 650 corporations). However, compared with other activities in the non-financial corporate sector, the aforementioned concentration is not high. It is necessary to note that the introduction of fiscalisation in 2013 contributed to the rise in registered revenues of corporations in the sector (by nearly 17%), particularly in small enterprises. The introduction of the e-visitor system in 2015 also improved the registering of revenues. The continuous real growth in the revenues of small enterprises and the rise in the number of newly-established corporations reduced the concentration in the sector.

Figure 1 Concentration of net revenues of corporations providing accommodation and food services (by years) and by activities in 2016



Note: The highest concentration measured by the Gini index is reported as 1, while 0 denotes an even distribution of net revenues per corporation.
Sources: CNB and FINA.

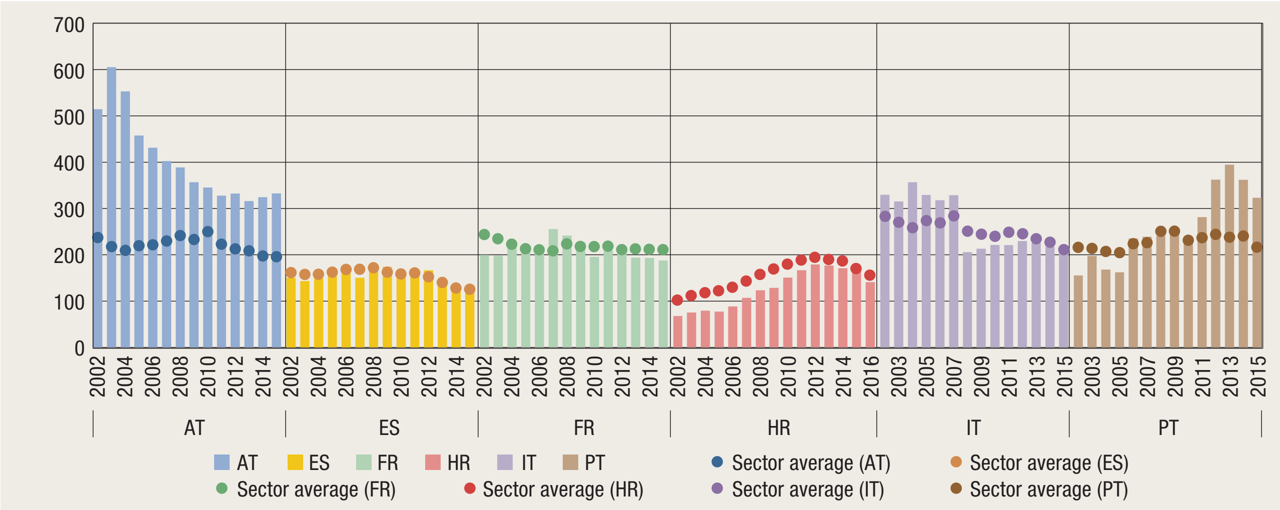
Growing revenues and profitability over the recent years contributed to the decrease of risk in the industry. In 2016, ratings[4] of corporations providing accommodation and food services improved substantially, and the pace of their improvement in the period exceeds the dynamics of the improvement of the total non-financial corporate sector's rating. In 2017, the ratings stabilised, the outlook being for a further slight improvement.

Good business performance tends to bring about a decrease in financial leverage through the simultaneous increase in capital and decline in total liabilities (Figure 2). Compared with the corporations providing the same services in tourism-oriented EU countries, Croatian corporations have a lower level of debt than EU corporations and are better capitalised, resulting in lower financial leverage, which has been decreasing rapidly over the past several years. Similar financial leverage is found in Spanish corporations, coupled with a slightly lower level of capitalisation, while Austrian corporations have the smallest share of capital in balance sheet structure, resulting in the highest financial leverage. Lower financial leverage in the industry, as one of the measurements of risk, points to the lower potential risk of corporations in the sector on an aggregate level than in peer countries.

The gross profitability of Croatian corporations (before interest, taxes, depreciation and amortisation: EBITDA) in tourism is the highest among peer countries, and also higher than the average of the entire non-financial corporate sector (Figure 3). On the other hand, net

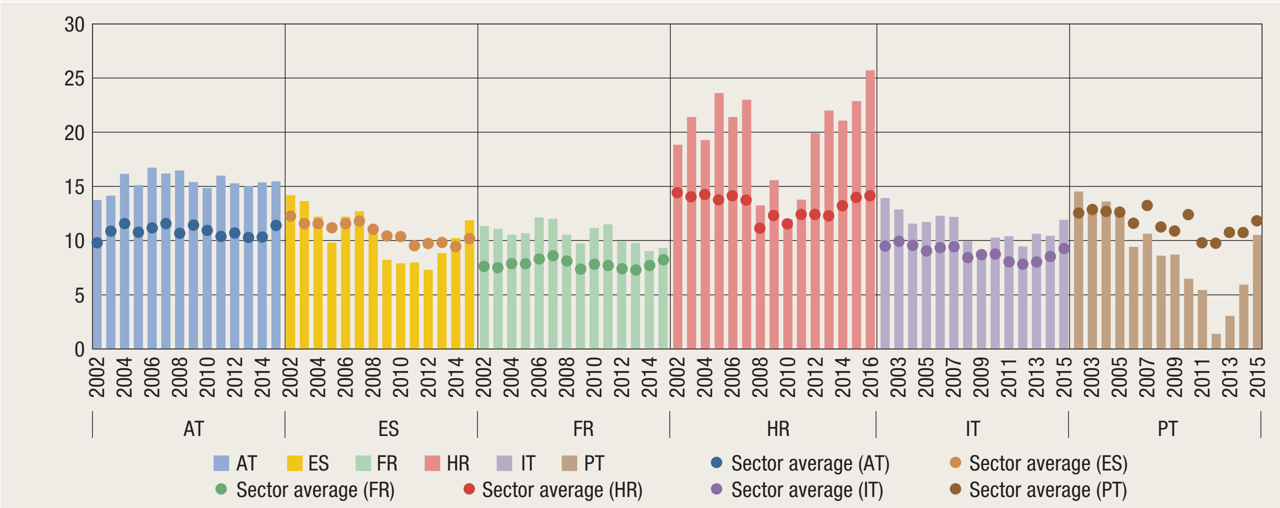
4 Ratings have been determined based on models for the forecasting of probability of default. For more information, see Financial Stability No. 15, Box 4 Forecasting the probability of default of non-financial corporations by means of sectoral micro models with macroeconomic variables.

Figure 2 Financial leverage of corporations providing accommodation and food services in Croatia and EU countries



Note: Financial leverage has been calculated as the weighted average of the ratio of total liabilities (capital excluded) to capital * 100%.
Sources: CNB, ECCBSO and FINA.

Figure 3 Gross profitability of corporations providing accommodation and food services in Croatia and EU countries

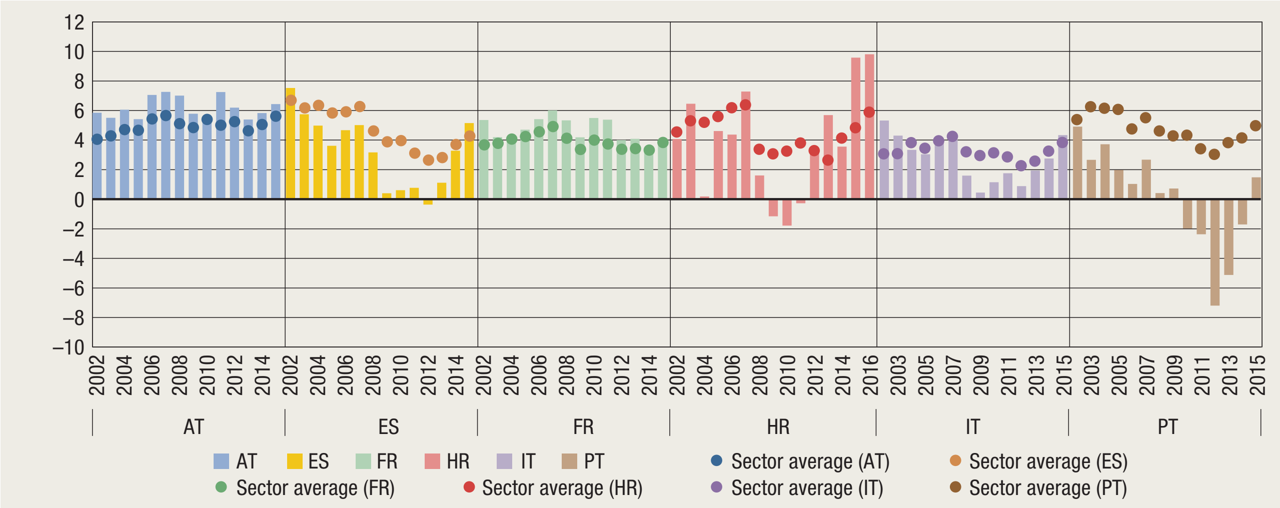


Notes: Gross profitability has been calculated as the weighted average of the ratio of EBITDA to operating revenues * 100%. EBITDA = earnings before interest, taxes, depreciation and amortisation.
Sources: CNB, ECCBSO and FINA.

profitability is on average similar to other observed countries: from the values which were comparable to other observed countries before recession to the negative values recorded in the period from 2009 to 2011; however; in the post-recessionary period, net profitability recovered swiftly and surpassed the profitability of the industry in other countries (Figure 4).

The reasons for the notable difference between the profitability of Croatian corporations presented by means of gross and net profitability (in both tourism and the entire non-financial corporate sector) primarily lie in the high cost of amortisation relative to operating revenues (12–16% for Croatia versus 5–10% for other countries) and in the higher share of interest rate expenses in operating revenues in the preceding

Figure 4 Net profitability of corporations providing accommodation and food services in Croatia and EU countries



Notes: Net profitability has been calculated as the weighted average of the ratio of net operating income to operating revenues * 100%. Net operating income = difference between operating revenues and operating expenses.
Sources: CNB, ECCBSO and FINA.

period, which, however, decreased considerably in the recent period (these expenses accounted for 7–8% of revenues in the earlier years and about 4% in the recent years, compared with shares of 2–3% in other countries observed). The high cost of amortisation is a result of the higher share of tangible assets in the asset structure of Croatian corporations (around 50%), particularly in tourism (70–80%), as well as of accounting policies that allow accelerated amortisation rates. In Croatia, these rates can reach 10% for real estate (10-year amortisation) or 5% as the regular amortisation rate (20-year amortisation), while in other EU countries, prescribed real estate amortisation rates mainly amount to 4%, and can only reach 10% in exceptional cases (depending on the country and type of real estate).

In all analysed countries there is a noticeable trend of a rapid rise in the coverage of interest rate expenses[5]: in Croatia, it has increased up to seven times since 2010; in Spain and Italy it has almost doubled, and in Austria, it is now 1.5 times higher. A significant rise in the coverage of interest rate expenses since the recessionary period suggests that various mechanisms of hedging against interest rate risk and stabilisation of operations were introduced, such as finding more favourable sources of funding (including from own operations), debt reduction, corporate management of liquidity risk and other risks and the gradual increase of capitalisation. The global decline in interest rates on sources of funding and the rise in revenues in the post-recessionary period from 2012/2013 contributed additionally to the trend.

5 The coverage of interest rate expenses is calculated as the ratio of gross profit (EBITDA) to total interest rates on financial debt.

Corporations providing accommodation and food services in Croatia and EU countries clearly display signs of a strong recovery from recession and stabilisation of operations, with Croatian corporations showing the most substantial growth compared with corporations from other observed countries in most indicators. This may, most probably, be attributed to the fact that Croatia is currently an attractive and safe holiday destination.

Current developments at sector level do not point to specific risks for corporations as the several-year increase in turnover was used to improve the corporations' capitalisation. Nevertheless, the analysis at sector level need not necessarily apply to developments in particular corporations. In addition, regardless of the capital structure, the ability to generate revenues, which depends both on the service provider and the perception of Croatia as a tourist destination, is one of the most significant determinants of stability of corporations in the sector. Therefore, credit institutions should approach each project individually rather than observe only the good performance of the entire activity in the preceding period. Finally, a significant portion of investments in tourism is made outside the non-financial corporate sector, for which there are no publicly available data on creditworthiness and which are not analysed in this analytical annex. Still, considering the rise in the number of private accommodation units over the past several years, it is necessary to exercise care in approaching the analysis of each project when deciding on the financing.

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, within the context of financial stability, refers to structural characteristics or weaknesses of the domestic economy that may 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
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
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
SSRB	structural 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
FR	France
GR	Greece
HR	Croatia
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LV	Latvia
LU	Luxembourg
MT	Malta
NL	The Netherlands
NO	Norway
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	United Kingdom

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