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# THE ROLE OF MACROPRUDENTIAL POLICY IN BANK HOUSING LOANS PORTFOLIO QUALITY ASSURANCE

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Review paper

**Abstract:** The subject of this paper is the contemporary trend in residential real estate markets in European countries and their impact on the quality of banks' housing loan portfolios. Due to the fact that these are the markets that still have not fully recovered from the previous financial crisis, and at the time of writing were exposed to significant uncertainty related to the effects of specific business conditions caused by COVID-19, the research on the risks related to these markets and tools which can mitigate their consequences are of paramount importance. Given the fact that the importance of monitoring the emergence of systemic risks in the financial system and the design of macroprudential tools for Bosnia and Herzegovina is yet to come, one of the aims of the paper is to present the results of the research on the effectiveness of certain macroprudential policy measures for mitigating the impact of price fluctuations in residential real estate markets. A special attention is paid to the challenges that the real estate market and mortgage loans have been facing during the crisis caused by the COVID-19 pandemic. The paper provides a basis for future researches examining to which extent the applied macroprudential policy measures in some countries have been effective in hitherto unprecedented business conditions

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## 1. Introduction

The most of financial crises in the past can be associated with instabilities in residential real estate markets. An example of this is the previous global financial crisis, the consequences of which are still being felt in certain markets. New challenges for this market are represented by the still uncertain effects of specific business conditions caused by measures to combat the spread of the COVID-19 pandemic.

The aim of the paper is to present the results of researching the effectiveness of certain macroprudential policy measures for mitigating the impact of price fluctuations in residential real estate markets and ensuring the quality of bank housing loans portfolios.

We based our research on the following hypotheses:

$H_0$1: Unfavourable trends in residential real estate markets contribute to the accumulation of non-performing loans in banks' balance sheets.

$H_0$2: When defining macroprudential policy, it is vital to strike a balance between financial stability and supporting economic activities.

$H_0$3: The policy of limiting LTV ratio is effective in reducing the systemic risk associated with boom-and-bust cycles in real estate markets.

In order to test hypotheses, we linked the published results of the researches on this issue conducted after the previous financial crisis with relevant indicators from housing and credit markets, as well as implemented macroprudential measures in European countries.

In this paper, firstly, the role of mortgage loans in financing the purchase of residential real estate is presented, their share in total loans and in gross domestic product in some European countries. The second part of the paper is dedicated to the developments in the European residential real estate markets. The third part of the paper analyzes the impact of the collapse of the residential real estate market on financial stability. The last part of the paper deals with macroprudential measures aimed at mitigating the impact of real estate price risks on bank balance sheets. This part of the paper will present capital-based measures and measures based on borrowers, as well as the research related to the assessment of their suitability depending on the degree of imbalance in the housing loan market. Furthermore, in this part of the paper, macroprudential policy measures in the period of COVID 19 crisis will be presented.

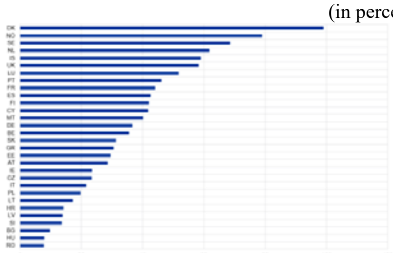
## 2. Mortgages as a key source of financing the purchase of residential real estate

The purchase of residential real estate is the largest financial transaction during the entire life of most households, and the funds for their purchase are largely provided through mortgage loans. According to the research published by the European Central Bank, residential real estate represents a large part of household assets (between 40.7% and 67.7%), while housing mortgage loans account for as much as 85.8% of household liabilities (Household Finance and Consumption Network, 2016). Therefore, it is not surprising that these loans make up a significant part of banks' loan portfolios, and as can be seen in Graph 1. In 12 European Economic Area (EEA) countries, the share of this type of loan in GDP is over 40%. Graph 2, taken from the report of the European Systemic Risk Board (2019), shows the share of housing loans in total bank loans in EEA countries. In 15 countries, the share of mortgage loans was over 40% of total bank loans, in 8 countries between 30 and 40%, in 6 countries between 20 and 30%, and only one country (Bulgaria) had a share below 20%.

Regarding Bosnia and Herzegovina, the share of banking sector assets in nominal GDP in 2018 reached the level of 91.6%. Since total loans at the end of 2018 accounted for 64.8% of banks' assets in Bosnia and Herzegovina, their share in nominal GDP was about 60%. Housing loans in 2018 achieved a slightly higher relative growth (9.4%) compared to other types of loans, and their share in total loans granted to the household sector increased slightly and at the end of 2018 amounted to 19.1%. It should be borne in mind that a part of the citizens was not able to meet the required criteria of banks for providing housing loans, and that the population for financing housing needs in Bosnia and Herzegovina partly used loans for general consumption. (CBBiH, 2018)

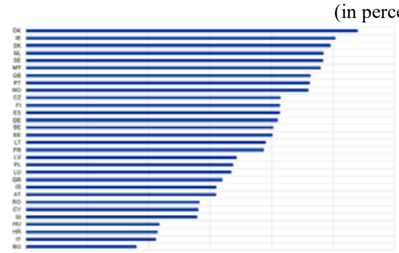
**Graph 1. Housing loans in % of GDP (EEA countries)**

(in percent)



**Graph 2. Share of housing loans in total loans approved by banks**

(in percent)



*Sources:* ESRB. (2019) Vulnerabilities in the residential real estate sectors of the EEA countries.

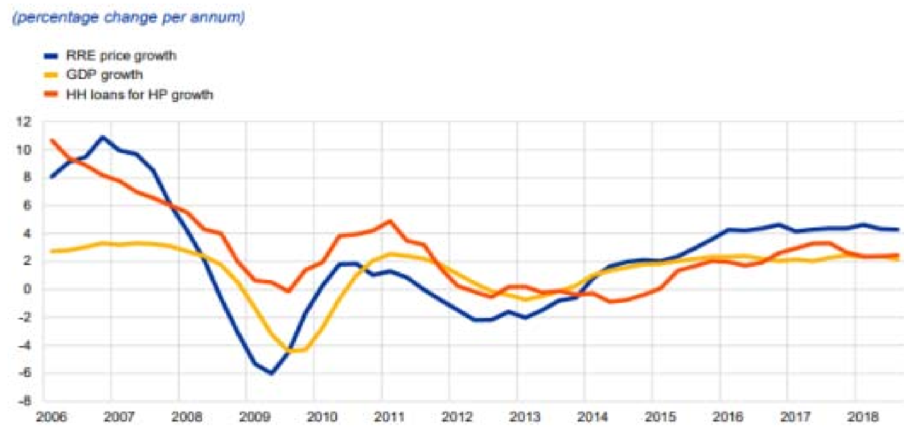
Falling real estate prices affect the reduction of net household wealth and consumption, and the weakening of banks' balance sheets through a decline in the value of collateral and assets (Egan & Loungani, 2012). Therefore, the next part of the paper will be dedicated to trends in European real estate markets.

## 3. Contemporary trends in European real estate markets

After the previous financial crisis, which will be discussed in Part 4 of the paper, one of the key indicators of stability in the euro area is the movement of prices in real estate markets. (ECB, 2015)

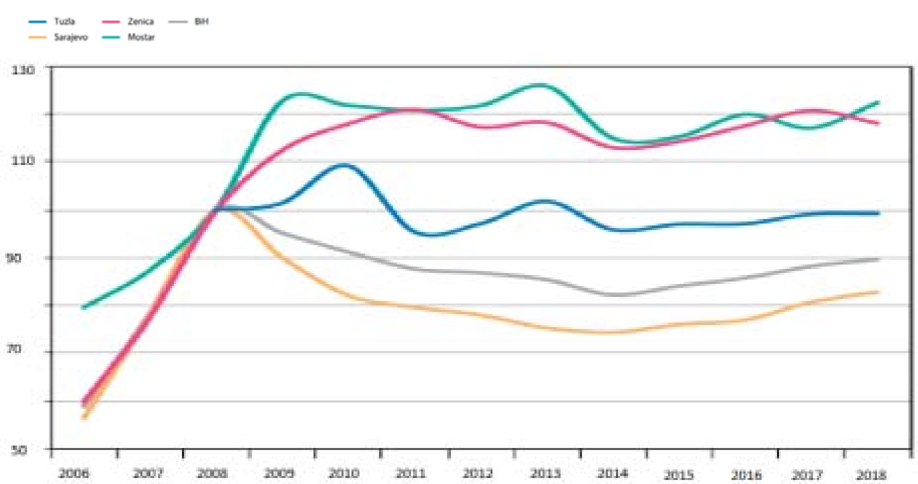
In recent years, residential real estate prices have been rising steadily in most European countries. In the third quarter of 2018, the prices of residential real estate in the EU increased by 4.3%, while the most countries recorded a pronounced dynamics in the housing market. Banks and other lenders supported transactions in the housing market, and mortgage loans for the purchase of residential real estate increased by an average of 2.5% at the EU level (Graph 3).

**Graph 3. Residential real estate prices, housing loans and economic growth in the EU**




*Sources:* ESRB (2019), 'Vulnerabilities in the residential real estate sectors of the EEA countries'.

**Graph 4. Real estate price index, 2008 = 100**



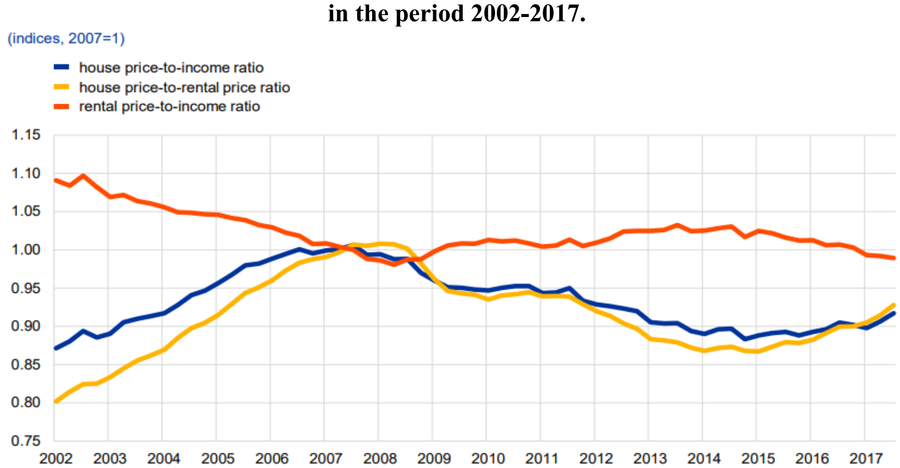

*Sources:* CBBH (2018), Financial Stability Reports, ISSN 1840-4103.

In several European Union countries, primarily Ireland, Greece, Spain, Italy, Cyprus, Portugal and Slovenia, which have been hit the hardest by the previous financial crisis, large increases in residential property prices in the period up to 2007 were accompanied by a decline in the period from 2007 to 2013. This suggests a certain correction of the imbalance that occurred in the period before the crisis, when a significant increase in residential real estate prices was recorded in a number of countries. On the other hand, for countries such as Germany and Austria, these corrections were not necessary, because a more moderate increase in real estate prices was recorded in the period until 2007. (ECB, 2015)

The real estate price index in Bosnia and Herzegovina shows that real estate prices for residential purposes in 2018 grew in all cities involved in the calculation of the real estate price index, except for Zenica, where a significantly lower volume of turnover was recorded compared to the previous year. Graph 4 shows a decline in real estate price indices in Bosnia and Herzegovina by about 10% compared to 2008. According to the Financial Stability Report for 2018, the cities in Republika Srpska were not included in the calculation of the index, because the RS Tax Administration was not able to submit data for the cities of Banja Luka and Bijeljina in the required format needed to calculate the index. (Central Bank of Bosnia and Herzegovina, 2018)

To assess the risk that a correction in residential property prices is necessary, assessment techniques can be used based on an analysis of the relationship between the price of residential real estate and the price-to-rent ratio or the price of residential real estate and disposable income per capita (price-to-income ratio).

**Graph 5. Price-to-rent ratio and price-to-income ratio of euro area countries in the period 2002-2017.**




*Source:* ECB Economic Bulletin, Issue 1/2018

When the indicator expressed as the ratio of residential real estate price and disposable income per capita is above the long-term average, residential real estate prices can be considered overestimated from the aspect of new buyers, which may reduce the demand and consequently lead to a decrease in the real estate prices.

The imbalance in the residential real estate market can also be indicated by the relationship between the amount of rent and the residential real estate price. The deviation of the ratio from the long-term average would, according to the researches published on the website of the European Commission, affect the demand for residential real estates offered for rent, which would return the price-rent ratio to the long-term level. (European Commission, 2017) The increased levels of the ratio of the purchase price of residential real estate and the rental price should be related to the future fall in prices. The explanation for this movement is that if the purchase price of residential real estate has increased in relation to the rental price compared to the previous period, the prices of residential real estate should decrease, although some adjustments can be made through an increase in rental prices. (Committee on the Global Financial System, 2020)

In most euro area countries, the level of these raids in 2017 is significantly below the level of 2008 and also below the long-term average (Graph 5), which means that further growth in real estate prices can be expected. Due to the lack of unified official data, the analysis of the movement of these raids on the market of Bosnia and Herzegovina was not possible.

When observing the real estate market, it should be borne in mind that the increase in the real estate prices generates the collateral for additional loans; this encourages credit growth and prolongs the rise of the business cycle. Since real estate also serves as the collateral, if price increases prove unsustainable, financial institutions can suffer large losses. The outcome can be a strong and prolonged slowdown in economic activity. (Kent and Lowe, 1998)

For this reason, a significant attention has been paid to the impact of contemporary events caused by the pandemic COVID-19 on the real estate market, as well as the measures taken and implemented to mitigate the negative consequences for property owners, borrowers, lenders and builders (OECD, 2020)

Carlsson-Szlezak et al. (2020) outline that predicting future impact of COVID-19 on the real estate market is extremely difficult due to the length of the crisis and its impact on liquidity risk and supply and demand disruptions.

As we will see in the following part of the paper, bust phases in the residential real estate market are the most common causes of crises in the financial market.

## 4. Impact of real estate market crashes on financial stability

More than two-thirds of the previous 46 systemic banking crises preceded boom-bust patterns in the real estate market. It was found that recessions coinciding with falling residential property prices led to a cumulative loss of gross domestic product (GDP) that was about three times higher than in recessions not caused by real estate market crashes. The global financial crisis that began in 2007 also pointed to the disastrous effects that the collapse of the mortgage loan market could have had on the financial system in general. The turmoil that began with the increased bankruptcies in the subprime mortgage market has created aninstability in the financial system around the world. The subprime mortgages are granted to borrowers who are more likely to go bankrupt due to bad credit history or credit-related risk factors, including the possibility that loan applicants are unable or unwilling to provide a complete documentation of assets or income, and have a small amount of savings available for an advance (Bajari, 2010). The subprime mortgage market began its rapid growth in the mid-1990s, and that growth accelerated further in the early 21st century, despite the concerns expressed by the US Department of Housing and Urban Development, set out in a 2000 report on the behaviour of actors in this market and highlighting the need for increased oversight. The subprime mortgages accounted for 32 percent of all mortgage loans issued in 2005. Beginning in mid-2005, the market faced some serious problems, when mortgage rates began to rise and residential property prices began to slow down. The share of subprime mortgage arrears increased from about 5.6 percent in mid-2005 to over 21 percent in July 2008. The initial shock of the increase in mortgage arrears due to falling housing prices in the US and some European countries was the trigger for a liquidity crisis that eventually turned into a global financial crisis. (Stanga, Vlahu, & de Haan, 2017).

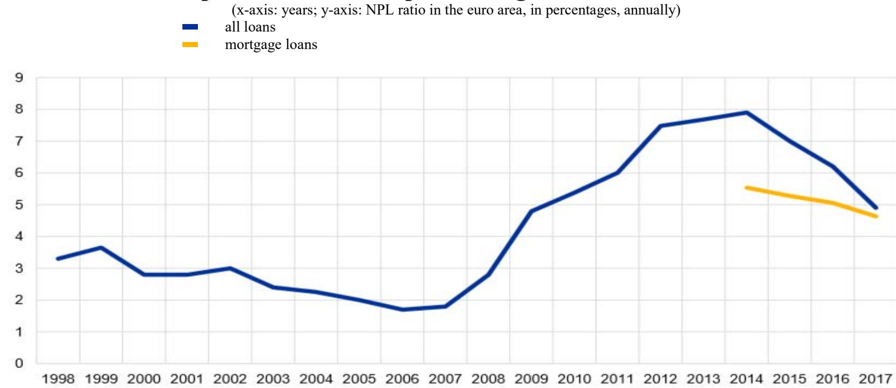
The research conducted by Mayer, Pencei and Sherlund (2009) shows that rising residential property prices, low interest rates and low unemployment have contributed to increased utilization of subprime credit mortgages granted to persons without credit history and realistic grounds for loan approval. Residential property prices first began to decline in 2005, and interest rates began to rise at about the same time. By 2007, residential property prices had fallen in many areas of the country, and the authors found a significant evidence that falling prices were accompanied by rising unemployment in parts of the Midwest, what greatly contributed to the mortgage crisis.

The researches conducted by Ghent and Kudlyak (2011), Li and Oswald (2017) and Stanga, Vlahu and de Haan (2017) confirm that the decision not to repay mortgage loans largely depends on whether borrowers have an obligation to settle the difference between the remaining debt related to loans and the value of pledged real estate.

Following the recent global financial crisis, exposures to the risk of unfavourable developments in the residential real estate market in several countries have significantly contributed to the accumulation of non-performing loans (NPLs) in banks' balance sheets. The aggregate NPL ratio in the euro area peaked in 2014 well above pre-crisis levels (Graph 6). (Gaudêncio, Mazany & Schwarz, 2019) Although a decrease in NPLs in the euro area has been observed in recent years, it is still significant in some countries and is therefore crucial for European banking supervision.

**Graph 6. Share of non-performing loans in the euro area**

(x-axis: years; y-axis: NPL ratio in the euro area, in percentages, annually)




*Source:* ECB, Occasional Paper Series No 220 / March 2019

In the banking sector of the share of non-performing loans in total loans at the end of 2018 amounted to 8.77%, which is 1.28 percentage points less than in the previous year. The share of non-performing loans in total loans at the end of 2018 with four of the 23 banks operating in Bosnia and Herzegovina (15 based in Federation Bosnia and Herzegovina and 8 based in RS) accounted for more than 20% of the loan portfolio. (Central Bank of Bosnia and Herzegovina, 2018)

Although a decrease in non-performing loans in the euro area has been observed in recent years, they still have a significant share in some countries and are therefore a key priority in supervising the European banking system, especially given the expected effects of individual government measures to combat the pandemic of COVID-19. Since, in addition to real estate prices and credit growth, unemployment and economic growth have a significant impact on the accumulation of non-performing loans, in the following section we present experts' forecasts related to these indicators.

The analyses conducted by The European Commission's Joint Research Centre show that restrictions of mobility aimed at preventing the spread of the COVID-19 pandemic have had an asymmetric impact on labour markets in some EU member states, and that the consequences of the crisis will largely depend on regions' economic characteristics.

According to economic forecasts by the European Commission (2021), the unemployment rate in EU countries is expected to be higher than before the crisis and will amount to 7.6% in 2021 and 7% in 2022. Additionally, it is predicted that economic growth rate will be stable and that, despite significant differences in the pace of recovery of the countries, the gross domestic product will return to the level before the crisis by the end of 2022.

According to Ari, Chen and Ratnowski (2020), in comparison to the crisis of 2008, solving the problem of NPL growth is favoured by the fact that banks have more capital; also the crisis caused by the COVID-19 pandemic was not preceded by a credit boom, and it should be borne in mind that the prospective nature of IFRS 9 may help identify NPLs faster, and, thus, also help towards a faster solution to the problem of losses. On the other hand, certain factors can be aggravating: government debt is significantly higher, banks are less profitable, the corporate sector is weakened, and in addition, the effects of the crisis on the real estate market are uncertain. Of course, the slower and longer-lasting the economic recovery, the more negative the consequences will be on credit losses.

Given the importance of reducing NPLs for economic recovery, designing effective measures to address NPLs caused by specific business conditions during the period assessed as crucial to curbing the spread of the COVID-19 pandemic is of great importance.

Movements in the residential real estate market are strongly influenced by the interaction of different social and economic policies. Macroprudential policy, which will be discussed in more detail in the next section, can be complemented by actions in the area of fiscal and monetary policy to ensure financial stability. (European Systemic Risk Board, 2019). Fiscal policy affects residential property prices and household indebtedness through tax breaks, while monetary policy instruments affect the height of interest rates. The impact of urban planning on housing supply should also be considered. In order to mitigate the accumulation of systemic risks, policy makers must be able to understand the basic factors that drive real estate prices, the dynamics of lending in a period of rising real estate prices, the levels of indebtedness of households and the quality of portfolios of bank mortgage loans.

## 5. Macroprudential measures focused on risks associated with the residential real estate market

The previous financial crisis revealed the importance of monitoring the occurrence of systemic risks in the financial system and highlighted the role of macroprudential policy in strengthening the banking sector's resilience to financial shocks. Two main categories of macroprudential instruments are available to national macroprudential authorities in the European countries:

- capital - based measures and
- measures based on borrowers.

Unlike the first, the second set of instruments is not included in the harmonized EU legal framework and their use is regulated by national legislation.

*Capital-based measures* include regulatory capital requirements regarding lenders' exposure to risks associated with residential real estate by imposing higher capital requirements or by shaping the variables used for calculatation of capital requirements (probability of default) and loss given default. (European Systemic Risk Board, 2019)

In line with the international regulatory framework for Basel III banks, regulators have accepted that minimum capital requirements vary throughout the cycle, establishing countercyclical capital buffers, which can help mitigate credit crises and reduce excessive pro-cyclicality of loans. (Jiménez, Ongena, Peydró & Saurina, 2017) The introduction of this instrument creates an additional protective layer of capital during the period of pronounced credit growth, which can be released when systemic risks materialize.

In mid-2014, the Banking Agency of the Republika Srpska and the Banking Agency of the Federation of Bosnia and Herzegovina adopted new decisions on capital regulation in accordance with the requirements of Basel III standards, including potential prescribing of Countercyclical Capital Buffer (CCB), as one of the significant macroprudential measures. (IMF, 2015)

An analysis of the impact of the reform proposed by the Basel Committee's in 2010, which included an increase in minimum capital and liquidity needs, shows that these changes reduce the likelihood of financial crises and losses associated with such crises, and provide net long-term economic benefits. (BCBS, 2010)

*Measures based on borrowers* affect lending conditions by imposing restrictions on the amount of loan approved in relation to the value of collateral - loan-to-value (LTV) ratio, annual debt service costs in relation to annual income debt-service-to-income (DSTI) ratio, the borrower's total debt or loan-to-income (D / LTI) ratio, loan repayment schedule or maximum loan maturity.

In order to ensure the early detection of systemic risks and the formulation of an appropriate macroprudential policy, it was necessary to form a comprehensive European statistical base. For this reason, the European Central Bank and the European Systemic Risk Board have created the Macroprudential Database (MPDB). The database focuses on indicators that can be used to explain and predict the financial crisis.

As shown in Table 1, several EU member states have implemented one or more macroprudential measures to manage risks arising from the real estate sector.

**Table 1. Macroprudential measures focused on real estate risks**

| | Belgium | Cyprus | Czech Republic | Denmark | Estonia | Finland | Croatia | Hungary | Ireland | Lithuania | Luxembourg | Latvia | Malta | Netherlands | Poland | Romania | Sweden | Slovenia | Slovakia |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Adjusted risk-weights | ■ | | | | | ■ | ■ | | ■ | | ■ | | ■ | | | ■ | ■ | ■ | |
| LTI/DTI limits | | | | | | | | | ■ | | | | | | ■ | | | | |
| LTV limits | | ■ | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| DSTI/PTI limits | | ■ | | | ■ | | | ■ | | ■ | | | | | ■ | ■ | | | ■ |
| Stress test/sensitivity test/other | ■ | ■ | ■ | ■ | | | | | ■ | | ■ | | | | | ■ | | | ■ |
| Loan maturity | | | | | ■ | | | | | ■ | | | | ■ | ■ | ■ | | | ■ |
| Loan amortisation requirements | | | | ■ | | | | | | | | | | ■ | | | ■ | | ■ |

*Source:* European Systemic Risk Board. (2017). Housing market development.

Note: LTI - Loan-to-value; LTI - Loan-to-income; DTI - Debt-to-income; DSTI - Debt service-to income; PTI - Price-to-income, Other – other prudent lending standards requirements

Macroprudential policy measures are chosen depending on the nature and level of risk exposure and the stage of the real estate market in a particular country. If the real estate market is in the mature phase of the cycle or a large number of vulnerabilities are present, e.g. rising housing prices, rising mortgage loans, lowering lending standards, then the capital-based measures are appropriate. On the other hand, if vulnerabilities have only just begun to emerge, measures based on borrowers are usually considered more appropriate. (ESRB, 2019)

Taking into account lending standards, borrower-based measures have an impact on the growth and quality of the mortgage loan portfolio and the ability of households to take a loan. (Duca, Pirovano, Rusnák & Tereanu, 2019)

Interstate empirical analysis has shown that macroprudential policy reduces systemic risk, primarily with the measures related to credit approval conditions (e.g. by defining LTV ratio) or liquidity-related measures (e.g. required reserves). (IMF, 2011) There is also some evidence that macroprudential policies, implemented before the previous financial crisis, could have a positive impact on developments. (Galati & Moessner, 2013)

The data displayed in the previous table indicate that limiting LTV ratio is the most commonly used macroprudential measure in the analysed countries. Therefore, it is not surprising that the effectiveness of this measure is the subject of a large number of studies.

Campbell and Cocco (2015) are developing a dynamic model of decisions about the default on the basis of a mortgage loan that includes labour income, residential property prices, inflation and interest rate risk. In this model, the mortgage default triggers negative capital that is caused by a certain combination of several shocks that the household faces. It is assumed that the price of residential real estate is falling in conditions of low inflation, whereas large outstanding debt remains. The assumption of this model is that the level of negative capital that triggers the default depends on the degree of borrowing constrained households, and that they do not opt for the default as soon as the capital becomes negative. They first used the model to examine how the possibility of changing interest rates on mortgage loans affects the decision on default. Secondly, they set mortgage premiums using yields on zero-coupon bonds. Third, they use the model to investigate how the values of the three rates at the time of mortgage approval affect the probability of default: loan-to-value (LTV), loan-to-income (LTI), and mortgage-payment-to income (MTI). In this model, the influence of LTV and LTI ratio is not examined separately, but a combination of these parameters is observed.

The Hong Kong Monetary Authority (2011) examined the role of LTV rates on delayed mortgage payments by applying econometric analysis of panel data on the example of 13 countries. Their analysis shows that the policy of limiting LTV raids is effective in reducing the systemic risk associated with boom and-bust cycles in real estate markets.

Gerlach-Kristen and Lyons (2015) advocate a policy that imposes limits on the size of LTV raids to reduce arrears, as their evidence suggests a link between LTV raids and creditors' bankruptcies.

Using microsimulations, Allen, Peterson and Roberts (2018) find that the policy of limiting LTV raids reduces the impact of interest rate shocks on the vulnerability of households in Canada.

The Financial Stability Review (ECB, 2020) shows that a number of measures from fiscal, monetary, micro-prudential and macroprudential policies have been taken to mitigate the impact of the crisis by reducing the possible number of bankruptcies of individuals, corporations and banks and to support economic recovery.

Nier and Olafsson (2020) indicate that in most countries banks have softened macroprudential policy measures in terms of capital and liquidity requirements to offer support to businesses and households by providing lending in times of crisis. Using the possibility that minimum capital requirements can vary over the cycle, national authorities have released countercyclical capital buffers or reversed previously announced increases. Moreover, a number of countries that have implemented borrower-based measures have softened restrictions on loan-to-value ratio, debt-service-to-income ratio, debt/loan-to-income ratio, and other tools, thereby supporting lending to households with temporary financial problems.

The analysis conducted by Lewrick, Schmieder, Sobrun & Takats (2020) shows that if the crisis reaches the level of the previous financial crisis, additional protective layers of capital may not be sufficient enough to support lending. In addition, lower capital and liquidity requirements, as well as standards of granting loans in times of crisis, may weaken the quality of loans and increase the risk of bank insolvency. Therefore, if the level of private sector and corporate debt increases, policymakers will need to adjust macroprudential policy measures in terms of capital requirements. (IMF, 2020)

The Financial Sector Assessment Program in Bosnia and Herzegovina conducted by the staff of the International Monetary Fund also included an analysis of macroprudential policy in Bosnia and Herzegovina. In the Technical Note (IMF, 2015), which was prepared on the basis of data available in July 2015, it was stated that the reserve requirement policy was the only tool that had a macroprudential approach, in that the reserve requirements were somewhat the basis for calculation modified before and after the global financial crisis, in order for this instrument to serve as a countercyclical tool. The same document points out that one of the priorities of the Central Bank of Bosnia and Herzegovina, the Federal Bosnia and Herzegovina Banking Agency and the Republika Srpska Banking Agency should define and collect additional information for vulnerability assessment, as well as the design of macroprudential tools.

## 6. Conclusion

Based on the data presented in the paper, we can conclude that the residential real estate market is important for financial stability since it represents a large part of household assets, with home mortgages accounting for approximately 86% of household financial liabilities, and real estates serving as the means of loan repayment (collateral).

The paper shows that the increase in real estate prices in the period of low interest rates and low unemployment encourages the increase in lending. However, the growth of the share of mortgage loans with weak lending standards along with decrease in real estate prices and increase in unemployment affects the accumulation of non-performing loans. This confirms the first hypothesis on the impact of trends in the residential real estate market on banks' balance sheets. Additionally, the global financial crisis that began in 2007 illustrated what disastrous effects bust phases in the residential real estate market could have on the financial system. The complex interaction between the residential real estate market and mortgage loans, different structural features of the market, as well as the limitations in terms of available data contribute to significant uncertainty regarding researches related to the existence of imbalances in the residential real estate market and the need for price adjustments.

The paper emphasizes the strong link between the residential real estate and loans intended for their purchase. Therefore, macroprudential policies, whose aim is to ensure financial stability, can have a strong impact on the residential real estate market. The researches conducted by the IMF (2020) and the ECB (2020) confirm the hypothesis that policy makers need to maintain the balance between the preserving financial stability and the supporting economic activities.

The research results by the IMF (2011), the Hong Kong Monetary Authority (2011), Campbell and Cocco (2015), Gerlach-Kristen and Lyons (2015), Allen, Peterson and Roberts (2018) indicate that the policy of limiting LTV ratio is effective in reducing the systemic risk associated with boom-and-bust cycles in real estate markets, thus confirming the third hypothesis.

The consequences of the changed business conditions caused by the measures of the governments in the period, assessed as crucial for the suppression of the pandemic COVID-19 to this segment of the economy, will largely depend on the effectiveness of the measures to solve NPL problems, as well as the length of the economic recovery. Since the paper was written in a period assessed as crucial for pandemic control, the focus of the authors in future research will be to analyze the effectiveness of the existing measures of macroprudential policy in until now realized unprecendented business conditions.

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# ULOGA MAKROPRUDENCIJALNE POLITIKE U OSIGURANJU KVALITETA PORTFOLIJA STAMBENIH KREDITA BANAKA

**Apstrakt:** Tema ovog rada je aktuelni trend na tržištima stambenih nekretnina u zemljama Evrope i njihov uticaj na kvalitet portfolija stambenih kredita banaka. Imajući u vidu da se ova tržišta još uvek nisu u potpunosti oporavila od pređašnje finansijske krize, i da su u vreme pisanja rada bila izložena ogromnoj neizvesnosti koju su uslovili specifični uslovi izazvani virusom COVID 19, istraživanje rizika u vezi sa ovim tržištima i sredstvima kojima bi se ublažile posledice pandemije su od krucijalnog značaja. Znajući da je monitoring sistemskih rizika u jednom finansijskom sistemu veoma bitan, kao i činjenica da kreiranje makroprudencijalnih alata u Bosni i Hercegovini tek treba da se dogodi, jedan od ciljeva rada je da predstavi rezultate istraživanja efektivnosti određenih mera makroprudencijalne politike, kako bi se ublažio uticaj kolebanja cena na tržištima stambenih nekretnina. Posebna pažnja je poklonjena promenama koje proživljavaju tržište nekretnina i hipotekarni krediti tokom krize izazvane pandemijom COVID 19. Rad predstavlja osnovu za dalja istraživanja na temu koliko uticaja mere makroprudencijalne politike u pojedinim zemljama imaju na dosadašnje uslove poslovanja.

**Ključne reči:** krahovi tržišta nekretnina, nekvalitetni krediti, makroprudencijalna politika.

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**Mirela Mitrašević** is employed at the Faculty of Business Economics, University of East Sarajevo, where she is engaged as an associate professor of Financial Mathematics, Insurance and Risk Management in banks and insurance companies in full-time studies and Financial Mathematical Analysis and Insurance Analysis in master studies. In 2016, she was elected associate professor in the field of actuarial science at the Faculty of Business Economics in Bijeljina, University of East Sarajevo. She is the author and co-author of several scientific papers. She has participated in a large number of international symposia and in conducting innovative courses in the field of actuarial science. She received the authorization to perform actuarial work from the Insurance Agency of the Republic of Srpska in 2006. She is a member of the Association of Actuaries of the Republic of Srpska and the Association of Actuaries of Serbia.