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HOUSING AND MORTGAGE LOANS' IMPACT ON THE BUSINESS PERFORMANCE OF THE BANKING SECTOR

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1.INTRODUCTION

1.1. Research problem:

Financial and banking crises arise in a continual process. The appearance pattern is nearly identical. To self-sustaining, the development process in collateral value, high credit growth, high demand growth, and high price growth resulted in an expansion in real sector indebtedness above chances to service your loan. The cyclical movement of the situation on the real estate and financial markets has gradually led to the abandonment of Keynes' theory that observes cycles as a subversive fact, so Cooper's view of the economy is increasingly accepted system as unstable and prone to creating cycles of prosperity and decline. Effective hypothesis markets do not allow for bubbles or skyrocketing property values. (Lucas, 1980) Credit cycles are an essential predictor of business cycles, and there is evidence of a positive association between financial and economic development. Excessive lending can result in substantial losses in the banking industry when economic growth slows. Thus banks at the systemic level must boost capital when risks are increasing. The Basel Committee on Banking Supervision announced various proposals in December 2010 to enhance the banking sector's regulatory framework and decrease the impact of countercyclical events on banks. In the event of an evaluation of the rise of systemic cyclical risk, that capital is collected.

Global variables such as business cycle patterns and interest rates impact real estate price rise. With a greater emphasis on collateral-mortgage lending, the system becomes more vulnerable to asset price changes. As a result, even tiny perturbations might result in severe shocks. The influence of such developments in the banking system and on the performance of the overall banking industry in granting mortgages and housing loans will be the focus of this paper.

Mortgage loans are approved for financing real estate purchases and are presented area separately due to significant differences compared to other loans. They are usually long-term bank loans with a maturity of up to 25-30 years and are among the riskiest loans. Their fundamental characteristic is reflected through the approval of loans based on fixed assets under which the bank considers land and business facilities. Long-term borrowing of this kind carries a significant risk for the credit institution as many things can happen, including negative changes in economic conditions, interest rates, and financing the borrower's balance for the duration of such a loan. (Demirgüç-Kunt, 1998)

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Given the maturity of the loan and its purpose, it is usually more expensive than home loans and has a higher required insurance ratio. In practice, it often happens that the maximum amount and repayment period for a mortgage loan, which is the credit institution willing to approve, be less than the total amount and repayment period code housing loan.

The housing issue is one of the biggest problems of today. A housing loan is a long-term earmarked loan, which is most often granted on the condition of establishing participation in a particular ratio in real estate. Like mortgage loans, the maturity of housing loans is significant, and approval procedures are very complex and rigorous. Because of all of the above, we can say that banking is one of the indispensable activities in the modern world, almost impossible to ignore.

1.2. Subject of research

The subject of the thesis research will be the impact of housing and mortgage loans and the real estate market index on the performance of the banking sector at the beginning of the financial crisis in 2008 up to the latest available data on the current market, which is up until 2019. The effect will be observed from the macroeconomic and microeconomic levels. The cyclical character will be explored credit activities through banking cycles and credit cycle theories, price index movements, real estate, volumes, and the impact of housing and mortgage loans. The financial stability system is one of the critical determinants of any country's stability and economic growth. Therefore, it will investigate how the approval of long-term and most risky housing and mortgage loans affects banking operations.

1.3. Research hypotheses

Based on the defined problem and the subject of the research, the following research question is set hypothesis on which the fundamental analysis will be established:

H1: I suppose that: Banks' operations in funding housing and mortgage loans are exceptionally pro-cyclical.

1.4. The aim of the research

The aim of the research includes the previously mentioned subject of research and research hypothesis.

The main goal of this research is to check the truth and accuracy of the hypothesis, i.e., accept or reject it, to conclude the impact of housing and mortgage loans and market indices on the performance of the banking sector.

1.5. Research methods

To analyze and process data, to conduct quality research under set hypotheses, the following methods will be used. (Guercini.S., 2014)

• Data collection method - most of the required data will be collected via

Internet searches and professional literature available in the library of the Faculty of Economics

Universities in Budapest and University Libraries in Budapest;

• Method of analysis - breakdown of complex concepts into more straightforward elements;

• Inductive method - analysis of individual data leads to general conclusions;

• Deductive method - based on general assumptions, specific individual ones are arrived at conclusions;

• Synthesis method - merging more straightforward findings into more complex decisions;

• Form of description - description without scientific approach and proof;

• Comparative method - a method for comparing similarities and differences of the same or related facts and knowledge;

• Compilation method - the procedure of secondary data collection.

In the empirical part, historical data on the temporal movement of the volume will be used housing and mortgage loans and market indices. Use to process of the collected data will be predominantly statistical methods. The collected data will be processed in a computer program Microsoft Office Excel. Secondary data sources will be shown in the corresponding tables and charts.

1.6. Contribution to research

This paper will seek to contribute to the understanding of the importance and role of the bank and banking and financial cycles. The degree of impact of housing and mortgage approvals will be determined by loans on the performance of the banking sector. Furthermore, the importance will be selected as well growth in the volume of housing and mortgage loans for banks. Research,which will be conducted in the framework of this paper, will contribute to the previous analysis of housing and mortgage loans on banking performance.

1.7. Thesis structure

The structure of this paper follows the objectives of the research. The thesis is divided into six parts, including an introduction and a conclusion.

In the introductory part, the research problem is defined, the goals of the work that are planned are stated to achieve, and the methods that will be used in the preparation of the thesis. Except for the above items, the introduction will also contain the described structure of the paper.

The second part, entitled "Lending Activity of Banking Firms," will be described the credit operations of banks together with the types of loans and the importance of loans in general banking system activities.

The third part, called "Cyclical nature of credit activities," will focus on financial and banking cycles and credit cycle theories. There will be the talk of an analysis of credit activities banks in cyclical economic developments.

The fourth part, "Analysis of the movement of the real estate price index and credit activity banking sector," will establish a theoretical interpretation of the relationship between real estate prices and credit activities of banks and empirical analysis of theoretical views.

The fifth unit is called "The impact of housing and mortgage loans on banking performance sector," will look at a brief overview of the performance of banks and the impact of housing and mortgage loans on business performance.

Also, a brief overview of the securitization process and the sale of loans to third parties will be provided.

The concluding part is based on making and highlighting the conclusions obtained based on the conducted research.

At the end of the thesis, the used literature with the corresponding list will be presented, referring to the figures and tables and a summary attached at the beginning that will briefly describe the subject and contribution of the proposed research.

2. CREDIT ACTIVITY IN BANKING SECTOR

In this chapter, we will encounter the concept, types, and functions of credit. The credit operations of banks and the importance of loans in banking operations and at the global level will be described.

2.1 Credit operations of banks

The specificity of operations and the significant impact on overall economic trends give banks a central role in the financial system. Due to its importance and vital infrastructure, it significantly affects the operations of other markets (capital, insurance). (Onyiriuba, 2016) But above all, banks enable the transfer of funds from surplus units to deficit units, creating added value and thus ensuring liquidity. Commercial banks obtain credit funds from domestic and foreign banks by collecting deposits from natural and legal persons in the country and abroad. Together with their sources, after deducting required reserves and liquidity reserves, direct them primarily to credit placements. (Harutyunyan, 2017)

To collect deposits, the Bank seeks to attract depositors by offering them a specific interest rate to deposit their deposits with them. The Bank converts these deposits into credit amounts and places them on the market at a significantly higher price, i.e., interest rate, and a more extended repayment period. In this way, loans are approved, and productivity in the economy is achieved and increased. A more extended repayment period implies a higher risk, allowing banks to charge a higher interest rate.

The credit creation process itself arises from the transformation of short-term deposits into long-term deposits. In the credit operations of banks, the allocation of loans is a fundamental function. Due to the risk exposure, a detailed assessment of potential borrowers' expected return, conditions, creditworthiness, and interest rates is essential for banking operations. A large number of placed loans implies a high rate of return, which instills confidence in the population. Based on credibility, banks have the opportunity to make a profit even at relatively low deposit prices. To ensure liquidity and protect against business risks, several laws have been enacted that every bank must comply with. The latest is Basel III, which is based on protecting the banking system from the risk of default and the 2008 crisis. The commission introduces new measures and precautions for protection and efficient functioning.

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One of the measures is to ensure the bank's liquidity, which is achieved by a certain amount of reserves in the form of high-quality liquid assets to overcome similar scenarios from the crisis for 30 days.

Types of banking operations:

Balance Sheet Based: Active, Passive, Neutral, Own.

Functional: Mobilization and concentration of funds, Credit operations, Brokerage, Own Jobs.

Periodical: Short-term, Medium-term, Long-term

Active banking is the largest source of banking income and is the leading insurer of liquidity and solvency. Lending operations are active functional operations in which the creditor bank charges interest from the borrower - the debtor. Long-term or short-term jobs can be involved, but we will say more about them below. Each transaction carries a particular risk, including a credit transaction that represents the essential banking risk - credit risk - which can be defined as the probability that the borrower will not repay the loan under the agreed terms and time.

The financial potential of a bank consists of its comprehensive sources, i.e., the sum of all positions in the liabilities of the bank's balance sheet, i.e.:

own sources (share capital, retained earnings, and various forms of reserves);

collected deposits (regardless of purpose);

funds obtained in the country and abroad (by taking loans or issuing securities).

Funds can be short-term or long-term, in HUF or foreign currency, by domestic or foreign natural and legal persons.

The credit potential of the bank consists of obtained and collected funds (after deduction of required reserves and liquidity reserves) together with their sources. It represents the amount that a bank can invest in various forms and types of loans and placements. By multiplying loans and deposits, the bank creates additional deposits and thus makes funds for new loans. Knowledge of the basic features of multiplication and the factors that facilitate this process is the basis for the bank to determine and implement an appropriate business policy aimed at strengthening comprehensive resources and business profitability.

2.2 The importance of credit in the entire banking business

Credit is one of the most important banking products, considered an essential factor for economic growth. In contrast, credit availability is a crucial function of banks and occupies an important place in the social processes of reproduction. For most banks, loans make up half or more of their total assets and about 1/2 to 2/3 of their income, and precisely because of this, lending operations are the most essential operations of banks. By issuing loans, the bank places interest-bearing funds, which the bank realizes. Credit is a commodity that has its value, i.e., price and target market. It allows natural and legal persons access to funds even when their funds are insufficient. Credit financing has a substantial impact on economic transactions and thus on the overall reproduction process. Increased growth in the production and consumption of water and the development of gross domestic product (GDP) and the national economy. That is why banks are trying to shape the most prominent possible loan offer.

The main functions in which the importance of credit is manifested are:

• Collection of all available dispersed funds in the economy that is not used but is located with different owners and in other places. The funds thus collected should be concentrated and directed to borrowers through loans;
• Ensuring liquidity, continuous and safe continuation of work, establishing a balance between supply and demand in the market, the ongoing production, and financing of expanded production;
• Financing the development of less developed areas;
• Financing export preparations and securing export operations and thus maintaining international trade;
• Loans are an essential control function in the economy. The central bank exercised the most important form of control; thanks to the monetary policy system, it influences bank placements through various instruments.
Deposit operations of banks are a specific characteristic of banks and an activity that only banks can perform. In contrast, except for banks, loans can be approved by all other financial institutions and even some business companies. However, due to longevity, credibility, trust, and security, banks are leaders in lending, which lead the issuance process simultaneously in

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combination with the receipt of deposits. Loans are the primary source of the bank's earnings but also the most significant risk bearers. The loan approval process is a bilateral relationship between a bank and a specific debtor and is much more complex and demanding than other banking operations.

The structure of loans and the share in the assets of banks' balance sheets depend on various factors. According to the portfolio analysis data, it is generally considered that loans occupy 60% of banks' assets. In comparison, the remaining 40% refers to non-credit investments, most of which serve as maturity, security, and liquidity counterbalance to profitable, high-risk, and often illiquid loans (investing in government and agency bonds, cash, holding reserves with the central bank or foreign currency receivables). (CNB, 2016) A bank failure is most often associated with bad credit policies and a bad loan portfolio, and precisely because of the importance of credit, the bank management process is simplified and defined as the skill of "composing assets" or, in a narrower sense, the ability to structure a bank's sound loan portfolio.

Table 1:Share of loans in bank assets in the United States (US) in billions of USD

Year	The volume of loans in the assets of US banks in billions of USD	Assets in billions of USD	Share loans in assets
2005.	5,317	9,046	59%
2006.	5,916	10,097	59%
2007.	6,54	11,181	58%
2008.	6,683	12,313	54%
2009.	6,282	11,826	53%
2010.	6,378	12,069	53%
2011.	6,54	12,65	52%
2012.	6,891	13,387	51%
2013.	7,114	13,673	52%
2014.	7,518	14,474	52%
2015.	8,06	14,893	54%

Source: FDIC * Statistics of banks in the USA

According to the Croatian National Bank (CNB), the trend of reduced lending activity in the Republic of Croatia (RC) continued in 2015. The most significant decline was recorded in corporate loans to all activities within the sector. The only increase in lending was recorded in tourism and agriculture. Retail loans declined for the seventh year in a row, with an emphasis

on currency restructuring. Kuna loans to households increased significantly, especially non-purpose cash loans. The picture shows that the situation in the Republic of Croatia is similar and that loans occupy most bank assets. (Radin, 2015)

Figure 1: liabilities & Assets of banks in the Republic of Croatia (2017-2021)
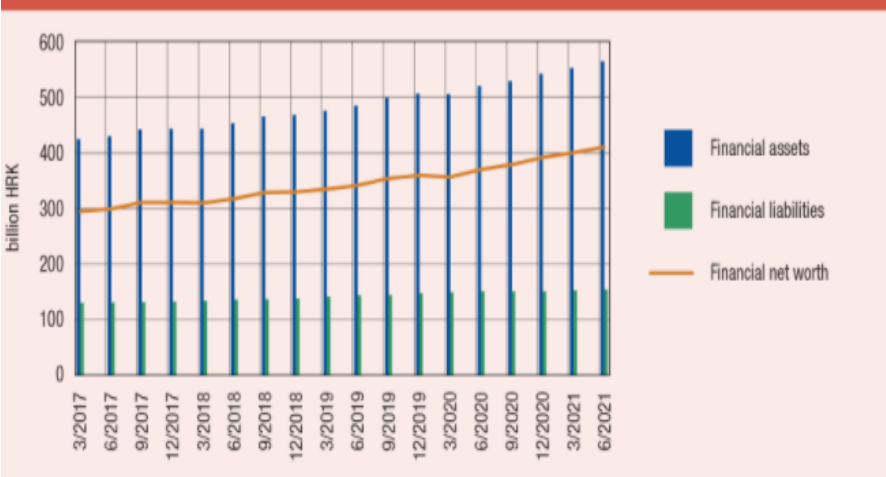
Source: Bulletin on banks, August 2016.

3. CYCLICAL CHARACTER OF CREDIT ACTIVITIES

This chapter will focus on financial and banking cycles. The history and the essential credit theories of the revolution will be investigated, as well as the impact of the cyclical character on banking operations and credit supply and the general effects on the global level.

3.1. Financial and banking cycles

Cyclical developments are developments that affect the financial stability of all participants in financial markets. Generally speaking, the cycle begins with a phase of "excitement" in which a critical event begins to attract the investor's attention in the form of innovation. The growth of investment leads to an increase in demand for intermediate goods and a relocation of factors of production. Innovation leads to a boom and high demand that causes earnings, i.e., harvesting profits. Over time, due to internal and external factors, changes in the market cause changes in direction. Existing products are no longer good enough, new ones are in demand, earnings are declining, and the market is in a state of panic. Over time, the alarm enters a phase of depression that lasts until the call is hit again by some external shock that will result in innovations and changes in the market. The depression causes a drop in consumption and an increase in savings. It leads to a decline in interest rates, which leads to a renewed interest of investors so that we can talk about the business cycle resulting from the credit expansion of the banking sector. *Inovation > Boom > Making a profit > Panic >Depression*

Despite numerous studies, it is difficult to give a strict definition of the financial cycle due to its connection with the business cycle, financial crises, the period in which difficulties were recorded, and the dependence on political connections. One possible definition defines the economic cycle as the circular flow of intermediation of goods or assets, from money through inventories and receivables to back to money, i.e., from money to money.In the 1960s, Hyman Minsky, developed the theory that financial cycles significantly determine the business cycles of national economies.

Financial cycles, such as those in the credit, real estate, and stock markets, are usually longer than natural cycles and are mutually supportive. Due to their importance in various segments of financial markets, they considerably affect the actual cycle. 2008 is a crucial year for shaping economic cycles in the market and putting them at the center of world events and for

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more in-depth research. Length and amplitude, along with frequency, slope, and duration, are the main determinants of the cycle itself, are most often defined politically, i.e., through monetary policy. To prevent booms and boosts, the state strengthens fiscal and monetary measures by taking and controlling most of the risks on itself through financial intermediaries. With the synchronization of the economic and business cycles, the state can mitigate the ups and downs of the financial markets with its regulators, even outside the state's borders, due to the impact on prices and return on assets.

The financial market is prone to many imperfections such as over-optimistic lending, misperception of the risk characteristic of the take-off phase, and procyclicality of regulations that link provisioning policy to credit risk materialization rather than prevention. (Harutyunyan, 2017) Due to these imperfections, there are regulators in financial markets functioning and dampening the economic cycle. (Giuliana Birindelli, 2017)

In Croatia, the CNB implements these measures and instruments. E.g., The CNB actively used various measures and mechanisms to limit credit growth and strengthen capitalization when most market participants were under the impression of short-term economic upturns. This has undoubtedly contributed to increasing systemic risk and destabilizing the financial system. (Lucas, 1980)

According to the European Central Bank (ECB), there is a certain degree of synchronization between countries and cycles, and it is most remarkable for credit and capital cycles. Financial cycles of capital and real estate are generally longer and more pronounced than credit cycles. Credit and real estate cycles recorded an average rate of 1% per quarter, while the financial cycle of capital was three to four times more aggressive, i.e., faster. The average duration of business cycles is between 8 and 10 years, while the duration of financial cycles is estimated at a slightly more extended period of 10 to 20 years. This difference in duration implies that the financial cycle can include several business cycles in one of its durations. Real estate price cycles are primarily independent of standard business cycles but are closely related to medium-term GDP cycles. The prominent peaks and troughs of the GDP cycle are most often aligned with the real estate cycles. Accelerated growth of lending, especially mortgage loans, affects the rise in real estate prices, which causes an increase in collateral, and thus the loan amount. (Rünstler, 2015)

The empirically proven similarity between financial cycles and financial crises confirms the coincidence of the recession with the contraction phase of the economic cycle and the fall in

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GDP by about 50% . (Cooper, 2008) GDP cycles are a combination of standard business cycles and short-term cycles.

Figure 2:Financial and business cycle in the US
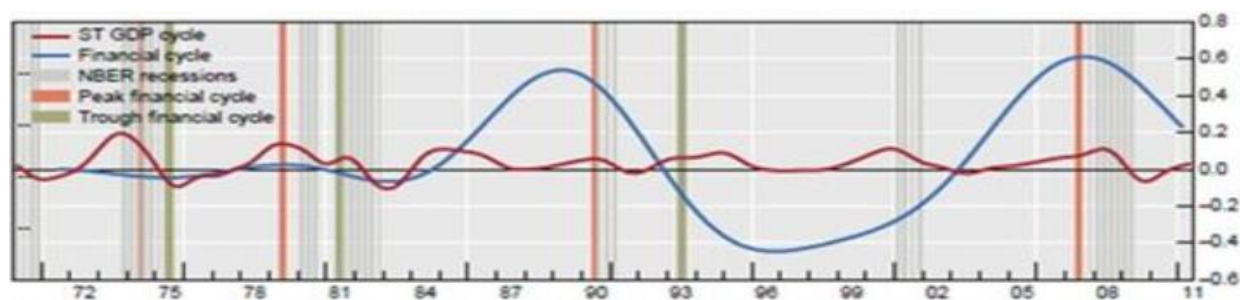
Source: Andrew Filardo, Marco Lombardi and Marek Raczko BIS Working Papers, No 755, Measuring Financial Cycle Time, 7 November 2018

Unlike the financial cycle, the credit cycle is the period required for a bank to place a contracted loan on the market. Due to the dependence of the credit cycle on economic cycles, the risk is quite pronounced in market economies. Credit cycles can occur without changes in the macroeconomic environment, although they represent a significant determinant of macroeconomic developments. Sometimes they result from the bank's strategic goals to attract specific borrowers, and they can also be a product of the pro-cyclical nature of banking operations. In the period of prosperity, there is an increase in the volume of business, which is conditioned by the economy's growth. Interest rates determine the loan price, and higher demand for loans leads to higher interest rates. Due to the underdevelopment of self-financing and financing through the issuance of securities, companies are turning to banks and other financial institutions. After some time, due to the increase in demand for loans, there is an increasing growth of interest rates. Loan prices are becoming unaffordable for anyone who still wants to take out a loan. Market stagnation occurs, causing interest rates to fall and profitability to decline for banks and other financial institutions that grant loans. Such changes in the market lead to reduced circulation of available borrowing money. In their thesis, Modigliani and Miller present views that do not agree with the facts mentioned earlier. They believe that companies are indifferent to financing and that the choice of funding has no impact on the real economy. An essential condition for the functioning of the credit channel lies in the fact that there are always companies that depend on banks. It was particularly

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pronounced in countries where the financing of companies through financial markets is extensive.

Below we will say something more about the theories of credit cycles themselves.

3.2 Credit Cycle Theories

Over time, numerous theories about cycles have developed. This section will analyze some of the most influential ideas that have contributed to the development and understanding of economic cycles.

At the end of the 19th century, the Austrian bourgeois political economy developed. We first associate the concept of credit cycles, whose principal founder is considered to be Carl Menger. The emergence of marginalism in Austria can be linked to the founding of the Paris Commune and Marx's

"Capital" has its basis in the labor theory of value. Theorists of that period considered themselves responsible for finding an approach that would refute Marx's ideas. This is how a new direction in economics, known as marginalism, emerged based on subjective value theory. Under the personal theory of value, it is considered that human needs and desires determine the value of a thing, and not only its real value. Four generations of well-known economic theorists are the product of this school.

From the second generation stands out the prominent critic of Marx's capital, i.e., Eugen von Bohm-Bawrek, who contributed the most to explaining interest rates. Interest is necessary to overcome the time gap until the production of new goods. He considered that the present value of the goods had a more excellent value than the future values of the goods because of their availability.

He drew a foothold in his theory based on human irrationality. He explained it with a pattern of behavior "as if tomorrow will never come." (Landry, 1909) He also believed that innovation processes that require a certain amount of production time were necessary to improve productivity. In the national economy, all objective and national income in the produced period is not consumed entirely but is used for the "production of goods on detours". Such an explanation led to the emergence of higher interest rates.

Due to the vague description of his position, he provoked numerous controversies based on which many economists later built their theories of interest rates.

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The third generation leader is Joseph Schumpeter, who is considered the creator of the theory of business cycles. His approach is based on Kondriateff's theory of long waves, which was the first to confirm the existence of economic waves over 50 to 60 years.

Each wave has a period of growth, stagnation, decline, and recession, and the cycle consists of four different phases or dramatic mood swings. Schumpeter believes that long waves occur as a result of the impact of innovation over time. It introduces the term "creative destruction," which synthetically describes the replacement processes, i.e., destruction of existing business models, i.e., branches of industry with new, superior business models and industries. (Schumpeter, 2006)

The main difference that separates him from other theorists in his optimistic view of the cycle, which he considers a positive phenomenon of economic evolution in capitalist conditions.

He considered it essential to distinguish the trend from the cycle, although the factors influencing the trend movement do not differ significantly from those determining the cycling movement. The trend is a time interval in which the mean values of these time integrals decrease or increase as a function of time, but only once. The cycle represents a series corrected for seasonal discounts that are repeated more than once over some time. He perceives cycles as an inherent phenomenon of the capitalist system of production. Starting from the point of view that evolution is a process that moves in cycles, the trend is only a consequence of the cyclic movement. (Schumpeter, 2006) Each cycle consists of 4 phases of equal length and amplitude and constant ups and downs.

Schumpeter also aimed to identify economic factors destroying the existing market balance—divided them into static and dynamic. He perceived the view of the cycle as a closed circle in which nothing new happens but only a change of data. Here he places the entrepreneur as an innovator and creator of change who introduces new factors and creates a new cycle. He believed in a constant tendency towards equilibrium in the circular flow that kept the available labor and capital in balance. Innovation leads to economic growth that is exhausted over time and leads to a state in which marginal profit tends to zero and thus requires the emergence of innovation processes.

Friedrich Hayek leads the last, fourth generation of the Austrian school. For him, cyclical fluctuations stem from allocation errors in capital markets due to erroneous market interest rate signals. In his theory, he argued that credit financing by monetary authorities would suppress investment and, in the long run, cause a mismatch between supply and demand and

lead to a recession. He believed that the expansionary policy in the recession only delayed the necessary structural needs for adjustment. The problem arises in the boom phase when a change in resource allocation and a comprehensive approach can only make matters worse. Most economic theorists have abandoned his ideas, although modern followers warn that the impact of business cycles can be read from the Japanese and American boom and boost that gripped them in the 1980s and 1990s.

It is known for its "Hayek's Triangle" model, which explains the entire consumption process in the economy from the first to the last phase through a unit of time shown in the form of a triangle. The shape and size of the triangle depend on the allocation and consumption of funds in the economy, which is determined mainly by interest rates. The triangle stretches over both legs until a boost occurs due to a lack of capital goods. There is more investment in the early stages of production at lower interest rates, which causes the triangle to expand. Higher interest rates cause an increase in the last scene, and the triangle becomes shorter and thicker. The hypotenuse length at each stage measures the required production time and shows that the demand for output is reduced in the final step. The lower slope of the hypotenuse reflects the lower interest rate.

3.3 Analysis of banks' lending activities in cyclical economic trends

The cyclical approach in the economy is based on the observation of changes over time in which the volume of business decreases and increases in different periods. The supply and lending activity of banks is closely related to cyclical developments. Optimistic expectations at the economic upswing encourage credit activity, and investment optimism can lead to inflating capital markets and strong growth of prices of various forms of assets (assets-price bubbles), while in recession, credit activity decreases sharply.

Theoretical aspects of the causes, character, and dynamics of economic crises are not known today due to insufficient commitment to this issue, so there are various explanations. Some theorists believe that the cause of the tremendous financial problem of 2008 is the result of too much risk and greed of bankers to make short-term profits, while others believe that the responsibility lies with policymakers who actively promoted aggressive behavior by creating ample liquidity low-interest rates, and regulation. Which inflated incentives for mortgage lending. (Cooper, 2008) It is important to emphasize that each cycle has a specific

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configuration depending on the period and circumstances under which it occurred. The critical years that represent a turning point in the observations are taken to be 1929, i.e., the period in history known as the "Great Depression," the period for the Second World War, and the beginning of the crisis in 2008. According to data from the Federal Bank of San Francisco, which was conducted in a survey conducted among 17 countries , it was found that the beginnings of in-depth bank financing date back to the end of the 19th century. One of the main reasons for such a consideration lies in the fact that in 1900 the average share of credit in GDP was between 50% and 60%. This trend persisted until about 1970, except during the Great Depression and World War II. The next three decades were marked by an increase in credit, also known as a phenomenon called the credit boom. The most significant boom occurred just before the 2008 global financial crisis. Bank loans have doubled on average, while the share of loans in GDP rose from 62% in 1980 to 118% in 2010. (Cooper, 2008) The emergence of mortgage lending caused the increase in lending that occurred after World War II.

The interest rate of the Federal Reserve District (FED) during 2000 was 6.24%, and already in 2001, it was 3.88%. The reduction of interest rates by almost half and the continuous continuation of interest rate reductions to 1.13% during 2003, and even the fall in June of the same year below 1% (which is recorded as the officially registered lowest level of interest rates) are the result of the Fed desires to reduce unemployment, start economic activity and prevent deflation. (Landry, 1909)

During the 2008 financial crisis that hit the world, banks reduced all types of lending, and a rapid decline in the entire bank lending process soon followed. According to the ECB, the critical data on the ability of banks to withstand and overcome all adverse shocks are precisely the types of bank financing. The degree of dependence on short-term funding, bank capital, and securitization activity, about which will say more in Part 5 of this paper, are critical elements of bank financing.

Loans intended for real investments (working capital, capital expenditures) experienced a decline of 14%. The volume of new loans to debtors decreased by 47%. Most of the loans granted at that time were intended for restructuring programs. The great wave of panic that gripped the world after the collapse of Lehman Brothers led to a mass withdrawal of demand deposits, which caused a decline in liquidity and solvency of the entire financial system. Lending to financial institutions decreased by 32%, which means that the cause of the loan contraction was not only the quality of financial institutions. By the first quarter of 2008, the

volume of loans in dollars was 64% lower than the data from the peak of the credit boom in 2007. The most significant decline in lending was recorded in October 2008. (Jensen, 2010) The crisis has affected all industries. Global industrial production fell by 13% between September 2008 and March 2009.43 In 2009, world output was negative for the first time in the United States, with GDP declining by almost 3% and Western European countries experiencing a significant reduction in the volume of trade.

In Europe, the non-performing loan ratio varied significantly between countries. According to the World Bank, Europe has been recovering much more slowly than the rest of the world from the crisis. The share of non-performing loans experienced a slight decline only towards the end of the last quarter of 2014 when it amounted to 6.4% to 5.9% in September 2015. In the US and Japan, it was less than 2% at the end of 2015. The countries affected by the crisis have been recovering hard and slowly—the most significant crisis-hit Greece and Cyprus, where bad loans in 2015 were over 40%. The Republic of Croatia and Bulgaria, Hungary, Ireland, Italy, and Romania recorded a share of non-performing loans between 10 and 20%. Interestingly, even in the Baltic countries, they have encountered a high increase in these loans. For example, in Latvia, economic activity has fallen by as much as 18%. (Radin, 2015) According to the ECB, the economic activity of banks is not a sufficient explanation for the increase in the share of non-performing loans (Antonio Sánchez Serrano, 2021) and the exchange rate depreciation, in countries with a high degree of foreign currency lending to unsecured debtors, falling stock prices and rising lending interest rates are the leading causes of the increase in the number of bad loans. (Radin, 2015)

Figure 3:Lending and housing kuna interest rates on loans with a currency clause in the Republic of Croatia
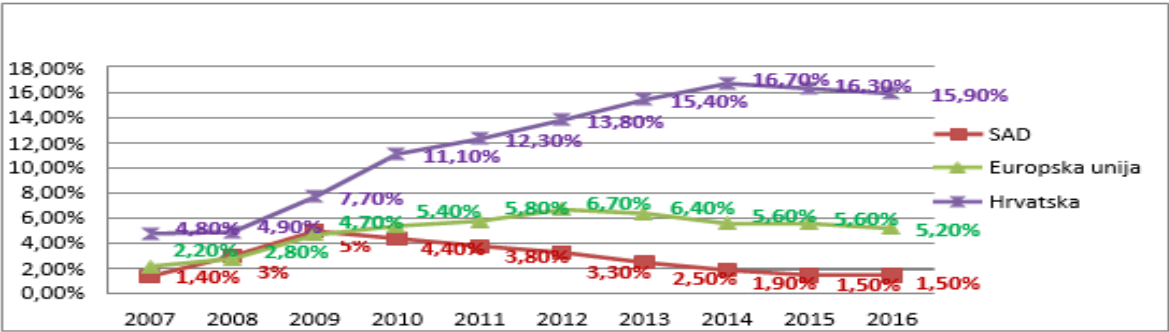
Source: Source: Author's calculation according to the World Bank and the Croatian National Bank.

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The graph shows that during 2009 the highest lending interest rate of banks in the Republic of Croatia of 11.60% was recorded, which gradually decreased. In the observed period, it was the lowest in 2013 when it amounted to 9.20%. As for banks' interest rate on housing KUNA (HRK) loans with a currency clause, the highest growth rate of 6.45% was achieved in 2009, and by the end of the observed period, it failed to fall below the lowest level recorded in 2007, amounting to 5.12%. During the crisis, realized interest rates remained lower than expected based on the risk premium, which caused losses and a decline in return on capital. From the attached, It can be observed that during the crisis, the Republic of Croatia managed to keep most of its interest rates at the level of the Eurozone.

4. ANALYSIS OF REAL ESTATE PRICES AND BANKS' CREDIT SERVICES

This section will analyze the share of housing loans in GDP and real estate market price indices in Germany, Great Britain, and the USA. The theoretical part will be based on the ratio of real estate prices and credit activity of banks, as well as the relationship between real estate prices and credit activity of banks will be interpreted.

The excessive lending activity of banks, overestimation of the collateral value, and the apparent perception of lower credit risk in the period of prosperity during the 2000s led to overheating the economy and the accumulation of systemic risk. (Maria Miruna Pochea, 2021) Many analysts in their research study the positive correlation between the emergence of systemic crises and boom-boost changes in the real estate sector. They base their research on the fact that households, real estate, and construction are important sectors that affect the business of the whole economy. Banks are connected to the real estate market in several ways. Bank loans finance most large construction projects, and in times when the price of real estate is falling, it causes considerable losses to both investors and lenders, i.e., banks. Over the past few decades, the percentage of total bank assets exposed to real estate has grown for banks of all sizes. Banks today dedicate about ¾ of their complete loan portfolios to real estate lending. (Sinkey, 2006)

After the crisis of 2008, the importance of a holistic approach and regulation of the financial system and the necessity of counter-cyclical harmonization of the fundamental and financial sectors came to the fore. The substantial rise in real estate prices stimulated banks' lending activity. The high growth of the credit supply stimulated the development of real estate prices. It caused the concentration of credit activity in the construction and real estate sales sector, which in the long run resulted in the deposition of credit risk on a large scale. (Sinkey, 2006)

Figure 4:Real estate loans as a percentage of total assets by bank size


Source:federalreserve.gov
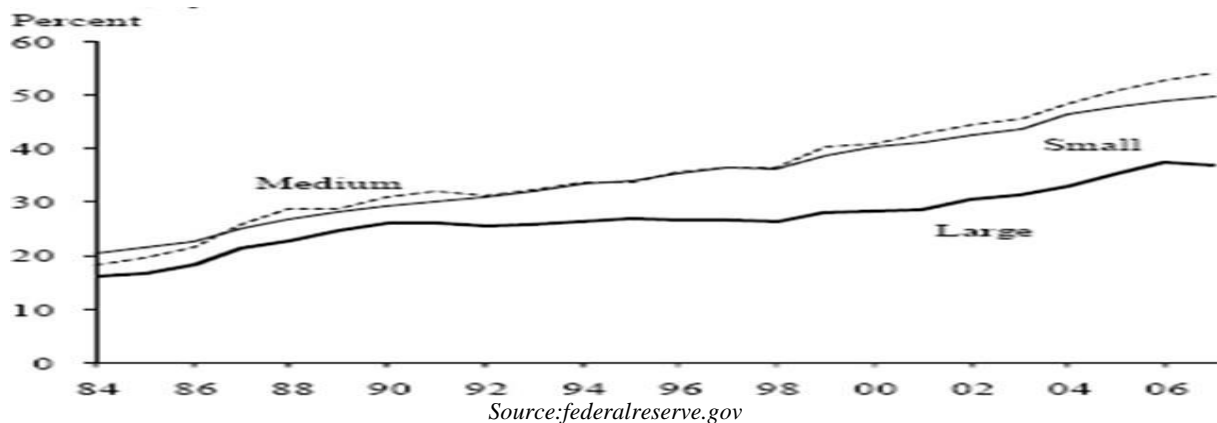
The real estate market is essential to understand both from a macroeconomic and financial point of view. Its connection with business and economic cycles significantly affects the credit market by determining the value of the collateral that can be borrowed. The collateral channel has shown its importance during the financial crisis and the problems affecting the banking sector. In recent years, bank lending rates and credit standards have become increasingly favorable in the recovery phase. Improving the outlook for the housing market has been an essential element in easing credit standards and procedures.

Due to the different effects of the cycle on each economy, the market and real estate prices vary from country to country. The leading indicators of diversity are based on numerous macroeconomic and institutional factors. Overflows of potential shocks in banks' operations are most vital for loans where the collateral is a type of real estate. The strongest for housing and construction loans, followed by non-residential loans.

Despite country heterogeneities, euro area credit rates for housing have fallen sharply since the Great Depression. The housing issue can be seen as a good investment, not just consumption, the return on which is assessed and compared with alternative investments. A lower interest rate allows for more accessible housing.

It can be seen from the figure that credit standards are almost all the time lower than the trends in the real estate market, except for the period from the beginning of 2011 to the beginning of 2013. For the owner, problems arise if the real estate price has suddenly become lower in the market than the mortgage. In such a situation, the sale of the house cannot pay off the mortgage. In addition to the property owner, the banks that have to post the uncollected loan and the collateral value are also damaged (since the property is now less valuable).

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Figure 5: Credit standards for home loans and housing market prospects
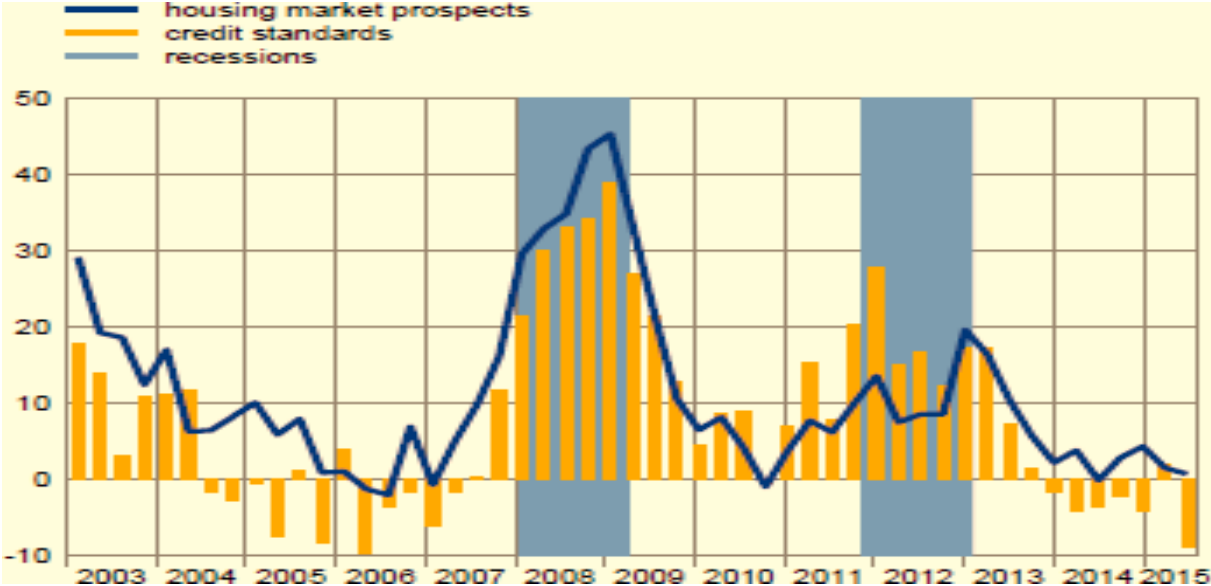
Source: created by author based on the sources: European Central Bank data

The rise in prices in the real estate cycle is, on average, more robust and longer-lasting than the fall in prices. On average, significant declines show a decline in real estate prices by about 50% over five years. At the same time, more substantial reductions and amplitudes were recorded over a shorter period of three years. The maximum correlation between annual real estate price growth and annual GDP growth is about 60%, while the yearly real estate price and the annual growth of retail loans is about 70%. The alignment is evident during the recession phase. (Phyrr, 2014)

All recessions in the euro area since 1980 have been accompanied by reductions (and negative) in real estate prices, which have only recovered since the recovery in economic activity. Negative growth in real estate prices precedes a sharp slowdown in real credit, although the growth rate has rarely become negative. (Phyrr, 2014)

5. THE EFFECT OF MORTGAGE LOANS ON BANK OPERATIONS

In this chapter, the emphasis will be on the performance of banks. Indicators that provide insight into the performance of banking operations will be investigated, and their statistical significance will be examined. Also, the empirical analysis will determine the impact of housing and mortgage loans on the performance of banking operations and will analyze the Croatian banking system. It will get acquainted with the concept of securitization and the sale of loans to third parties, and their importance in banking.

5.1. A brief overview of bank performance

Every business must focus on specific goals and maximizing the value of the company. Although theorists believe that share price behavior is the best indicator of a company's performance, profitability indicators are taken into account due to the unavailability of data. The bank's profitability represents the preparation from unexpected losses and its ability to fulfill its obligations and continue its operations. Due to the complexity of banking operations, there are several divisions and ways of measuring bank profitability. For the most accurate calculation, detailed profitability analysis is performed as a critical factor in checking the business's overall financial stability and performance.

Among the most important indicators used in banking analysis is ROA (return on asset) and ROE (return on equity) . They are based on the traditional (accounting) approach and rules, taking only direct costs.

ROA represents the ratio of profit after tax and the average total assets. It is considered the primary indicator of bank profitability. It is primarily an indicator of managerial efficiency and measures the bank's overall profitability according to which the bank is deemed successful if this indicator is higher than 1%. It shows the bank's ability to make a profit by using available assets. Due to the growth of off-balance-sheet activities of banks, it loses its relevance. Ideally, the denominator should indicate the average of daily values, but because inability to provide such data in most countries analysts use monthly or quarterly averages.

The EBC survey of profitability indicators found that ROE was not a relevant indicator during the crisis. To this end, a survey was conducted on a sample of the 12 largest banks in the EU

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and the US on the movement of return on equity during the various phases of the crisis. Banks were divided into two groups, i.e., the universal group of banks and investment banks - where higher volatility of profitability was recorded during the crisis. Steady growth was observed from the end of 2002 until mid-2007 when a sharp decline was first measured. (ECB, 2016) One of the leading causes of the decay was the dispersion between banks. Banks' profitability recorded negative values until the beginning of 2009, which is taken as the starting point for recovery.

In the Republic of Croatia, the decline in these indicators occurred in 2015 due to the problem of the conversion of Swiss francs, but the situation was already significantly improving in 2016. The last time negative values of these indicators were recorded at the aggregate level was in 1998.Regarding the latest data of these indicators will be shown in the graphs below, it will indicate the changes that have occurred during the recent years up to the latest available 2019, we can as well observe the changes and the effect of the financial crisis in 2008.

Figure 6:ROE indicators in Croatia 2008-2019
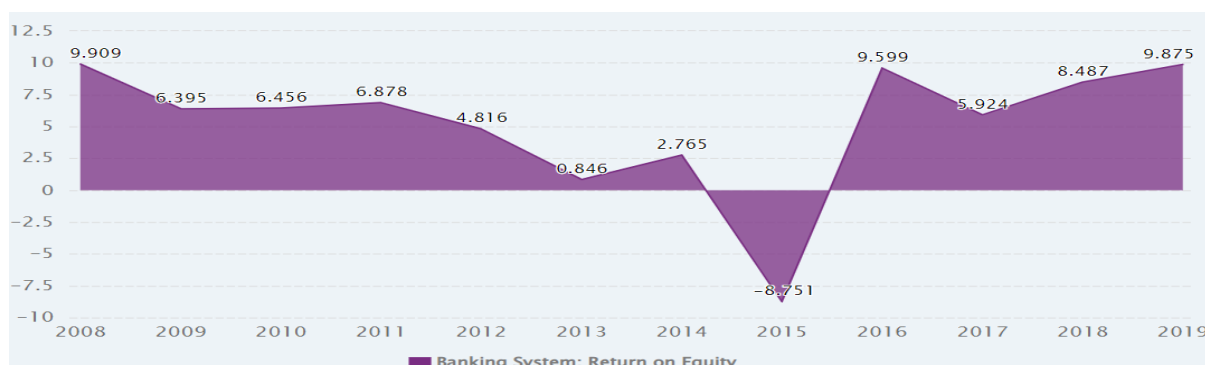
Source: www.chedeta.com / CNB

The operation of credit institutions in the first quarter of 2021 generated HRK 1.1bn in profit, which almost equals the profit generated in the same quarter of 2020. Profitability indicators grew from the end of 2020: return on assets (ROA) increased from 0.6% to 0.9% and return on equity (ROE) from 4.4% to 6.8%. (CNB, 2021)

ROI (return on investment) is an indicator of return on investment that represents the total return on individually invested capital, including market values. According to Kundid, it can

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also be classified as a market indicator of bank liquidity. The ratio is the sum of dividends and capital gain (loss) and the value at which the share was purchased.

Figure 7:Profit (loss) of banks from continuing operations, before taxes
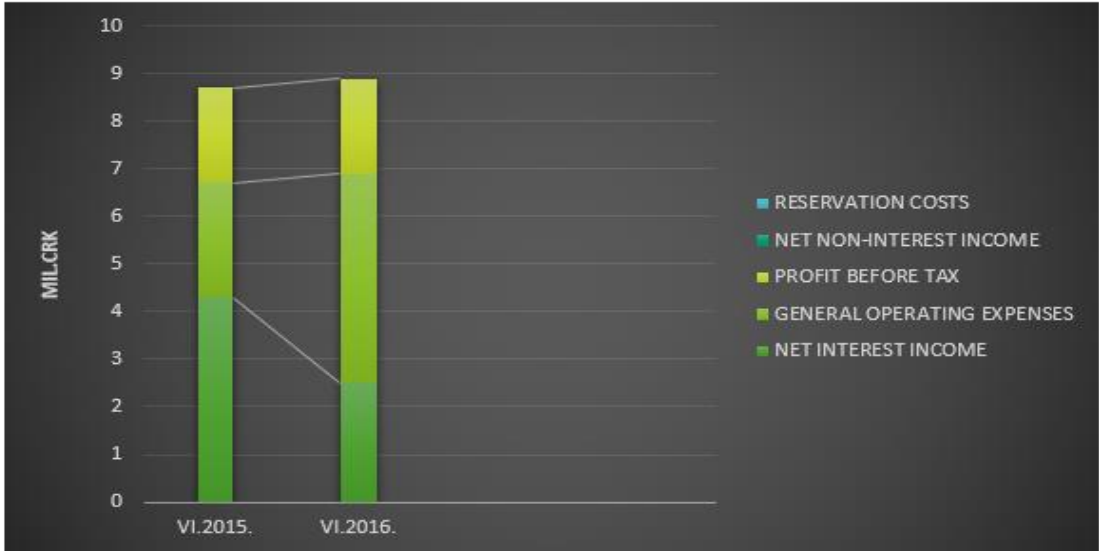
Source: Created by the author, based on data collected at CNB.

At the same time, banks managed to keep their operating profitability (net operating income before provisions / average assets) almost unchanged by saving on operating expenses.

Figure 8:Interest income and cost of interest liabilities of banks
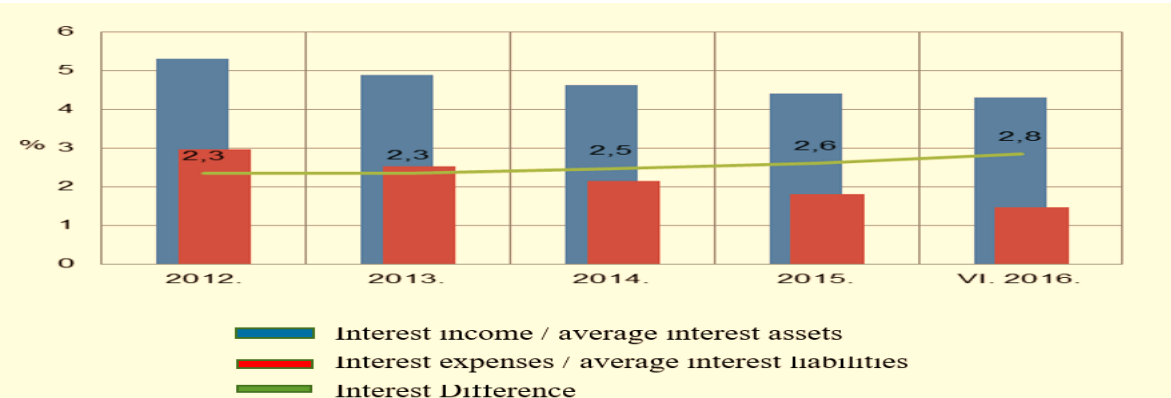
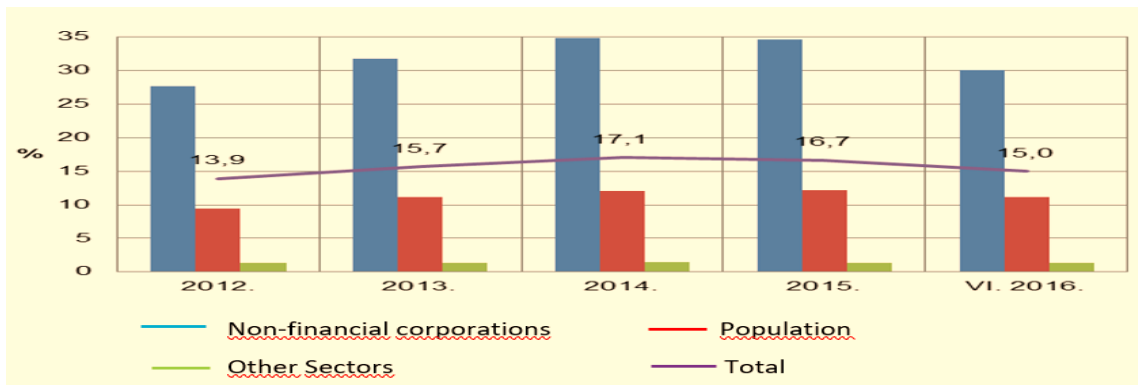*Source: created by the author using data from CNB.*

To circumvent the weaknesses of the classical performance indicators of a banking firm, several more advanced synthetic indicators are being developed for a comparative analysis of the results of different entities. (CNB, 2016)

The measure of stability and solvency of a bank is expressed by the capital adequacy ratio, which is defined by the percentage of capital and assets increased by asset off-balance sheet items, whereby buys and off-balance sheet items are classified weighted by prescribed risk levels. In Croatia, the minimum capital adequacy is 10%, while according to the regulations of the Basel standards, adequacy of 8% is required. (Onyiriuba, 2016)

Market indicators of bank profitability are used for banks listed on the markets. They target the size of ownership and management structures and provide meaningful information to owners, creditors and other stakeholders about the market value of a bank's capital and activities compared to its book value.

• The market and book value ratio of a share (P / B) shows how much the company creates and how much it destroys value. It is often used in investment decisions due to the relative stability of the book value of a banking firm.

• The market value of a share concerning earnings per share (P / E) signals the number of years the investment in the stake is returned.

• Earnings per share (EPS) represents the amount of disposable profit for ordinary shareholders and is equal to the profit ratio after interest and taxes in the reporting period. An indicator of the static and dynamic quality of the bank's operations. As an independent indicator, it does not provide meaningful information on the bank's business performance. Therefore, it is observed in the dynamics of time, and its movement is an indicator of efficient operations conditioned by macroeconomic or microeconomic patterns.

Due to limited access to the data needed to calculate banks' profitability, the CNB lists several indicators on its website.

Figure 9:Share of partially recoverable and fully irrecoverable bank loans

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Source: Created by author using data from CNB.

Figure 10:Structure of bank loans to non-financial corporations by activities, as at 30 June 2016
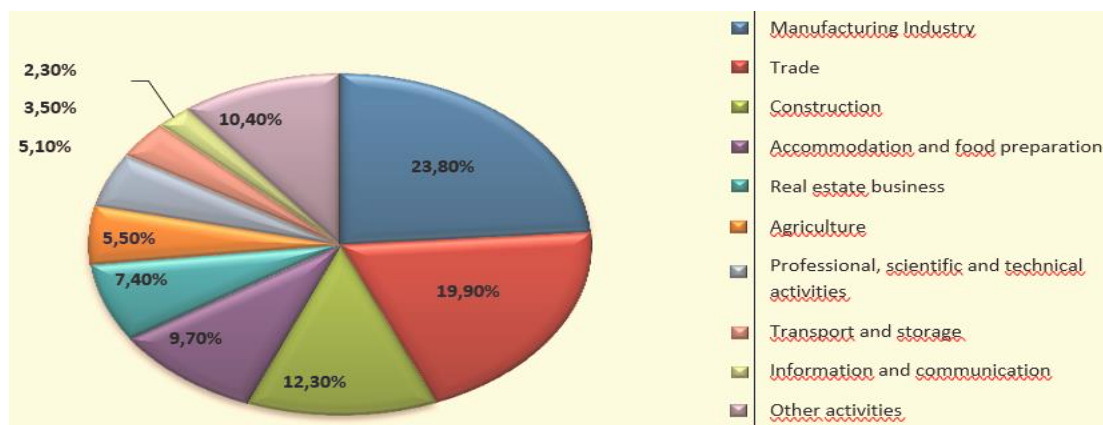
Source: Author's calculation according to CNB data

According to the graph, the processing industry received the highest proportion of loans (23.80 percent), while information and communications received the lowest percentage of loans. The scenario differs when it comes to partially repayable bank loans and wholly non-repayable loans. The highest proportion of loans (26.40 percent) is in buildings, tied to the crisis that led to the decrease in structure.

Figure 11:Activity breakdown of partially recoverable and wholly non-recoverable bank loans to non-financial firms as of 30 June 2016.
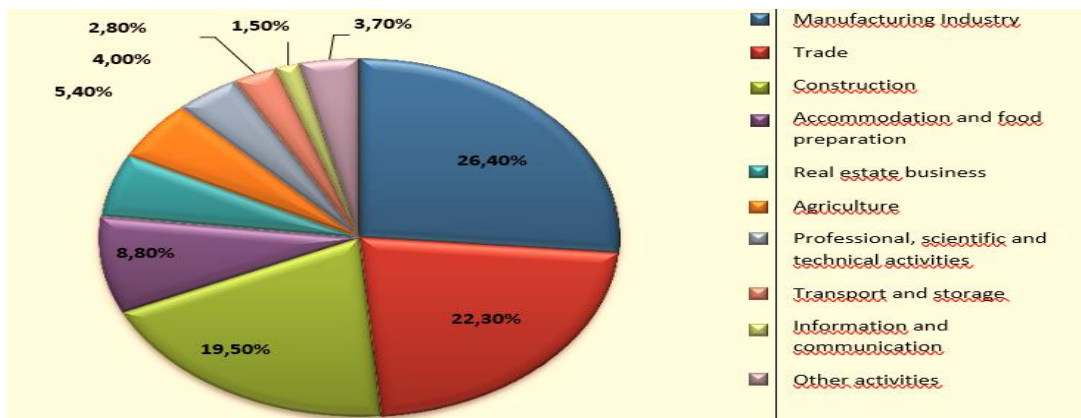
Source: Author's calculation based on CNB data.

The loan quality by currency section displays loans in foreign currencies, including kuna loans with a currency clause. The numbers are calculated on a gross basis and pertain to the principal, with interest removed, according to the CNB. (CNB, 2016)

Table 2:Credit quality by currency

CREDITS	TOTAL LOANS 30.09.2015. NP	PARTIALLY REFUNDABLE AND COMPLETELY UNRECEMBABLE LOANS	SHARE OF PARTIALLY RECOVERABLE AND COMPLETELY NON-RECOVERABLE LOANS IN TOTAL LOANS (%)
1. Kuna (without currency clause)	78.461.639	13.472.120	17,91
2. Euro	174.102.931	26.780.659	14,53
2.1 of which: population	62.246.465	6.292.078	9,15
2.2 of which: housing loans	30.692.122	1.559.801	4,88
3. Swiss frank	23.616.777	4.069.772	16,19
4. Population	22.020.731	3.070.221	13,31
4.1. Housing loans	20.845.865	2.654.149	12,36
4.2. Car loans	20.993	19.062	6,75
4.3. Other loans to households	1.153.873	397.010	30,22
5. Companies	1.309.009	915.836	52,94
6. Other sectors	287.037	83.716	24,60
7. Other currencies	3.049.119	704.755	31,57
IN TOTAL	279.230.466	45.027.306	17,05

Source: Author's calculation based on data from CNB.

A bank's liquidity may be described as the bank's capacity to supply adequate funds at a reasonable cost exactly when and in quantity required. One of the first signals that a bank is in financial difficulties is a lack of liquidity. At the aggregate level, banks maintained considerably higher minimum liquidity ratios (MCLs) for Kuna HRK and convertible currencies throughout 2015. Due to loan conversion preparations, the Kuna HRK ratio fell somewhat in September but rebounded by the end of the year. Several CNB actions helped to relieve strains on the money and foreign exchange markets.

Figure 12:Minimum liquidity ratio for a period of one month

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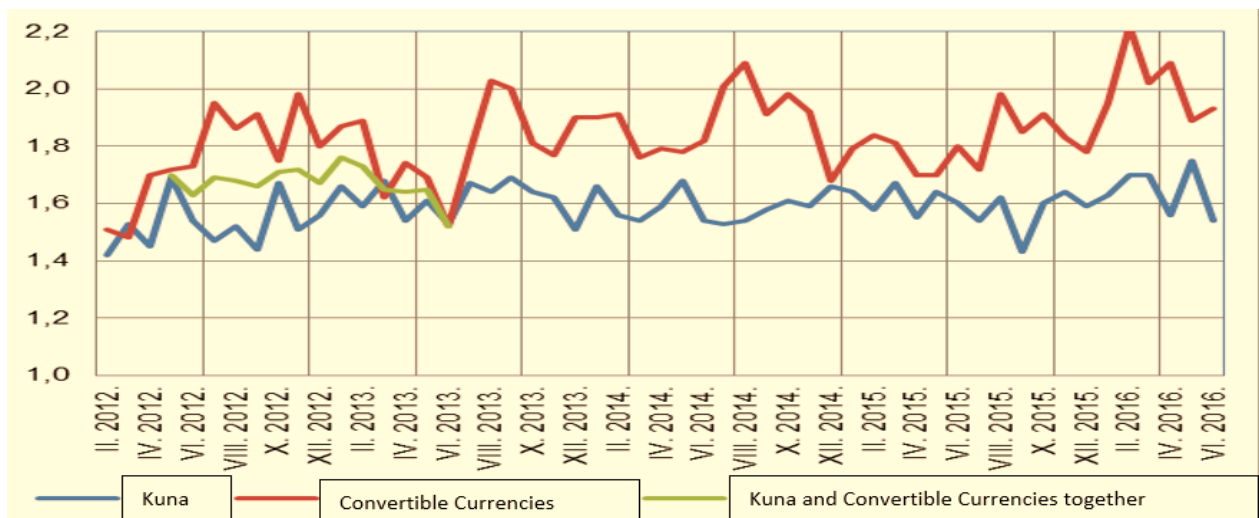
Source: CNB; Business indicators

5.2 The influence of mortgage and housing loans on banking activites

The high level of development of banks' data, methodological, and process infrastructure, as well as continuous investment in the credit risk management system, is the result of an ever better assessment of placement classification and value adjustment and the placement collection process itself. Placement collecting is a method that is functionally separate from the placement categorization and providing processes. Placements are financial assets in the form of sanctioned loans, debt instruments, and other receivables that a credit institution divides into financial instrument types following IAS 39. (Radin, 2015)

Asset quality control is carried out by competent authorities utilizing various qualitative and quantitative approaches based on accounting rules and proper risk classification. The whole loan book's portfolio is examined. To guarantee an effective starting point, the responsible authorities must validate the data's quality and accuracy and the right allocation of exposure across risk categories. (Beck, 2015)

The following factors are considered:

- Maturity

- Collateralization
- Risk categorization
- Asset classification
- Geographical allocation
- Contractual period
- Greater concentration
- Bookings
- Covering proportion

All placements are divided into three categories based on the collection potential, i.e., the expected future cash flows.

• Fully reclaimable allocations - based on the risk A; placements for which no objective evidence of impairment has been identified on an individual basis; (Radin, 2015)

• Partially recoverable placements - risk group B; placements for which objective evidence of partial impairment has been identified;

• Fully irrecoverable placements - risk group C; placements for which objective evidence of complete impairment has been identified.

Loan provisions have a considerable influence on commercial banks' profitability and regulatory capital. The primary goal of loan loss provisions is to modify the loan loss reserves of banks. Requirements are used to account for predicted future losses on bank loan portfolios. A higher level of the provision indicates a more conservative approach to possible losses. It can help minimize banks' countercyclicality by reducing the degree of negative asset volatility on their capital. (Radin, 2015)

Numerous research have proven a good association between the percentage of bad loans and changes in real GDP, but not vice versa, i.e., the covering of bad loans with provisions does not follow the same pattern.

Banks acknowledged loan losses under the loss model only after management concluded that the debt, which had been redeemed from the dead among the living through restructuring, reprogramming, and refinancing, was ultimately dead.

Figure 13:Coverage of bad loans by provisions for identified losses
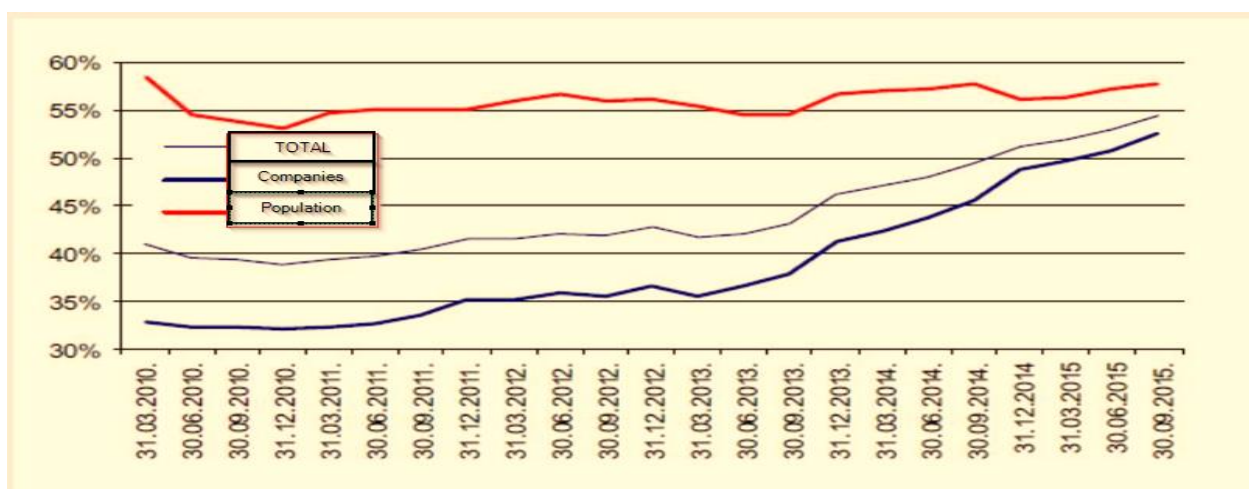
Source: CNB reviews, 2017

Because of the CNB's more demanding regulatory requirements, covering non-performing loans by value adjustments and provisions has grown more intensive since 2013. In the fourth quarter of 2014, the overall coverage rate topped 50%, and in the fourth quarter of 2016, it was 63%. The coverage rate in the corporate sector likewise completed 63 percent. (CNB, 2016)

According to analysts, the coverage of bad loans by provisions is the best compared to the absolute GDP index, where a more profound crisis should indicate the higher range.

In the case of a loss, the bank may set aside funds to cover the loss. Banks anticipate a specific amount of possible losses based on which reserves are formed. If borrowers fail to return their loans on time, the loan loss reserve is an internal insurance fund. Bank authorities need frequent supervision and assessment of the bank loan portfolio, rating each loan according to particular requirements, to establish the amounts of provisions for loan losses as precisely as possible (collateral coverage, risk, etc.). According to the Federal Governor of National Banks, loan losses are anticipated to be between 2% and 2.5 percent of existing loan receivables, depending on the quality of loans in the portfolio. (Radin, 2015)

The quantity of provisions for losses is an essential quantitative indication of the banking sector's soundness. At the macroeconomic level, requirements for most non-performing loans rise dramatically during cyclical downturns. This is why provisions for bad loans have such an enormous influence on income and capital throughout an economic cycle. The growth in real estate prices, particularly house prices, is one of the primary causes of the rising loan loss

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provisions. Moreover, multiple studies have shown a link between the financial crisis and a decrease in provisions for loan losses in the banking sector.

Figure 14:Retail loan growth rates by type
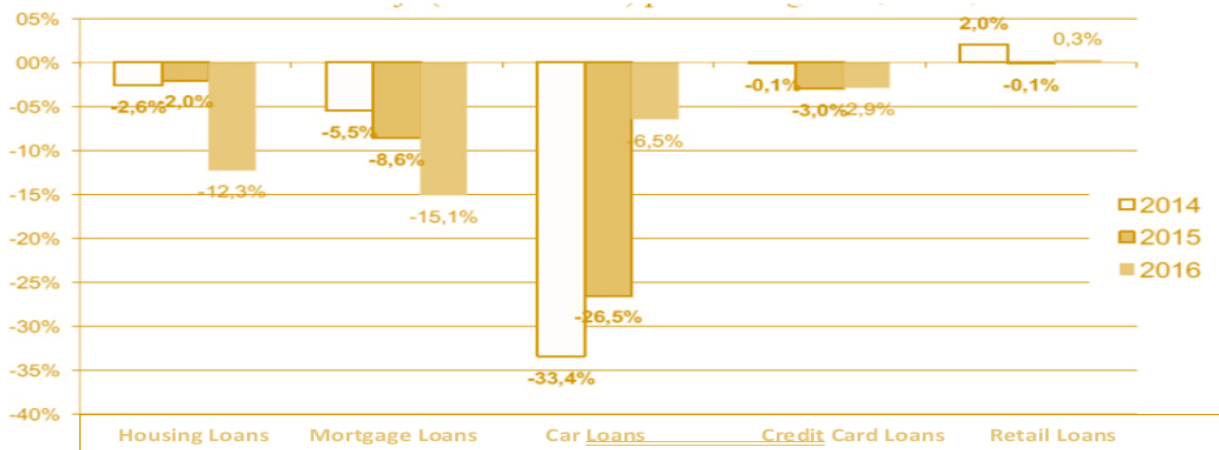
Source: Created by the author, based on CNB reports

Car loans and credit card loans declined compared to prior years, while other retail loans grew at a somewhat slower but still positive rate.

Figure 15:Coverage
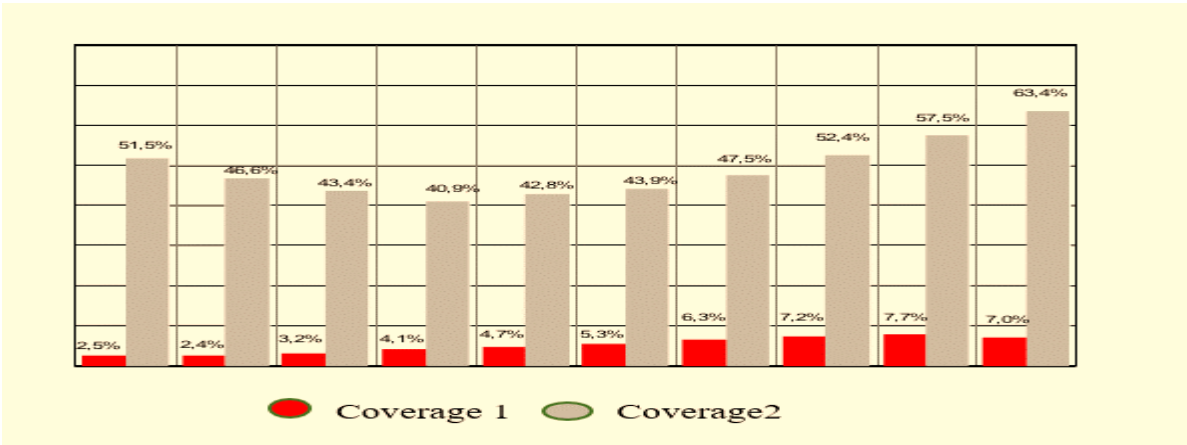
Souce: CNB; standard presentation mode

Coverage 1 = Total value adjustments and provisions / Total placements and off-balance sheet liabilities

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Coverage 2 = Value adjustments of placements and provisions for off-balance sheet liabilities / Placements and off-balance sheet liabilities of risk groups B . (Radin, 2015)

Table 3:The extent to which housing and mortgage loans are provided

Date	Volume of Housing Loans	Volume of mortgage loans	Provisions for housing loans	Provisions for mortgage loans	Profit (loss) for the current year
31.03.2021	68.852.455	1.780.081	2.929.542	412.929	434,336
31.12.2020	59.510.347	1.806.276	3.017.414	415,964	5.119.439
31.12.2019	65.767.658	2.108.633	3.307.534	483,591	-4.330.924
31.12.2018	47.711.269	2.379.405	2.516.094	461,34	2.041.160
31.12.2017	59.234.195	2.649.447	2.225.642	354,293	756,721
31.12.2016	61.409.930	2.857.310	1.263.501	212,98	2.809.466
31.12.2015	63.683.235	3.073.303	1.045.823	184,884	3.881.608
31.12.2016	60.215.339	3.283.629	752,955	225,912	3.778.831

Source: CNB data, written by the author

The highest loss was reported in 2015, following a constant consecutive increase in the percentage of housing and mortgage loan provisions. The increase in the rate of partially and entirely non-performing loans, which began in 2008, came to a halt between 2015 and the beginning of 2016.

Receivables sales significantly influenced the movement of credit quality indicators, particularly in the business sector. As a result of the conversion, there was a significant drop in housing and mortgage loans in 2016. The most profit was made during that period, and there was a noticeable decline in allowances for both housing and mortgage loans.

Provisions for loan losses occur on the balance sheet and income statement in accounting. Requirement indicates that the bank records the circumstance in its business books as if the loan for which it is reserved would not be collected, i.e., if the supplied money was lost. For example, if a bank secures HRK 100 million for bad loans, it immediately posts HRK 100 million in expenditures, reducing the value of loans and bank assets by the indicated amount. The loan's lousy state determines the number of provisions. When a loan is no longer adequately repaid, the bank decides how much its value will be reduced. If there is still a prospect of repaying the debt,

the bank will set aside 20-30% of the amount. With changes in conditions and a dwindling likelihood of loan payback, the bank raises the amount of the provision to 50-60%, depending on the estimate, until it is probable that the loan will not be repaid when 100% of the loan amount is reserved.

Motivated by the progressive nature of claims for value adjustments of non-performing placements, banks sold HRK 2.8 billion of non-performing arrangements based on the CNB's decision in 2015, corresponding to approximately 6% of their balance at the end of 2014, with more than 80% of receivables sold to companies specializing in receivable collection and management. (CNB, 2016)

Over the previous eight years, the flow of housing and mortgage loans to consumers has followed a similar pattern. The most significant amount of authorized housing loans is HRK 59,662,254, while the maximum amount of mortgage loans is HRK 3,251,271, both of which were realized in the same year, i.e., in 2011. This was followed by a steep decrease in mortgage volume and a somewhat milder decline in home loans, which lasted until the end of 2016, notwithstanding the economic recovery.

**Figure 16: Real estate prices defying gravity**

Source: CNB data

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Despite the fact that the macro-environment deteriorated in 2020, RRE prices continued to rise. Even with the probable lag between fundamentals and RE prices, this discrepancy is considerable. A few years before the epidemic, Croatia began to see a significant surge in RE costs.

The proportion of non-performing housing and mortgage loans in total loans fluctuates, although it has typically been on an increasing trend, particularly since 2011. Mortgage loans grew faster, as did the percentage of uncollectible receivables. The average rate of non-performing home loans in total loans is 6.12 percent, with mortgage loans accounting for up to 23.94 percent. This demonstrates the banks' liquidity challenge in real estate insurance in the case of mortgage loans. Real estate transactions have been poor because the real estate market is collapsing due to the crisis, and most mortgages have been uncollectible.

Figure 17:Depicts the trends in the proportion of non-performing housing and mortgage loans in total loans.

Source: HNB calculation (Croatian Bureau of Statistics, Tax Administration data)
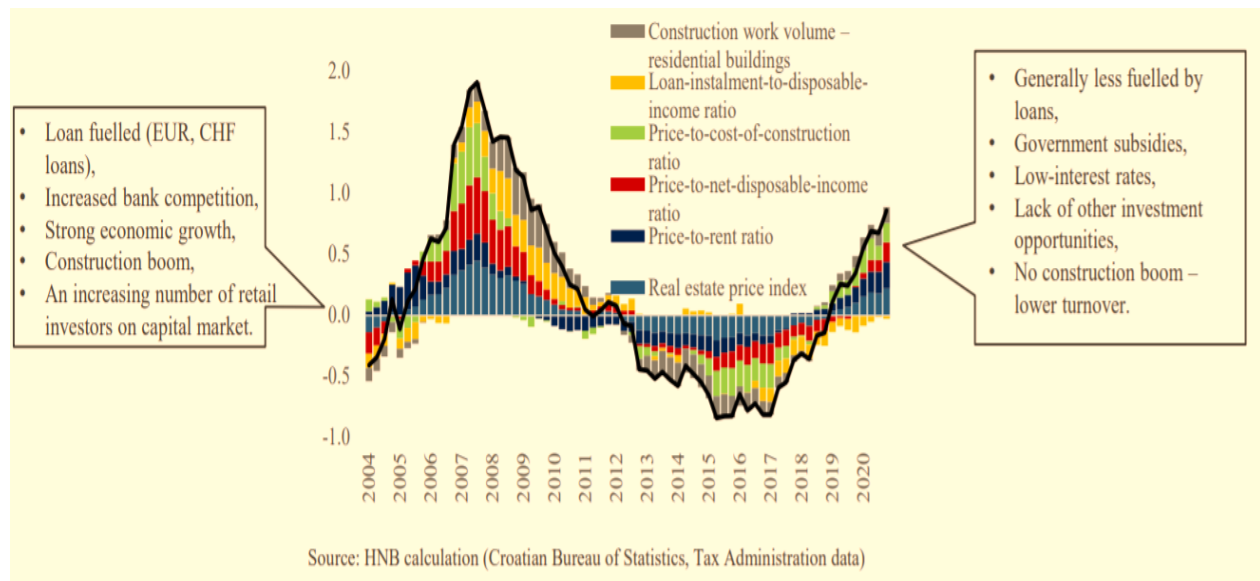
The influence of loans and their collectibility on bank operations may be seen in examining bank ROA and ROE statistics. The return on assets is far lower than the return on equity. Banks' ROA and ROE movements suggest a substantially more significant level of return per hundred units of capital than assets. The average return on assets is 0.75 percent, whereas the average return on

equity is 5.47 percent. The indicator's negative value was recorded in 2015, when banks misfunctioned, i.e., at a loss, at the market level.

The influence of non-performing loans on ROA suggests a semi-strong and negative link, implying that as the fraction of non-performing housing loans in total loans decreases, property returns should improve.

Figure 18:Shows the relationship between the ROA and ROE indicators and the percentage of non-performing housing and mortgage loans in total loans.

Correlation Coefficient	1.000	1.000**	-.567	-.600
Sig. (2-tailed)	.	.	.112	.088
N	9	9	9	9
Correlation Coefficient	1.000**	1.000	-.567	-.600
Sig. (2-tailed)	.	.	.112	.088
N	9	9	9	9
Correlation Coefficient	-.567	-.567	1.000	.983**
Sig. (2-tailed)	.112	.112	.	.000
N	9	9	9	9
Correlation Coefficient	-.600	-.600	.983**	1.000
Sig. (2-tailed)	.088	.088	.000	.
N	9	9	9	9

Source: Author's calculation

The same is true for the connection between ROE and the share of non-performing mortgages in total loans and the correlation between ROA and the percentage of non-performing mortgages in total loans and ROE and the proportion of non-performing housing in total loans. The economic theory supports the apparent logical link. However, it should be noted that the estimated correlation coefficients are at the limit of significance since the practical importance is more than 5%, which is a requirement for relevance. For improved test reliability, a longer time of analysis would be required and the determination and separation of certain additional factors on profit and return.

When banks are categorized by size and the movement of returns on assets and capital is studied, no significant variations are observed. The Mann-Whitney U test was used to conduct the study, and small and medium-sized banks were designated as class 1 and large banks as class 2 according to the test's accuracy. The test findings show that differences in return on assets across banks of different sizes are insignificant. The result was reached based on the test's practical level

of significance, which surpasses the maximum of the considerable requirements of 5% and totals 36.5 percent. The test showed the same conclusion in the case of examining the relevance of differences in return on capital based on the size of the bank. Such a result is also visible from the average return on assets and capital by banks. Four of the six large banks have a negative return, i.e., they were operating at a loss on average during that period.

Figure 19:Mann Whitney In the test - the effect of bank size on performance

Test Statistics[a]

	roa	roe
Mann-Whitney U	83.000	71.000
Wilcoxon W	579.000	567.000
Z	-.412	-.906
Asymp. Sig. (2-tailed)	.680	.365
Exact Sig. [2*(1-tailed Sig.)]	.703[b]	.385[b]
a. Grouping variable: Size of the bank		
b. Not corrected for ties		

Source: Author's calculation

For the period 2008 to 2016, the movement of ROA and ROE indicators by bank size is calculated below. In some institutions, the ROA is generally positive, while the ROE is negative. The fundamental reason for this is that the ROE indicator has a stronger negative trend in some years due to a lower denominator (capital) compared to the ROA indicator, which has a substantially bigger denominator (total assets).

Although the observed impact of the percentage of non-performing housing and mortgage loans on the return on assets and capital, i.e. on ROA and ROE, is not statistically significant, it is crucial to note that the evaluation and analysis of such analyses should take loans into consideration. During the crisis, the proportion of non-performing loans in total loans grew. This has an impact on business operations, although good loan selection and insurance can assist limit the risk of illiquidity. Other economic prospects, in addition to the quality of placements and collection regulation, influence the operations of banks.

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5.3. Bankruptcy-related rehabilitation and restructuring programs

The financial crisis was indicative of a lack of good tools to avoid insolvency and address the situation on a global scale. The Dodd-Frank Act8 was enacted in the United States to address the issue of systemic financial institutions, supplementing the powers of the FDIC (Federal Deposit Insurance Corporation). In contrast, in Europe, due to the high degree of integration of financial and other markets, the Bank Recovery Directive (Bank Recovery and Resolution Directive) entered into force on January 1, 2015, to more successful regulation and rehabilitation of banks. BRRD86's primary business objectives are as follows:

Why Increased financial stability;

- Increased trust in banks;
- Better protection for depositors;
- Better protection for public money;
- Smooth operation of the financial services internal market.

The potential of bank collapse in the economic market should not be ruled out in a society based on free competition and equality for all players. When deciding whether to resolve or liquidate a bank, the choice must be the outcome of a compromise between what is invested and what is helpful at the level of each bank.

The Directive mentioned above faces financial crises on three levels in its operations:

1. Planning and preventive

2. Prompt intervention

3. Rehabilitative measures

The first part is preparation and prevention, which consists of the drafting of bank business plans with the appropriate yearly updates that banks would implement in their operations in the case of a crisis to safeguard themselves from failure. All national resolution authorities are responsible for developing resolution plans for each bank. In contrast, the European Supervisory Authority sets technical standards, recommendations, and reports on the critical areas of recovery and resolution. Each Member State must establish an ex-ante resolution fund that can be utilized as help in the case of a bank failure (usually in the form of loans or guarantees, payments to shareholders, or to cover in certain situations).

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Early intervention enables national authorities to intervene even before a crisis occurs if they determine that the intervention is required to keep business running.

Rehabilitation can be paid for with personal cash or with money from the rehabilitation fund. When a bank's shareholders and creditors are the first to face the bank's harm and costs if the resolution procedure is implemented, we discuss resolution using their own money. After the bank's reserves have been depleted, there is funding from the resolution fund, which may be utilized only after the number of losses reaches 8% of the bank's total obligations previously imposed on shareholders and creditors. The critical issue with any resolution strategy is the presence of rotten bank assets. It is one of the primary causes of the bank's insolvency. Fully or partially written-off bank assets may be partially or entirely recovered by sale, collateral collection, debtor recovery, or takeover and restructuring of debtors.

In most situations, the start of restructuring entails a reorganization to regain competitiveness and business continuity and the rationalization of entrepreneurial operations with the goal of restructuring and quitting the business that produced the losses. The shortest possible length of time is one of the most important aspects of a successful reorganization.

5.4. The process of securitization and selling loans to other parties.

Securitization began in the US residential housing market when three government agencies focused on increasing the selling of home loans. Securitization is a critical component of the capital market's tremendous and effective operation, one of the most important phenomena in modern finance and a manifestation of financial engineering. However, it is not a resource that all banks have access to. Credit-backed securities should have a minimum bid value of $ 50 million. It allows for a more extensive spread of financial risk and frees up credit institutions' balance sheets to stimulate further lending to the economy. It also offers extra investment options and advantages to businesses and consumers in the form of lower-interest loans.The bank must isolate foreign assets (mortgage or consumer loans) and sell securities (financial receivables) relating to those assets on the open market to securitize them. Securitization is often based on highly standardized illiquid loans (housing, mortgage loans) or other receivables (credit cards, leasing, etc.). Bank loans are turned into securities that are sold on the open market. Pledged loans, which

provide the foundation for issuing mortgage bonds, are recorded in creditors' (banks') assets, whereas issued securities are recorded in liabilities.

A portion of the financial institution's assets is designated and provided as collateral for issued debt instruments subscribed for by investors. For the property to be entered, characteristics of both homogeneity and heterogeneity are recommended. Homogeneities in terms of structure is preferred, while heterogeneity in terms of receivables distribution to different economic entities is desired to determine future cash flows from such assets as efficiently as possible to determine the value of newly issued securities to disperse reduce labor risk.

The allocation, i.e., sale of sections of assets or receivables in a distinct group of assets constituted in the SPV - an independent legal company - is the basis for receivables securitization. The SPV is legally different from the original creditor or purchaser of the receivable. The risks are isolated from other hazards to which the former owner of the property is exposed. ABS refers to securities issued by SPVs (Asset-Backed Securities). ABS broadcasting began due to the necessity for recapitalization, refinancing, and the difficulty of securing conventional financing. Technological advancement, more regulation, and a high level of international competitiveness all played essential roles in further securitization.

Securitization participants include:

• Founder (the sponsor of the securitization, a bank or another lender whose debts are pooled);

• Issuer (often an independent entity that has acquired a loan for a specific purpose);

• The trustee (guarantees that the issuer will satisfy all of the criteria of the transfer to the group, as well as provide all promised services);

• Credit Rating Agency (provide information to investors and assess the security of the market position by regulated regulations).

• a Financial advisor;

• The service provider (often the issuer of the loan, collects payments on securitized loans and transfers them to the lender). (Cooper, 2008)

Other forms of securitization:

" CREDIT SECURED BONDS (CMO): • They don't keep track of the establishment of SPVs or the withdrawal of loans from the balance sheet. The principal and interest on pledged loans do not have to be paid out of the bond inflow. Loans must be held to maturity, which affects portfolio liquidity. Hence they are the least common type of securitization.

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LOAN RECEIVABLES FOR CARS: • It was developed in 1986 by First Boston Corp. Later, a combination of bonds with different maturities with different priority receivables.

LOAN SECURITIZATION OF LESS DEVELOPED COUNTRIES: • International loans made by most countries and multinational corporations that are not returned on time. Securitization is a method of clearing the portfolio and potentially lowering the expenses associated with borrowing cash. " (Rose P., 2015)

Following the subprime mortgage crisis in the United States in 2007, governmental authorities took several steps to make the securitization implementation process as secure and straightforward as feasible. The procedure included increased capital requirements, in-depth analyses, and mandated risk retention requirements to prevent securitized goods from being distributed to investors.

The average annual growth rate of securitized goods was 36.1 percent from 2001 to 2008. Then, from 2009 to 2014, there was a 13.4 percent decline in the number of securitized items, which was noted as a turning point. One of the primary reasons for the disparity in securitization between the US and the EU is the US government's support for securitization. Covered bonds are a liability of the issuing bank and need a greater level of collateral than securitization.

Figure 20: Securitization in the United States
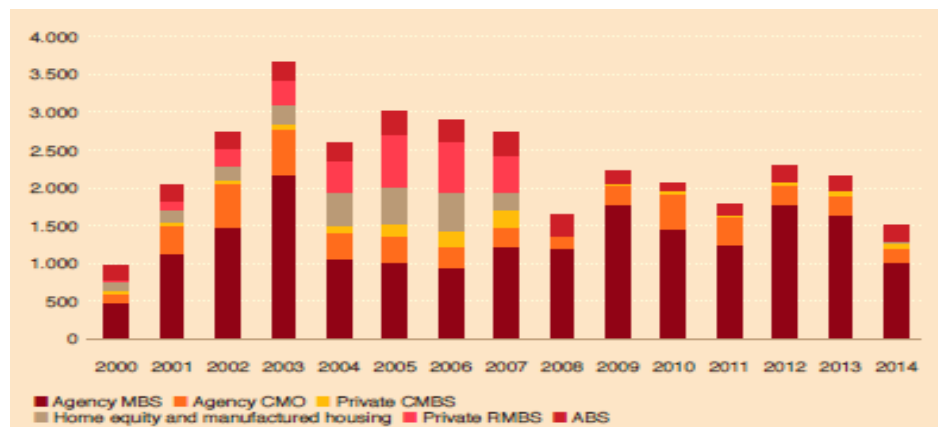
Source: Capital market union (2015): Integration of Capital Markets in the European Union

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Loan sale refers to the transfer of receivables from authorized loans to a new owner, most commonly another bank. Loan sales and securitization allow for the rejection of non-performing assets, making room for new investments that offer better returns. Large loans are the topic of the sale (over one million USD). Typically, such procedures are carried out during a period of rising interest rates. In this manner, the bank removes interest rate risk from its operations' balance sheet, eliminates credit risk, and opens the prospect of producing money from fees in advance. The credit sales industry expanded throughout the 1980s due to a significant wave of mergers and corporate purchases, resulting in thousands of loans to fund high-interest transactions (HTL). The slowdown in mergers and corporate buyouts during the 1990s and the tightening of banking regulations to accept this type of credit led to a drastic reduction in the market.

When selling loans, the bank, like any other business, confronts various risks at various levels. The best-quality loans will likely be the first to hit the resale market, resulting in a weaker loan portfolio and increasingly volatile bank profitability. Such trends pique the interest of banking authorities and highlight the necessity to boost capital requirements.

A loan sold by one bank to another can easily be as terrible as a loan made directly by the originating bank to its clients. The purchase of an existing loan requires the acquiring bank to examine both the selling bank's and the borrowing entity's financial status.The effect of a solid cyclical element was indicated while selling loans. There may be an oversupply of loans during years of economic boom and a surge in the number of loans. Yet, in other nations and periods, the volume of commercial loans may decline dramatically, particularly during a recession.

5.5 2021 Year-to-Date Real Estate Market Review

The 2021 real estate market has turned heads! When we began to emerge from the COVID lockdown in the second half of 2020, the real estate market began to buzz with activity. 2020 turned out to be a solid real estate year, thanks to cheap mortgage rates and many COVID-influenced movements due to remote working and retirement. Who would have predicted that a worldwide epidemic would have such a significant impact on real estate demand? Many individuals opted to retire and leave the state. Many people moved from one state to another. A substantial part of purchasers who were no longer anchored by their commute followed their hearts to the suburbs and more rural areas.

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Seasonality has always impacted the market, and it will continue to do so in 2021. The first quarter of the year often sees the fewest new listings as sellers emerge from the short, dark days with damp yards and projects on their to-do lists to ready their properties for the spring market. Homes sold in the first quarter of 2021 had above-average returns above the list price. The average list-to-sale price ratio in Snohomish County in March was 108 percent, while in King County, it was 106 percent. As I previously stated, nearly instant price increase created new property values in our neighborhoods.

When the seasonal spring listings appeared, and buyers had more options, the price gains rose! The traditional law of supply and demand compares the quantity of supply to order, yielding a value. In the 2021 spring market instance, the increase in supply was insufficient to satisfy demand, causing prices to rise. The most extraordinary list-to-sale price ratios were recorded from March through June, peaking at 110 percent on average in April in Snohomish County and 108 percent in May in King County.

5.6 The asymmetrical impact of the pandemic on real estate

Despite the pandemic having spared no state or city, its impact on US property markets and industries is now markedly different from that of the previous recovery. Because of this discrepancy, other businesses, such as industrial properties, have hardly slowed as a spike in online spending stimulated tenant demand. The same is valid for multifamily buildings, with tenant demand growing and rents returning to historic highs across most countries.

Despite this spike, the pandemic has hastened the retail property sector's lengthy decline, with shop closings and vacancies increasing. The only exceptions are grocery-anchored shopping areas, dollar stores, and home improvement businesses, which are all booming. Unsurprisingly, the office sector is undergoing a significant transformation, with radically varied outcomes depending on location and if a building has flexible layouts and superior ventilation systems. Nonetheless, job openings are expected to continue to rise.

Vacation travel is on the mend, and hotels within easy driving distance of population centers appear to be reaping some of the most substantial advantages. However, commercial and international travel may take years to recover to pre-COVID-19 levels. This would impact hotels, luxury shopping, and expensive eating, which are frequently driven by business expense accounts.

The epidemic accentuated a long-term movement away from pricey downtown marketplaces and smaller, more inexpensive ones. As a result, organizations must remain agile. Uncertainty may be a blessing or a burden.

6. CONCLUSION

Banks are the modern world's most important financial institutions. Instability in the financial sector contributes to global instability. The aftereffects of the 2008 global financial crisis are still being felt today.

Many theorists have investigated the influence of cyclical changes on the economy throughout history. Despite diverse ideas and theses, they have all regarded them as vital aspects impacting the financial stability of all market players. The measurement of the correlation coefficient between credit placements and the proportion of non-performing loans demonstrated that banking operations are pro-cyclical.

Banking activity at all levels decreases during crises. Banks are tightening corporate regulations and processes to ensure safer operations, resulting in a reduced volume of granted bank loans. The inability to repay the loan under the stated terms raises the proportion of non-performing loans. Bad loans cause disruptions in a bank's balance sheet and economic situation, and the bank attempts to decrease them through various steps to function as successfully as feasible. Loan provisions have a considerable influence on commercial banks' profitability and regulatory capital. The primary goal of loan loss provisions is to modify the loan loss reserves of banks. The movement of non-performing loans reflects the economy's cyclical ups and downs. When the economy is expanding, the loan volume grows quicker, and the rate of non-performing loans falls, but when the economy is contracting, the loan volume declines, and the rate of non-performing loans rises. Housing and mortgage loans take up a large portion of a bank's balance sheet. They have a considerable influence on company performance, as evidenced by the computation and analysis of profitability factors in banking operations. The correlation and greater or lesser influence of chosen variables on bank operations are demonstrated by the paper's ratio of bank loans and selected macroeconomic variables. The calculation has shown that the consumer price index had the most considerable influence on home loans as an independent variable. Housing loans have the strongest association with reserves and total government debt, but mortgage loans have a stronger correlation with accounts and trade balance.

Total credit institution assets grew by HRK 8.2 billion (1.8 percent) from the end of 2020 to HRK 470.7 billion in the first quarter of 2021. Deposits with the Croatian National Bank and loans provided increased the most.

Real estate and credit demand, stressing that the expansion of the link between these variables cannot be sustained owing to the emergence of market bubbles, the bursting of which causes shocks that are significant drivers in the crisis.

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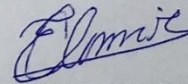
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