Housing Loans Determinants before and during Financial Crisis

Josip Visković, Ana Rimac Smiljanić, Ines Ivić

Abstract—Housing loans play an important role in CEE countries' economies. This fact is based on their share in total loans to households and their importance for economic activity and growth in CEE countries. Therefore, it is important to find out key determinants of housing loans demand in these countries. The aim of this study is to research and analyze the determinants of the demand for housing loans in Croatia. In this regard, the effect of economic activity, loan terms and real estate prices were analyzed. Also, the aim of this study is to find out what motivates people to take housing loans. Therefore, primarily empirical study was conducted among the Croatian residents. The results show that demand for housing loans is positively affected by economic growth, higher personal income and flexible loan terms, while it is negatively affected by interest rate rise.

Keywords—CEE countries, Croatia, demand determinants, housing loans.

I. Introduction

COMMERCIAL banks play an important role in the process of money transfer from surplus to deficit sector and thereby stimulate economic growth of a country. Loans are the most famous and perhaps the most important service provided by commercial banks. In the banking business, lending to the private sector plays a significant role, particularly lending to households where the most significant role is played by housing loans, which also contributes to economic growth due to its direct and indirect effects. Given the housing loans growth before the crisis, considering their share in total lending, and the importance of the real estate market to CEE countries' economies, it is important to find out determinants of housing loans demand. The aim of this paper is to theoretically and empirically analyze the determinants of the demand for housing loans in Croatia. The research will find out how the real economic activity in country, credit conditions and real estate prices affect housing loans demand. In this paper we will also analyze what motivates people to take housing loans and the impact of the economic crisis on the demand for housing loans.

II. Theoretical Background

Over the past few years, retail lending has significantly increased in most countries of Central and Eastern Europe

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(CEE) with housing loans been the most prominent type of loan. In the pre-crisis period, the rapid growth of housing loans in CEE countries was a result of increased demand for housing, which among other things was initiated by GDP growth, high level of employment and higher income of the population. The growth of income levels spurred demand for better housing conditions, especially with regard to poor housing conditions, which were present in CEE countries. Liberalization of the banking system in CEE countries and entrance of foreign banks, mainly from EU countries, resulted in more competition and race for a share in a growing, profitable and fairly low-risk housing loans market. During this process, more diversified credit instruments become available, now with lower cost, longer maturities and more flexible terms. Thus, increased demand for housing loans was largely due to a more favorable interest rates and more flexible loan terms.

The loan amount to households in the region almost doubled from 12.3% of GDP at end-2004 to 22.5% of GDP by the end of 2007. Among the various categories of loans to households housing loans have been growing dynamically - up to 6% of GDP in average between late 2004 and the end of 2007. In addition, expansion was greater in countries that have started with a lower level of housing loans [1]. Among CEE countries, the share of housing loans increased dynamically in Bulgaria, Poland, Romania and Slovenia, and in those countries where housing loans represented comparatively small share of total household loans in the 2004th [2].

In several CEE countries, the rise in real estate prices kept pace with the increasing volume of housing loans and these two have mutually stimulated growth. High expectations of future growth in property prices has contributed to the increase in demand for housing loans, resulting in higher demand for real estate, whose offer was not large enough to meet demand. That created additional pressure on property prices. The existence of such a relationship is supported by the empirical evidence [3], which suggests that the growth of housing loans plays an important role in the dynamics of real estate prices. Furthermore, real estate prices raise the value of the collateral, which allows households to take more loans. In some countries, the system of housing subsidies and favorable tax treatment of housing loans (e.g. In the Baltic countries, the Czech Republic, Slovakia, Hungary) have also contributed to the demand growth for housing loans [4].

The rapid growth of housing loans in CEE countries received a new dimension since mid-2007, when the problems in the American real estate market began to culminate and indicate the start of the financial crisis. Due to the crisis, there

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was an increase in unemployment and in interest rates on housing loans, especially those denominated in foreign currencies. This reflected on the income of households and a growing number of citizens of CEE countries were no longer able to repay the loan. However, despite the fact that banks have tightened lending standards, the volume of housing loans is still stable in CEE countries and represents the largest share of total household loans [5].

Within the research and analysis of the loan to the private sector demand determinants, the housing loan movement is also taken into consideration [6]–[13]. A study conducted in the Netherlands shows that the household sector demand for loans is under the influence of disposable income, consumption, bank interest rates and real estate prices [6]. There is empirical evidence that the increase in demand for loans of commercial banks is positively correlated with the growth of economic activity [7]. Results of a study conducted in Spain showed that the demand for loans is affected by the general level of economic activity and interest rates [8]. Studies from other countries confirm the effect of real GDP, short-term market interest rates and house prices on housing loans in Belgium, Germany, Spain, France, Ireland, Italy, the Netherlands and Finland [9]. A study conducted in the euro zone shows that demand for loans of the private sector is positively correlated with GDP and negatively correlated with interest rates [10]. Studies conducted in [11] show Croatia show that the demand for loans is positively affected by GDP growth, consumption growth, wage growth and rising real estate prices, and negatively by rising interest rates. However, among the weighted average interest rates determinants, average net wages as determinants of income and wealth index, the strongest impact on demand for loans to households has the wealth effect [12]. Reference [13] shows multicorrelation between real estate prices, money, credit to the private sector and macroeconomic variables has been noticed, as well as strong influence of real estate prices on the demand for loans.

The level of economic activity has a positive effect on the demand for housing loans. Namely, economic growth results in revenue increase of private sector which is now able to borrow more i.e. it has possibility to buy new, bigger and better real estates. In addition, the revenue growth increases the standard of living, and people are prone to buying bigger and more beautiful properties located in superior locations. The level of economic activity is analyzed by gross domestic product, income, wages, employment and household consumption.

In the period from 2000 to 2006 there has been a growth in housing affordability, and the indicator has ranged from 24.7% to 19.1%. In the same period there was an increase in gross domestic product per capita. In 2007, this trend has reversed and in 2007 and 2008 there was a decrease in housing affordability. Analyzing gross salary as a measure of income in Croatia affordability of housing in the period from 2000 to 2006 increased, while in 2007 and 2008 it began to decline [14].

Reference [15] data show that GDP recorded positive growth rates of around 5% from 2003 to 2008, after which a negative growth rate of GDP in the years from 2008 to 2013 was recorded. Unemployment rate decreased from 2003 to 2008 from 14.3% to 8.4%, while it has risen in 2012 to 15.8%. The volume of housing loans increased at a high rate in the period from 2003 to 2007, being followed by the sharp slowing growth, and in recent year it is in stagnation. Annual growth rates of housing loans were 22.5% in 2007 and 15.6% in 2008. In 2009, the amount of housing loans increased by only 1.2% compared to the previous year. In 2012, there was a slight recovery in the housing loan with an annual growth rate of 4.5%.

Moreover, more flexible credit conditions have a positive effect on the demand for housing loans. Interest rates on housing loans were negatively associated with the demand for housing loans. Increase in the cost of loan or interest rates on housing loans increase, decreases the demand for housing loans. Surging interest rates on housing loans increased monthly annuity i.e. interest rate rise the cost of interest on the principal and within the same annuity the share of interest increases, and of principal decreases resulting higher amount of loan that is to be repaid. The loan ultimately costs more.

In the period from 2000 to 2008 a convergence and harmonization of interest rate movements cycle has been noted. Also, due to financial integration, interest rates on housing loans in transition economies have decreased. Interest rates range on housing loans decrease from 12%-18% in 2000, to 4%-8% level in 2006. In 2007 there was an increase in interest rates as a result of the global interest rates movement turnaround, as in [14]. This trend has continued until today. Therefore, it can be noticed that the cost of housing loans with regard to interest rates declined in the period from 2000 to 2006, and that the housing loans were cheaper. In 2007 the trend of price increases of housing loans started. Interest rates on loans in kuna ranged in smaller intervals. In 2000 they were at 13% and since then they have gradually cut and reached its lowest level of 7-9% in 2007 [15]. After growth in 2009 to 11%, in the second half of 2011 it decreased to 9% and remained at that level until the end of 2013. Interest rates on housing loans denominated in foreign currency decreased from 8.8% in 2002 to 4% in 2006 when they recorded the lowest level and have remained stable in 2007. Since 2008 there has been increasing trend and have retained at 6% by the end of 2010. In 2011 they have fallen to an average of 5.5% and remained stable until the end of 2013.

Banking standards and conditions for lending housing loans are also negatively correlated with the demand for housing loans. As banking conditions tightens, the demand for housing loans is lower. Entrance of foreign banks in CEE countries, including Croatian, lower banking credit conditions and made loan request more flexible, which had a positive effect on the demand for housing loans [1]. Reference [16] show that recession negatively affected the banks and that they have tightened their standards and terms for housing loans.

III. RESEARCH DESIGN AND RESULTS

Research presented in this paper was conducted by using

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primary and secondary data. The primary empirical research was conducted among residents of Croatia. The sample consists of residents who have taken housing loan in last ten years and those who plan to borrow it in the future. To collect primary data a questionnaire was created. Formulated survey consisted of forty-five questions divided into five groups. The first group of questions consisted of demographic characteristics of the respondents questions such as gender, age, education, family status, employment status and income. The second group of questions revealed the status of respondent, considering the ownership of the property where they now live and their plan and reasons to buy a property in future. The third group of questions related to subjects who have taken housing loan in last ten years. The intention was to explore the respondents' motivation to borrow. The next set of questions concerned the respondents who intend to take housing loan in future. These questions were aimed to find out what determines their decision to take such a loan. The last set of questions related to the perceptions and opinions of respondents on banking requirements and conditions for housing loans. 73 completed questionnaires were collected, and the rate of return of 73% represents a satisfactory return for this type of research. The data were analyzed by statistical software SPSS and the results were analyzed by using descriptive statistics and non-parametric tests.

Table I shows the results of the respondents' evaluation of motives when taking a housing loan. Respondents evaluated that they have been largely motivated by the claim that their job is secure and/or will be better and that the total household income will remain stable and/or will grow.

TABLE I
ANALYSIS OF MOTIVES TAKING A HOUSING LOAN

Statistics	N	Mean	Std. Deviation
I thought that interest rates will not rise	43	4,26	,875
I thought that the credit conditions will remain mild	43	3,63	1,047
I thought that my job is secure and/or will be better	43	4,60	,541
I thought that the total household income will remain stable and/or will grow	43	4,60	,495
I thought that the economic situation will be better	43	3,93	,985
I thought that is more profitable repaying the loan and live in my own property, than being a tenant	43	4,56	1,076

The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

They also evaluate that they were in a very large extent motivated by the fact that is more profitable repaying the loan and living in their own property, than being a tenant, and with assertion that interest rate will not rise. These statements are probably consequence of the growing gross domestic product, growth in employment and income of households and the reduction of interest rates on housing loans, which was present in the period since 2004. The result of these trends has been creation of households' optimistic perception that the positive trends will continue in the future and creating a sense of security and confidence.

Further analysis revealed a statistically significant difference between the claims about respondents' attitude that the total income of households will remain stable and/or will grow ($p \leq 0.10$) and that it is more profitable repaying the loan and live in their own property, than being a tenant ($p \leq 0.05$) considering the respondents age. The youngest age group, under 29 years of age, assessed stability and/or growth of total household income with highest rates. It is obvious that the younger respondents had a more optimistic perception of the economic future of the country, rather than the older respondents who were more realistic in their expectations. Likewise, the claim that it is more profitable repaying the loan and live in their own property, than being a tenant, was rated highest by the respondents of the youngest age. This result is expected, considering the fact that the youngest respondents do not have their own property and are in the live phase when they are starting an independent life, have just employed, they are starting a family and as a result of that they want to solve their housing problem. In relation to the other claims the evidence of statistical differences considering the age of the respondents haven't been found (Table II and Table XII in appendix).

TABLE II
EVALUATION OF MOTIVES OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS AGE

Test Statistics (a,b)	I thought that the total household income will remain stable and/or will grow	I thought that is more profitable repaying the loan and live in my own property, than being a tenant
Chi-Square	6,065	11,650
Df	3	3
Asymp. Sig.	,100	,009

a) Kuskal Wallis test
b) Grouping Variable: Age of the respondents. The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE III
EVALUATION OF MOTIVES OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Test Statistics (a,b)	I thought that the economic situation will be better
Chi-Square	9,128
Df	3
Asymp. Sig.	,028

a) Kuskal Wallis test
b) Grouping Variable: Education level of the respondents. The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

Considering the respondents education level, there is a statistically significant difference between the claims about respondents' attitude that the economic situation will be better ($p \leq 0.05$). Respondents with secondary education assessed this claim with the highest rates, while respondents with higher level of education assessed this claim with slightly lower rates. This can be interpreted that the more educated people are exposed to a greater flow of information on the economic and political situation of the country and they take optimistic forecasts and information with a caution, as opposed to less educated respondents who are not in line with information and

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are more inclined to believe in optimistic forecasts which they are exposed. In relation to the other claims the evidence of statistical differences considering the education level of the respondents haven't been found (Table III and Table XIII in appendix).

The following set of questions in the questionnaire was related to assessment of the importance of individual variables that affect the decision of using a housing loan (Table IV). Respondents evaluated that level of income, level of interest rate on housing loan, current property prices, and loan foreign currency denomination have the highest impact when deciding on taking a housing loan. Expertise and kindness of bank employees, level of bank fees for loan approval and length of the approval process of housing loan proved less important.

TABLE IV
ANALYSIS OF THE IMPACT ASSESSMENT OF INDIVIDUAL CLAIMS ON THE DECISION OF TAKING A HOUSING LOAN

Statistics	N	Mean	Std. Deviation
The possibility of obtaining special conditions for clients who are long-time clients	73	4,00	,764
Security/trust in banks	73	4,08	,829
Expertise and kindness of bank employees	73	2,56	,850
Advices and information about housing loans obtained from the bank employees	73	3,78	1,070
Inflation	73	3,55	1,119
Foreign currency denominated loans	73	4,58	,665
Economic security	73	4,33	,708
Level of income	73	4,92	,277
Level of expenditures for household consumption, excluding expenditures for housing	73	4,05	,970
Perspective of the property market	73	4,12	,865
Current property prices	73	4,64	,537
Level of interest rates on housing loans	73	4,88	,331
Length of the approval process of housing loan	73	3,12	1,142
Required level of collateral	73	3,40	,893
Level of bank fees for loan approval	73	2,89	1,113

The survey participants were supposed to assess given claims according to their importance while taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE V
EVALUATION OF THE IMPACT ON THE DECISION OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS AGE

Test Statistics (a,b)	Level of interest rates	Level of income	Required level of collateral	Height of bank fees for loan origination
Chi-Square	7,212	10,424	9,350	9,284
Df	3	3	3	3
Asymp. Sig.	,065	,015	,025	,026

a) Kuskal Wallis test
b) Grouping Variable: Age of the respondents. The survey participants were supposed to assess given claims according to their importance while taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

Further analysis provides a more detailed view on the perception of respondents about the importance of certain variables when deciding about taking a housing loan. The results in Table V show that there is a statistically significant difference between interest rate (p≤0.10), income level (p≤0.05), required level of collateral (p≤0.05) and level of bank fees (p≤0.05) considering the respondents age. People aged up to 29 years, evaluated all of those variables with

higher rates than the older age groups. Such rates are expected considering that the youngest age group has the least job experience, lower wages and less savings than the older age groups. Therefore, each of these variables is extremely important for them. However, all age groups evaluated income level as most significant variable that influences their decision when taking a housing loan (Table XIV in appendix).

Table VI shows statistically significant differences between economic security (p≤0.05), current property prices (p≤0.05) and interest rate (p≤0.10) considering the respondents education level. Respondents of all education levels assessed all three variables with very high rates. However, the highest total average rate is assigned to interest rate, which means that respondents perceived interest rate as the most important variable when deciding about a housing loan (Table XV in appendix).

TABLE VI
EVALUATION OF THE IMPACT OF CERTAIN CLAIMS ON THE DECISION OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Test Statistics (a,b)	Economic security	Current property prices	Level of interest rates
Chi-Square	10,969	9,420	7,295
Df	3	3	3
Asymp. Sig.	,012	,024	,063

a) Kuskal Wallis test
b) Grouping Variable: Education level of the respondents. The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

The results in Table VII indicate that there is a statistically significant difference between the interest rate (p≤0.10), economic security (p≤0.05), level of expenditures for household consumption, excluding expenditures for housing (p≤0.05) and perspective of the property market (p ≤0.05) considering the total household income of respondents.

TABLE VII
EVALUATION OF THE IMPACT OF CERTAIN CLAIMS ON THE DECISION TAKING A HOUSING LOAN CONSIDERING THE TOTAL HOUSEHOLD INCOME OF RESPONDENTS

Test Statistics (a,b)	Level of interest rates	Economic security	Level of expenditures for household consumption, excluding expenditures for housing	Perspective of the property market
Chi-Square	8,925	12,663	11,654	12,150
Df	4	4	4	4
Asymp. Sig.	,063	,013	,020	,016

a) Kuskal Wallis test
b) Grouping Variable: Total household income of the respondents. The survey participants were supposed to assess given claims according to their importance while taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

The level of interest rate is the most important variable for respondents of all income levels. Economic security is also perceived as a very important with respondents with lower levels of income perceiving it more significant. The economic security people associate with job security, stability of income and prices, so people with lower income levels assessed it as

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more significant. Also, the level of expenditures for household consumption, excluding expenditures for housing, respondents with lower income levels assessed with higher rates, which confirms that they are very sensitive to the costs and cash expenditures of any kind. Perspective of the property market is assessed with the highest rates by respondents with the highest income level, which can be understandable considering the level of their income and assumption that they invest excess of their funds, among others, in properties (Table XVI in appendix).

The last segment of questions in the survey was related to the evaluation of banking requirements for housing loans approval and the results are shown in Table VIII.

TABLE VIII
EVALUATION ANALYSIS OF BANKING REQUIREMENT FOR APPROVAL OF
HOUSING LOAN

Statistics	N	Mean	Std. Deviation
Standards for approval of housing loans are too strict	73	4,23	,736
Bank fees for housing loans approval are too high	73	3,36	1,098
Required ratio of the loan amount and collateral is too high	73	3,79	,912
Loan approval process takes too long	73	3,59	,955
Interest rates on housing loans are too high	73	4,77	,566

The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: disagree - 1, mostly don't agree - 2, neither agree nor disagree - 3 mostly agree - 4, completely agree – 5.

The level of bank fees for housing loans, duration of a loan approval process and required ratio of the loan amount and collateral are being rated as relatively acceptable, interest rates on housing loans are considered as too high and housing loans approval terms too strict. The results are in accordance with banking trends in the housing loans sector i.e. negative trend is caused by the financial crisis which resulted in significant interest rates increase, particularly on foreign currency denominated housing loans, and which resulted in tighten terms when housing loans lending.

Results presented in Table IX show that there is a statistically significant difference between the claim that the required ratio of the loan amount and collateral is too high considering the age of the respondents (p≤0.05). The youngest age group assessed the required ratio of the loan amount and collateral too high. The reason of such a perception probably lies in the fact that respondents from this age group still largely don't possess their own property and therefore they perceive any request for collateral to be excessive. Moreover, the fact that there is a possibility that the property will be taken from them in a case of not repaying a loan makes them uncomfortable (Table XVII in appendix).

According to the results in Table X, it is evident that there is a statistically significant difference between the claim that the standards for approval of housing loans are too strict (p≤0.05), that the bank fees for housing loans approval are too high (p≤0.05), the required ratio of the loan amount and collateral is too high (p≤0.10) and that the interest rates on housing loans are too high (p≤0.05) considering the respondents education level. All claims are assessed with the highest rates

by respondents with the lowest level of education i.e. with secondary education, while the last claim which is related to the interest rates is assessed with highest overall average rate, which means that the respondents of all education levels assessed interest rates as too high (Table XVIII in appendix).

TABLE IX
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN
CONSIDERING THE RESPONDENTS AGE

Test Statistics (a,b)	Required ratio of the loan amount and collateral is too high
Chi-Square	7,983
Df	3
Asymp. Sig.	,046

a) Kuskal Wallis test
b) Grouping Variable: The age of the respondents. The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE X
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN
CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Test Statistics (a,b)	Standards for approval of housing loans are too strict	Bank fees for housing loans approval are too high	Required ratio of the loan amount and collateral is too high	Interest rates on housing loans are too high
Chi-Square	18,609	9,686	6,905	10,718
Df	3	3	3	3
Asymp. Sig.	,000	,021	,075	,013

a) Kuskal Wallis test
b) Grouping Variable: Education level of the respondents. The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE XI
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN
CONSIDERING THE PERSONAL MONTHLY INCOME OF RESPONDENTS

Test Statistics (a,b)	Standards for approval of housing loans are too strict	Bank fees for housing loans approval are too high	Required ratio of the loan amount and collateral is too high
Chi-Square	15,828	22,057	7,883
Df	4	4	4
Asymp. Sig.	,003	,000	,096

a) Kuskal Wallis test
b) Grouping Variable: Personal monthly income of the respondents. The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

Table XI shows that there is a statistically significant difference between the claim that the standards for housing loans approval are too strict (p≤0.05), that the bank fees for housing loans approval are too high (p≤0.05) and that the required ratio of the loan amount and collateral is too high (p≤0.10) considering the personal monthly income of respondents. All of these banking requirements are assessed with the highest rates by respondents with the lowest personal monthly income (0-5000 HRK, circa 0-700 €), while the claim which was related to standards for housing loan approval is assessed with the highest overall average rate, which means that all respondents, regardless of the amount of personal

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monthly income, assessed standards for housing loans as too strict (Table XIX in appendix).

Comparing the results of statistical testing of perception of banking requirements for loan approval in relation to the education level (Table X) and the amount of personal monthly income of respondents (Table XI), it can be conclude that there is a correlation between education level and personal monthly income of respondents in relation to the perception of banking requirements for loan approval. The fact is that the respondents with lower education level have a lower monthly personal income compared to those with higher education. Consequently, respondents with less education and lower incomes evaluated banking requirements for loan approval more stringent than the respondents with higher level of education and higher incomes. Respondents with lower incomes are more sensitive to any additional cost which housing loans carry, including banking fees for housing loans approval which are considered as too high, while respondents with higher incomes are less sensitive to the cost of banking fees, because they perceived it as a one-time expense which will not have too much impact on their living standard. All respondents, regardless of the amount of personal monthly income and education level, evaluated standards for housing loans approval as too strict, and interest rates on housing loans too high. As already noted, such a perception of respondents is expected considering financial crisis and banks tightening credit practices.

IV. CONCLUSION

This paper studied the determinants, including the macroeconomic and personal variables, of the housing loans demand in Croatia. The results of empirical research show that higher economic activity is positively correlated with housing loans demand. Also, respondents perceived economic security, income level and the amount of household consumption one of the most important factors of demand for housing loans. Furthermore, lenient credit terms have a positive effect on the housing loans demand. Banking standards and conditions for housing loans approval, primarily the level of interest rates on housing loans, the level of bank loan fees and required collateral, were all identified as relevant variables. Also, it can be concluded that the level of interest rates, together with income level, is the most important variable that motivates people to take a housing loan. Property prices and prospects of the property market also play an important role in the demand for housing loans, but this factor has a minimal impact on the decision of the respondents to take a housing loan.

APPENDIX

TABLE XII
EVALUATION OF MOTIVES TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS AGE

Age		I thought that the total household income will remain stable and / or will grow	I thought that is more profitable repaying the loan and live in my own property, than being a tenant
1-29 years	Mean	5,00	5,00
	N	5	5
	Std. Deviation	,000	,000
30-39 years	Mean	4,48	4,91
	N	23	23
	Std. Deviation	,511	,288
40-49 years	Mean	4,78	4,11
	N	9	9
	Std. Deviation	,441	1,764
50-59 years	Mean	4,50	3,50
	N	6	6
	Std. Deviation	,548	1,378
Total	Mean	4,60	4,56
	N	43	43
	Std. Deviation	,495	1,076

The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE XIII
EVALUATION OF MOTIVES OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Education		I thought that the economic situation will be better
secondary education	Mean	4,50
	N	8
	Std. Deviation	,756
college education	Mean	3,80
	N	5
	Std. Deviation	1,304
university education	Mean	3,52
	N	21
	Std. Deviation	,873
master/ doctorate	Mean	4,44
	N	9
	Std. Deviation	,882
Total	Mean	3,93
	N	43
	Std. Deviation	,985

The survey participants should evaluate offered claims about the motives of taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

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TABLE XIV
EVALUATION OF THE IMPACT OF CERTAIN CLAIMS ON THE DECISION OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS AGE

Age		Level of interest rates	Level of income	Required level of collateral	Height of bank fees for loan origination
	Mean	4,94	5,00	3,76	3,53
1-29 years	N	17	17	17	17
	Std. Deviation	,243	,000	,752	1,007
	Mean	4,78	4,97	3,47	2,61
30-39 years	N	36	36	36	36
	Std. Deviation	,422	,167	,971	1,248
	Mean	4,36	4,73	2,91	3,09
40-49 years	N	11	11	11	11
	Std. Deviation	,809	,467	,701	,539
	Mean	4,56	4,78	3,00	2,56
50-59 years	N	9	9	9	9
	Std. Deviation	,726	,441	,707	,726
	Mean	4,73	4,92	3,40	2,89
Total	N	73	73	73	73
	Std. Deviation	,534	,277	,893	1,113

The survey participants were supposed to assess given claims according to their importance while borrowing a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE XV
EVALUATION OF THE IMPACT OF CERTAIN CLAIMS ON THE DECISION OF TAKING A HOUSING LOAN CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Education		Economic security	Current property prices	Level of interest rates
	Mean	4,55	4,73	4,91
secondary education	N	22	22	22
	Std. Deviation	,671	,456	,294
	Mean	4,71	4,14	5,00
college education	N	7	7	7
	Std. Deviation	,488	,378	,000
	Mean	4,03	4,73	4,91
university education	N	33	33	33
	Std. Deviation	,728	,517	,292
	Mean	4,55	4,55	4,64
master / doctorate	N	11	11	11
	Std. Deviation	,522	,688	,505
	Mean	4,33	4,64	4,88
Total	N	73	73	73
	Std. Deviation	,708	,537	,331

The survey participants were supposed to assess given claims according to their importance while taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

TABLE XVI
EVALUATION OF THE IMPACT OF CERTAIN CLAIMS ON THE DECISION TAKING A HOUSING LOAN CONSIDERING THE TOTAL HOUSEHOLD INCOME OF RESPONDENTS

Total household income		Level of interest rates	Economic security	Level of expenditures for household consumption, excluding expenditures for housing	Perspective of the property market
	Mean	5,00	5,00	4,00	4,00
0 - 5000 kn	N	1	1	1	1
	Std. Deviation	.	.	.	.
	Mean	5,00	5,00	5,00	2,50
5000 – 8000 kn	N	2	2	2	2
	Std. Deviation	,000	,000	,000	,707
	Mean	4,89	4,67	4,44	3,72
8000 – 10000 kn	N	18	18	18	18
	Std. Deviation	,323	,594	1,042	1,127
	Mean	4,79	4,33	4,13	4,17
10000 – 15000 kn	N	24	24	24	24
	Std. Deviation	,588	,702	,850	,702
	Mean	4,54	4,04	3,68	4,46
15000 kn and more	N	28	28	28	28
	Std. Deviation	,576	,693	,945	,576
	Mean	4,73	4,33	4,05	4,12
Total	N	73	73	73	73
	Std. Deviation	,534	,708	,970	,865

The survey participants were supposed to assess given claims according to their importance while taking a housing loan. In the SPSS program the claims were entered numerically in the following order: not at all - 1, mainly not - 2, neither yes nor no - 3, mainly yes - 4, certainly yes - 5.

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TABLE XVII
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN CONSIDERING THE RESPONDENTS AGE

Age		Required ratio of the loan amount and collateral is too high
1-29 years	Mean	4,24
	N	17
	Std. Deviation	,752
30-39 years	Mean	3,81
	N	36
	Std. Deviation	,951
40-49 years	Mean	3,45
	N	11
	Std. Deviation	,820
50-59 years	Mean	3,33
	N	9
	Std. Deviation	,866
Total	Mean	3,79
	N	73
	Std. Deviation	,912

The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: disagree - 1, mostly don't agree - 2, neither agree nor disagree - 3 mostly agree - 4, completely agree - 5

TABLE XVIII
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN CONSIDERING THE RESPONDENTS EDUCATION LEVEL

Education		Standards for approval of housing loans are too strict	Bank fees for housing loans approval are too high	Required ratio of the loan amount and collateral is too high	Interest rates on housing loans are too high
secondary education	Mean	4,68	3,86	4,18	5,00
	N	22	22	22	22
	Std. Deviation	,477	1,125	,733	,000
college education	Mean	4,57	3,71	4,00	5,00
	N	7	7	7	7
	Std. Deviation	,535	1,496	,816	,000
university education	Mean	4,00	2,97	3,58	4,67
	N	33	33	33	33
	Std. Deviation	,829	,883	,969	,595
master / doctorate	Mean	3,82	3,27	3,55	4,45
	N	11	11	11	11
	Std. Deviation	,405	1,009	,934	,934
Total	Mean	4,23	3,36	3,79	4,77
	N	73	73	73	73
	Std. Deviation	,736	1,098	,912	,566

The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: disagree - 1, mostly don't agree - 2, neither agree nor disagree - 3 mostly agree - 4, completely agree - 5

TABLE XIX
EVALUATION OF BANKING REQUIREMENT FOR APPROVAL OF HOUSING LOAN CONSIDERING THE PERSONAL MONTHLY INCOME OF RESPONDENTS

Personal monthly income		Standards for approval of housing loans are too strict	Bank fees for housing loans approval are too high	Required ratio of the loan amount and collateral is too high
0 - 5000 kn	Mean	4,85	4,38	4,23
	N	13	13	13
	Std. Deviation	,376	,768	,599
5000 - 8000 kn	Mean	4,10	3,50	3,75
	N	20	20	20
	Std. Deviation	1,021	1,235	,910
8000 - 10000 kn	Mean	4,11	3,28	3,67
	N	18	18	18
	Std. Deviation	,583	,826	1,085
10000 - 15000 kn	Mean	4,00	2,83	3,50
	N	18	18	18
	Std. Deviation	,485	,786	,857
15000 kn i više	Mean	4,50	2,00	4,50
	N	4	4	4
	Std. Deviation	,577	,816	,577
Total	Mean	4,23	3,36	3,79
	N	73	73	73
	Std. Deviation	,736	1,098	,912

The survey participants were supposed to assess given claims on banking requirements for loan approval. In the SPSS program the claims were entered numerically in the following order: disagree - 1, mostly don't agree - 2, neither agree nor disagree - 3 mostly agree - 4, completely agree – 5

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REFERENCES

[1] Z. Walko, "Housing Loan Developments in the Central and Eastern European EU Member States", OENB, 2008. p. 78.

[2] D. Mihaljek, "Rapid Growth of Bank Credit in Central and Eastern Europe: the Role of Housing Markets and Foreign Owned Banks", HNB, Dubrovnik, 2006, p. 5.

[3] B. Égert, and D. Mihaljek, "Determinants of house prices in central and eastern Europe", BIS Working Papers No 236, BIS, 2007, p. 5.

[4] B. Égert, P. Backe, and T. Zumer, "Credit growth in Central and Eastern Europe, New (over)shooting stars?", Working paper No. 687., European Central Bank, Frankfurt, 2006, p. 8.

[5] Raiffeisen Research Report, "CEE Banking sector report, Performing in challenging times", Raiffeisen Bank, Wien, 2012. p. 18.

[6] M.M.G. Fase, P. Kramer, and W.C. Boeschoten, "De Nederlandsche Bank's quarterly model of the Netherlands economy", Economic Modelling 9, 1992, pp. 146-204.

[7] M.M.G. Fase, "The Demand for Commercial Bank Loans and the Lending Rate", European Economic Review 39, 1995, pp. 99-115.

[8] M. Manrique, and F. Sáez, "Una análisis desagregado de la demanda de activos líquidos y de la demanda de crédito de las familias y de las empresas no financieras", Boletín Económico No. 1, Banco De España, Madrid, 1998, pp. 51-71.

[9] B. Hofmann, "The Determinants of Private Sector Credit in Industrialised Countries: Do Property Prices Matter?" BIS Working Paper No. 108, Basel, 2008.

[10] A. Calza, C. Gartner, and J. Sousa, "Modelling the demand for loans to the private sector in the Euro area", Working Paper No. 55, European Central Bank, Frankfurt, 2001.

[11] I. Ljubaj, K. Gattin-Turkalj, A. Martinis, and M. Mrkalj, "Estimating credit demand in Croatia", Hrvatska narodna banka, Zagreb, 2007, p. 21.

[12] V. Šonje, "Estimating demand for household credit in Croatia", Croatia Securitization Draft, RIA, Part II: Quantitative Impact Assesment, Annex 3, 2006, p.110.

[13] C. Goodhart, and B. Hofmann, "House prices, money, credit and the macroeconomy", Working paper No. 888, European Central Bank, Frankfurt, 2008.

[14] M. Vizek, "Priuštivost stanovanja u Hrvatskoj i odabranim europskim zemljama", Revija za socijalnu politiku 16, Ekonomski institut Zagreb, Zagreb, 2009, p. 289.

[15] HNB, "Financijska stabilnost", Issue 12, Croatian National Bank, Zagreb, 2014.

[16] HNB, "Godišnje izvješće 2012", Croatian National Bank, Zagreb, 2012.