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MORTGAGE IN BULGARIA AND ROMANIA – DOES THE "FOREIGNNESS" INFLUENCE THE SUPPLY?

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Abstract

The housing markets and housing finance are tightly connected and both are crucial to the stability of the economy as a whole. Housing booms and busts have been associated with many of the most serious financial and economic crises in developed countries. In order to avoid such crises in the future IMF research suggests it is particularly important to monitor credit growth. The connection between housing markets and housing finance can be seen in the mortgage interest rates. Even though the main drivers of mortgage interest rates are well known in the theory, differences between countries still exist. Nowadays banking has become international, mortgage-lending markets are predominantly local. In fact, even pan-European banks operate on non-integrated national mortgage credit markets. In our study we explore the ability of main mortgage loan clauses to provide a robust clusterization of market participants.

Key words: mortgage loans, Bulgarian bank system

JEL: G21, F65, O57

Introduction

The housing markets and housing finance are tightly connected and are both crucial to the stability of the economy as a whole. Housing booms and busts have been associated with many of the most serious financial and economic crises in developed countries. In order to avoid such crises in the future IMF research suggests it is particularly important to monitor credit growth (Zhu, 2014). The connection between housing markets and housing finance can be seen in the mortgage interest rates.

Even though the main drivers of mortgage interest rates are well known in the theory, we are still experiencing differences between countries. Nowadays banking has become international, mortgage-lending markets are predominantly local. In fact, even pan-European banks operate on non-integrated national mortgage credit markets.

In our study we experiment with the possible classifications of market participants – in the case of Bulgaria and Romania, banks only.

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Literature review

The influence of ECB's main policy interest rates on financing conditions is complicated and the reduction of interest rates is not automatically passed on to borrowers on mortgages. The banks are driven by their profitability and depend on the average and marginal costs of their funds. Provided these costs are not reduced enough by ECB's main policy interest rates reduction, one cannot expect a decrease of the mortgage interest rates.

The market of financial instruments and the stage of its development can drive to change in mortgage interest levels. They are strongly influenced by the increased access to foreign financing and the expansion of the financial sector. It is proven that the risk of outstanding mortgage-backed securities (MBS) has an influence on the level and volatility of interest rates (Malkhozov *et al.*, 2015).

Another driver of mortgage interest rates is bank competition. The lack of sufficient new competition could lead to an increase of the mortgage rates.

The spreads of mortgage interest rate usually depend on macroeconomics expectations of the banks and reflect their risk management policy. Narrowing the spreads is linked to bank competition and low levels of risk. These drivers are not equal in different countries and, as a result, it is unlikely to expect the same dynamics of mortgage interest rates also. The dynamics of risk appetite and heightened concerns about market illiquidity can be linked to the mortgage loans prices change (Fender and Scheicher, 2008).

The mortgage interest rates depend also on property market development. The property market differs much more in different countries than the bank sector. From scale to risk, wages levels and the attitude to property – all these drivers influence mortgage loans demand and cause cross-country differences. The situation is even more complicated because the mortgage interest rates and income and mortgage flows can also influence house pricing, but that influence is country-specific too (de La Paz and White, 2012).

In addition, the banking policy regarding mortgage loans may be regulated under the Basel II framework – specifically, adjusting capital requirements according to property price misalignments. Bank regulation affects the risk weights of mortgage loans, which were to be used in calculating the bank's capital adequacy ratio. It "may help moderate banks' lending to the real estate market when the market is overheated, and provide some boosting effect when the market is unduly weak, thereby stabilizing housing prices to mitigate the impact of the property price channel" (Bank for International Settlements. Monetary and Economic Department, 2008).

The Bank mortgage market is exposed to bank competition, both national and international. Banks, as other companies, face inherent costs when doing business abroad. On one hand this, so-called 'liability of foreignness', is an assumption

in theories of the multinational enterprise (Caves, 1996). On the other, foreign banks are able to import organizational practices in order to increase their competitiveness (Zucker, 1988). The more undifferentiated the product is, the more advantageous the foreignness will be. Unlike other financial products, the differentiation in mortgage is more visible from country to country.

In Europe, the banking sector is mostly integrated but still housing finance is structurally heterogeneous. Outside the Euro area the heterogeneity is significant and it is predominantly due to the specifics of housing markets. The housing market cycles are also quite country-specific. Our research tries to extend more general attempts to elaborate on an index of financial infrastructure (Rafailov, 2018), the housing stock (Raychev, 2011) or the house price dynamics (Мавров, 2011, Мавров; 2018, Nikolaev; 2010, Милкова, 2010).

According to Zhu (Zhu, 2014) the main driver of housing market developments across the world is the integration of the global financial markets.

The dynamics of housing market in Bulgaria differs from the one in Romania. For the period 2016 – 2018 the rate of change of annual deflated Home price index (HPI) is as follows (Eurostat, 2019).

Table 1: Rate of change of annual deflated Home price index (HPI)

	2016	**2017**	**2018**
Bulgaria	7.1	6.2	3.9
Romania	5.2	3.3	1.8

Source: Eurostat (2019)

For Bulgarians to owe a house for living is traditional, e.g. the housing market is a component of wealth. In recent years, the housing market has also become a component of investment. An important factor affecting the housing market is the level of foreign capital inflow into the country. The supply of new housing was boosted in Bulgaria through foreign direct investment in real estate activities. Purchases of real estates by foreigners, mostly as an investment, had a direct effect on increasing the house prices in the period 2004 – 2008 but since then that effect has slowed down.

Data and methodology

According to BNB data, 20 commercial banks (some are in a process of mergers and acquisitions), 17 of them offering mortgage loans, are operating currently in Bulgaria.

In our analysis we take in consideration most of the available information about the mortgage loan offers which is to be found on their respective websites.

All Bulgarian banks do maintain their own websites, in all of the cases the information was regularly updated and useful from the customer‘s point of view.

Given that many of the banks have several offers – the typical example being two or three offers, i.e. "main home", "additional property", "refinancing of existing loans" – we needed to filter out some of the offers. In the case of multiple mortgage offers, we analyse the ‚standard mortgage loan‘ – the credit for the purchase of a family house or apartment, under the lowest offered rate. Our sample consists of ***data about 11 variables for 20 banks***: "Allianz Bank"; "Bulgarian American Commercial Bank"; "Bulgarian Development Bank"; "Credit Commercial Bank"; "D Commercial Bank"; "DSK Bank"; "Eurobank"; "Expressbank"; "First Investment Bank"; "International Asset Bank"; "Investbank"; "Municipal Bank"; "Piraeus Bank Bulgaria"; "ProCredit Bank"; "Raiffeisenbank (Bulgaria)"; "TBI Bank"; "Texim Bank"; "Tokuda Bank"; "Unicredit Bulbank"; "United Bulgarian Bank".

For the comparison with Romania, we collected the same data for some Romanian banks, which have the same owner as their respective Bulgarian counterparts: "OTP Bank"; "Raiffeisen Bank"; "UniCredit Bank"; "ProCredit Bank"; "Banca Romaneasca (NBG)".

We collected data for following variables:

- number of offer variants;
- interest rate;
- annual percentage rate;
- share of financing (to the market value of the property);
- maximal duration;
- minimal duration;
- maximal amount;
- minimal amount;
- life insurance;
- property insurance;
- months of fixed interest rate.

In many cases, information about additional aspects of mortgage loans is also available – i.e. different fees, time for elaborating of the offer, additional clauses etc., but they vary too much among the banks, and therefore are not suitable to be included in the data of our sample.

The classification of the banks made by us was in utilizing the "Gower‘s" distance metric as a measure of dissimilarity among the items studied, with a consequential clusterization. Gower (1971) proposes a simple method for defining a "dissimilarity" between the variables, and of calculating the distance between multivariate data points.

It is especially useful in cases where the data points coordinates are measured differently in the different axes – i.e. some of the coordinates are metric, others are binary, etc. In our case the majority of coordinates are metric (interests, periods

etc.), but we have also some binary ones – the requirements for an obligatory life insurance or an obligatory property insurance, etc.

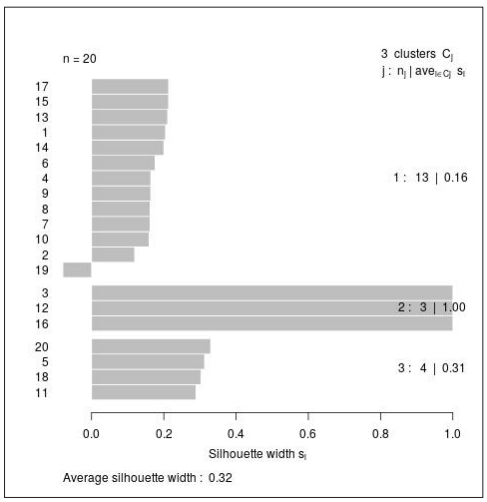
The proper clusterization was made with the "Partitioning around medoids" technique, which is very suitable to work with gower distance. This is a more robust version of the k-means technique, to prefer over the alternative hierarchical clustering in the cases where a fixed number of clusters is suspected to be a suitable solution.

All calculations were made with R (R Core Team, 2017), version 3.3.3.

Results and discussion

Data for Bulgarian banks suggests that a 3 cluster division is plausible, with a higher number of clusters having too close borders and ambiguous allocation. Therefore we further proceed with 3 cluster divisions.

First we start with usage of 4 variables – share of financing, number of offers, interest rate and annual percentage rate. All variables are numeric.



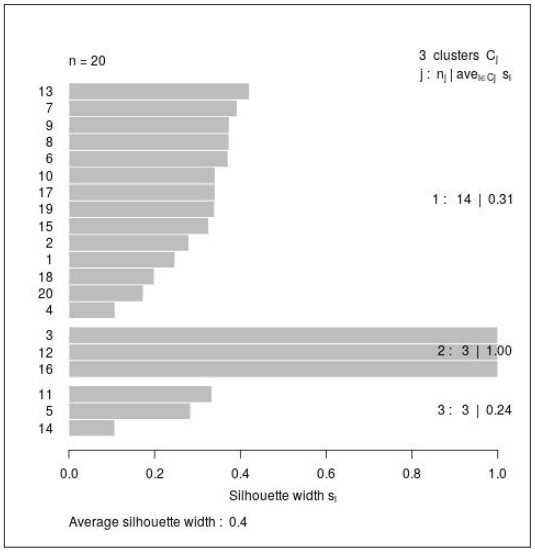
Source: Authors‘ calculations

Figure 1: Silhouette plot of clusterization with the use of 4 variables

Obviously despite the small number of variables the data allow for a meaningful items classification – see Figure 1, we have three relatively clearly distinguished clusters, with only one spurious case (nr. 19, the Unicredit Bulbank), where the classification is not so clear. The three non-participating banks (nr. 3, 12, and 16, Bulgarian Development Bank, Municipal Bank and TBI Bank) are clearly visible.

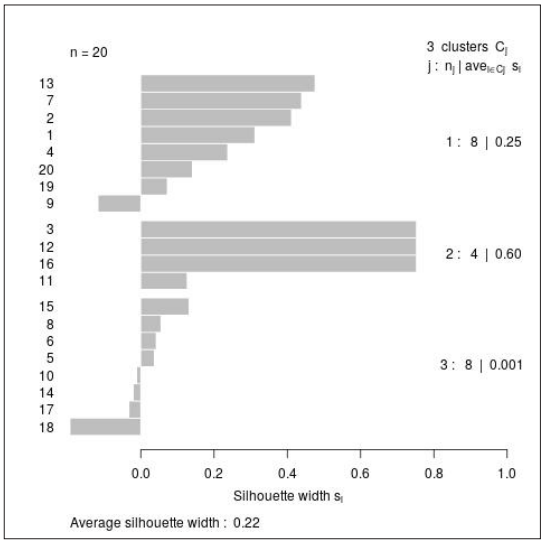
The extension of the number of variables to 6, adding maximal and minimal duration, in fact contributes to the classification, allowing the clusterization to be more informative – the average silhouette width widens to 0.4 – see Figure 2.

The small number of clusters allows them to be properly named – a plausible labeling of the clusters seems to be: "non-participating banks", "mainstream market", "others".



Source: Authors‘ calculations

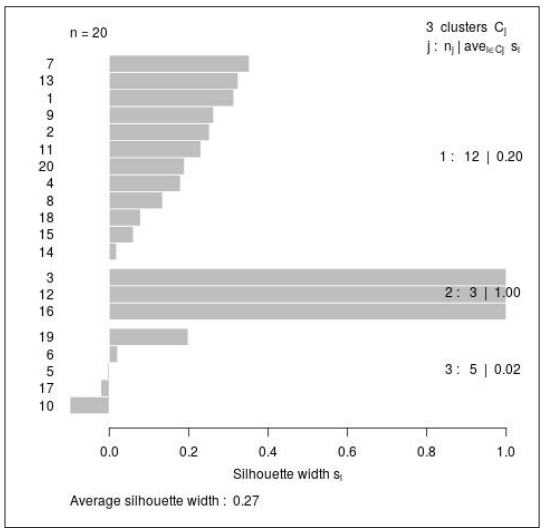
Figure 2: Silhouette plot of clusterization with the use of 6 variables



Source: Authors‘ calculations

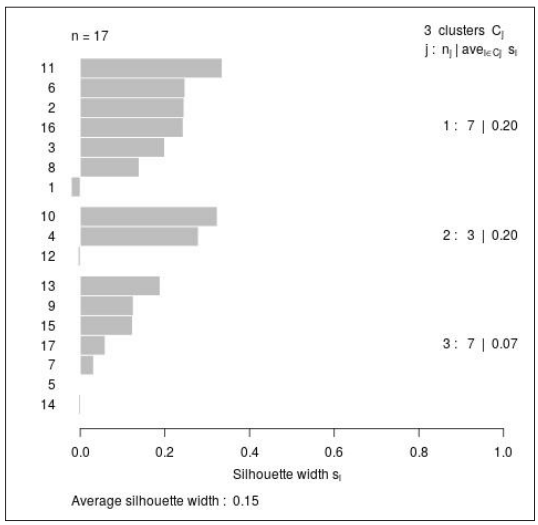
Figure 3: Silhouette plot of clusterization with the use of 8 variables

Our further step, 8 variables, to include additional 2 variables, the maximal and minimal amount (both numeric), leads to blurring in the classification process. Clusters become unclear with many banks (almost half of the whole sample) leaping around clusters and obfuscating the whole picture.



Source: Authors‘ calculations

Figure 4: Silhouette plot of clusterization with the use of 11 variables



Source: Authors‘ calculations

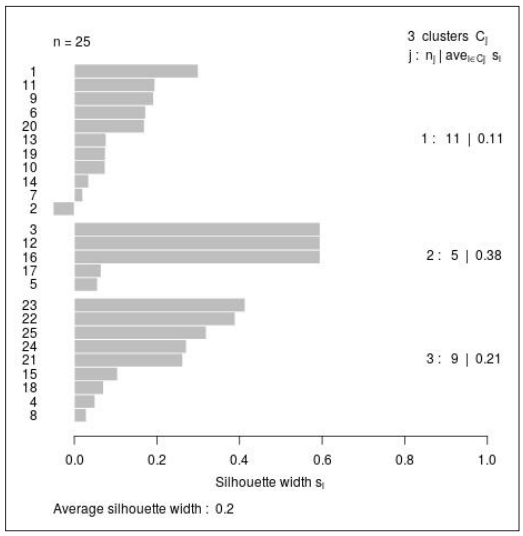
Figure 5: Silhouette plot of clusterization with the use of 6 variables, without the non-participating banks

Excluding the non-participating banks from the sample does not add informativeness to the classification – in Figure 5 we represent the "6-variables" division.

A possible explanation can be probably the importance of the main parameters of the credits offered – interest rate and nominal amount. Another possible explanation can be the influence of hidden factors, which are not widely announced – i.e. the collaboration of the banks with certain realtors.

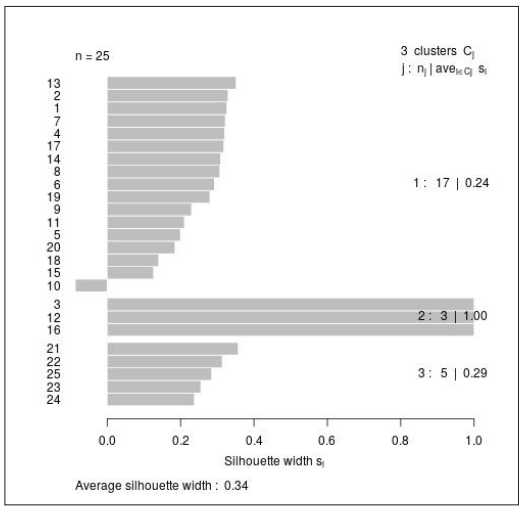
The inclusion of Romanian banks in the sample does not change the outcome dramatically. Due to the fact that ProCredit Bank Romania does not provide mortgage loans, we exclude it from the sample. In the case all variables are taken in consideration, the picture becomes blurry, and if only the most important ones are analysed, the Romanian banks form a clearly visible sample (nr. 21 – 25).

The different situation in the interest rates also plays a certain role – due to the currency board agreement, rates in Bulgaria are low, compared to neighbour countries. The currency board agreement with its financial stability is likely to be preserved until the introduction of the single currency (Radkov and Zahariev, 2013; Trifonova and Kaneva, 2016). For Romania, the non negligible rates of the ROBOR (the Romanian interbank offer rate), used as a base for the banks‘ rates, contributes further to the separate position of the Romanian banks, compared to their Bulgarian counterparts.



Source: Authors‘ calculations

Figure 6: Silhouette plot of Bulgarian and Romanian banks clusterization with the use of all variables



Source: Authors‘ calculations

Figure 7: Silhouette plot of Bulgarian and Romanian banks clusterization with 4 variables

Conclusion

Including multiple variables in the assessment of mortgage loans strategies of the banks does not contribute to meaningful classifications of the offering banks, using only a small number of loan parameters seems to be a reasonable solution. Extending the sample to conclude also several Romanian banks does not change this result.

The existing flexibility of contract clauses can be attributed to the unclear classification, in the case multiple credit parameters are included.

References

Мавров, Х. (2018), "Динамика на жилищните цени и макроикономическите им ефекти–данни от България", в: Строително предприемачество и недвижима собственост, с. 135 – 144, Икономически университет – Варна. (Mavrov, H. (2018), Dynamics of real estate prices and their macroeconomic effects – data from Bulgaria, in: Building entrepreneurship and real estates, pp. 135 – 144.)

Милкова, Т. (2010), "Изследване на промяната в пазарните цени на жилища в България за периода 2001 – 2010". 25-та научна конференция

с международно участие Строително предприемачество и недвижима собственост. Университетско издателство, Варна, с. 152 – 156. (Milkova, T. (2010), Study of the housing prices changes in Bulgaria for the period 2001 – 2010, 25-th international scientific conference "Building entrepreneurship and real estates", University Publishing house "Nauka i ikonomika", Varna, pp. 152 – 156).

Мавров, Х. (2011), "Глобалната финансова криза и пазарът на жилища в България", Известия, Списание на СУБ – Варна, бр. 1, с. 18 – 29. (Mavrov, H. (2011), Global Financial Crisis and and the housing market in Bulgaria, Izvestia Journal of the Union of Scientists – Varna, Economic Sciences Series, Vol.1, pp. 18 – 29).

Bank for International Settlements. (2008), "Transmission mechanisms for monetary policy in emerging market economies", Monetary and Economic Department, Bank for International Settlements.

Caves, R.E. (1996), "Multinational Enterprise and Economic Analysis", Cambridge University Press, New York, pp. 322.

Eurostat (2019), "Housing price statistics", data from first quarter of 2019, extracted on 10 July 2019. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_price_statistics_-_house_price_index#Dynamics_in_the_housing_market:_uses_of_the_house_price_index_and_policy_implications.

Fender, I. and Scheicher, M. (2008), "The ABX: how do the markets price subprime mortgage risk? – BIS Quarterly Review, September 2008", BIS Quarterly Review, pp. 67 – 82.

Gower, J. (1971), "A General Coefficient of Similarity and Some of Its Properties", Biometrics, Vol. 27, No. 4. (Dec., 1971), pp. 857 – 871.

De La Paz, P. T. and White, M. (2012), "Fundamental drivers of house price change: the role of money, mortgages, and migration in Spain and the United Kingdom", Journal of Property Research, 29(4), pp. 341 – 367. doi: 10.1080/09599916.2012.729515.

Malkhozov, A. et al. (2015), Mortgage risk and the yield curve, Available at: www.bis.org.

R Core Team, (2017), "R: a language and environment for statistical computing", R Foundation for Statistical Computing, Vienna, Austria. URL https://www.R-project.org/.

Radkov, R. and Zahariev, A. (2013), "The currency board in Bulgaria: theoretical reflections and empirical results", Narodnostopanski arhiv, Vol. 66, No. 3, pp. 3 – 14.

Rafailov, D. (2018), "Measuring Financial Infrastructure Development", Izvestia Journal of the Union of Scientists – Varna, Economic Sciences Series 7.2: pp. 13 – 23.

Raychev, T. (2011), "Assessment of the housing stock and its renovation", Izvestiya, (2), pp. 54 – 64.

Trifonova, S. and Kaneva, A. (2016), "Development of the Banking System in Bulgaria during the 2007 – 2015 period. Impact of the Global Crisis Processes", Ikonomiceski i Sotsialni Alternativi, University of National and World Economy, Sofia, Bulgaria, issue 2, pp. 5 – 23.

Zhu, M. (2014), "Housing Markets, Financial Stability and the Economy", in: Opening Remarks at the Bundesbank/German Research Foundation/ IMF. Available at: https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp060514.

Zucker, L.G. (1988), "Institutional Patterns and Organizations: Culture and Environment", Cambridge, MA: Ballinger, pp. 232