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BANKING
Professional paper

THE IMPORTANCE OF SETTING LIMITS IN DISBURSEMENT PROCESS OF HOUSING LOANS

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Abstract:
A rapid expansion of mortgage markets and consequent increased portion of housing loans was inherent for many emerging countries. In a long lasting period, positive economic conjuncture was followed with the housing loan expansion in emerging economies. People in emerging countries were focused on resolving their residential issues through taking housing loans from banks. Banks, which disburse those loans, intend to maintain a high quality of credit portfolio and in that sense limit the risk derived from some categories (such as: housing loans). Limitation on housing loans could be realized in several ways, but the most appropriate one is the usage of loan-to-value (LTV) ratio. The aim of this paper is to present the main characteristics of loan-to-value ratio and to indicate different practices with treatment of LTV ratio in some countries.

Keywords:
housing loans, loan-to-value ratio, mortgage, real estate, financial stability.

INTRODUCTION

In the transition period to the modern market economy, emerging economies (among which is Serbia) experienced significant transformation in all segments. Banking sector represents one of the segments that was extensively changed due to the transition period. Banking sectors in transition economies, in general, are one of the most attractive sectors from foreign investors' point of view. The entrance of the internationally recognized banking groups on banking market of emerging economies has a consequence in credit activity strengthening i.e. "credit boom" which was also manifested in the Republic of Serbia. As loan disbursement to citizens led to the resolution of their residential issue, it meant that within retail loans (approved to citizens) housing loans were represented in large extent. Housing loans are loans which are usually intended for purchase, construction, upgrade or adaptation of certain real estate (houses or flats), with predetermined annuities during loan repayment period. In principle, housing loans are loans with the longest repayment period taking into account that average maturity of those loans is within the range of 20 and 30 years.

"Modus operandi" for housing loans could be easily described in the following way: bank (as the lender) disburses a loan to borrower (client) under certain conditions, meaning adequate collaterals (such as: mortgage, insurance policy, pledge etc.). According to Law on Mortgages "a mortgage represents the right of pledge on the property of creditor to demand the collection secured by the mortgage, in case the debtor does not repay the loan till maturity, before other creditors and later mortgage creditors independent from the real estate ownership".[1] Households use housing loans for resolving a residential issue and its future, so factors which influence borrower's decision are related to life standard, on the one hand, and real estate prices and loan pricing, on the other.[2]

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1 Zakon o hipoteci. (2017). *Paragraf.* Retrieved July, 7, 2017, from "Sl. glasnik RS", br. 115/2005, 60/2015, 63/2015 - odluka US i 83/2015: http://www.paragraf.rs/propisi/zakon_o_hipoteci.html
2 The International Bank for Reconstruction and Development/The World Bank. (2009). *Housing Finance Policy in Emerging Markets.* Washington: World Bank.

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Also, one should bear in mind that rapid demand growth for housing loans in the past led to the creation of "financial bubbles" which later entered into deep financial crises. For the purpose of systemic risk limitation which could arise from excessive credit activity in the segment of housing loans, regulators are often focused on limitations of housing loans disbursements. The limitation could be realized in several ways but the most popular one is usage of ratio indicators, especially: loan-to-value (LTV) and debt service-to-income (DTI).

Loan-to-value (hereinafter: LTV) limit represents a cap between loan amount and appraisal value of the property, expressed in percentages. It is an instrument which is often used on the mortgage market and contributes to improvement of the bank's resistance to eventual shocks and risks, as well as an instrument that mitigates credit growth during expansion phase of credit cycle. The objective of this instrument is to influence the credit cycle by limiting obligations which a borrower could take and which is secured by mortgage on the property. Debt service-to-income ratio (hereinafter: DTI) is calculated by dividing a total recurring monthly debt by gross monthly income and is expressed as a percentage. DTI ratio is showing the ability of a borrower (client) to meet their financial obligations on a monthly basis by its salary toward the lender (i.e. bank). Lower level of DTI ratio means that a borrower has favorable relationship between monthly salary and monthly indebtedness. Otherwise, higher level of DTI ratio means that the borrower is over-indebted i.e. borrower's income is not sufficient for regular debt servicing under the housing loan. This paper will be primarily focused on the implementation of LTV ratio as a limitation factor in the process of housing loans disbursement bearing in mind a wide usage of LTV ratio in emerging economies and in Serbia, as well as a lesser popularity of DTI ratio implementation.[3] It is very important to stress that one of the major reasons for emerging global financial crisis in 2007-2008 was lowering of the criteria in disbursement process for housing loans.[4]

MAIN CHARACTERSTICS OF LTV RATIO

LTV limit is aimed at increasing a bank's resistance to the price shock of real estate market in the manner that LTV limit encourages banks on carefully conducting a credit policy and providing adequate collateralization. Consequently, banks could suffer even a large fall in the real estate prices and collect a large amount of a previously disbursed loan due to the fact that LTV limit constrains credit risk exposure. Also, the usage of LTV ratio provides avoidance of over-indebtedness in retail segment and leads to a decreasing number of potential borrowers, simultaneously decreasing demand and restricting excessive growth of real estate prices.

LTV could be a very efficient macro prudential tool if the usage of LTV limit is related to countercyclical direction. In the expansion phase of a credit cycle, by diminishing LTV limit (tighten measures) there would be decreased loan amount disbursed based on the value of certain collateral and in that way over-indebtedness would be prevented, excessive risk-taking restricted from the point of view of banks as well as excessive rise of real estate prices. In contrast, in the contraction phase, by increasing LTV limit (relaxation measures) the growth of loan's demand could be stimulated. Although it should be noted that more frequent changes of LTV limit could negatively influence the market (destabilization) and create incentives for banks to increase their placements under existing conditions based on the expectations of measures tightening in prospective, which additionally encourage growth of real estate prices and credit growth. The fixed value of LTV limit has a pro-cyclical impact, due to the fact that loan amount expressed as percentage of property's market value grows together with the growth of value of observed property. Furthermore, in the credit expansion phase based on collateral value increase, borrower could increase indebtedness, whilst in the phase of decreasing of real estate values on the market the credit activity will also be adjusted accordingly in the same direction.

National Bank of Serbia adopted a "Decision on Measures for Safeguarding and Strengthening Stability of the Financial System"[5] in 2011, where LTV limit is established and set at 80%. The mentioned decision proscribed the possibility of loan disbursement to physical entity in case that the loan amount is not higher than 80% of appraised value of observed property (according to the evaluation of a competent appraiser) diminished for the amount of other claim secured by a mortgage right of higher rank on the same property.

The adopted decision was also aimed at restricting excessive growth of real estate prices, because the real estate value in Serbia (measured by DOMex index) reached its maximum in 2010, followed by a large number of marketable properties as a direct consequence of supporting measures to the construction industry. However, the main reason for this decision, and LTV limit introduction, was impersonated in the risk reduction in financial system. The origin of the mentioned risk is in a relatively high portion of loans approved in foreign currency or in local currency under the foreign exchange clause (the so-called "euroization" risk). LTV limit is proscribed only for housing loans in foreign currency and foreign-indexed housing loans, while non-indexed dinar loans are an exception of LTV limit. Through release of housing loans in dinars from LTV implementation, National Bank of Serbia tried to influence the decrease

3 IMF Working Paper. (2017). IMF. Retrieved July 7, 2017, from www.imf.org:http: //www.imf.org/external/pubs/ft/wp/2015/wp15154.pdf

4 Erić, D., & Đukić, M. (2012). *Finansijska tržišta u uslovima krize.* Belgrade: Insitut Ekonomskih Nauka.

5 National bank of Serbia. (2017). *National bank of Serbia.* Retrieved July 7, 2017, from www.nbs.rs: http://www.nbs.rs/internet/english/20/kpb/measures_fin_system.pdf

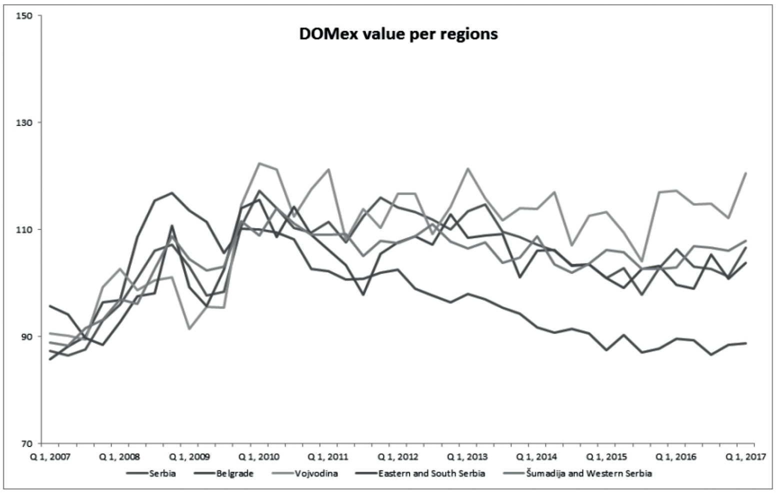
of euroization rate inherent in housing loans. From that perspective, LTV limit in Serbia represents macro-prudential instrument, meaning that LTV does not influence solely the increase of bank's resistance (micro-prudential objective), already restricting a systemic risk due to the high level of euroization in the domestic financial system.

Indicators related to price and volume of marketable properties could be warning signals for potential crisis. An indicator of the real estate prices movement in Serbia is DOMex, which represents a unique indicator of trend realized prices per square meter of property insured at the National Mortgage Insurance Corporation (hereinafter: NMIC). DOMex is created for the purpose of transparent information to the public regarding real estate market in Serbia. The main disadvantage of DOMex is exclusion of data related to realized prices of properties that are funded by cash or unsecured loans. According to the data for DOMex movement, presented in Figure 1, real estate prices in Serbia achieved its maximum in the first quarter of 2010, then prices had a falling trend, while since 2016 there have been obvious recovery signs in the real estate prices. The value of DOMex at the end of the first quarter 2017 was 106.7, which is approximately 0.3 percentage points higher than in the first quarter of 2016.[6]

By observing real estate prices and average salary relationship in Serbia, it could be concluded that, after a rapid growth in 2010, this indicator is in the line of trend level since 2013. It is also important to point out on the realized values of LTV limit, which is significantly below the proscribed limit of 80% during the whole observed period; taking into account average LTV ratio initially insured housing loans at NMIC. It is a noticeable trend of significant growth in the last two years pinpointing the change of bank's perception in terms of borrower's risk profile and consequently an increased risk exposure originating from the real estate change. Favorable terms on the real estate market since 2016, as well as lower interest rates on housing loans, impacted the continuous growth of housing loans. The portion of housing loans in total retail loans rose in the post-crisis period, so in February 2017 it amounted to 43% (vs. 38% in December 2016). This testified to the importance of housing loans and a necessity for regulation of real estate market and a significance of LTV limit for maintenance of financial stability.[7]

As presented in Table 1, the level of housing loans continuously rose after 2010, but after credit expansion and LTV limit introduction, housing loans growth rates are on a significantly lower level. After the program of subsidized housing loans in the period 2011 – 2013, amounts of new loans decreased, but in 2016 a significant increase of those amountswas recorded. It is obvious that the situation is more favorable than earlier when subsidizing was necessary for the aim of housing loan increase. Simultaneously, the growth of credit activity leads to higher indebtedness in the retail segment.

Figure 1. DOMex value per regions[8]



6 National Mortgage Insurance Corporation. (2017). NMIC. Retrieved July 7, 2017, from www.nkosk.rs: http://www.nkosk.rs/content/indeks-cena-nepokretnosti-nacionalne-korporacije-za-osiguranje-stambenih-kredita

7 National bank of Serbia. (n.d.). *National bank of Serbia*. Retrieved July 8, 2017, from www.nbs.rs: https://www.nbs.rs/internet/cirilica/80/index.html

8 National Mortgage Insurance Corporation. (2017). *NMIC*. Retrieved July 7, 2017, from www.nkosk.rs: http://www.nkosk.rs/content/indeks-cena-nepokretnosti-nacionalne-korporacije-za-osiguranje-stambenih-kredita

Table 1. Average loan amount per citizen (in thousands of dinars)

Year	2010	2011	2012	2013	2014	2015	2016
Amount	76.0	81.0	88.2	91.4	100.4	105.9	118.5

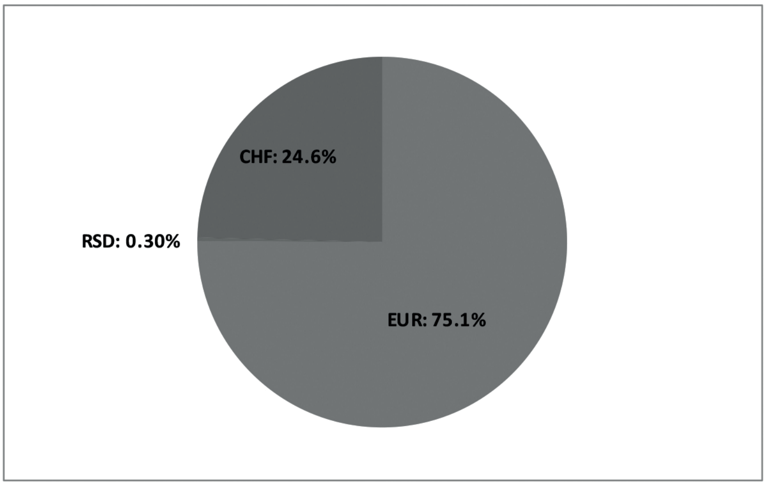
Source: Association of Serbian banks[9]

The trend of interest rate decrease contributes to the growth of loan demand creating positive expectation in the future regarding the credit activity increase in the segment of housing loans. However, what needs to be taken into account is that most housing loans under a foreign currency clause are disbursed and linked to floating interest rate which is dependent upon interest rates on international markets (EURIBOR, LIBOR etc.). It means that the amount of borrower's obligation in large extend depends upon movement of the mentioned interest rates in the prospective period, so decision making process regarding the adequate level of LTV limit should also take the likelihood of interest rates increase into consideration.

The quality of disbursed housing loans in Serbia is on a relatively satisfactory level taking into account the portion of gross non-performing housing loans in total non-performing loans (NPL ratio) stood at 8.4% in February 2017. This share is significantly lower than the NPL ratio of total loans in the Serbian banking sector (17.03% at the end of February 2017). Furthermore, NPL ratio of loans indexed in EUR currency, which is approximately 75% of the total housing loans, amounts to only 3.9%. Although, NPL ratio for housing loans denominated in dinars recorded increase, this growth did not jeopardize financial stability due to the fact that their share in total disbursed housing loans amounted to 0.3% .[10]

A high level of euroization, expressed through high portion of loans in foreign currency and loans with foreign currency clause in total loans of Serbian banks, represents one of key structural risk for banking sector stability. The argumentation of high euroization in Serbia is impersonated in the fact that even 68.8% of total retail and corporate loans belongs to the category of loans in foreign currency and loans with foreign currency clause. Euroization level amounted to 53% in December 2016, which is still significantly more than 40% that is defined as a threshold between low and high euroization. The currency structure of housing loans is unfavorable considering that non-indexed (dinar) loans have very small share of 0.3%.

Figure 2. Currency structure of housing loans[11]



9 Association of Serbian banks. (n.d.). *Association of Serbian banks.* Retrieved July 8, 2017, from http://www.ubs-asb.com/: http://www.ubs-asb.com/

10 National bank of Serbia. (n.d.). *National bank of Serbia.* Retrieved July 8, 2017, from www.nbs.rs: https://www.nbs.rs/internet/cirilica/80/index.html

11 National bank of Serbia. (n.d.). *National bank of Serbia.* Retrieved July 8, 2017, from www.nbs.rs: https://www.nbs.rs/internet/cirilica/80/index.html

This currency structure, presented in Figure 2, has a negative influence on borrowers; especially considering that foreign exchange rate of dinar in relation to euro currency was increased from 79 to 123.5 dinars for euro in the period 2006 – 2016 (i.e. depreciation of approximately 36%). The decreased value of local currency had an unfavorable influence on borrowers whose loans are linked to foreign currency, because with depreciation of local currency the level of indebtedness also rose and in final point banks could be faced with increased number of default borrowers due to the inability to repay debts regularly under housing loan.

EXPERIENCES OF OTHER COUNTRIES AND LTV RATIO IMPLEMENTATION IN SERBIA

LTV limit is in use in many countries, while its implementation varies between countries (see Table 2). The most frequent situation is that LTV limit is set as a cap (or as a restriction of loan disbursement above established limit), but LTV limit could be considered as a quantitative threshold for loans above this limit. Also, there is a possibility of indirect implementation by usage of higher risk weights for credit exposure with LTV ratio level above established limit (the example is Malta). Most countries restrict loan disbursement above the established limit (for example: the Netherlands, Sweden, Lithuania, Denmark, Slovenia, Canada) when LTV limit is in range from 80% to 100%. Certain countries, similar to Serbia, introduced differential limits dependent upon the currency of housing loans (such as: Romania and Hungary), while those countries proscribed maximum limits for loans in local – domestic currency (up to 85% and 80% respectively), while proscribed limits for loans in foreign currency were more rigorous than in Serbia.

Some other countries, such as: Romania, Ireland, Cyprus and Finland, have implemented differential LTV limit for buyer of the first property. For those buyers, LTV limit is from 5 to 10 percentage points higher than LTV limit for other housing loans. Apart from this, a relaxed LTV limit for insured loans at state-owned corporations exists only in Estonia and Latvia. In the latter countries, LTV limit for loans guaranteed at state-owned corporations is by 5 percentage points higher than LTV limit for other loans. One should bear in mind that those countries have special conditions which borrowers should meet in order to get a state guarantee. In Estonia, those rights have young families, young experts, subtenants, clients engaged in purchasing properties linked to the energy efficiency and military veterans, while in Latvia pre-emptive rights have families with children. Also, is should have in mind that Estonia and Latvia are in a euro area and they do not use LTV limit for mitigation of systemic foreign risks, as is the case in Serbia.

Certain countries (e.g. Slovakia, Czech Republic, Denmark, Norway, Estonia), besides proscribing maximum LTV limit, provide opportunities for banks to maintain discretionary right for some categories of borrowers for loan disbursement even if they do not fulfill proscribed LTV limit. Namely, banks are allowed exceptions meaning that between 10% and 20% of the total value of new housing loans could be excluded from the strict respect of proscribed LTV limit. These exception rights are very important for the bank's flexibility in credit risk decision making, because banks could independently decide whether they use this right taking into account a risk profile of the borrower. Banks could use these exceptions, for example, when a borrower has extraordinary and sustainable repayment capacity, when the collateral is very valuable or for some other reasons. Also, exceptions from LTV limit could be implemented when a borrower changes their real estate and as a result one or several ratios breach previously proscribed limits.

Table 2. Implementation of LTV ratio in other countries

Country	LTV limit implementation	National Corporation for insurance of housing loans	Date of implementation
Netherlands	Current LTV limit is 101%, while from 2018 it will be set at 100%.	Nationale Hypotheek Garantie[12]	01.01.2012.
Slovakia	LTV limit is 100%. Only 10% of new loans could have LTV limit above 90% and 40% of new loans LTV limit above 80%.		01.01.2017.
Poland	LTV limit for residential real estates is 80%, while for commercial real estates is 75%.		01.01.2014.
Sweden	LTV limit is set at 85%.	Statens Bostadskreditnämnd[13]	01. 10.2010.
Lithuania	LTV limit is set at 85%.	Būsto Paskolų Draudimas UAB[14]	01. 09.2011.
Romania	LTV limit is set at 85% for loans in domestic currency, while for the loans in foreign currency it is between 60% and 80% depending on the currency and collateral. LTV limit for the purchase of first flat is set at 95% apart from currency.		31. 10.2011.
Ireland	LTV limit is 80% and for the purchase of first flat between 85% and 90% depending on the loan amount.		09. 02.2015.
Cyprus	LTV limit is 70% and for the purchase of first flat 80%.		04. 02.2013.
Malta	LTV limit is 70% (indirectly procribed through risk weightening factor).		
Hungary	LTV limit is in the range from 35% to 80% depending on currency.		01.01.2015.
Czech Republic	LTV limit is 80%. Just 15% of new loans in current quarter period could have LTV ratio between 80% and 90%.		01.04.2017.
Norway	Only 10% of loans could exceed LTV ratio of 85% (in case the real estate was bought in Oslo and it was not the first purchase of flat then only 8% of loans could exceed LTV ratio of 60%).		01.01.2017.
Estonia	Only 15% of new loand could exceed LTV ratio of 85% (exceptions are guaranteed loans where LTV limit is set at 90%).	KredEx[15]	01. 03.2015.
Denmark	LTV limit is set at 95%.		01.11.2015
Finland	LTV limit is 90% and for the purchase of first flat 95%.		01.07.2016.
Latvia	LTV limit is 90%, for state guaraneed loans - 95%.	Development financial institution ALTUM[16]	01.07.2014.
Slovenia	Recommended LTV limit is 80%.		06.09.2016.
Canada	LTV limit is set at 85%.	Canada Guaranty Mortgage Insurance Company[17]	

NMIC in Serbia is a legal entity specialized in the insurance of housing loans secured by mortgages. NMIC was founded in May 2004, while the operational work started in October 2004. Beneficiaries of insurance are banks and other financial organizations that have signed agreement with NMIC regarding loan insurance. NMIC take into consideration every single request for loan insurance submitted by a bank and in case of insured loans NMIC takes a non-performed part of the risk on itself, meaning that NMIC bears 75% of bank's net loss under the non-repayment housing loans. In that way, NMIC encourages the further development of the real estate market and diminishes a total risk profile of the bank. The total equity of NMIC stood at 87.2 mln EUR at the end of 2016, while the total sum of insured loans by NMIC could not exceed more than 16 times the value of NMIC's equity. In special cases, Government of the Republic of Serbia, based on reasonable explanation by NMIC, could give permission for increasing the insured loans value above the mentioned threshold in relation to equity. In the late December 2016, a total number of 88,667 loans (about 77% of total loans) in total outstanding amount of 2.4 bln EUR (about 83% of total value of housing loans) was insured at NMIC (that was 27.5 times more than NMIC equity) .[18]

NMIC insures loans which have a maximum LTV ratio of 80%. As recent regulatory changes consider new regulations regarding competent appraisers and intentions of government to encourage the development of the construction industry in the absence of subsidized housing loans, there are also some opinions that certain housing loans (in foreign currency or with foreign currency clause) with LTV ratio above 80% should also be insured at NMIC. A new regulation on appraisers of properties diminishes the risk on the real estate market, but a detailed look on the comparative analysis between countries presented in Table 2 could clearly indicate that LTV limit set at 80% in Serbia for the whole housing loan portfolio is more than an adequate measure. It is obvious that the mentioned limit is often used within EU countries, meaning that it is a widely used practice for the purpose of maintaining financial stability. Additionally, relaxation of LTV limit for loans insured at NMIC could lead to the emergence of the negative selection problem, in other words, portfolios of insured loans at NMIC could contain a lot of loans that are less collateralized. As average realized LTV ratio of loans insured at NMIC is significantly below the proscribed limit of 80% (70.2% in December 2016) it could be concluded that average borrowers of housing loans have down-payment which is higher than a minimally proscribed down-payment of 20%. If borrowers with adequate collateral get offer of insurance at NMIC (for the purpose of a decreased down-payment), most of them will not be motivated to bear costs of insurance premium, due to the fact that their average down-payment is already higher than the proscribed. Also, riskier borrowers will be motivated to bear mentioned costs but in case of a negative scenario (shock on real estate market), it could be the reason for financial distress of NMIC.

CONCLUSION

Before making final decisions regarding housing loans, as one of the forms of long-term loans, potential borrowers should calculate the entire set of factors which could impact their decision regarding purchase or adaptation of real estate. The Bank as a lender, during housing loans duration (maximum tenor of 30 years), intends to decrease risk exposure and to optimize its portfolio. For that purpose, there are some restrictions, such as LTV ratio introduction, that are necessary in order to maintain the stability of the system. In Serbia, LTV limit is established at the level of 80%, so borrowers of housing loans should provide down-payment up to 20% if they want to engage in this kind of loan arrangement. Housing loans also could be insured at NMIC if the subjects are loans in foreign currency or loans with foreign clause (indexed loans). The level of LTV ratio has a macro prudential importance in terms of systemic risk control, indicating that lower LTV ratio means the lower the probability that the decision making process for a borrower was motivated by speculative reasons. The implementation of LTV ratio as a criterion in disbursement process for housing loans is justified and additionally argued with the role that has in the process of the financial stability maintenance and the stability of banking system. The paper dealt with cases of Serbia and other countries with similar perception or risks that arise from housing loans. In further researches, more attention should be focused to the role of housing loans in the quality of bank's credit portfolio through analysis of their performing and non-performing part in a more detailed manner.

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13 Statens Bostadskreditnämnd. (n.d.). *Statens Bostadskreditnämnd.* Retrieved July 9, 2017, from Statens Bostadskreditnämnd: http://www.bkn.se/

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