

Mortgage Lending to Individuals in Russia during the Financial Crisis

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Abstract: In this paper, the authors gave an overview of the main models of mortgage lending, and presented the results of their comparative analysis. The experience of mortgage lending in developed countries during the financial crisis of 2008 is considered. It is noted that a two-level model of mortgage lending in Russia is currently used, which allows the state to control the mortgage lending market, to realize refinancing of commercial banks issuing mortgage loans using securitization. The authors considered mortgage lending in Russia during the financial crises of 2008 and 2014, and its qualitative analysis was carried out. The results of the analysis allowed the authors to conclude that the state, represented by the Agency for Housing Mortgage Lending (AHML), played a crucial role in supporting mortgage lending in Russia during financial crises. It is shown that the government subsidized the interest rate on mortgage lending, which allowed not only to stabilize its volumes after the financial crisis of 2014, but also to ensure growth. The authors used the regression model for analyzing the statistical data of mortgage lending, which made it possible to identify factors that significantly influenced the volume of mortgage lending in Russia in the period under review. The results of the study have been summarized, specific recommendations aimed at further development of mortgage lending in Russia have been prepared.

Keywords: Mortgage lending, model of mortgage lending, crises, factors that significantly affect the volume of mortgage lending.

INTRODUCTION

In recent years, Russia has been experiencing an extremely difficult and crucial moment in the functioning of the consumer market, including mortgage lending. This is due to the negative impact on the development of the Russian national economy of a number of external factors (sanctions, lower oil prices). Therefore, when determining the prospects for developing lending to the population in Russia, it is important not only to analyze the existing Russian experience, including the crises of 2008 and 2014, but also to take into account foreign experience.

PURPOSE OF THE STUDY

To study the Russian and foreign experience of mortgage lending, including during financial crises, to identify factors that significantly affect the volume of mortgage lending in Russia at the present time, to formulate recommendations aimed at its further development.

MOTIVATION OF THE STUDY

According to the authors, despite of the fact that mortgage lending in Russia had been widely considered in the economic literature, the specifics of

its development in the context of financial crises had not been discussed in detail.

LITERATURE REVIEW

In Russia, consumer loans include any types of loans that are provided to the population, including loans for urgent needs, mortgage loans, loans for the purchase of durable goods, etc. (Nazarchuk 2014)

For modern Russia, the task of improving the system of mortgage (consumer) lending takes on special significance. Priority of the solution of this problem is conditioned, first of all, by the fact that an effective system of consumer crediting contributes to the formation of a competitive economy of the state, its stabilization, reduction of inflationary processes and social tension.

Specialists distinguish the following main models of mortgage lending in a market economy: truncated-open, balanced-autonomous and expanded-open (Buhtina 2016).

When using this model, banks receive loans from clients on loans issued, banks use them exclusively as a security for attracted external financial resources (from various sources). A characteristic feature of this model is that interest rates depend on the economic state of the country, since it has a significant effect on the activities of credit institutions. This model has a minimum number of participants in lending (specialized

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and universal banks). This model has found wide practical application in many countries of the world, in particular, in England, France, Denmark, Australia, Spain and others.

The merits of the model include the simplicity of organization and functioning. The shortcomings of the model include: the limited volume of attracted resources, the absence of rigid standards, the dependence of mortgage interest rates on the state of the financial market.

Balanced autonomous model, is a single-level model of mortgage lending, based on the loan and savings principle of the functioning (Buhtina 2016).

Within the framework of this model, lending subjects are not only mortgage banks, but also specialized savings banks - construction savings banks, building societies, etc. Credit resources are formed at the expense of depositors' savings. The investor needs to ensure the amount of savings, which will be about 40-50% of the value of the future housing. After this, the bank issues a mortgage loan to the borrower for the missing amount, which is repaid by the depositor within, as a rule, 10-15 years. The state supports and stimulates this option of mortgage lending, using the system of tax incentives, subsidies included (up to 10% of the cost of housing) included. Such a system successfully combines the processes of accumulation and subsequent crediting of citizens (Buhtina 2016).

A number of countries in western Europe successfully apply this model in practice: France, Germany, Denmark, etc. Such a system took place in the territory of Russia even in the pre-revolutionary period.

The advantages of this model include: the formation of a favorable mortgage climate by the state, the independence of the model from the state of the financial market in setting rates for loans and deposits, the minimum risk of non-repayment of the loan, the availability of mortgage loans for borrowers of various social groups. The drawbacks of this model include: the need for regular contributions for future borrowers, the possibility of obtaining a loan only after the accumulation of a certain amount of money. It should be noted that when using a single-tier model, the lender, having a portfolio of mortgage loans, can finance its own operations by securitizing mortgage loans: issuing and selling mortgage bonds, while the bank uses its mortgage claims as collateral for its own

debt obligations (Zhuchkina 2016). The specifics of securitization, the process of mortgage lending, and risk management determine the complexity and volume of financial and credit operations carried out by banks. This leads to the need for careful regulation and determines the active participation of government bodies, including the central bank, in the process of mortgage lending.

An expanded-open model is two-tier: in the primary market, banks are loaned to final borrowers, and already in the secondary market, banks that have issued a mortgage loan are refinanced through the use of mortgage bonds (the securities market) that are secured by mortgages (securitization of mortgage loans). Banks that issue mortgage loans in the primary market sell the borrowers' obligations to provide them with mortgage agencies specially created for these purposes. In return, the agency reimburses the bank, issued to the borrower money, on the terms of a monthly transfer of funds on the loan debt from the bank to the agency (minus the margin of the bank). After buying mortgage loans from banks, agencies issue securities, (mortgage bonds), which are implemented by agencies in the stock market and bring them profit. Payments on securities are made by the borrower in the form of regular payments (repayment of mortgage loans). The role of the state in this chain is very important, since it acts as a guarantor for valuable mortgage securities, resorting to the mediation of large financial companies. When using this model, any person, with a certain annual income, can immediately purchase housing, paying at the same time 10-20% of their own funds, and the balance is paid with a mortgage, the duration of which is 15 to 30 years. This model has reached the greatest development in the US and Canada, for this reason it is often called "American."

The advantages of this model include: a large number of creditors form a large supply of mortgage loans, as a result, conditions are created to provide large volumes of mortgage lending, stability, since there is a market for mortgage bonds that is supported by the state. To the drawbacks that this model can work effectively only in countries with developed mortgage and financial markets in a stable economy.

After analyzing the models of mortgage lending (Tsitsiashvili and Gorbenko 2016), singled out the inherent features and peculiarities of each of them (see Table 1).

Table 1: Comparative Analysis of Mortgage Lending Models

Comparable parameters	Truncated - open	The balanced-autonomous (European)	Expanded-open (American)
Dependence of interest rates on the state of the financial market	Dependent	Do not depend	Dependent
Terms of obtaining a loan	Immediately after contacting the bank	After the accumulation of a certain amount of money	Immediately after contacting the bank
Sources of credit	Own and borrowed funds banks (interbank loans, customer funds, etc.)	Own and borrowed funds banks (interbank loans, customer funds, etc.)	Funds from the sale of mortgage-backed securities on the secondary market; own and borrowed funds banks (interbank loans, customer funds, etc.)
Principal creditors	Universal and specialized (mortgage) banks	Commercial, mortgage banks, specialized savings banks - construction savings banks, building societies	Savings and mortgage banks
Countries in which this mortgage lending model is implemented	England, France, Denmark, Australia, Spain, Israel	France, Germany, Denmark, Poland, Czech Republic, Slovakia, Hungary, Austria	United States, Canada
The main form of state support	Support and control over the state and development of the mortgage lending system	Support and control over the state and development of the mortgage lending system, its stimulation through subsidies, tax incentives for mortgage lending entities	Support and control over the state and development of the mortgage lending system, state guarantees for mortgages, partial control of the issuance of securities traded on the secondary market.

The analysis of the above models was carried out (Tsitsiashvili and Gorbenko 2016), which made it possible to distinguish the following features:

1. Guarantee of protection of interests in mortgage relations not only of the creditor, but also of the debtor. This condition is met through insurance, special government programs, procedures for foreclosure on pledged property, etc.
2. Provision of conditions for the availability of mortgage loans to consumers with different income levels: for certain segments of the population, benefits are provided for the repayment of a mortgage loan.
3. Granting benefits to organizations that specialize in mortgages.
4. Direct involvement of the state in the functioning of the mortgage lending market: control, regulation, stimulation, "compensation" of market failures. The state can pursue a preferential tax policy for participants of the mortgage lending market, it can also develop and implement special programs, create the necessary specialized organizations.

For the analysis of mortgage lending markets of individual countries, let us turn to the data of the European Mortgage Federation (EMF). Consider the indicator "the volume of mortgage loans issued" and analyze the data in the pre-crisis, crisis and post-crisis periods. Based on the information (European Mortgage Federation: HYPOSTAT 2015), it can be noted that, in general, the mortgage lending markets of most countries during the crisis have not been heavily fluctuated. You can see a decrease in the indicator under consideration during the crisis years in countries such as Great Britain (from 1618.9 billion euros in 2007 to 1287.3 billion euros in 2008, 25.7%), Ireland (from 148.8 billion euros in 2008 to 147.9 billion euros in 2009, by 0.6%), Latvia (from 7.2 billion euros in 2008 to 6.9 billion euros in 2009, by 4.3%), Lithuania 6.1 billion euros in 2008 to 6.0 billion euros in 2009, 1.6%), Estonia (from 6.2 billion euros in 2008 to 6.1 billion euros in 2009, by 1.6 %) and of course the US (from 8,822.9 billion euros in 2008 to 8185.5 billion euros in 2009, by 5.3%). Also in these countries, the decline in mortgage lending continued for 2-3 years, and in some even before the next period of instability in 2014. This is explained by a decrease in the solvency of the population, tightening of the conditions for lending to banks, a decrease in public confidence in banks, fears

associated with the expectation of deterioration in the overall economic situation in the country.

Also consider the dynamics of interest rates on mortgages. It should be borne in mind that this indicator depends, first of all, on the refinancing rate of the central bank. During the crisis of 2008-2010, the refinancing rates of central banks significantly decreased (in order to stimulate lending), which, combined with a small margin of banks on mortgages (1,5-2%), led to a significant decrease in mortgage rates in virtually all of the considered countries in 2009, after their growth by 2008 (Appendix 1).

Signs of the mortgage crisis in the US began to manifest themselves in 2003-2004. This crisis was characterized by a rapid increase in the cases of non-payment of mortgage loans, especially at high risk, frequent cases when banks alienated the pledged property, falling prices for securities that were provided with subprime mortgages, provoked by the banks themselves.

One of the prerequisites of the mortgage crisis in the US was the credit of non-standard borrowers. This led to the fact that in 2007 the volume of issued non-standard loans was about 20% of the total, although in 2002 this figure was at 6%.

Another precondition for the mortgage crisis was the provision of loans at a floating interest rate, which was periodically adjusted (Popov and Oreshkov 2009).

As a result of the massive inability of US mortgage borrowers to service loans, not only did the banks incur losses, but the mortgage bond market also collapsed, which led to huge losses for the largest US banks, which were saved from taxpayers (the government bought out significant shares of banks).

In Russia, it was planned to use the "American" model of mortgage lending. The choice of this model was determined by the small provision of Russian households with living space, the absence of significant cash savings. The "American" model could be quickly implemented in practice: mortgage loans became available for those households that had a certain level of monthly income (without taking into account the initial mortgage fee). In addition, the two-tier model provides the government with great opportunities to regulate mortgage lending processes, which is especially important during times of economic instability.

Consider the state of the mortgage market in Russia during the 2008 crisis. In October 2008, the average cost of interbank loans increased by 2-3%. This led to a shortage of money from Russian banks that provided mortgage loans, the volume of mortgage loans decreased (Appendix 2).

This problem was partially solved by the Bank of Russia, refinancing commercial banks, but the active phase of the global financial crisis, limited resources of the Bank of Russia, identified the emergence of liquidity problems with Russian banks. This led to a tightening of the terms of mortgage lending. In particular, this manifested itself in the following:

1. A number of banks decided to suspend the mortgage lending program in the primary market (for example, Absolut Bank, VTB 24, Alfa Bank, Raiffeisenbank).
2. The cost of borrowing by most banks was increased.
3. Mortgage lending in foreign currency was terminated (for example, Bank Vozrozhdenie).
4. The amount of the minimum down payment was increased (for example, Bank Vozrozhdenie increased the initial installment for the mortgage credit to 40%, and Alfa-Bank - from 10% to 15%) (Zavodova 2008). At the same time, by the end of 2009, some banks reduced the requirements for this indicator to 20%. This was due to the fact that the program of the Agency for Housing Mortgage Lending (AHML) (since March 2018 JSC DOM.RF) - offered lower rates in rubles. Commercial banks do not have the opportunity to reduce the rate below the AHML level, so to preserve competition they have lowered this parameter, namely the amount of the initial contribution (Yarullin 2010).

The growth in the share of overdue mortgage loans in December 2009 was due to the decision of the Bank of Russia to amend the regulatory documents relating to the recording of overdue loans under Form 254-P (changing the accounting for overdue loans stimulated banks to reflect the real volume of overdue debt) (Analytical Center AHML: Housing and Mortgage Lending: Results of 2009).

Despite of the high social importance of mortgage in the third quarter of 2008 AHML decided to tighten the terms of mortgage refinancing. As most of the regional

banks refinanced mortgage loans through the AHML program, the increase in the cost of refinancing led to a decrease in the growth rate of the real estate market. In 2009, the Agency changed its priorities and moved on to help borrowers whose revenues declined due to the crisis.

At this time, the risk of insolvency growth of mortgage borrowers persisted, which was combined with the growth of overdue debts on mortgage loans (Appendix 3). The banks could solve this problem in several ways: by restructuring (expecting an improvement in the borrower's solvency), by selling real estate pledged (in the absence of such expectations), and by re-applying the mortgage to another borrower. Restructuring the bank is unprofitable, because after concessions, customers may be followed by a decrease in the bank's liquidity. In this regard, restructuring, re-registration of mortgages were peculiar, first of all, to state banks (Ilyicheva 2010).

In 2014 the economic and financial situation in Russia began to change after the Crimea joined the Russian Federation and events in the east of Ukraine.

According to the data published on the official website of the Bank of Russia, the leader of retail lending in 2014 was a mortgage. A significant part of the population tried to protect their savings from inflation by investing in real estate, but the increase in the key rate on December 16, 2014 to 17% had a negative impact on the mortgage market.

The year 2015 began in the conditions of a severe crisis that affected the mortgage lending sector. The "stagnation" of mortgage lending was explained by the difficult geopolitical situation characterized by a fall in oil prices, high inflation, the devaluation of the Russian ruble, a decrease in real incomes of citizens, an increase in the key rate, and the loss of the confidence of individuals in banks (Nasretdinova 2017).

Considering the mortgage market in Russia during the crises of 2008 and 2014, it is necessary to estimate the official data on such indicators as the amount and number of mortgage loans issued, the weighted average terms of lending and interest rates, the number of credit institutions involved in mortgage lending, the amount of overdue loans on mortgage loans and etc.

Since 2006, there has been a trend in Russia to increase the volume of mortgage loans. However,

beginning from 01.01.2010, there was a serious decline in this indicator in rubles. The volume of mortgage loans in foreign currency decreased by almost 10 times. So it can be noted that in 2006-2008 an impressive increase in the volume of issuance was observed, which gradually slowed down and in 2009-2010 became negative. A similar situation was observed in 2014, when during the crisis the growth rate became negative. In 2010 and 2016g there was a reduction in both the volumes and the number of mortgage loans issued. The structure of issuing mortgage loans has changed significantly: a decrease in the share of loans in foreign currency was observed. This decline was due to changes in macroeconomic conditions and devaluation of the ruble in late 2008 and early 2009, in 2014, which significantly increased the cost of servicing such a loan for the borrower and the risk of non-payments to banks.

The volume and proportion of overdue debt on mortgage housing loans during the crisis (Appendix 3) showed growth. The share of delinquency increased from 1.07% at the beginning of 2009 to 3.07% at the beginning of 2010 from the total volume of mortgage loans. The share of overdue debt on ruble loans increased more quickly. According to AHML on average, it grew by 11.36% per month, and for loans in foreign currency, the growth rate was 7.34%.

However, the peak of the share of overdue debt (in general) fell in 2011: it was 3.69% in the total mortgage portfolio. In the future, even in the crisis years 2014-2016, this indicator was decreasing. In the improvement of the quality of the mortgage portfolio, a significant contribution was made by the reduction of debt on loans in foreign currency, which indicates the success of bank restructuring programs (Analytical Center AHML: Housing and Mortgage Lending: Results of 2009).

According to AHML, the quality of mortgage loans is still high, the share of overdue debt as of 01.01.2018 was 3.65% (Grouping of debt on mortgage housing loans by the timing of payment delays, Central bank of Russia).

The specifics of mortgage lending in various regions of Russia are determined by their economic development, the level of household incomes, the state of the local banking market, the presence of large state and private banks in this market (Official site of the Federal Service of State Statistics of Russia, Official site of the Bank of Russia). Statistical data on the

volume of mortgage lending in the regions of Russia is represented by the Bank of Russia, AHML in its current reports (quarterly and annual). In the report for 2017 the regulator notes that the regional distribution of the provided mortgage loans has not changed significantly (see Tables 2,3). The largest volume of loans granted over the past several years is accounted for by borrowers in Moscow, the Moscow region, St. Petersburg and the Tyumen region. In the most developed regions with a high level of income of potential borrowers, the demand for mortgages invariably grows.

Table 2: The Volume of Mortgage Loans Issued in Various Regions of Russia in 2017 (Dom.RF. Market Antiquity)

Region	Volume, bln. Rub.
Moscow	254
Moscow Region	160
St. Petersburg	129
Tyumen Region	101
Republic of Tatarstan	66
Sverdlovsk Region	65
Republic of Bashkortostan	61
Krasnodar Territory	52
Krasnoyarsk Territory	44
Other Regions	1043

The share of loans extended to borrowers of these regions in 2017 amounted to 31.9% of the total volume of mortgage loans issued and 20.2% of their total number. In addition, the average size of mortgage loans in these regions is one and a half times higher than the average size of the corresponding loans in Russia (2.94 million rubles against 1.87 million rubles).

Table 3: Distribution of Issued Mortgage Loans by districts in Russia in 2017 (Dom.RF. Market Antiquity)

District	Volume, mln. Rub.	Amount, pieces
Central Federal District	627051	254969
North-Western Federal District	257421	127986
Southern Federal District	138770	84,416
North-Caucasian Federal District	40284	24281
Volga Federal District	403282	270294
Ural federal district	217832	124907
Far Eastern Federal District	99964	46841

The highest growth rates of mortgage lending in 2017 were observed in Tyva (+ 76%), Vladimir region. (+ 64%), Omsk region. (+ 57%), the Pskov region (+ 56%) and Tatarstan (+ 56%). Mortgage lending declined in three regions of Russia: Adygea (-10%), Chechnya (-6%), and the Republic of Altai (-4%) (Dom.RF. Market antiquity) .

A two-level model of mortgage lending in Russia determined the use of refinancing with securitization.

The increase in refinancing in 2009 was due to measures taken by the government to support credit institutions and increase their liquidity (providing budget funds for the repayment of mortgages) (Khusikhanov 2016).

It should also be noted that in recent years (after 2013), there has been a trend in the Russian banking system to revoke licenses and terminate the activities of many credit institutions that have performed ineffective and sometimes illegal activities, leading to bankruptcy (Fedorova and Pakhomov 2016) . Analyzing the dynamics of the number of credit institutions that provide mortgages, it can be noted that their number has steadily increased until early 2010, and subsequently there has been a reduction in their number to 584 units (Table 4). After that, their growth followed again, and the decline has been observed since 2015.

So at the beginning of 2017 the share of credit institutions that issued mortgages was 78%.

Sberbank of Russia confidently takes a leading position during all considered periods, despite the reduction in the volume of issuance in 2010 (compared to 2008 by 36%) and in 2015 (compared to 2014 by 28%). The second place is not stable, but starting from 2010, it is held by VTB 24. As for the third place, it was alternately occupied by Delta Credit Bank,

Table 4: Dynamics of Changes in the Number of Credit Institutions, Incl. Providing Mortgage Housing Loans (MHL)¹

Date	Total number of active COs	Number of credit institutions that provide mortgage housing loans, units.	Specific weight, %
01.01.2006	1 253	423	34%
01.01.2007	1 189	498	42%
01.01.2008	1 136	553	49%
01.01.2009	1 108	602	54%
01.01.2010	1 058	584	55%
01.01.2011	1 012	631	62%
01.01.2012	978	658	67%
01.01.2013	956	667	70%
01.01.2014	923	658	71%
01.01.2015	834	629	75%
01.01.2016	733	559	76%
01.01.2017	623	484	78%
01.01.2018	561	410	73%

¹Compiled by the authors according to the Bank of Russia: Participants in the housing (mortgage) lending market - [Electronic resource]. - Access mode. URL: <http://cbr.ru/statistics/?Prtd=ipoteka> - (Date of circulation: 13.04.2017).

Gazprombank and Rosselkhozbank (Analytical Center for Mortgage Lending and Securitization Rusipoteka: "The Higher Mortgage League: Results of 2016").

Until early 2009, interest rates on mortgage loans declined as for loans in rubles, and in foreign currency (Analytical Center for Mortgage Lending and Securitization Rusipoteka: "The Higher Mortgage League: Results of 2016»). However, as early as 2010, weighted average interest rates on mortgage loans increased by 1.4 percentage points for loans in rubles and by 1.9 percentage points. for loans in foreign currency - to the level of 14.3% and 12.7% respectively. In 2011, the rate was 11.90%. This is the minimum interest rate in the post-crisis period. After

2011, this indicator again began to grow and by 2016 almost returned to the level of 2009-2010. The trend was towards lower interest rates. Figure 1 shows the dynamics of changes in the weighted average interest rate.

Data show a gradual decline in the weighted average interest rate since 2010. During the period under review, the interest rate decreased by 25.7% in relative terms.

As it was shown on the graph, the average weighted rate in early 2018 was 10.64%. However, already at the end of last year, many leading banks reduced rates to 9.8%. Consequently, noticeably the

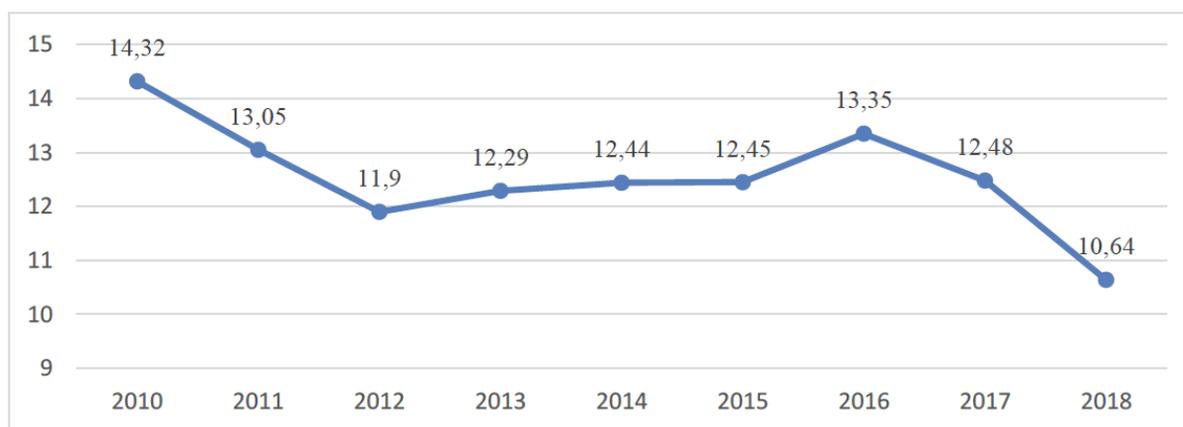


Figure 1: Dynamics of changes in the weighted average interest rate (Mortgage housing loans granted to resident individuals and acquired claims for mortgage housing loans in rubles, Central bank of Russia).

fall in rates by more than 3 percentage points, since 2016. Such a sharp rate of decline in the mortgage market has not been observed in the entire history of mortgage lending in Russia.

Reducing interest rates on mortgage loans, increasing their accessibility for households in Russia leads to the development of the mortgage market. The average weighted interest rate on mortgages for the year 2017 decreased from 12.48% to 10%, this led to an increase in the volume and number of loans issued: in 1Q07 1.09 million loans worth 2.02 trillion. The increase in relation to 2016 was 37%.

According to analysts' forecasts, while maintaining a stable macroeconomic situation, the volume of mortgage loans in 2018 may reach 3 trillion. rubles (which is 1.5 times higher than in 2017): for seven months in 2018. already issued about 785 thousand loans at 1.55 trillion. (Dom.RF. Market antiquity).

The reduction in interest rates leads to a change in the structure of the mortgage lending market - a secondary market for mortgage lending is being formed and is actively developing. Banks are developing programs to refinance previously issued mortgage loans: borrowers are given the opportunity to obtain a new loan at a lower interest rate due to which the previously received loan is repaid. According to AHML estimates in 2018, about 150-200 thousand mortgage loans will be issued to repay previously issued mortgage loans (Dom.RF. Market antiquity). Detailed data on the dynamics of refinancing of mortgage loans since 2012. to 2017g. reports on mortgage lending to the Bank of Russia (Official site of the Bank of Russia). Reducing the cost of mortgage loans can also lead to an increase in effective demand for other goods on the domestic market of Russia (the constant expenses of households are reduced)

For commercial banks participating in refinancing of mortgage loans, it becomes possible to redistribute risks, reduce reserves, and record profits.

The terms for granting loans in rubles in 2010 amounted to an average of 16.5 years (1.5 years less than in 2009), in foreign currency - 11.6 years (decrease by 5.6 years), although before that there was an increase in the terms of lending. This situation is due to the presence of foreign exchange risk of mortgage lending. Mortgage lending terms in 2016 were 14.7 years, which is 2 years less than in 2010. The main reasons for the worsening of the situation in

the mortgage market were the growth of risks of lenders and borrowers, tightening of requirements for borrowers from banks, devaluation of the ruble, decrease in effective demand for loans, a reduction in the number of participants in the mortgage lending market.

In general, according to AHML (JSC Dom.rf), the restoration of the mortgage market after the crisis of 2015 took only a year, in 2009, the market for recovery took 2 years. It should also be noted that the market decline in 2015 was much less profound - the decline was about 50% compared to 430% in 2008. This is explained by the state program of subsidizing interest rates on mortgage loans for the purchase of housing under construction (Analytical Center of AHML: Results of development of housing and mortgage markets in 2016). It was after the launch of this program that the mortgage market of Russia took the path of stabilization. However, measures of state support were aimed mainly at purchasing housing in the primary market (RBC: research store. Mortgage lending in Russia).

Within the framework of this program, a number of requirements for receiving subsidies have been established: real estate should be in a new building, an agreement must be concluded between the buyer and the developer, in which, without fail, the buyer had to insure not only his life and health, but also the ownership of housing.

Banks in the framework of this program were supposed to issue mortgage loans initially in the amount of at least 300 million rubles and received a subsidy from the state in the amount of the difference between the key rate increased by 3.5% and the maximum loan rate.

The leaders in the subsidy program are Sberbank, VTB24 and Rosselkhozbank - the leaders in terms of mortgage lending in 2015-2016. In general, the shares of banks in the program under review are proportional to market shares in the whole market, and in a number of banks, subsidies generally account for more than 50% of the total portfolio of mortgage loans (Analytical Center for Mortgage Lending and Securitization Rusipoteka: "The Higher Mortgage League: Results of 2016»).

The program, which was originally planned for completion in March 2016, was extended at the end of February to the end of 2016, and the limit for issuing

mortgage loans was increased from 400 billion rubles to 1 trillion rubles.

According to AHML, following the results of 2015-2016, the program issued 927 billion rubles of mortgage loans (including 556 billion rubles in 2016), which accounted for about 40% of all mortgage loans.

This program contributed to the activation of lending on the security of rights under equity agreements: the share of such mortgages reached a record value of 39% of the total volume of mortgages issued.

Most of the Russian banks joined the program of state subsidizing of the mortgage almost immediately. As a result, this program contributed to the preservation of demand for mortgage housing loans, and the main factor that limited this demand was a decrease in the solvency of the population (Annual report of the Bank of Russia 2015). The implementation of the subsidy program not only facilitated the rapid restoration of the mortgage market, but also supported the demand for apartments in multi-family residential buildings (Analytical Center of AHML: Results of development of housing and mortgage markets in 2016).

Features of legislative regulation of mortgage lending in Russia are related to the fact that the main participants in mortgage lending are investing money, registering property rights, getting assets at their disposal. In carrying out these operations, participants in mortgage lending face risks of financial losses.

The legal framework for mortgage housing lending in Russia includes: the Constitution of the Russian Federation (1993), which establishes the rights of a citizen to housing and the protection of private property; The Civil Code of the Russian Federation (Articles 37, 131, 209, 246, 260, 329, 365, 387, 488, 855, 935), which establishes general rules for securing real estate loans, property rights and other proprietary rights to premises; the grounds for foreclosure on the mortgaged residential premises, etc., and also provides for a number of rules regarding mandatory state registration of property rights and other real rights to immovable property, determines the procedure for the appearance, restriction and transfer of such rights; Federal Law No. 143 "On Mortgage (Real Estate Pledge)", Federal Law No. 152 "On Mortgage Securities", Federal Law No. 122 "On State Registration of Rights to Immovable Property and Transactions with It."

The implementation of Federal Law No. 152 "On Mortgage Securities" is associated with the instructions of the Bank of Russia, in particular, 112-I "On Mandatory Norms of Credit Institutions Performing Issue of Mortgage-Backed Bonds", which is aimed at regulating banking risks in the implementation of these transactions and establishes three additional mandatory standards - H17, H18 and H19. The practice of mortgage lending in Russia determines the need to adjust the relevant legislative and regulatory framework.

Regulation affects the activities of all participants in the mortgage lending market, including the functioning of the Agency for Housing Mortgage Lending.

AHML's activities are largely determined by Federal Law No. 225 "On Promoting Development and Improving the Efficiency of Housing Management and on Amending Certain Legislative Acts of the Russian Federation", the Strategy for the Development of Housing Mortgage Lending in the Russian Federation until 2020, (approved by Order Government of the Russian Federation No. 2242-r of 8 November 2014), the Strategy for the Development of Housing Mortgage Lending in the Russian Federation until 2030 (approved by the Government of the Russian Federation on July 19, 2010)

METHODOLOGY

1. Qualitative analysis of the mortgage market in Russia during the financial crisis
2. Using regression analysis to identify significant factors affecting the volume of mortgage lending In Russia.

Qualitative Analysis of the Mortgage Market in Russia during the Financial Crisis

1. The development of mortgage operations in developed and developing countries during the financial crisis was characterized by a relatively small decrease in the volume of loans, a decrease in interest rates, and large-scale state aid to banks that were in a difficult financial situation due to the catastrophic growth of overdue debts in the mortgage lending sector.
2. Discussing the use of a two-tier model of mortgage lending in Russia, it can be noted that this choice was correct. This is evidenced by the quantitative results of mortgage lending (the

- volume of loans granted, the proportion of overdue, etc.) for the entire period of mortgage lending in Russia (RBC: research store. Mortgage lending in Russia). The practice of mortgage lending showed that the state used and uses the possibilities to regulate the processes of mortgage lending, especially during crises.
3. The development of the financial crisis in Russia in 2008 was characterized by an increase in the cost of monetary resources, which led not only to an increase in the cost of mortgage lending, but also to tightening the terms of mortgage lending (in particular, to raising the size of the initial installment and stopping lending in foreign currency).
 4. Significant deterioration of the economic and financial situation in Russia led to an increase in the volume of overdue debt in 2008.
 5. In 2008-2009, the state initially tightened the terms for refinancing mortgage loans, and then moved on to help borrowers whose revenues declined because of the crisis. This allows us to conclude that by the beginning of the 2008 crisis, the state did not have a clear plan to support the mortgage lending market.
 6. In 2014, by the beginning of the financial crisis, mortgage lending was the leader in retail (consumer) lending in Russia. The forced increase in the key rate by the Bank of Russia, the reduction in effective demand, the uncertainty of the situation as a whole in the economy, slowed down the growth of mortgage lending.
 7. The effective work of AHML (Dom.rf), the regulated activity of the mortgage bond market, the reduction in mortgage rates by Russian state-owned banks after 2015 (subsidizing interest rates), led to a rapid growth in the volume of mortgage loans issued in 2016-2017 in Russia. This allows us to say that the state has drawn conclusions from the experience of regulating the mortgage market in the crisis of 2008 and managed to organize an effective mortgage support program in Russia during the crisis period of 2014.
 8. Important changes in the Russian banking system that have been going on for more than 3

years now (revoking licenses from a large number of small banks, transferring a significant number of banks to sanitation, including such large ones as Otkrytie, Promsvyazbank, Binbank), on the whole, positively influence the processes of mortgage lending in Russia. In fact, there is a consolidation of banks, primarily government, which, of course, positively affects the results and manageability of mortgage lending in Russia. There is an opportunity to implement a more complete and in-depth regulation of mortgage lending processes. The announced decrease in the cost of mortgage lending in Russia to the level of 6 -7 percent can be relatively easily realized in the next 2-3 years (without taking into account the negative dynamics in the world financial markets). All this is possible in connection with the use of the "American" model of mortgage lending (Annual report of the Bank of Russia 2017).

Using Regression Analysis to Identify Significant Factors Affecting the Volume of Mortgage Lending In Russia

The results of the analysis, the above conclusions have made it possible to identify the significant factors affecting the volume of mortgage lending in Russia. The authors believe that a regression model can be used to identify these factors. At the first stage, a linear additive regression model was chosen:

$$Y = a_0 + a_1X_1 + \dots + a_kX_k, \text{ where}$$

Y-volumes of mortgage lending, million rubles;

X1- weighted average interest rate on mortgage loans issued, %;

X2- GDP, billion rubles;

X3 - per capita monetary income of the population (per month), thousand rubles;

X4- weighted average dollar to ruble rate, rub .;

X5 - the number of apartments built, units;

$a_0, a_1 \dots a_k$ are the calculated regression parameters.

Table 5 shows the initial data for regression analysis.

To assess the significance of a criterion, it is necessary to pay attention to the P-value, that is, the

Table 5: Initial Data of Regression Analysis²

year	Mortgage loans in rubles, million rubles. (Y)	Weighted average interest rates on mortgage loans granted,% (X1)	GDP, billion rubles (X2)	Average per capita monetary income of the population (per month), thousand rubles. (X3)	Rate of the dollar to the ruble, rub. (X4)	Number of apartments built, units (X5)
2005	30918	14,90	21610	8,1	27,75	515304
2006	179612	13,70	26917	10,2	28,78	608555
2007	438145	12,60	33248	12,5	26,33	722453
2008	560671	12,90	41277	14,9	24,55	768106
2009	142968	14,30	38807	16,9	29,39	701857
2010	364634	13,05	46309	19,0	30,19	716930
2011	697417	11,90	55967	20,8	30,35	785561
2012	1017316	12,29	66927	23,2	32,20	838029
2013	1338731	12,44	71017	25,9	30,37	929371
2014	1753294	12,45	79200	27,8	32,66	1124000
2015	1157760	13,35	83233	30,2	56,24	1195000
2016	1472254	12,48	86044	30,9	72,93	1156500

²Compiled by the author according to the Federal State Statistics Service - [Electronic resource]. - Access mode. URL: <http://www.gks.ru/>- (Date of circulation: 15.04.2017) and the Central Bank of the Russian Federation - [Electronic resource]. - Access mode. URL: <http://www.cbr.ru/>- (Date of circulation: April 15, 2017)

value of the probability density of the Student's distribution. At the first stage of the analysis, we got that this parameter goes beyond 0.05 practically by all criteria, but it is the maximum for the first one.

With the next construction of the regression without taking into account X1, the obtained data indicate that the indicator X5 is also negligible, which indicates that the population as a whole takes loans regardless of the dynamics of real estate construction. Perhaps this trend is not so pronounced in connection with the fact that the input shows that the construction figures are increasing every year, and mortgage lending is an unstable value. After further analysis, we can note a slight influence of the X4 indicator, so in the end we get that the investigated parameter is most influenced by two indicators: the change in GDP and per capita income of the population (see Table 6).

The resulting equation has the form:

$$Y = -305789 + 67,78296 * X_2 - 130085 * X_3$$

RESULTS OF THE STUDY

Analysis of the literature review, the results of using the regression model allow us to conclude:

1. The specifics of the mortgage market in Russia is that the national economy is particularly sensitive to changes in energy prices on world markets, the introduction of financial sanctions.

Currently, there is a low solvency of the population, the place of oligopolization of the primary housing market, there is population migration (mortgage lending is most developed in large and developed regions of Russia).

2. periods of crises are characterized by a decrease in the liquidity of banks and a decrease in their access to "long" and "cheap" cash, which could be observed in Russia;
3. In conditions of instability, credit risks associated with a possible deterioration in the situation of

Table 6: Values of the Coefficients of the Regression Equation and Probability Density of the Student's Distribution³

	coefficients	P-value
Y	-305879	0,084477376
Variable X ₂ (GDP)	67,78296	0,004024754
Variable X ₃ (Average per capita monetary income of the population)	-130085	0,033083582

³compiled by the authors.

- borrowers and the market situation as a whole are growing; the volume of overdue debt increases, which increases the risk of destabilization not only of the banking sector, but of the economy as a whole; as a consequence, there is a toughening of the conditions for issuing mortgage loans; all this was observed in Russia;
4. During the crisis, banks raise interest rates to compensate for increased risks (and in Russia, too). However, in Russia, as in other countries, state programs are being implemented to support mortgage lending (first of all, government subsidizing interest rates, which leads to their reduction); it should be noted that the current state of the Russian economy, the current sanctions, instability in the energy markets determine the need for continued government support for the processes of mortgage lending.
 5. The results of the use of the regression model allow us to conclude that, with the chosen structure of the regression model, the initial data used, the volume of mortgage lending in Russia is significantly influenced by two factors: changes in GDP and per capita income of the population.
3. Improve the profile legislation (for example, provide for the possibility of a mortgage on the basis of a will).
 4. Develop and implement programs for preferential mortgage lending (similar to the programs presented in, for example, the Strategy for the Development of Housing Mortgage Lending in the Russian Federation until 2020, and the Federal Target Program Housing for 2015-2020), which will allow to improve the provision of affordable housing for Russian citizens of certain social groups. In addition to the already available programs "Maternity Capital", "Military Mortgage", etc., for example, one can consider the possibility of creating preferential conditions for working youth, and not just for young families (programs for young scientists, teachers, civil servants and other categories have already been created population, who have already proven themselves).
 5. Ensure further reduction of interest rates. The results of the research showed that interest rates on mortgages in Russia are much higher than in other developed and developing countries of the world.
 6. Develop a unified methodology for assessing the creditworthiness of a mortgage borrower, optimize the process of mortgage lending using modern financial technologies (fintech).
 7. Continue the government's program of subsidizing interest rates on mortgage loans by changing the size of subsidies, its differentiated use in different regions of Russia.

PRACTICAL RECOMMENDATIONS

According to the authors, it is advisable to take the following actions aimed at further development of mortgage lending in Russia in the post-crisis period:

1. Support the growth in housing construction in Russia, through the introduction of special tax and other benefits for developers who cooperate with state-owned banks that subsidize interest rates. It is desirable to create and maintain conditions for competition in the housing construction market, mortgage lending.
2. Ensure constant monitoring and effective regulation of the mortgage bond market by the state, the Bank of Russia.

FURTHER DEVELOPMENT OF THE STUDY

The development of this research can be associated with the identification of new factors that significantly affect the volume of mortgage lending in Russia, the construction of new statistical (regression) models.

Appendix 1: Average Mortgage Rates in Several Countries of the World, % Per Annum⁴

Country	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Austria	5,6	3,9	3,6	3,8	4,8	5,3	3,7	2,7	2,9	2,7	2,7	2,4
Belgium	6,0	5,2	5,0	5,4	4,9	5,0	4,4	3,8	3,9	3,7	3,7	3,2

Bulgaria	10,2	10,6	6,9	8,5	10,4	10,4	9,7	8,3	8,2	7,5	6,9	6,7
United Kingdom	4,2	6,6	6,4	5,1	5,8	5,9	4,3	3,8	3,6	3,7	3,3	3,1
Germany	5,1	4,6	4,2	4,6	5,0	4,8	4,3	3,7	3,5	3,1	2,8	2,5
Greece	5,5	5,5	4,0	4,4	4,8	5,3	3,4	3,8	4,2	3,3	2,9	2,9
Denmark	5,5	5,0	4,4	5,2	5,9	6,6	5,2	4,7	4,2	3,7	2,8	2,6
Ireland	3,5	3,5	3,7	4,6	5,1	5,3	2,6	3,0	3,4	3,3	3,4	3,4
Spain	3,2	3,3	3,5	4,0	5,1	5,9	2,5	2,5	3,5	3,2	3,0	3,0
Italy	4,8	4,5	4,1	4,6	5,2	6,3	2,9	3,0	3,3	4,0	3,7	2,8
Cyprus	7,5	7,3	6,2	5,7	5,9	6,0	5,0	5,2	5,3	5,3	4,9	4,4
Latvia	5,1	5,0	5,2	4,7	5,9	6,7	4,5	4,2	3,8	3,7	3,3	3,4
Lithuania	4,7	4,5	3,3	4,0	5,3	5,5	4,0	3,7	3,6	3,0	2,4	2,2
Luxembourg	3,5	3,4	4,1	4,0	4,8	3,5	2,1	1,9	2,3	2,1	2,0	2,0
Malta	3,5	4,3	4,5	4,7	5,4	4,0	3,5	3,5	3,9	4,0	3,2	2,9
Netherlands	4,9	4,8	4,1	4,4	5,0	5,3	5,4	4,6	4,9	4,7	3,8	3,4
Poland	7,6	8,1	6,0	5,7	5,9	7,1	7,1	6,6	7,0	6,9	5,1	4,1
Portugal	4,3	4,1	4,2	5,0	5,7	5,9	2,3	2,9	3,7	3,9	3,2	3,2
Slovakia	6,9	6,9	4,7	6,3	6,2	6,2	5,5	5,0	5,3	5,2	4,1	3,4
Slovenia	7,6	7,6	6,2	5,6	6,3	6,9	3,4	3,2	4,0	3,6	3,2	2,9
USA	5,7	5,3	5,5	5,8	6,3	6,0	5,1	4,7	4,5	3,7	3,9	3,6
Finland	3,4	3,4	3,0	3,7	4,7	5,0	2,0	2,2	2,6	1,9	2,0	1,8
France	4,4	4,3	3,5	3,9	4,6	5,2	4,6	4,0	3,9	3,8	3,2	2,7
Czech Republic	5,5	5,2	4,8	4,4	5,3	5,7	5,6	4,2	3,6	3,2	3,3	2,6
Sweden	3,7	3,0	2,4	3,6	4,8	3,6	1,4	2,8	4,2	3,5	2,6	2,1
Estonia	3,7	3,7	3,7	4,4	5,5	8,2	5,9	3,4	3,5	2,9	2,6	2,6
Russia	17,5	17,3	16,2	14,9	13,7	12,6	12,9	14,3	13,1	11,9	12,3	12,4

⁴Compiled by the authors according to the data The European Mortgage Federation: HYPOSTAT 2003-2015 «A review of Europe's mortgage and housing markets». - [Electronic resource]. - Access mode. URL: <http://www.hypo.org> (Date of circulation: 04/10/2017).

Appendix 2: Indicators of the Volume of Mortgage Loans in Russia⁵

Date, currency of the mortgage	The volume of housing loans granted to private individuals by resident individuals, million rubles.	Rate of increase, %	Number of provided housing loans, units.	The average volume of housing loans, thousand rubles.
01.01.2006	in rubles.	30918	-	-
	in foreign currency	25423	-	-
01.01.2007	in rubles.	179612	481%	-
	in foreign currency	83949	230%	-
01.01.2008	in rubles.	438145	144%	-
	in foreign currency	118344	41%	-
01.01.2009	in rubles.	560671	28%	332 041
	in foreign currency	95137	-20%	17 461
01.01.2010	in rubles.	142968	-75%	128 004
	in foreign currency	9533	-90%	2 081
01.01.2011	in rubles.	364634	155%	298 213
	in foreign currency	15427	62%	3 220

01.01.2012	in rubles.	697417	91%	520 658	1 339
	in foreign currency	19527	27%	2 924	6 678
01.01.2013	in rubles.	1017316	46%	690 050	1 474
	in foreign currency	14676	-25%	1 674	8 767
01.01.2014	in rubles.	1338731	32%	823 175	1 626
	in foreign currency	15195	4%	1 864	8 152
01.01.2015	in rubles.	1753294	31%	1 012 064	1 732
	in foreign currency	10832	-29%	750	14 443
01.01.2016	in rubles.	1157760	-34%	699 419	1 655
	in foreign currency	3903	-64%	91	42 890
01.01.2017	in rubles.	1472254	27%	856427	1719
	in foreign currency	1087	-72%	34	31971

⁵Compiled by the authors according to the Bank of Russia: Statistical compilation "Information on the housing market (mortgage housing) lending in Russia" - [Electronic resource]. - Access mode. URL: <http://cbr.ru/statistics/?Prtd=ipoteka> - (Date of circulation: 13.04.2017).

Appendix 3: Indicators of Overdue Debt on MHL⁶

Date, currency of the mortgage		The volume of overdue debt on MHL granted to individuals-residents, million rubles.	The share of overdue debt on MHL in the amount of debt on MHL, %	The share of overdue debt on MHL in the amount of debt on MHL, % (in general)
01.01.2006	in rubles.	6	0,03	0,10
	in foreign currency	47	0,15	
01.01.2007	in rubles.	22	0,02	0,02
	in foreign currency	26	0,03	
01.01.2008	in rubles.	435	0,1	0,13
	in foreign currency	361	0,22	
01.01.2009	in rubles.	5256	0,63	1,07
	in foreign currency	6243	2,7	
01.01.2010	in rubles.	18526	2,28	3,07
	in foreign currency	12505	6,31	
01.01.2011	in rubles.	23564	2,48	3,69
	in foreign currency	18068	10,03	
01.01.2012	in rubles.	25946	1,97	3,06
	in foreign currency	19381	11,77	
01.01.2013	in rubles.	27533	1,47	2,08
	in foreign currency	14026	11,42	
01.01.2014	in rubles.	25443	1	1,50
	in foreign currency	14207	12,69	
01.01.2015	in rubles.	28954	0,85	1,31
	in foreign currency	17143	12,56	
01.01.2016	in rubles.	39524	1,03	1,66
	in foreign currency	26685	20,36	

⁶Compiled by the authors according to the Bank of Russia: Statistical compilation "Information on the housing market (mortgage housing) lending in Russia" - [Electronic resource]. - Access mode. URL: <http://cbr.ru/statistics/?Prtd=ipoteka> - (Date of circulation: 13.04.2017).

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