



Bank of Russia



DECEMBER 2019

BANK OF RUSSIA MEASURES TO ENSURE THE BALANCED DEVELOPMENT OF MORTGAGE LENDING

Consultative report

Moscow
2021

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This review was prepared by the Financial Stability Department.

Please send your comments, answers to questions posed in the review, proposals and remarks regarding the contents of the review by 20 February 2020 (inclusive) to:

RumyancevEL@cbr.ru , ChenchikYaV@cbr.ru.

A reference to the Bank of Russia is mandatory if you intend to use information from this review.

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12 Neglinnaya Street, Moscow 107016
Bank of Russia website: www.cbr.ru

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Aiming to support balanced growth in mortgage lending, increase the sensitivity of macroprudential policies to residential mortgage risk and limit the risks of growing debt burden of households, the Bank of Russia is exploring the introduction, from 1 July 2020, of differentiated add-ons to risk weights on mortgage loans depending on the borrower's payment to income (PTI) and loan to value (LTV) ratios.

1. CURRENT STATE OF THE MORTGAGE LENDING MARKET

Russia has seen sustained growth in mortgage lending since 2013. Between early 2013 and 1 October 2019, the mortgage portfolio grew more than 3.5 times from 2.0 to 7.3 trillion rubles. The share of mortgages in the total portfolio of household loans went up from 27.8 to 42.8%. Currently, mortgage debt sustains high growth paces of 20.8% YoY, as of 1 November 2019 (including securitised loans in 2019).

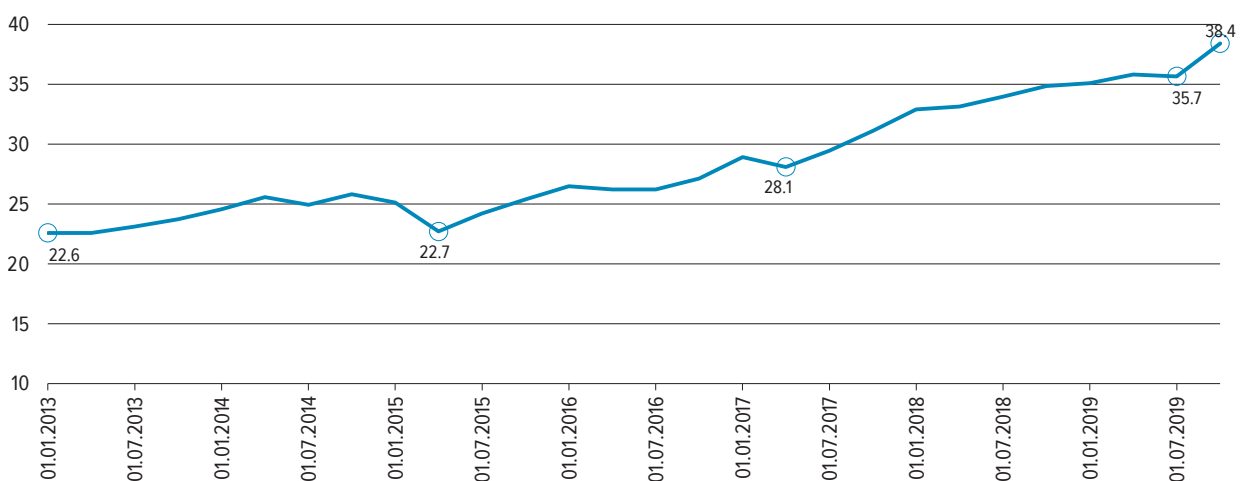
Moreover, mortgage loans retain considerable growth potential. The mortgage loans to GDP ratio went up from 3.3% in early 2013 to 6.7% in the end of 2019 Q2, while in emerging market economies it is in the 10-30% range of GDP (the median value was 21% as of the end of 2016, according to the IMF).

Mortgage loans are expected to become more affordable and demand for mortgages will grow as interest rates on them drop. This is also confirmed by changes in the housing affordability index (the number of square meters of residential property in the primary market that a borrower can mortgage by spending half of the national average nominal monthly wage to service debt). The index rose between 2013 and 1 October 2019 from 22.6 to 38.4 sq. m (Chart 1). Housing affordability drivers in this period changed as follows. The weighted average mortgage rate dropped by 3.2 pp from 12.6 to 9.4%; the average loan maturity went up 20% from 15 to 18 years, the average nominal monthly wage went up 72.5% from 26.8 to 46.3 thousand rubles; the price of one square metre of residential property in the primary market was up 30.6% from 48.2 to 62.9 thousand rubles (Chart 2).

The mortgage segment is also expected to gain a boost from the Housing and Urban Environment National Project and the introduction of new equity housing construction financing vehicles involving escrow accounts, intended to mitigate home buyers' risks.

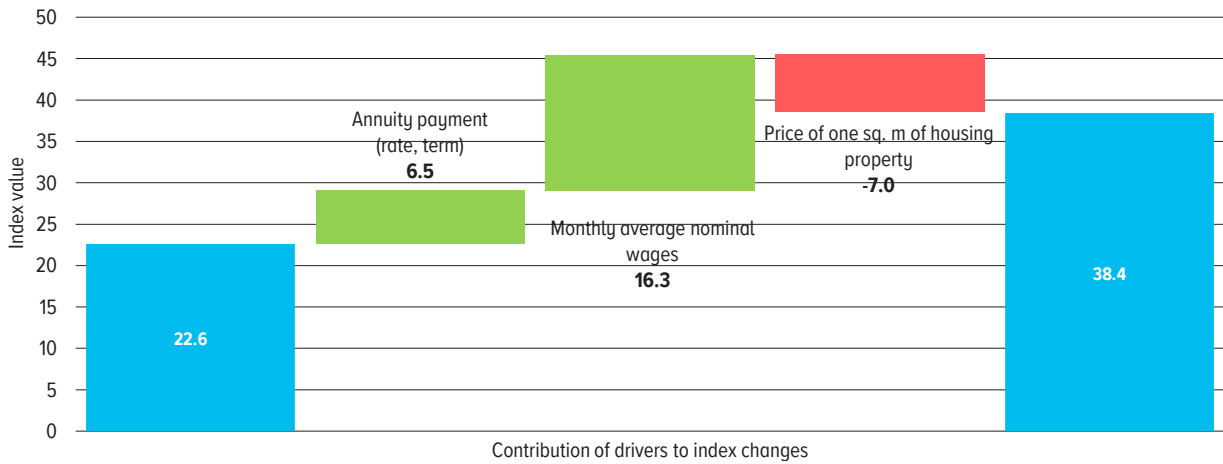
CHANGES IN THE HOUSING AFFORDABILITY INDEX, 1.01.2013 – 01.10.2019
(SQ. M)

Chart 1



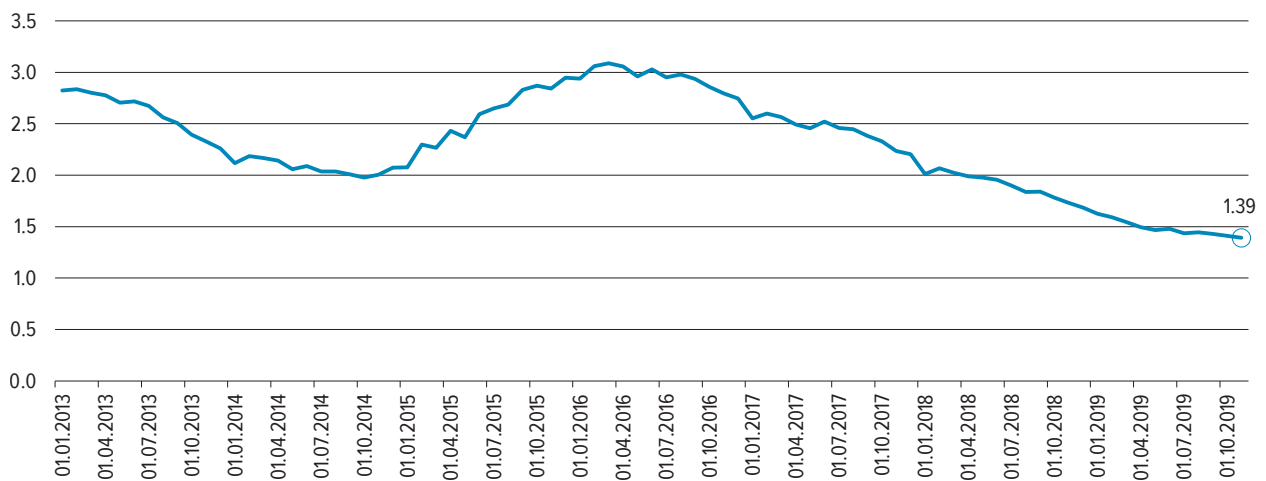
CONTRIBUTION OF VARIOUS DRIVERS TO CHANGES IN THE HOUSING AFFORDABILITY INDEX, 1.01.2013 – 1.10.2019 (SQ. M)

Chart 2



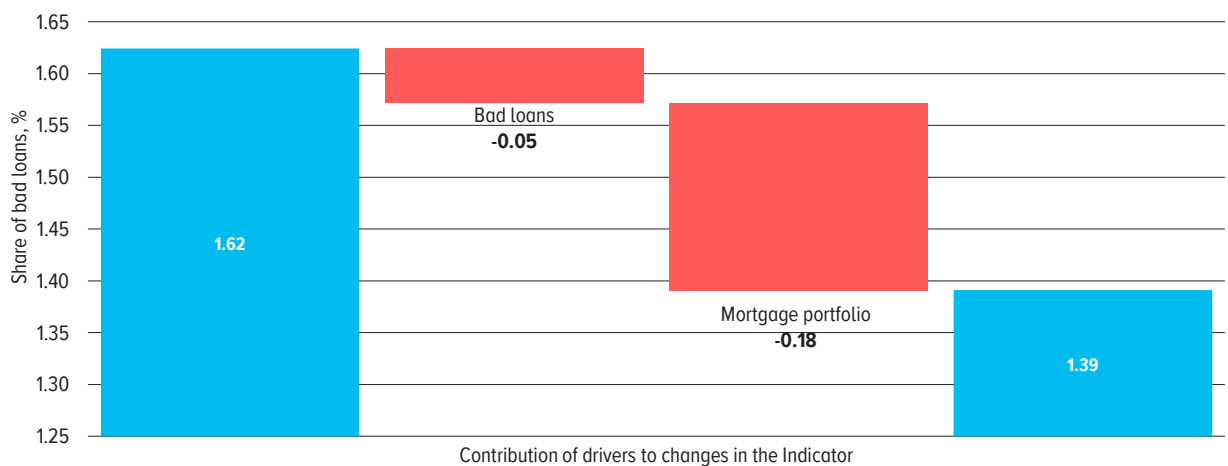
CONTRIBUTION OF DRIVERS TO CHANGES IN THE SHARE OF BAD LOANS IN THE TOTAL MORTGAGE PORTFOLIO, 1.01.2019 – 1.10.2019 (%)

Chart 3



CHANGES IN THE SHARE OF BAD LOANS IN THE TOTAL MORTGAGE PORTFOLIO, 1.01.2013 – 1.10.2019 (%)

Chart 4



Banks' great interest in mortgage lending in recent years has also been driven by the high quality of such loans: bad loans have totalled 3% or less since 2013. Between 1 January and 1 October 2019, debt overdue by 90 days or more dropped 3.7%, while the mortgage portfolio grew 12.5%. This sent the share of bad loans over this period down from 1.62% to 1.39% (Charts 3 and 4).

Question for discussion:

What trends in mortgage lending, in your view, will emerge in Russia?

2. POTENTIAL SYSTEMIC RISKS IN THE MORTGAGE MARKET

The Russian financial market has so far been able to steer clear of mortgage crises, and the share of mortgage loans in total banking sector assets has remained essentially immaterial. However, many economies provide examples of financial crisis coinciding with the onset of mortgage risks. The 2007-2009 global financial crisis was indeed caused by developments in the US subprime mortgage market.

Global experience shows that core vulnerabilities of the mortgage market originate from growth in borrower debt burden and overheated housing prices. These vulnerabilities may amplify spillovers to the mortgage market of such crisis phenomena as a decline in real disposable household incomes, a rise in unemployment and a drop in real estate prices. Growing vulnerabilities in turn lead to increased losses of the banking system and the real economy, even if the magnitude of shocks is unchanged.

Vulnerabilities surge when most banks ease borrower requirements, that is, they lend to highly indebted borrowers and issue mortgages with small down payments (a high loan-to-value ratio).

The loan-to-value (LTV) ratio at the time of the mortgage loan reflects the borrower's ability to save funds. Loans with small down payments are considered higher risk loans. In addition, the higher the share of the borrower's investment in the real estate, the greater their motivation to repay the loan to make sure they do not lose possession of the pledged property. Importantly also, a low LTV reduces the probability of the bank's losses in the concurrent scenario of borrower default and a drop in real estate prices.

In Russia, there have been no records to date of drastic fluctuations in real estate prices caused by a change in lending trends. The sharpest drops in real estate prices occurred in 1998, 2009–2010 (prices fell 8.1%) and 2014–2015 (2.1%).¹ With consumers having viewed real estate as a store of value, price fluctuations in the market have remained fairly low. Deeper downturns in housing prices were however seen in European markets: Ireland – 54%, Spain – 37%, Italy – 20%, the UK – 18%.² Importantly, crises in the real estate market involve, beyond a drop in prices, a contraction in market liquidity, to the effect that the crises actually deprived European banks of liquid assets (the problem solution in Spain and Ireland was the consolidation of toxic assets in several banks; EU support was provided). As mortgage lending expands in Russia, real estate price trends will increasingly depend on the affordability of loans for households. Should external or internal shocks materialise and mortgage lending conditions deteriorate, real estate prices will come under pressure from demand. Concurrently, banks will confront the need to sell a large number of collateral on overdue loans. This will put further pressure on prices from the supply side.

The borrower's debt burden is also a key characteristic of credit risk. The higher a debt burden, the more likely it is that over a long life of a mortgage the borrower may experience a temporary decline in income and may struggle to service the loan. A debt-laden borrower could either stop servicing the loan, which carries direct implications for banks' financial performance, or cut down consumption considerably, which translates into a drop in consumer demand and economic activity, ultimately causing spillover effects on banks.

Therefore, lax lending standards (high LTV ratios, a high share of debt-laden borrowers) lead, in the event of stress, to large-scale losses of the banking sector and acutely adverse social consequences (if borrowers lose homes). A mortgage crisis makes a strong negative impact on construction, consumer demand-focused industries and ultimately the whole economy.

¹ Calculations are based on Rosstat data (Real Estate Prices Index of Russia), all types of flats, primary housing market. Records began in 2000.

² Calculations are based on BIS data (Residential Property Prices Index).

Topics for discussion:

1. *Would you agree that the LTV ratio and the borrower's PTI are core risk measures of mortgage lending?*
2. *What could in your view potentially trigger the materialisation of risks in the mortgage market? What possible shocks in the mortgage market could in your view materialise in the next one to two years? What implications could they have?*

3. MACROPRUDENTIAL POLICIES FOR THE MORTGAGE MARKET: GLOBAL PRACTICES

Standard global practices of risk neutralisation include regulation based on borrowers' payment to income (PTI) and loan to value ratios (LTV³). Many countries use both indicators.

LTV cap

In its consultation paper *Developing Bank of Russia Macroprudential Policy in Retail Lending*,⁴ the Bank of Russia highlights that regulators use quantitative restrictions to prevent the emergence of bubbles in the mortgage market, which may be differentiated as tough (a total ban on loans with certain risk characteristics) and flexible (caps on the share of loans with certain risk characteristics).

Tough policies are typical of Asian countries with their track record of several bubbles in the mortgage market. LTV caps have been in place in Hong Kong since 1991, in Singapore since 1996 and in the Republic of Korea since 2002. Caps in these countries are set conservatively (e.g., the highest LTV ratio for some types of loans in Korea and Hong Kong is just 30%) and are often differentiated depending on loan maturity, the borrower's age, the region of real estate registration, and property count (the LTV cap for all but first-time buyers is tougher).

A 70% LTV cap was introduced in Israel in 2012. Exceptions extend to first-time buys (LTV limited to 75%), and buy-to-let mortgages (LTV limited to 50%).

European countries, which have traditionally allowed mortgages with high LTV ratios (including those above 100%), are implementing requirements for minimal debt repayment (repayment of the principal amount concurrently with interest), in an effort to reduce risks gradually. For instance, Sweden introduced an LTV cap in 2010 and set it at 85% in May 2017, along with a requirement for repayment of new mortgage loans within 10 years. For newly issued loans, at least 1 or 2 % of the total loan amount must be repaid annually, subject to the LTV ratio. In Norway, the maximum LTV ratio is also 85% (and no more than 60% for second-buys in Oslo), while at least 2.5% of mortgage loans with LTV above 60% should be paid off annually.

In Slovakia, the Czech Republic and New Zealand, there are limits on the amount of loans with specific LTV ratios. In Slovakia, where the highest allowable LTV is 90%, efforts are being made to gradually reduce the share of newly disbursed loans with a 80-90% LTV ratio. Starting from 2018 Q3, the share of such loans should be 35% at most, and 20% from 1 July 2019. The Czech Republic has maintained the highest allowable LTV since 1 April 2017 at 90%, while 80-90% LTV loans may account for no more than 15% of the total amount of mortgages. In New Zealand, the maximum allowed share of newly issued mortgage loans with an LTV of over 80% is 15% (10% before 1 January 2018).

PTI caps

Global practices of limiting debt burden of mortgage borrowers also differentiate between tough and flexible quantitative restrictions. For example, China and Israel imposed a ban on lending to mortgage borrowers with a high PTI (limited to 50%). In Hungary, mortgage debt is limited depending on the borrower's income; the maximum value for the wealthiest individuals is 60%.

In the USA and Canada, mortgage loans are unrestricted, but there are tough requirements for mortgage loans that can be securitised by government mortgage agencies. As the 2007-2009 crisis rendered the market for private securitisation actually non-existent, these arrangements force banks to maintain appropriate lending standards. Selling a mortgage loan to the federal housing agencies Fannie Mae or Freddie Macs is only possible when the ratio of monthly payments to the

³ The loan to value ratio is normally abbreviated as LTV.

⁴ http://cbr.ru/Content/Document/File/79964/Consultation_Paper_190910.pdf.

average monthly income of a borrower (the PTI ratio) is equal to or less than 43%. In Canada, a mortgage to be sold to the Canadian Mortgage and Housing Corporation (CMHC)⁵ must meet a number of requirements including the ratio of loan servicing funds to the borrower's income (Debt Service To Income, DSTI), which may not exceed 35%, and 42% if there are other liabilities. In some countries, the preferred tool to curb debt burden is the Loan to Income (LTI) ratio, rather than PTI. In the UK, for example, the share of newly issued mortgages with an LTI above 4.5% may not exceed 15%.⁶ This limit is monitored both quarterly and over the past four quarters (four-quarter rolling limit).⁷ The LTI ratio in Ireland is limited to 3.5 with some allowable deviations (for instance, up to 20% of mortgages for first-time buys may exceed the established limit).

Question for discussion:

What are in your view the preferred / most efficient instruments to neuter risks and prevent the emergence of bubbles in the mortgage market in Russia?

⁵ Unlike US federal housing agencies, the CMHC does not purchase mortgage loans from banks. It is essentially focused on insurance against borrower default risks and financing rental housing construction and other projects.

⁶ The requirement does not extend to lenders that have issued less than 300 loans or loans worth under £100m in a year.

⁷ <https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/policy-statement/2017/ps517.pdf?la=en&hash=ECD121A3B6E6BEE0D6824817099B05B6F84B0839>

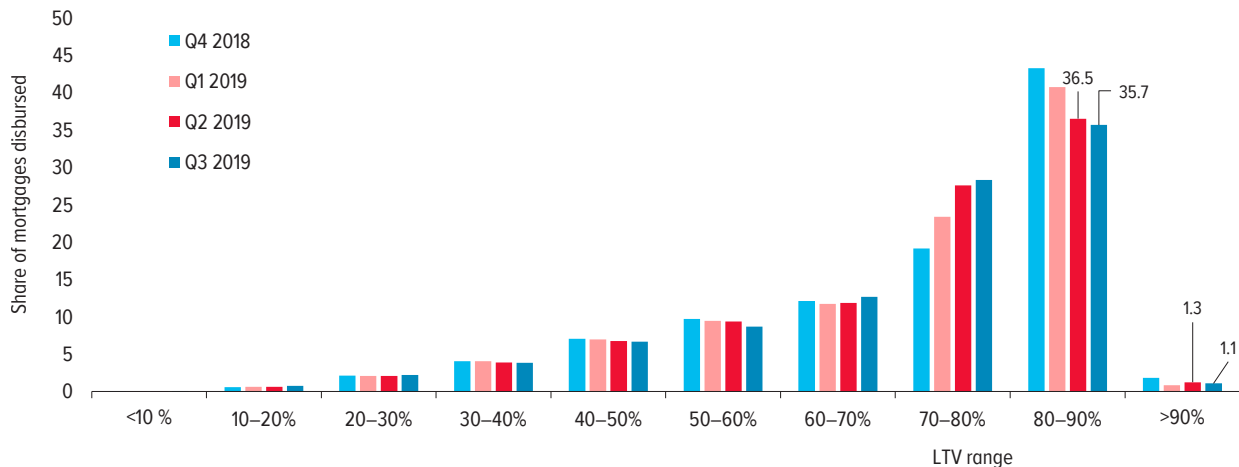
4. BANK OF RUSSIA RESTRICTIONS ON LOW DOWN PAYMENT MORTGAGES

To maintain proper lending standards, the Bank of Russia is implementing macroprudential policies aimed at reducing the share of mortgage loans with a 10-20% down payment. The Bank of Russia does not have the authority to apply quantitative restrictions and therefore mandates add-ons to risk weights that influence the capital adequacy of lenders. The higher the add-on, the more capital the bank needs to appropriate as loan loss provisions, and the less profitable such loans become for its shareholders. These measures carry the greatest implications for banks with low capital reserves. A bank with a substantial capital reserve may still continue issuing high-risk loans.

Given the rise in the add-ons for 80-90% LTV loans, as many as 80 banks in January raised the interest rate differential for mortgages with low down payments and other mortgage loans. The differential currently runs up to 0.7 pp (for both housing under construction and finished housing). The measure helped reduce the share of loans with a 0-20% down payment in total loans. Since the start of the year, the share of such loans has dropped by 7.6 pp to 35.7% in Q3⁸; the pace of decline subsequently slowed in 2019 Q2 (a mere 0.8 pp decline in Q3 vs Q2).

CHANGES IN THE BREAKDOWN OF MORTGAGES BY LTV

Chart 5



Question for discussion:

Which LTV level do you think is critical to the economy from a systemic risk perspective?

⁸ According to Bank of Russia data on outstanding loans of individuals. Calculations were made for the following banks: PJSC Sberbank, VTB Bank (PJSC), PJSC ROSBANK, Bank GPB (JSC), JSC Raiffeisenbank and JSC UniCredit Bank.

5. MORTGAGE DEBT IN RUSSIA

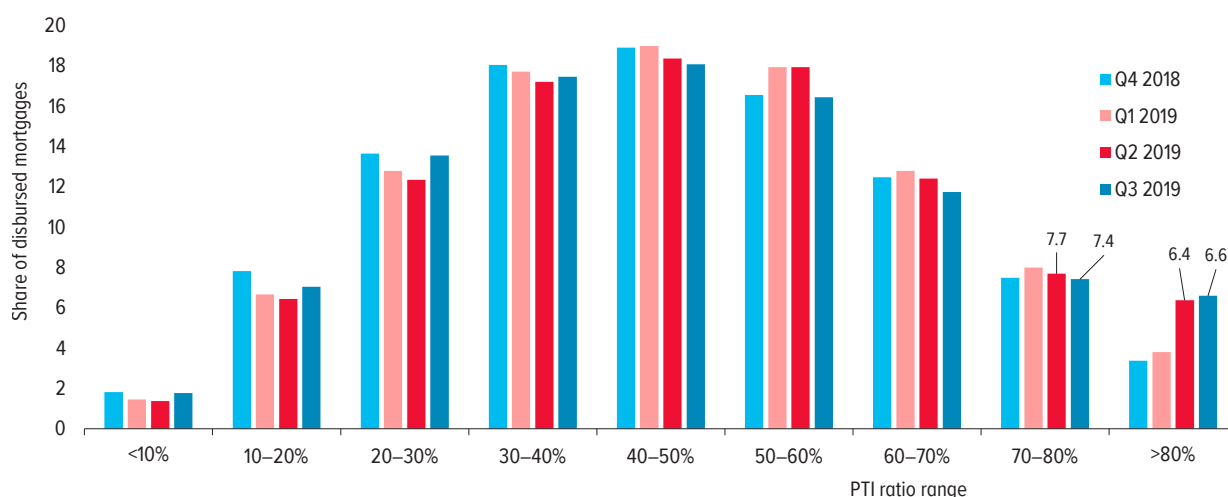
According to data the Bank of Russia obtained from banks in the course of a survey of households' outstanding loans, borrowers with a PTI above 50% accounted for 42% of mortgage loans issued in 2019 Q3, compared to 44% in 2019 Q2. At the same time, since the beginning of the year, the share of borrowers with a PTI above 80% has grown 3.2 pp to 6.6% in 2019 Q3 (Chart 6). Importantly, banks calculated the PTI indicator taking into account borrowers' incomes from unofficial sources. A PTI calculated in accordance with a more conservative approach consistent with Bank of Russia Ordinance No. 4892-U,⁹ dated 31 August 2018, effective from 1 October 2019, could be higher.

As the financial market matures, a trend emerges towards growth in the share of borrowers with outstanding loans in several segments at the same time. Compared to a mere 39% of mortgage borrowers with outstanding loans besides mortgages as of 1 January 2015, this proportion totalled 46% as of 1 September 2019. This drives growth in the debt burden of borrowers, creating the risks of cross defaults for banks issuing mortgage loans.

Following the obligation of credit institutions, effective from 1 October 2019, to calculate an individual's PTI for all newly issued loans, the Bank of Russia may apply macroprudential measures to curb debt burden of mortgage borrowers.

CHANGES IN THE BREAKDOWN OF MORTGAGES BY PTI (%)

Chart 6



Questions for discussion:

1. What PTI level would you say is safe for a mortgage borrower?
2. What share of loans with a high PTI ratio may pose risks to the economy?

⁹ Bank of Russia Ordinance No. 4892-U, dated 31 August 2018, 'On Types and Characteristics of Assets for Which Risk-weight Capital Add-ons Are Set and on the Methodology for Applying These Add-ons to the Said Types of Assets for Credit Institutions to Calculate Their Capital Adequacy Ratios'.

6. CALIBRATION OF ADD-ONS

In order to calibrate add-ons to risk weights based on the PTI and LTV ratios the Bank of Russia conducted a survey of historical changes of credit risk between 2010 and 2018, depending on several factors including PTI and LTV, in mortgage loan portfolios of the top five banks (with a more than 80% share of the total mortgage portfolio as of 1 October 2019). The survey found the PTI to be a substantial factor of borrower credit risk, in addition to the LTV factor already used to set the add-ons. The Bank of Russia-proposed measures to curb mortgage debt rely on the results of this analysis.

Historical changes in the annual rate of defaults, based on data from banks (the ratio of the number of mortgage agreements with debt overdue by more than 90 days in the corresponding year to the total number of mortgage agreements without payments overdue by more than 90 days at the beginning of the year) points to the existence of cyclicity in the level of losses on ruble-denominated mortgage loans (Chart 7). This suggests the need for a countercyclical policy in the mortgage market to sustain financial stability.

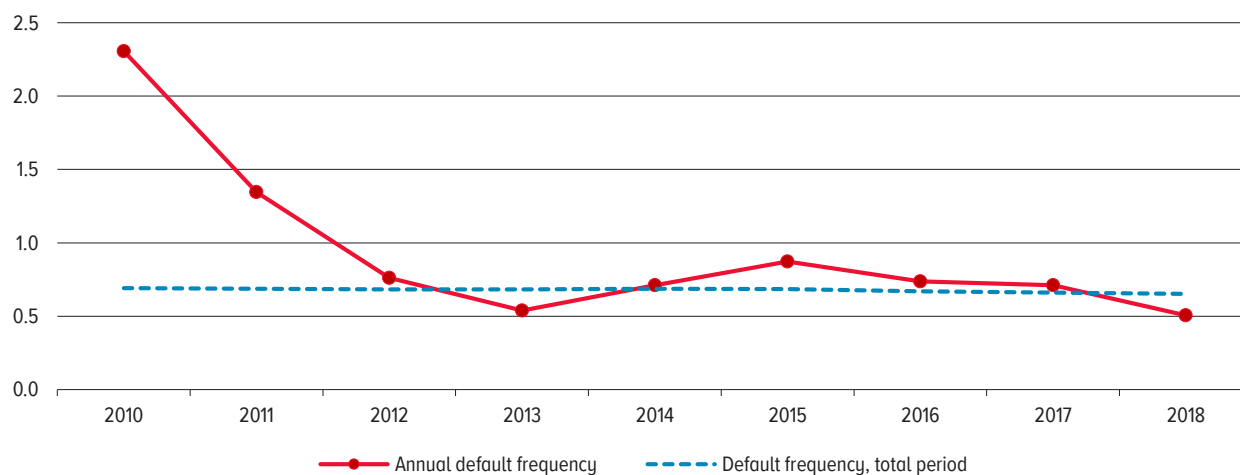
The add-on was calculated with the use of the mortgage borrower default probability model. The application of the model, rather than the historical frequency of defaults, enables a view of the current structure of the banking sector's mortgage portfolio, instead of relying on a past structure.

The following explanatory factors were used to build the mortgage borrower default probability model (all the factors are statistically significant):

- the borrower's PTI as of the reporting date;
- the LTV as of the reporting date;
- the LTV as of the loan date;
- the existence of debt overdue by 90 days or more over the last two years from the reporting date;
- the number of months from the loan date until the reporting date;
- the borrower's age;
- the borrower's marital status;
- the number of individuals financially relying on the borrower;
- whether the borrower is an employee of the lending bank;
- whether the borrower's payroll account is with the lending bank.

DEFAULT FREQUENCY
(%)

Chart 7



The probability of default in the segment with specified PTI and LTV indicators was calculated as the weighted average values of default probability of mortgage borrowers with all possible loan/borrower characteristics but for PTI and LTV, which remained fixed.

THE MATRIX OF ANNUAL DEFAULT PROBABILITY IN THE LONG TERM (2010 –2018) FOR MORTGAGE BORROWERS
DEPENDING ON THE SEGMENT (PTI; LTV)
(%)

Annual default probability		PTI range									
		(0; 10)	[10; 20)	[20; 30)	[30; 40)	[40; 50)	[50; 60)	[60; 70)	[70; 80)	[80; 90)	[90; 100)
LTV range	(0; 10)	0.09	0.12	0.15	0.20	0.26	0.34	0.45	0.58	0.76	0.98
	[10; 20)	0.10	0.13	0.17	0.22	0.29	0.38	0.49	0.64	0.83	1.08
	[20; 30)	0.11	0.14	0.19	0.24	0.32	0.42	0.54	0.70	0.91	1.18
	[30; 40)	0.12	0.16	0.2	0.27	0.35	0.46	0.59	0.77	1.00	1.29
	[40; 50)	0.13	0.17	0.23	0.29	0.38	0.50	0.65	0.84	1.09	1.41
	[50; 60)	0.14	0.19	0.25	0.32	0.42	0.55	0.71	0.92	1.2	1.55
	[60; 70)	0.16	0.21	0.27	0.36	0.46	0.600	0.78	1.01	1.31	1.69
	[70; 80)	0.17	0.23	0.30	0.39	0.51	0.66	0.86	1.11	1.43	1.85
	[80; 90)	0.19	0.25	0.33	0.43	0.56	0.72	0.94	1.21	1.57	2.03
	[90; 100)	Records are insufficient for statistically significant assessment of default probability									

The add-on for the segment with specified PTI and LTV indicators was set based on borrower default probability and the value of losses given default, under a formula to calculate unexpected losses.¹⁰

Under a macroprudential approach, the add-ons should take into account, beyond the historical dependence of default probability on a number of factors, the conservative scenario of a decline in housing prices with haircuts when the bank sells collateral. The values of add-ons were determined taking into account changes in these factors in a stress scenario, the trend towards an increase in the share of mortgage borrowers with non-mortgage loans, and the growing influence of mortgage loans on pricing in the housing market.

The need for the maintenance of high add-ons (at 100%) for 80-90% LTV loans is explained by the fact that, absent the authority to impose quantitative restrictions on the share of high-risk loans, the Bank of Russia is forced to maintain rigid regulations on high LTV loans. As mentioned above, the pace of decline in the share of such disbursements in 2019 Q3 considerably slowed.

Proposed scale of add-ons to risk weights on mortgage loans effective from 1 July 2020:

Add-ons, pp		PTI range, %						
		(0; 30)	[30; 40)	[40; 50)	[50; 60)	[60; 70)	[70; 80)	80+
LTV range, %	(0;40)	0	0	0	0	0	0	10
	[40;50)	0	0	0	0	0	0	10
	[50;60)	0	0	0	0	0	10	20
	[60;70)	0	0	0	0	10	20	40
	[70;80)	0	0	0	10	20	40	60
	[80;90)	100	100	100	100	100	100	100
	90+	200 pp for the whole loan term						

¹⁰ The interrelation between the value of unexpected losses on mortgage loans and default probability values, losses given default is set by the Vasicek Interest Rate Model Formula recommended by the Basel Committee on Banking Supervision and established in Bank of Russia Regulation No. 483-P, dated 6 August 2015 'On the Procedure for Calculating Credit Risk Using IRB Approach'.

Current add-ons to weight risks on mortgage loans:

Add-ons, pp		PTI range, %						
		(0; 30)	[30; 40)	[40; 50)	[50; 60)	[60; 70)	[70; 80)	80+
LTV range, %	(0;40)	0	0	0	0	0	0	0
	[40;50)	0	0	0	0	0	0	0
	[50;60)	0	0	0	0	0	0	0
	[60;70)	0	0	0	0	0	0	0
	[70;80)	0	0	0	0	0	0	0
	[80;90)	100	100	100	100	100	100	100
	90+	200 pp for the whole loan term						

Due to the introduction of new equity housing construction financing mechanisms based on escrow accounts, risks on mortgage loans secured by claims under equity agreements do not exceed risks on mortgages secured by real estate. In this regard, it is proposed that a similar matrix of add-ons to risk weights be applied to mortgage loans secured by claims under equity agreements, similar to mortgages secured by real estate.

Questions for discussion:

1. What other explanatory factors can in your opinion be used to build the model? Should anything else be taken into account when setting the values of add-ons?
2. What Bank of Russia measures would in your opinion be more efficient to deliver on the target of reducing the share of loans with a PTI above 50% in total loans?

7. EXPECTED POLICY EFFECTS

Should the structure of banks' mortgage portfolios remain unchanged, banking capital commitments resulting from the rollout of the proposed add-ons may potentially grow 1.4 times. Furthermore, the enactment of differentiated add-ons to risk weights for mortgage loans would help discourage banks from providing loans to borrowers with a high PTI ratio and low-deposit mortgages. Also, these measures are intended to increase banks' capital reserves to cover losses in the case of external or internal shocks that may trigger a decline in household incomes and housing prices, thereby ensuring balanced growth of the mortgage portfolio in terms of credit risks.

The Bank of Russia has joined efforts with JSC DOM.RF to ensure strict requirements are maintained for securitised mortgage loans¹¹ based on the proposed measures to limit the share of loans issued to highly indebted borrowers and borrowers with a high LTV ratio. This will eliminate possible regulatory arbitration between Bank of Russia requirements for bank lending standards and JSC DOM.RF's quality requirements for securitised loans.

Moving forward, the Bank of Russia plans to review the values of add-ons to risk weights on a periodic basis taking into account updates on the quality of the banking sector's mortgage portfolio, lending standards, the impact of mortgage loans on housing prices, and when implementing changes to the regulatory framework for mortgage loans based on Basel III: Finalising post-crisis reforms (December 2017) (Basel 3.5).

¹¹ Recommended mortgage characteristics for mortgage-backed bonds guaranteed by JSC DOM.RF.