Improving Loan Loss Provisioning Framework as a Driver of Economic Growth

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Journal of Corporate Finance Research, Vol. 14, No. 2, pp. 72-82 (2020)
DOI: https://doi.org/10.17323/j.jcfr.2073-0438.14.2.2020.72-82
Received 29 January 2020 | **Peer-reviewed** 20 February 2020 | **Accepted** 15 April 2020

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Abstract

Various aspects of credit risk have been studied by many researchers. Scientists and practitioners consider different credit risk assessment methods depending on its application, e.g. to determine capital adequacy, to make loss loan provisions, or to estimate its influence on the interest rate. At the same time, there are almost no studies that consider the relationship between loan loss provisioning framework and loan decisions. The study seeks to 1) understand how the practices and procedures of loan loss provisioning impact total gross loans of Russian banks, and 2) identify constraints for insufficient levels of lending and factors that can foster lending.

With the use of an econometric model we estimate a quantitative effect of credit portfolio on the growth of loan loss provisions. We base our model on data derived from financial statements of 400 Russian credit institutions between 2014 and 2019. In addition to our empirical model, we analyze statistical data on the development of the Russian banking system and compare the loan loss provisions in Russian and foreign financial organizations. The estimates are based on Russian official statistics and financial statements of banks within and outside Russia. The study reveals that the existing credit risk assessment method that rests on the regulations provided by the Bank of Russia is responsible for excessive loan loss provisions accumulated by Russian banks. This, in turn, affects the volumes of bank loans.

In our research we have arrived at the conclusion that the existing loan loss provisioning is excessive. Current loan loss provisions do not correspond to real lending losses. They negatively affect the financial results of credit institutions, resulting in ungrounded refusals to lend, which in turn limits economic growth. These results support the rationale for reinventing the existing framework of loan loss provisioning.

Key words: banks, lending, loan loss provisions, banking supervision, credit risk, economic growth

JEL classification: E52, G21, G32

Introduction

In seeking ways to expand their activities, many businesses face the problem of resource scarcity. For most enterprises in different industries, bank loans represent the primary way to address their financial shortfalls. The breakdown of the liabilities of Russian business organizations (except small enterprises) shows that the total amount of bank loans is 1.2 times greater than the amounts payable to vendors and customers (as of 01.01.2019, and on average from 2010 onwards; according to official statistics) [1, 2]. The estimates are summarized below, in Figure 1.

Currently, a distinct feature of the Russian banking sector is its excess liquidity. As of the beginning of the year 2018, structural liquidity surplus has never fallen below 2 trillion rubles (Figure 2) [3]. Considering the scale of this situation, one might ask- why should these tremendous financial resources not be channeled into real economy?

Figure 1. Breakdown of the obligations of non-financial entities (excluding small enterprises) in Russia from 2010 to 2019

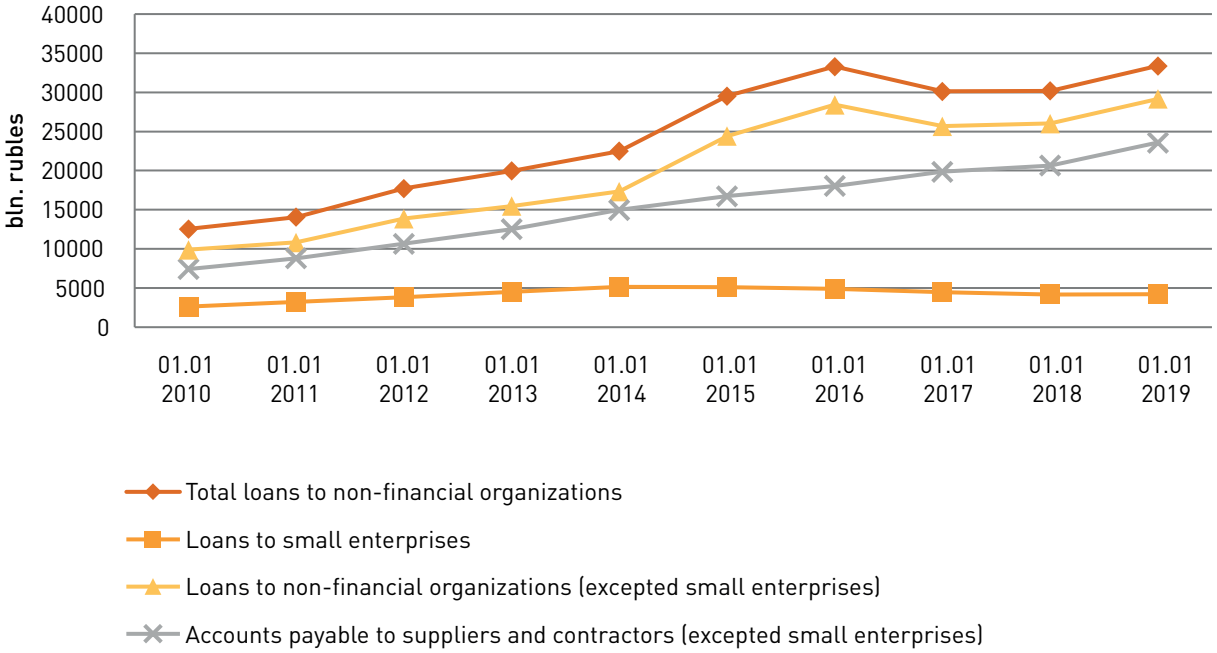
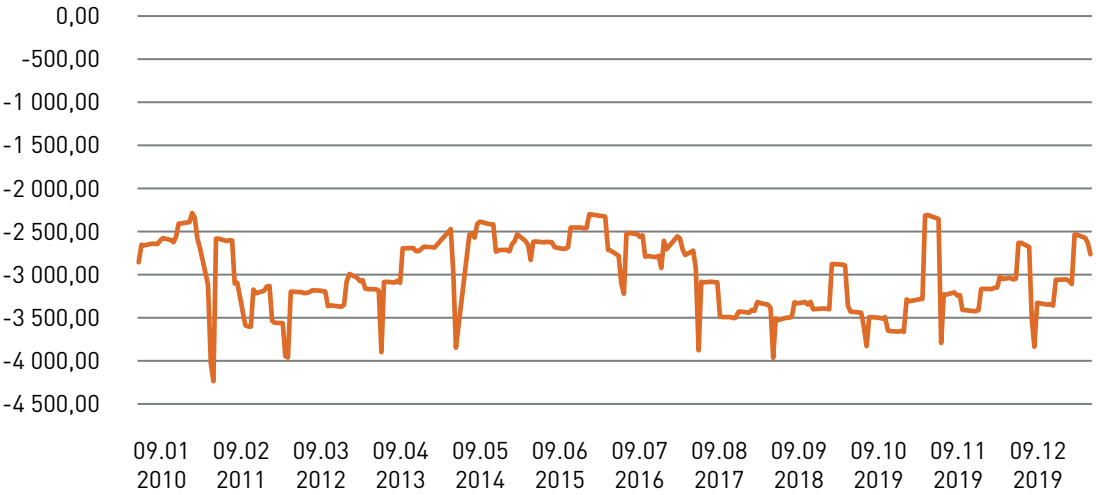


Figure 2. Structural deficit (+) / surplus (-) of liquidity in Russian banking in 2018-2019, bln. rubles



There are in fact several convincing possible reasons for this. We believe that along with the regulator's requirements towards a capital adequacy ratio, an important factor that hinders credit growth is a faulty assessment of credit risks. Overcautious behavior of credit institutions in terms of loan loss provisioning severely constrains individual business projects. At the same time, from a wider perspective, such activity may be seen to constrain the kind of national economic development that is so strongly needed today.

Literature Review

From the perspective of this study, two aspects of the present subject needs to be highlighted. The first aspect concerns whether the increase in total gross loans can produce growth in major economic development dimensions and, consequentially, whether pursue this increase should be pursued. If the answer is affirmative, there arises a second question: can loan loss provisioning serve as a tool to spur lending?

In support of the first assumption, S. Andrushin [4] states that banks have significant resource potential to provide access to loan facilities for the real sector of the economy and consumers. Alternatively, B. Shtulberg and N. Sharshavaya conclude that lending does not show direct impact on economic growth [5]. We will refer to the analysts of the Bank of Russia who believe that in certain periods, including in the first quarter of 2019, it was only the growth of consumer lending that allowed for positive values in GDP growth [6].

Studies of the relationship between bank performance and macroeconomic indicators are becoming even more relevant, taking into account the current volatility in financial sector.

Exploring the relationship between the financial standing of banks and their impact on the real economy, T. Kapan and C. Minoiu consider bank equity level as a factor that allows for rapid growth in gross loans during post-crisis periods [7].

J. Fidrmuc and R. Lind consider the potential impact on macroeconomic performance generated by higher capital requirements, arising from the adoption of Basel III. They conclude that tougher requirements around capital result in a negative, although moderate, effect on GDP [8].

E. Tikhomirova [9] points to possible negative consequences of excessive lending regulation. With risks tending toward being overestimated, banks include their increased costs in the price of loans, which negatively affects consumer demand and slows down lending trends.

The impact of different external and internal factors on interest rates has been addressed in detail by M. Osborne, A. Berndt, N. Gorelaya [10, 11, 12] and other authors. Most interesting from our perspective are the studies of W. Edelberg, CY. Lim, E. Lee, A. Kausar and M. Walker [13, 14], with an emphasis on risk-based loan pricing. Banks are likely to apply higher interest rates to the borrowers whom they rank as low quality and, as these studies confirm, this is largely a result of expenses recognition (primarily, those expenses generated through loan loss provisioning).

In their work "Does bank efficiency influence the cost of credit?", A. Shamshur and L. Weill suggest an interesting view of credit rates policy. The authors see the possibility of lowering interest rates on loans by banks operating at lower cost (more efficiently). This set of circumstances produces the greatest impact on small and medium-sized enterprises [15].

The task of developing adequate risk assessment methods is in the spotlight of many Russian and foreign experts. Many writers emphasise the importance of using not only financial indicators, but also quality and individual risk factors [16]. We are in full agreement with this point. Different credit risk assessment frameworks (including those involving behavior dimensions) are described in [17, 18].

One interesting idea has been put forward by S. Yamanaka [19]. The author suggests using purchase orders made by borrowing firms as relevant information to measure corporate credit risks. On the other hand, we have to avoid excessive indicators and restrict their number in order to avoid their interrelation.

Another concern for corporate risk assessment is the choice between accounting and market-based models [20, 21]. The authors of the cited works lean towards conventional methods based on accounting statements.

Scoring models also remain popular. O. Amat, R. Manini, M. A. Renart build their scoring model around conventional financial indicators of company performance [22]. A similar approach is adopted by T. Kossova and E. Kossova [23]. Yonghan Ju and So Young Sohn add other indicators, such as technological factors, human resources, etc. [24]. Such suggestions to streamline risk assessment methods can be applied in banking practices. However, despite the availability of a developed toolkit for risk assessment, loan loss provision, where an important risk indicator, is still exposed to subjective manipulations by bank management [25]. We note that such manipulations may be carried out to comply with the regulator's requirements, thus the values do not necessarily match the reality of credit risks, but they do have an adverse effect on bank financial performance. Some authors consider loan loss provisions as a manipulating tool to even out the fluctuations of financial results, which leads to a biased external evaluation of banks' sustainability [26].

Many authors consider risk assessment from the perspective of the Basel Committee on Banking Supervision [27, 28, 29]. Russian authors are seriously concerned about the possibility to harmonise the challenges of economic growth and banking sustainability that are at the forefront of Basel III Accord. According to E. Meshkova, this can only be achieved through improving the practices of estimated loan losses and creating provisions for bad loans [28, p. 31].

Here we should notice that currently Russian banks are likely to estimate credit risks in the following occasions: (1) to create provisions for loan losses; (2) to calculate capital adequacy ratio (when ranking assets by the level of risks); (3) starting from 01.01.2019, to form estimated provisions for expected credit losses in accordance with the requirements of IFRS 9 "Financial Instruments" [30]. Each of these cases calls for a different evaluation method: (1) following the Bank of Russia's Regulation "On the Procedure for Making Loss Provisions by Credit Institutions for Loans and Similar Debts" № 590-P of 28.06.2017 (hereafter referred to as 'Regulation 590-P')

[31]; (2) following the Bank of Russia's Instruction № 199-I, dated November 29, 2019, "On Banks' Required Ratios and Capital Adequacy Buffers for Banks with a Universal Licence" (hereafter referred to as 'Instruction 199-I') [32]; (3) following IFRS 9 "Financial Instruments", introduced by Order of the Ministry of Finance of the Russian Federation dated June 27, 2016 №. 98n [30].

The borrower's financial standing and debt service quality forms the basis to assign loans to particular quality categories in accordance with Regulation 590-P. Depending on the quality category, the size of the provision is estimated, which can be reduced taking into account the collateral value of the loan. In compliance with IFRS, the amount of the estimated reserve depends on the stage of loan impairment and is supposed to conform to the expected credit losses over the next 12 months or for its entire life period.

The provision component (i.e. creation and reconstitution) in cases (1) and (3) affects the financial result of the bank.

A credit risk assessment aimed at determining capital adequacy has no direct impact on the financial result. The method also differs from the cases described above. The risk factor for weighing assets when calculating capital adequacy ratios following Instruction 199-I depends on the class of the counterparty (previously designated according to the category of assets). The updated version of Instruction 199-I is sharply focused on supporting investment lending and SME lending, which is reflected in setting reduced risk ratios for these types of financing.

Of a similar purpose (setting capital requirements) are the Basel III risk assessment standards that evolved considerably compared to Basel II [33]. Concerning the issues under consideration, the revision of standardised approaches to credit risk assessment (in order to increase their sensitivity to risk) has been completed, and the use of the Advanced Internal Ratings-Based (A-IRB) approach has been limited.

As for the transition to Basel standards, it was as late as 2015 that the regulator developed implementation documents to enable banks with assets equal to or exceeding 500 billion rubles to use the IRB approach: Foundation IRB (F-IRB) or A-IRB, by prior authorisation of the Bank of Russia. According to F-IRB, a bank uses its own assessment of the probability of default (PD); according to A-IRB, a bank uses its own assessment of the probability of default (PD), loss given default (LGD) and exposure at default (EAD). Banks are also authorised to assess the effective remaining maturity of loans at their discretion [34, 35]. Currently, only two banks in Russia (Sberbank PJSC and Raiffeisenbank JSC) use the IRB approach to assess credit risks. The Bank of Russia plans to introduce the changes envisaged by Basel III into banking regulation by 2022.

We should note that the Bank of Russia today faces a two-way challenge: on the one hand, the transition to Basel III standards, and on the other, foster economic development through the implementation of an appropriate monetary policy, using key rate as a major tool. Indeed, the key rate currently directs interest rate movements on the deposit and credit markets, but the rate is ultimately refined after consideration of many factors, including the adequacy of credit risk assessment.

Therefore, the regulations provided by The Bank of Russia continue to be the point of reference for Russian banks [31]. The inconsistences of these documents are likely to distort real risk profiles, and thus they deserve detailed consideration.

Methodology

As part of the research, we carried out a desktop analysis of relevant foreign and Russian literature on the correlation between total gross loans within the banking sector and general economic indicators of credit risk assessment. The research was conducted using a combination of the observation method, empirical analysis, the comparison method, and correlation and regression analyses. The estimates are based on the data from the Federal State Statistics Service (Rosstat) and the Bank of Russia, annual reports of credit institutions available via the Internet.

Our process revealed several data inconsistencies found not only between the statements provided by different banks, but also within the massive amount of official statistical information and the information from the Bank of Russia. For example, some statements disregard those loans which are 90 days past due as a separate category, while such loans are commonly qualified as non-performing, as opposed to those less than 90 days that are seen as a delay of technical nature. In addition, some statements do not provide information specifically on small enterprises' payables. The Bank of Russia does not distinguish small business as a separate lending category in its loan book, while Rosstat presents them separately. To make the data comparable, where possible, we had to do special calculations. Where this is impossible, the remaining gaps or inconveniences are explicitly stated.

As part of our study, we also calculated the quantitative dependence of loan loss provisions on lending and overdue debts. The database for the research included information from 400 credit institutions accumulated for the period from 2014 to 2019, available on the website www.banki.ru [36]. We also used data from the financial statements of credit institutions compiled by the analytical center of www.banki.ru – one of the largest independent portals on the Runet. Our sample includes the top 400 banks with the largest loan portfolios (excluding interbank loans) as of the end of 2019. They comprise around 98% of the total loan portfolio. For some institutions, the information is missing for some years; therefore, the number of observations in econometric models are not multiples of the number of banks.

The data reflect the real state of the Russian banking system, where the top two banks account for more than half of the total loan portfolio. At the same time, as of the

end of 2019, 836 lending institutions were registered and 442 were active [2]. This is also reflected in the descriptive statistics below. However, considering our research topic, we do not find it necessary to exclude any credit institution from the sample. We evaluated the parameters of the equation where *Provision* (the amount of loan loss provisions in the bank at the end of the year) was accepted as the dependent variable; *LT* (the bank's loan totals at the end of the year) and *Default* (amount of overdue debts in the bank at the end of the year) were taken as the explanatory variables. Descriptive statistics of the variables are shown in Table 1.

Table 1. Descriptive statistics of variables used to build the model, in blns of rubles, using observations 1:1 – 400:6

Variable	Average	Median	S.D.	Min	Max
LT	111.0	3.0	933.0	0.0	19 468.5
Default	6.2	0.1	33.8	0.0	604.5
Provision	9.3	0.3	59.1	0.0	1 113.6

Source: authors' own calculations based on ww.banki.ru data.

Table 2. Gross domestic product and loans provided to non-financial organisations and individual customers in Russia from 2011 to 2019

Year	Gross domestic product		Loans to non-financial organisations		Loans to non-financial organisations and individual customers	
	Total value for the year, bln. rubles	Growth rate, %	Total year-end value, bln. rubles	Growth rate, %	Total year-end value, bln. rubles	Growth rate, %
2011	60283		17715		23266	
2012	68164	113.1	19971	112.7	27709	119.1
2013	73134	107.3	22499	112.7	32456	117.1
2014	79030	108.1	29536	131.3	40866	125.9
2015	83087	105.1	33301	112.7	43985	107.6
2016	85616	103.0	30135	90.5	40939	93.1
2017	91843	107.3	30193	100.2	42366	103.5
2018	104335	113.6	33372	110.5	48273	113.9
2019	109362	104.8	33777	101.2	51427	106.5

Source: authors' own calculations based on Bank of Russia data.

These variables proved to be the most relevant. As we tried to increase the number of variables, the estimation quality suffered. At the stage of model selection, apart from simple multiple regression, we considered using a double logarithmic model. However, the model that used simple multiple regression proved to be more efficient.

Thus, in search of an answer to the question "how does the loan loss provision change as the loan portfolio grows, and how can this affect the decision to issue a loan?" we estimate the equation as put forth below:

$$\widehat{Provision}_{it} = \widehat{Const} + \beta_1 \cdot \widehat{LT}_{it} + \beta_2 \cdot \widehat{Default}_{it} \quad (1)$$

The conclusions are formulated with reference to expert community input, and the first-hand experience of the authors.

Results

In the course of this study, we compared annual gross domestic product (GDP) values and total gross loans with maturity dates at the beginning of the coming year provided to non-financial organisations, and (separately) to non-financial organisations and individual customers, and compared their growth rates. The resulting estimates are based on the information provided by the Bank of Russia for the period from 2011 to 2019 [2] (see Table 2).

The results of a correlation analysis have shown a strong connection between the loans to non-financial organisations and GDP (0.88) as well as between GDP and the loans to non-financial organisations and individual customers (0.95). In our opinion, this correlation is quite natural. Consumer lending drives end-user demand; and expanding lending flows to industrial and trade organisations lead to growing production, trade turnover, and investment and exports, which positively affects GDP trends.

The next step was to compare overdue loans provided to non-financial organisations and the amounts of loan loss provision. A growing gap between the two values is evident. The figures are summarised in Table 3. Coverage ratio shows the relation of loan loss provisions to overdue loans.

Table 3. Overdue loans and loan loss provisions in Russian credit institutions (as in the period from 2010 to 2019)

Date	Overdue loans (OL), bln. Rubles	Loan loss provisions (LLP), bln. rubles	Difference between LLP and OL, bln. rubles	Coverage ratio
01.01.2011	1026	1904	878	1.9
01.01.2012	1114	1988	874	1.8
01.01.2013	1237	2096	859	1.7
01.01.2014	1374	2417	1043	1.8
01.01.2015	1918	3460	1542	1.8
01.01.2016	2940	4526	1586	1.5
01.01.2017	2750	4579	1829	1.7
01.01.2018	2791	5123	2332	1.8
01.01.2019	2854	5407	2553	1.9
01.01.2020	3382	5387	2005	1.6

Source: authors' own calculations based on Bank of Russia data.

Table 4. Financial results and provision charges for credit losses in Russian credit institutions (as in the period from 2010 to 2019)

Year	Financial result (FR), bln. rubles	Provision charges for credit losses (PCCL), bln. rubles	PCCL to FR ratio
2010	573	83	0.1
2011	848	84	0.1
2012	1012	108	0.1
2013	994	321	0.3
2014	589	1043	1.8
2015	192	1066	5.6
2016	930	53	0.1
2017	790	544	0.7
2018	1345	284	0.2
2019	2037	-20	0.0

Source: authors' calculations based on Bank of Russia data.

It was interesting to find out how loan loss provision amounts affect financial results of credit institutions. To that end, by reference to loan loss provision increment, we estimated the banks' expenses that fall under this category (with loan loss provision decreasing, banks' revenue is likely to grow). Then we estimated them against financial results. The estimates have shown a strong negative correlation between these two values (- 0.7). The figures are summarised in Table 4.

Therefore, the estimates show that provision charges for credit losses affect substantially (though indirectly – through profits) the banks' equity trends. We should admit that taking into account growing buffers to risk ratios, the capacities of earning assets that Russian banks now have at hand, are shrinking. Given H 1.0 capital adequacy ratio is minimum 11.5 % – which is in full compliance with Basel III for TBTF (too-big-to-fail) banks, banks could increase their 100 % risk assets only by 4 trillion rubles. A year ago, this value was as much as 10 trillion rubles. (Authors' estimates based on the figures from The Bank of Russia).

Our next step was to review financial reporting of VTB Bank (Russia), Commerzbank (Germany), and Citigroup Inc. (USA). Our concern was the amounts of overdue loans, loan loss provisions and their ratios evident in the records [37, 38, 39]. The results are shown in Table 5.

Table 5. Some characteristics of loan book quality: VTB bank, Commerzbank, Citigroup Inc as of 01.01.2018

Indicator	VTB Bank, bln. rubles	Commerzbank, mln. Euro	Citigroup Inc, mln. US $
Loans to non-financial organisations and individual customers	6005	197200	333656
Including Overdue loans (OL)	316	5569	7564
OL as a percentage to total loans, %	5.3	2.8	2.3
Loan loss provision (LLP)	322	781	12355
LLP as a percentage to total loans, %	5.4	0.4	3.7
LLP to OL ratio	1.0	0.1	1.6

Source: authors' own calculations based on banks' annual reports.

We did not include the earlier years since they disclose similar trends and would not add value to the conclusions.

Clearly, credit institutions in developed countries are likely to have lower rates of overdue loans. Among Russian banks, VTB has a lower rate of overdue loans (5.4 %) against Russia's average (6.6%). Moreover, VTB's policy is to keep its loan loss provisions at the lowest possible level. Here, it advantageously stands out against its counterparts throughout Russia. It should be noted that in the Russian banking sector, average loan loss provisions are 1.8 times greater than total overdue loans. By comparison, Citigroup Inc. reported its loan loss provisions to be 1.6 times greater than its overdue loans. This matches the minimum values that Russian banks have ever reported (in 2015 and 2016, at 1.5 and 1.7 respectively). Alternatively, Commerzbank's loan loss provisions are substantially lower than the totals of its overdue loans.

At the final stage of our research, we built and evaluated a model that enabled to identify the dependence of loan loss provisions on lending and overdue debts. The model was evaluated on panel data using pool regression (the ordinary least squares method) (1), fixed effects model (2), and the random effects model (3) (see Table 6).

Table 6. Models for estimation the impact of lending volumes and overdue debt on loan loss provisions. Dependent variable: *Provision*

	(1) Pooled OLS	(2) Within	(3) GLS
Const	33 930	86 140	-188 500
	(299 600)	(746 300)	(428 800)
LT	0,035***	0.028***	0.032***
	(0.001)	(0.006)	(0,003)
Default	0.871***	0.983***	0.952***
	(0.138)	(0.146)	(0.143)
N	2374	2374	2374
Adjusted R^2	0.955	0.805	

Figures in parentheses refer to robust standard errors *** significant at the 1 percent level.

Source: authors' own calculations based on www.banki.ru data.

As we can see, all the models exhibit similar results, the coefficients of the explanatory variables in all cases being significant at the 1 percent level. Through consistent application of specification tests, we opt for the random effects model. Including dummy values, the time variables did not improve the model; including dummy variables for groups of banks, depending on their size, did not improve the model either.

Thus, we can conclude that a gross loan increase in the range of 1 million rubles leads to the growth of loan loss provisions by 32 thousand rubles. The net interest margin in the banking system of Russia in the first six months of 2019 amounted to 4.3% [40]. A simple calculation reveals that in as long as nine months a bank will begin to profit from the loan; until then, all profit will go to cover provisions. This means that all loans issued after the end of the 1st quarter will be unprofitable for the bank until the end of the year. We believe that this may be a disincentive in terms of granting loans.

Banks have different approaches to loan loss provisioning. The fact that Russian banks lean towards excessively cautious risk-weighting behavior is evident, and this choice seems to be highly unfortunate.

Unreasonable loan loss provisioning is largely due to the attitude and actions of the bank regulator, making risk-weighting estimate on a particular borrower. The regulator can use the information reported by other loan providers, the Bank of Russia's estimates of industry-specific risks, and fair-value and liquidity estimates of mortgaged property. For the time being, credit institutions almost invariably act in compliance with the regulator's requirements. Further, the Bank of Russia does not revise upwards the borrower's financial standing once it has been assigned. This policy should be questioned from a general fiscal perspective, since accumulating excessive provisions leads to the erosion of taxable profits.

We believe that an economically feasible amount of provisions for loan losses should stay at a level comparable with that of actual loan losses. To estimate risk exposure, the value of non-performing loans (NPLs), at 90+ disclosed in banks' financial statements, could be adopted as a benchmark. Keeping loan loss provisions at a level appropriate to real economic parameters, and not overestimated risk exposure, is an urgent challenge for both individual credit institutions in Russia and the industry at large.

An element of indirect evidence to support our view is the fact that the amount of provisions created by Russian banks as of 01.01.2020 under the IFRS is 594.3 billion rubles (11%) less than that under Russian standards. Notably, these results contradict the predictions of many experts, who expected loan loss provisions to grow with the advent of the IFRS.

We believe that in order to reduce labour costs and ensure adequate estimates of loan loss provision, the loan assessment method based on Regulation 590-P should be abandoned, and banks should move fully to the IFRS 9 "Financial Instruments" standard.

Conclusions

We therefore find a negative effect overall in the existing loan loss provisioning procedures and their effect on credit growth in Russia. Reinventing these procedures will spur lending for several reasons.

Firstly, modest loan loss provisioning will allow for a greater percentage of favourable decisions on credit applications. Today, if a potential borrower is deemed to fall within a 'low' category, banks are likely to restrict his access to credit facilities even if there are other indicators in favour of the client. For example, we cannot expect a favourable decision on a loan to be provided at the end of the current quarter if its projected provisions for losses will negatively affect the bank's financial results for the reporting period. In such a case, the client will have to either seek an alternative source of funding, a deferred payment option, or rely on his own resources. At best, the loan provision date will be revised to early next quarter.

Secondly, released funds will improve the financial results of credit institutions and, consequently, will enable them to increase their equity capital. (Note that the increase develops via the a high value factor such as net profit). This will open new opportunities for the banks to build up their loan book. Now, among the crucial factors hindering lending facilities, many bankers list the newly introduced stricter requirements to capital, as well as the requirements to capital adequacy [41].

Thirdly, reduced pressure on financial performance through accumulated provisions may positively influence interest rates on loans by reducing sufficient interest margin and/or risk premiums. From our estimates, the decrease may be as much as 0.5 - 1.0 p.p.

Fourthly, from the taxation side: since the funds for potential loan losses are extracted from banks' taxable profit pools, their reduction would indirectly increase the inflows to the budget due to the greater amounts of tax on profit from credit institutions. This is another advantage of the suggested approach.

Adequate risk assessment is a challenging issue from both the theoretical and practical perspectives. Our focus was on revealing the constraints that hinder bank lending; then we wanted to find out whether there are further opportunities to spur lending activities. We have identified room for improvement in loan loss-provisioning framework. The idea underlying our proposals is to reinvent the existing framework in compliance with actual loan losses. We believe that banks should implement this approach by whatever assessment methods they use. Banks' cautious attitude to qualifying borrowers, largely encouraged by the regulator, leads to lower profit and reduced scope of capital growth, and therefore, creates gaps in credit capacity. Introducing this new framework will indirectly improve (through cost reduction and, consequently, a reduction of interest rate) credit outreach and borrowers' activities.

Within this research, we looked into the pricing mechanism for loans – the interest rate that is influenced by

various factors, such as the cost of funds raised, inflation rate, competition, etc. We focused on the impact of credit risk. Credit risk assessment, in turn, is the bedrock for loan loss provisioning. By downsizing swollen provisions, which fail to reflect the actual risk level, banks open the way to decreasing interest rates and thus increasing their competitiveness. This can be implemented to both base rates and customised lending solutions.

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