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## Quality of banking services as a tool for building “Bank – Real Sector” effective business models

### Abstract

The article describes the quality of banking services of Russian credit organizations. In this study the quality means the possibility of banks to meet the needs of the real economy. Quality is an instrument of effective interaction, which refers to the possibility of long-term financing of the real economy while maintaining the profitability of the banking sector. In the study the analysis of credit institutions was done and the basic business model of interaction between banking and real sectors in Russia was described. As the result of the analysis, the level of service quality was revealed.

**Keywords:** the quality of banking services, the interaction of banking and real sectors of economy, business models.

**JEL Classification:** G21.

### Introduction

The crisis highlighted the necessity to improve the efficiency of commercial banks. The national economy development requires further study of issues of interaction of real economy and the banking system, there appeared the need for understanding new phenomena and processes occurring in the economy, the need for the development of an adequate model for the interaction between real and banking sectors (V.I. Vagizova, M.P. Postaliuk, 2013). Since the role of bank capital in the development of the Russian economy is growing up, an emphasis should be placed on commercial banks financing the real sector, on liquidity management of banks, on the promotion of effective ways to increase the investment potential in order to meet the financial needs of the real sector of economy, to involve banking capital in long-term crediting, to develop a new mechanism encouraging the transformation of savings into investments.

Realities of today's banking practices require the use of new approaches to the efficiency of the bank activity. At the present financial market efficiency of banks depends primarily on the degree of satisfaction of a customer and society in general.

At the same time, Russian banks are more focused on short-term resources. However, short-term financial instruments can be effective only during the insignificant negative trends, but not in the period of major systemic crises (Rajan, 1992).

In the modern financial market the effective interaction between the banking and real sectors of the economy depends primarily on the satisfaction degree of the customers' needs and society as a whole. In our opinion, the quality of banking services is the tool for creating effective business models of interaction between banking and real sectors of the economy. The

main objective is to identify the level of quality of banking services of the credit organizations in Russia in the context of the effective interaction in the chain of “Bank-Real Sector”.

### 1. Literature review

Russian and foreign scientists and experts studied the issue of quality in its different aspects, repeatedly searched and continue to seek the interpretation of the concept of “quality” conformably to the various research objects. The importance of achieving high levels of quality has been discussed extensively in the literature, especially when dealing with the service industry (Zeithamel, Parasuraman and Berry, 1985). Service quality (SQ) is considered by many as the key to gaining competitive advantage, and its importance for the banking industry, in particular, has been documented in Roth and van der Velde (1991). Banks have realized the significance of concentrating on quality of services as an approach to increase customer satisfaction and loyalty, and to develop their core competence and business performance (Kunst and Lemmink, 2000).

To achieve a high level of customer satisfaction, most researchers suggest that a high level of service quality should be delivered by the service provider. As service quality improves, the probability of customer satisfaction increases (Shanka, 2012). Service quality is an important tool to measure customer satisfaction (Hazlina et al., 2011).

There are studies, considering the quality of banking services as a factor of a commercial bank effectiveness – the triad: operational capabilities – service quality – performance (C-SQ-P) (A.V. Roth and W.E. Jackson III, 1995). Other researchers have linked the activities, service quality and profitability in the common framework of performance criteria (A. Soteriou and S.A. Zenios, 1997).

While studying the banking services quality as a tool for building effective business models, it is important to mention the study (Korolev, 2008) based on a critical analysis of the existing approaches to the definition of the functional purpose of commercial

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banks. This study shows the necessity to change the traditional Russian view on commercial bank as a financial intermediary and represent the bank as a plant producing specific financial products, the effectiveness of which depends primarily on the degree of customer satisfaction and society in general.

In this article, we associate the quality of banking services with the effective interaction of the banking and real sectors of the Russian economy. After the assessment of satisfaction level of the needs of the real economy in the long-term resources, we can conclude about the level of banking services quality in Russian banks.

## 2. Research methodology

To assess the quality of banking services as a tool for making an effective interaction between the banking and real sectors of the economy, it is necessary to analyze the indicators of liquidity provision and attraction in the banking system of Russia.

The analysis of the movement of assets and liabilities in credit institutions will be done, as in our opinion, this helps to determine the degree of interaction between the sectors. At the same time, assessment of the level of banks' activity can be detected by means of liquidity requirements established by the Bank of Russia. In this regard, the question about the choice of indicators for further research appears. Therefore, we will explore the exponential liquidity ratios, which will be held with the correlation-regression method.

The dependent and independent variables are used in the correlation-regression analysis. In these study the dependent variables are the liquidity requirements of credit institutions, independent – assets and liabilities of the respective maturities. The official data of the Central Bank of the Russian Federation for the period of 2007-2012 was used in the analysis.

Correlation analysis was used to find out the level and direction of the relationship between the studied parameters by calculating the linear correlation coefficient. Regression analysis was used to identify the degree of determinacy variation of liquidity ratios from the key performance indicators of banks.

Table 1. Indicators for the correlation and regression analysis

Indicator	Description
Instant liquidity ratio	the ratio of highly-liquid assets to demand liabilities
Current liquidity ratio	the ratio of liquid assets and liabilities maturing within 30 calendar days
Long-term liquidity ratio	the ratio of assets with maturities of more than one year and own funds (capital) and liabilities with a remaining term to maturity of more than one year
Assets on demand	funds in correspondent accounts of credit institutions

Assets with maturities up to 30 days	loans, deposits and other allocated funds of credit institutions, as well as deposits in the Bank of Russia
Assets with maturities over 1 year	loans, deposits and other allocated funds with maturity over 1 year
Liabilities on demand	deposits and notes on demand, intraday credit and overnight credit of the Bank of Russia
Liabilities with maturities up to 30 days	raised funds up to 30 days, securities of the credit institutions (savings and deposit certificates, bonds and notes) up to 30 days, Lombard and other loans of the Bank of Russia
Liabilities with maturities over 1 year	raised funds up to 1 year, securities of the credit institutions within maturities over 1 year and equity capital

In order to identify the business models of interaction between banking and real sectors of the economy, the method of clustering in terms of Kohonen neural network was used. This method is based on nonlinear programming with the ability to handle large amounts of data and the self-learning network. To conduct the study, the software StatSoft 8.0, analytical information from the official website of the Bank of Russia on 836 credit institutions of the Russian Federation as of 01/01/12 year were used. As characteristics for the implementation of the cluster analysis, the following indicators describing the liquidity of the banking system were selected:

- ◆ the level of equity capital;
- ◆ borrowed funds: on-demand accounts, deposits for 180 days, up to 1 year, up to 3 years, higher than 3 years;
- ◆ loans: overdraft, credits for 180 days, up to 1 year, up to 3 years, more than 3 years;
- ◆ interbank loans: borrowed and received.

More detailed results of the correlation analysis are presented in the article Vagizova, V.I., Lurie, K.M., Ivasiv, I.B. "Clustering of Russian banks: business models of interaction of the banking sector and the real economy", published in the journal Problems and Perspectives in Management.

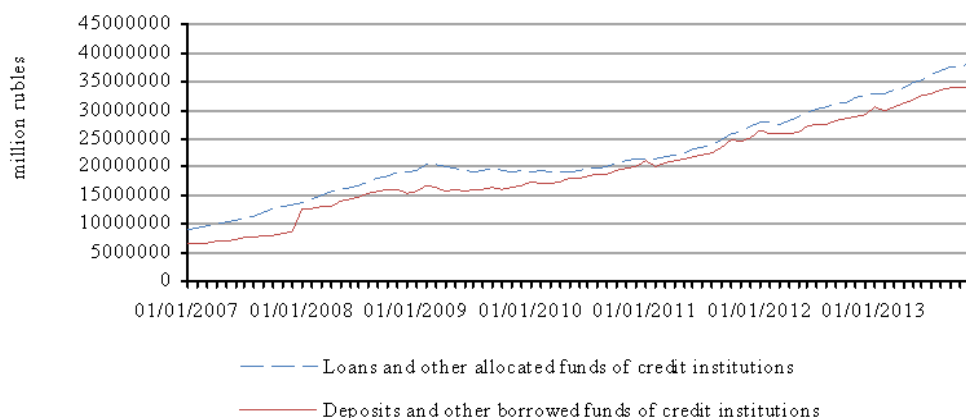
Thus, using the specified method the main research question will be resolved: if the banking services can meet the various financial and social needs of the real economy, that is, whether these services are of good quality.

## 3. Results

**3.1. Analysis of the banking system in Russia.** As there is hardly any long-term interaction between banking and real sectors of the economy and due to Russian credit institutions liquidity crisis it seems relevant to regard business operation strategies of credit organizations in Russia on the basis of cluster analysis, the identification of banks with different business models of interaction with banking and real sectors of economy and the long-term crediting potential of a real economy sector without sacrificing the stability of the banking sector as a whole.

In order to make correct judgment of general trends of Russian banking sector one has to consider the dynamics of the main parameters of liquidity. This

analysis will determine the change in bank resources in the time of crisis and post-crisis, as well as evaluate the current situation in the banking market.

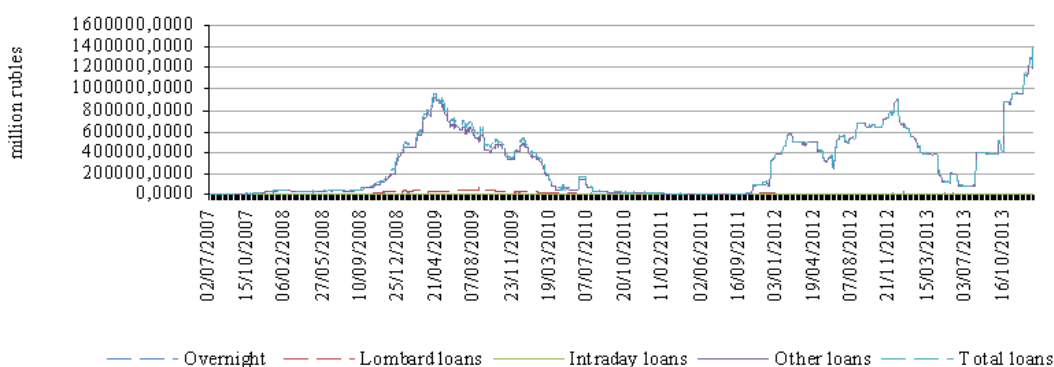


**Fig. 1. Dynamics of attracted funds and allocated funds in Russian credit institutions (An official site of the Bank of Russia, 2014)**

In the period from 2007 to 2013 the growth of both attracted and allocated funds of credit institutions (Figure 1) is made particularly evident. However, during the crisis, within the allocated funds this trend goes down whereas attraction continues to grow up, which eventually creates a situation of convergence of these indicators in the post-crisis period. Paying attention to the time period from July 2010 to January 2012 it can be noted that for credit institutions it becomes preferable to work within the existing resources of a bank, without increasing the amount of attracted funds using the multiplication effect. Later on there is a consistent growth of indicators under consideration.

However, the growth of attraction of funds during the global economic crisis was supported mainly at the expense of loans in the inter-bank deposit market.

The inter-bank deposit market consists of loans that commercial banks give to each other, and loans that the Bank of Russia, acting as a lender of the last resort, advances for commercial banks. Most of the loans are issued by the Central Bank of the Russian Federation, and it were its actions that have significantly changed the structure of liabilities of the Russian banking system in the direction of increasing the share of inter-bank loans.

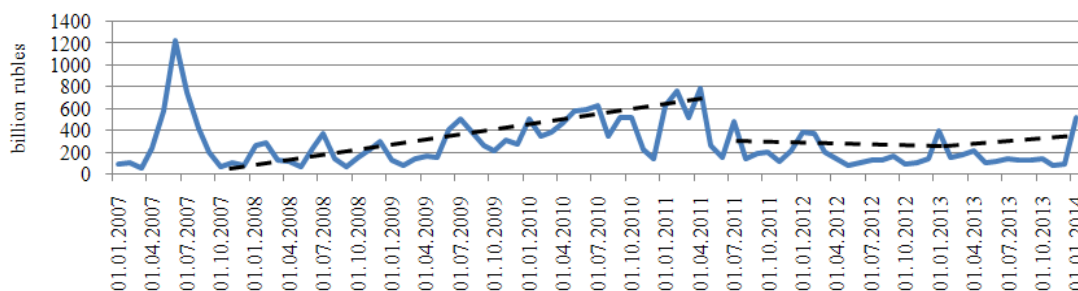


**Fig. 2. The dynamics of the volume of loans granted by the bank of Russia to credit institutions (An official site of the Bank of Russia, 2014)**

The most significant loans turned to be other loans (Figure 2), among which were unsecured ones up to the period of the beginning of 2011. The introduction and the granting of this type of loans originated in connection with the lack of liquidity in credit institutions during the crisis and were carried out in accordance with Art. 46 of the Federal Law № 86-FZ “On the Central Bank of the Russian Federation (the Bank of Russia)” and the regulations of the Bank of

Russia dated October 16, 2008 № 323-P “On granting unsecured loans to Russian credit organizations”.

Since the beginning of 2012 the volume of loans to credit institutions granted by the Bank of Russia has increased again, achieving even higher volumes. The similar tendency supports the existence of an ongoing liquidity crisis in Russian banking system, which is also confirmed by the volume of deposits of credit institutions in the Bank of Russia (Figure 3).

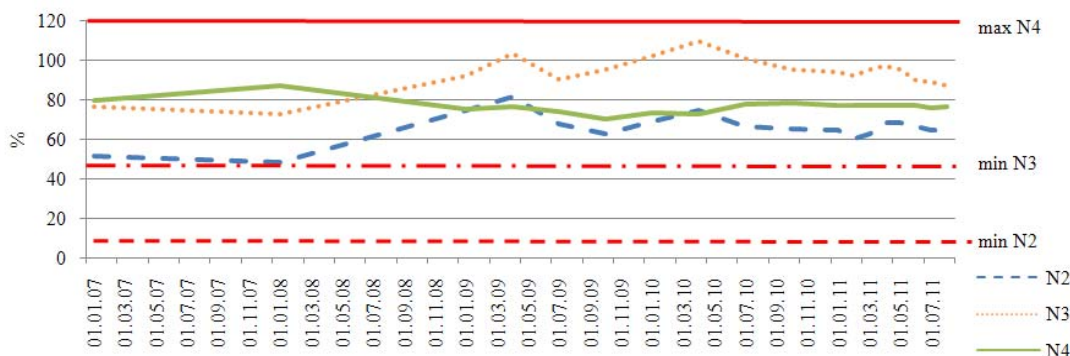


**Fig. 3. Dynamics of deposit volumes of credit institutions in the Bank of Russia (An official site of the Bank of Russia, 2014)**

From the beginning of 2008 until the beginning of 2011 deposits of credit institutions in the Bank of Russia tended to grow (Figure 3). Thus, we can conclude that there was a necessity in money liquidity in Russian economy during the 2008 crisis, but the problem was how to put it into the real economy sector, which at that moment drastically needed financing. But from the middle of 2011, there has been a relapse of this indicator and its stabilization at the point of 400-500 billion rubles up to present time.

The analysis of the dynamics of liquidity in the period from 2007 to 2011, which are calculated on the basis of the Bank of Russia Instructions № 139-I

“On mandatory ratios of banks” dated 03.12.2012, was carried out to assess the level of liquidity of credit institutions in Russia during the 2008 crisis. The value of instant liquidity requirement criterion (N2), the minimum limit of which is set by law at the level of 15%, fluctuated from 60 to 80% during the crisis period. The current requirement criterion (N3), with the minimum limit of 50%, was also several times higher than the established threshold and was within the limits from 90 to 110%. The long-term liquidity criterion (N4), with a maximum value of 120%, was within the limits from 60 to 80% (Figure 4).



**Fig. 4. The dynamics of the values of liquidity criteria of credit institutions of Russia (An official site of the Bank of Russia, 2014)**

The data show that the requirements do not take into account the set of necessary economic factors, therefore, are not able to fully make judgments about the real economic situation in the country as a whole and about the activities of a credit institution in particular. In order to prove the ineffectiveness of liquidity indicators of credit institutions at the macro level, we also carried out a cross-correlation and regressive analysis.

Attracted and allocated funds of credit institutions, as well as their own capital, were selected as the parameters of the liquidity standards. It is advisable to divide credit institutions funds according to terms of attraction and allocation. So, three groups of assets and liabilities with terms of repay on demand due before 30 days and more than 1 year have been set up.

Assets on demand included the funds in correspondent accounts of credit institutions; assets due before 30 days – loans, deposits and other allocated funds of credit institutions, as well as deposits in the Bank of Russia; assets due after 1 year – loans, deposits and other allocated funds for more than a year.

Liabilities on demand included promissory notes and deposits on demand, intraday and overnight loans of the Bank of Russia; liabilities due before 30 days – attracted funds due before 30 days, securities of credit institutions (savings and certificates of deposit, bonds and notes) due before 30 days, lombard and other loans of the Bank of Russia; liabilities due after 1 year – attracted funds due after 1 year, securities of credit institutions due after 1 year and core capital.

According to the correlation analysis statistically significant relationship turned out to be between the long-term liquidity criterion (N4) and assets due after 1 year, with the remaining indicators showing either rather low relationship at 0.2-0.3 level (assets due before 30 days, instant liquidity requirement criterion (N2) and liabilities on demand and current liquidity requirement criterion (N3), or revealed the absence of any correlation (the instant liquidity and assets on demand, the current liquidity criterion and liabilities due before 30 days) (Table 2).

Table 2. Results of correlation analysis

Indices	N2	N3	N4
Assets on demand	0.031859		
Assets due before 30 days		-0.20644	
Assets due after 1 year			-0.86467
Liabilities on demand	0.279114		
Liabilities due before 30 days		-0.53355	
Liabilities due after 1 year			-0.02214

Standards N3 and N4 have negative correlation with the selected indicators (Table 1). Accordingly, the results of correlation analysis with an increase (decrease) in assets and liabilities indicators will decrease (increase) in current standards and long-term liquidity.

Thus, we can assume that the correlation analysis quite clearly reflects the essence of the criteria, i.e. according to N3 standard the requirement criterion will be reduced if there is a slight increase in the assets and a significant increase in liabilities; according to N4 the requirement criterion will deteriorate if there is a significant increase in assets and a slight increase in liabilities. No such tendency is observed in criterion N2, since there is very little correlation in parameters. A positive correlation is a correlation where the increase in one variable is related to the increase in the other variable based. So, judging from the resulting data, the instant liquidity criterion should improve with a slight increase in assets and in liabilities, which does not really happen.

The regression analysis also revealed the lack of significance of constructed models for standards N2 and N3, which is confirmed by R distribution indices. According to the long-term liquidity criterion, though, a fairly high significance of the model is noted, which indicates the reasonability of such kind of modeling and the existence of a cause and effect relationship between the selected indices (Table 3).

Table 3. Results of the regression analysis

Indices	N2	N3	N4
Multiple R	0.35598	0.54327	0.86887
R-square value	0.12672	0.29514	0.75494
Standardized R-square value	-0.30992	-0.05729	0.63240

The correlation and regression analysis revealed the fact that the least significant criterion in terms of

correlation with the real changes taking place in the banking sector, is the instant liquidity criterion of credit institutions, then in order of importance comes the current liquidity criterion. According to the long-term liquidity standards no correlation to liabilities due after 1 year is observed, but the regression analysis showed high significance of building an economic and mathematical model.

It should be noted that data sample about the volumes of assets and liabilities of credit institutions consisted of indices observed in the period from 2010 to June 2011 to prevent the impact of crisis phenomena on the results of the research.

Thus, liquidity criteria on a macro level does not make it possible to come to an adequate conclusion about the state of liquidity in the banking sector. In this respect the necessity arises in the development of special methods to determine an effective level of liquidity of banks and follow up the current market situation.

According to the above given statistics, it can be noted that the liquidity of the banking sector is one of the most important indicators of economy. The problem of effective distribution of available liquidity and putting it to the real sector of economy is of major importance. The 2008-2009 experiments showed that funding of credit institutions during the economic instability leads only to the sustention of banking structures themselves.

**3.2. Basic business models of interaction between banking and real sectors of the economy.** To identify the causes of inefficient use of bank liquidity and prepare the ground for the development of methodology for assessing the liquidity of a banking sector at the macro level, a study was conducted aimed at identifying business models interaction between banking and real sectors of the Russian economy. The Russian banks clustering was worked out with the help of the method of Kohonen neural self-organizing maps according to indicators that offer and liquidity from the real sector of the economy and the population.

Thus four main business-models that were characteristic to credit organizations in Russia at the beginning of 2012 were disclosed (Table 4).

Table 4. Characteristics of main business-models of interaction between banking and real sectors of economy of Russia

Business model	Characteristics
1 business model (389 credit organizations)	large banks and the small banks that can have the possibility to influence the economy; a considerable volume of financial resources of the market; an impact on capital market; business background on short-term resources; conservative policy, low risks; ineffective policy of resource management (a significant amount of excess liquidity); – a low level of interaction with the real economy.

Table 4 (cont.). Characteristics of main business-models of interaction between banking and real sectors of economy of Russia

Business model	Characteristics
2 business model (306 credit organizations)	middle size banks; the disparity in the terms of attraction and placement of resources; – focus on the stability and sustainability of the bank itself; – skills of using tools of medium-term funds attraction; – lack of orientation on the formation of a major allocation policy.
3 business model (87 credit organizations)	middle and small size banks; an aggressive policy towards liquidity; active use of mid-term tools for long-term allocations; main players in inter-bank lending market; focus on interaction with a real sector of economy.
4 business model (54 credit organizations)	small banks; availability of mid-term resources; high level of capitalization; incentive to cooperation with the real sector of economy; insufficient scope of activity for obtaining results from the cooperation with a real sector of economy.

Banks of the second and third business model focus on the interaction with the real sector of the economy. With that the given business-models include a few small and mid-size banks of the Russian banking system.

Banks belonging to the first business-model present great interest. Representatives of these models are mostly large credit institutions with a high degree of

influence on the development of the banking system. These banks do not focus on interaction with the real sector of economy, which really needs long-term liquidity support. Banks of this business model work mainly on a short-term basis both attracting and allocating resources. To this group belong such major banks as Sberbank of Russia, Bank for Foreign Trade, Bank for Foreign Trade 24, RosselhozBank, Bank of Moscow and others.

Let us consider the basic performance indices of these particular country’s largest banks, which belong to the group of the first business model.

The largest part of the Sberbank Bank of Russia are deposits due before 180 days, which amounted to 53.5%, in VTB 24 and the Bank of Moscow prevail resources due before 1 year – 54.8% and 56.4% respectively (Figure 5). The distribution of funds in VTB bank and RosselhozBank is different. As for RosselhozBank, here the main resources were distributed as follows: 36.6% – deposits due before 1 year, 25.6 % – funds deposited in accounts and 22.4 % – deposits due before 180 days. However, the overall trend still continues: the majority of funds raised, namely, 84.6 %, are short and medium-term resources. Unlike credit institutions, named here, Bank for Foreign Trade attracts both long-term and midterm resources.

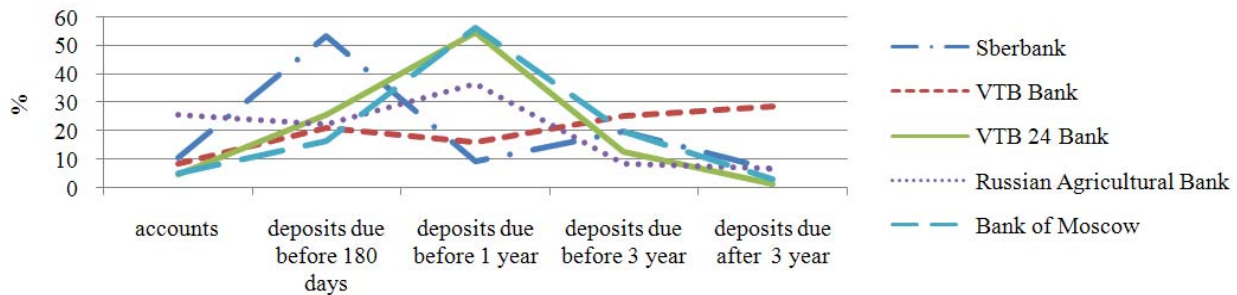


Fig. 5. The amount of deposits in the overall volume of attracted funds of credit institutions, belonging to the first business-model of interaction between bank and real sectors of economy in Russia, specifying timescales

Attention should be paid to the structure of allocated funds. There is one strategy of allocating resources that have been attracted (Figure 6). Greater part of allocated funds is loans due before 1 year and overdraft loans. So in Sberbank of Russia, Bank for Foreign Trade 24 and Bank of Moscow dominate

loans due before 1 year -54%, 51% and 33% of the total volume of resources respectively, Bank for Foreign Trade overdraft loans – 43%. In RosselhozBank funds are distributed evenly between loans due before 1 year – 38%, overdraft loans – 32%.

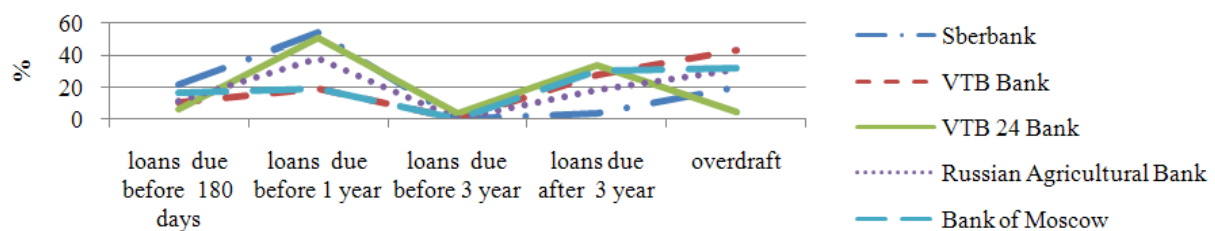


Fig. 6. The amount of loans in the overall volume of attracted funds of credit institutions, belonging to the first business-model of interaction between bank and real sectors of economy on Russia specifying timescales



Thus, on the example of the largest credit institution in Russian banking sector (10 TOP banks on the level of net assets) it was revealed that banks of the first business-model are more focused on short-term transactions. However, as it has already been noted above, these credit institutions have a high degree of influence on money market.

At the same time the group of banks with this business model also includes small credit institutions. The research made it possible to assume that it is this very business-model which is the most inefficient in the activities of medium and small-size banks. This is proved by the statistics of the liquidated banks and banks with a terminated license (Fig. 7).

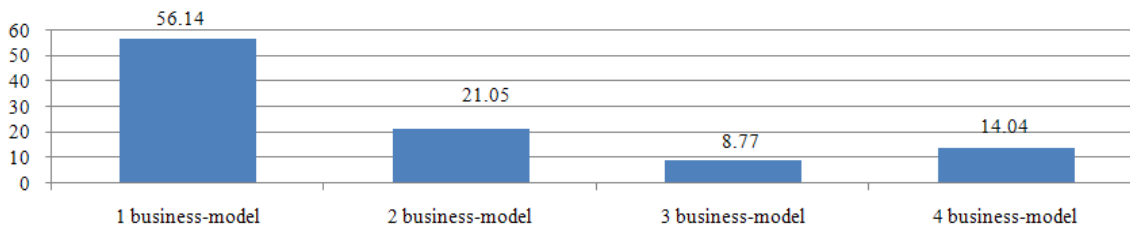


Fig. 7. The amount of banks that went into liquidation, specifying business-models of interaction between bank and real sectors of economy in Russia, %

57 credit institutions out of 82 liquidated credit institutions and banks with a terminated license took part in the study in the period from 01.01.2012 to 31.01.2014. The largest share (56.14 %) here is taken by credit institutions that belong to the first business-model. Then come the banks, preferring the second business-model (21.05%), which can also be hardly considered effective in terms of the distribution of available liquidity. The lowest percentage (8.77 % and 14.04%) belongs to the third and fourth business-models that focus on interaction with the real sector of economy.

It should be stressed that the first business-model of banks that went into liquidation 21.9 % is occupied by medium-sized credit institutions and 78.1% – by small credit institutions. In the second business-model the ratio is 33.3 % and 66.7 % respectively.

Thus, small size credit institutions in the first business-model have high risk of business termination. In general, it can be noted that the results of the performed clustering of credit organizations in Russia are confirmed in practice, highlighting the need for further study of methods of effective liquidity management of the banking sector.

## Conclusion

The quality, as was noted earlier, means the ability of banks to meet the needs of the real economy in the long-term financing. According to the study

results the quality of banking services in the existing business models of interaction between the banking and real sectors of the economy is revealed. The first business model demonstrates a high level of short-term financing, thus the insufficient level of service quality may be noted. The second business model is based on attracting the medium-term resources and placing them in the short-term resources, that is, the quality of service is not sufficient, but there is potential for growth. The third and fourth business models focused on the long-term financing, which gives the right to talk about the high quality banking services.

The first business model that excels in the number of its member banks, was studied deeper. With respect to the larger banks, it should be noted that the presence of opportunities to influence the market and the sufficiency of resources involved, lenders do not focus on the interaction with the real sector of the economy. In order to assess the activities of small and medium-sized representatives of the business-model, the data on liquidated credit institutions have been analyzed. The results showed that the representatives of this group are more subject to the risk of failure and revocation.

In general, the quality of banking services in Russian credit institutions is not high enough for the developing the effective business models “Bank – Real Sector”.

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