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19

Digital transformation of the banking system and its influence on macroeconomic dynamics

Fiapshev, A.B.[1]

[1]Financial University under the Government of
Russian Federation, Moscow, Russia
academy@fa.ru

Afanasyeva, O.N.[2]

[2]Financial University under the Government of
Russian Federation, Moscow, Russia
academy@fa.ru

Abstract

The aim of the study is to investigate digital transformation of the Russian banking system and possibility of its influence on macroeconomic dynamics via methods of poll of representatives of bank community regarding their vision of the most important factors of development of the Russian banking system. As a result, the greatest total share of influence is occupied by group of factors of mesolevel, namely factors of subgroup situation in the bank sphere. In conclusion, the technology factor operating in the direction of large-scale digitalization of bank activity has the expressed restrictions in expansion of credit investments in economic development.

Key Words: Factors of Development, Banking System, Digitalization.

Transformación digital del sistema bancario y su influencia en la dinámica macroeconómica

Resumen

El objetivo del estudio es investigar la transformación digital del sistema bancario ruso y la posibilidad de su influencia en las dinámicas macroeconómicas a través de los métodos de sondeo de representantes de

la comunidad bancaria sobre su visión de los factores más importantes del desarrollo del sistema bancario ruso. Como resultado, la mayor parte de la influencia total está ocupada por un grupo de factores de nivel de mes, a saber, los factores de la situación del subgrupo en la esfera bancaria. En conclusión, el factor tecnológico que opera en la dirección de la digitalización a gran escala de la actividad bancaria tiene las restricciones expresadas en la expansión de las inversiones crediticias en el desarrollo económico.

Palabras clave: Factores de desarrollo, Sistema bancario, Digitalización.

1. INTRODUCTION

The industrial digital transformation which affected practically all sectors of the economy and the sphere of public life defines possibilities of the countries in stimulation of economic dynamics and the solution of an extensive layer of social problems already today. The results of the numerous re-searches confirming dependence of economic growth on investments in this transformational process, as well as the experience of the countries, before another has been capable to initiate corresponding chang-es, are the major incentive for adoption of the state decisions for the purpose of the active advance of digital technologies in daily economic practice. The decisions made in the Russian Federation in this area with all persuasiveness show desire of its management not to appear on the periphery of the men-tioned changes. Also, it is necessary to recognize that not only certain sectors of the domestic economy, but also the sphere of public life, essentially progressed in involvement of digital technologies, having strengthened on the one hand the competitive positions, and with another having

increased volumes and quality of the provided services. Told fully it is possible to carry to the financial sector and, mainly, considering its distinctly expressed specialization, to a banking system .

This sector is by all estimates which are available today created on the basis of extensive empiri-cal material over the majority of the countries of the world among leaders in value of the index of digi-tal transformation. The leading position of a banking system in this process is characteristic also of the Russian reality. However, considering the main functionality of this system connected with us with credit stimulation of social and economic dynamics particularly important the question of what measure processes of digital transformation are capable to increase the effectiveness of realization of this func-tionality. Quite obvious technological effect of digitalization connected with number and speed of transactions, optimization of resources of the most banking system do not mean increase in its total as-sets, productive for economic growth, at all. The answer to the question posed defines need of a re-search of the developed features of the Russian banking system, identification of the dominating fac-tors of its development. It is necessary in order that in the subsequent to decide on whether digitaliza-tion of banking business bears in itself the potential of neutralization of negative trends in its function-ing, whether she is capable to make an independent and sufficient factor today in realization of that main its purpose about it was told above. In this regard processes of digitalization among other condi-tions and factors of development of the Russian banking system.

2. REVIEW OF LITERATURE

Researches of a banking system and factors of its development, despite their large number, most-ly bear in underestimation of coherence of these factors. They are concentrated mainly on internal con-ditions and their influence on the financial results of credit institutions. It should be carried also to a factor of digital transformation of banking business, its influence on key parameters of development of national banking systems. The first works containing the comparative analysis of these systems and fac-tors of their development appeared more than 30 years ago and go back to the period of the beginning of intensive use of advanced technologies in banking business. Researches of this sort were intensified at first in the USA, later in the European countries, Japan (Altunbaş et al., 2000), China (Berger et al., 2009). The analysis of factors of development of the European banks and justification of opportunities of increase based on efficiency contains in the works (Dietsch & Lozanovivas, 2000; Chaffai et al., 2001; Lozanovivas el al., 2001). Growth of efficiency of credit institutes expressed in such indicators as structure of assets and liabilities of bank, quality of management bank by risks, the capital of banks, etc.

The Russian authors did not appear away from process of promoting of this research direction. A number of works are devoted to the analysis of the factors accompanying development of the Russian banks, their infrastructures, their influence on the results of their activity (Pavlyuk, 2006; Belousova, 2011; Mamonov, 2011; Mamonov

& Vernikov, 2015; Afanasyeva, 2016). As factors of development of the Russian banks inflation, an exchange rate, GDP per capita, demand density, level of financial medi-ation, indexes of industrial production and release by the basic types of economic activity, the number of banks on 1 thousand people, activity of supervising policy of the regulator, etc. were considered. The most part of these factors was significant and positively influenced banking business.

Without challenging the importance of the received results in a research of the factors affecting the efficiency of a banking system we will note that the preservation of this perspective in focus of re-search attention is caused by importance of knowledge of both internal, and external conditions for increase in effectiveness of credit institutions for the benefit of the development of all national econo-my. Among these conditions, there are rates of implementation of advanced technologies in banking business. A significant amount of works of both foreign, and domestic researchers is also devoted to the proof of dependence of financial results of the last on these rates. So, for example, researches in the field of use of blockchain technology in the financial sector contain in a number of works (Baklayeva, 2017; Andryushin and Burlachkov, 2017; Styrin, 2005; Alsadi & Rahmankhan, 2018). Today this communication is obvious. At the same time, in what measure the trend of acceleration of digitalization of business will promote the solu-tion of macroeconomic tasks which sharpness amplifies circumstances, external in relation to the nation-al economy, and provokes thereby growth of uncertainty of economic prospects. It is necessary to rec-ognize caused this novelty by

eccentricity of the state in which there was a Russian economy. At the same time the relative narrowness of distribution of these questions does not exclude the need of their decision.

3. DATA AND METHODOLOGY OF A RESEARCH

At the first analysis stage features and factors of development of the Russian banking system were investigated. The Bank of Russia was the main source of data. These data contain detailed infor-mation on quantitative and qualitative parameters of the Russian banking system. These data were combined with results of poll of staff of credit institutions about factors, most essentially influencing in their opinion development of a banking system. We built the estimated selection as follows. Selection of 36 credit institutions was created mainly from those from them who has the considerable volume of the client credits and deposits. It gave the chance to provide its representativeness, it absorbed more than 3243 employees of credit institutions. Population participating in holding poll was differentiated on the groups representing four typical groups for the analysis (systemically significant credit institu-tions, banks with foreign participation, banks with a considerable volume of the client credits and de-posits, and small banks). The number of the selected units from each typical group was established de-pending on proportionality of the number of the selected units to the volume of typical groups.

The research was conducted in the direction of identification of private features of the present stage of development of the Russian banking system to their subsequent generalization and formulation of the dominating characteristics. It gave the chance to divide set of factors them predetermined on two groups according to the level of their generation – macroeconomic and to mesolevel. And already then data about estimates of their influence on a banking system were collected. Estimates interviewed naturally bore the impress in themselves subjective perception of the influence of a separate factor on development of concrete credit institutions by them. Leveling of this subjective raid was partly reached by formation of typical groups of credit institutions. But in general, such purpose was also not put, con-sidering the extensive field of results about the factors and conditions of development of the Russian banking system presented in the domestic analysis of problems of its development, and confirmed with involvement of the tool device quite adequate to the purposes of this identification. Another thing is that the dependences identified in this analysis in the orientation and narrowness, despite of their not realness on closer examination, every time received quite to themselves logical confirmation. One of the main features of the considerable number of researches of problems of development of a modern bank-ing system of Russia is seen in it that, actually can be explained by its present state which is expressed in the remaining its vulnerability, despite the importance of the results achieved in recent years by the Bank of Russia in the regulating process and supervising practice. This situation is predetermined by difficulties of more general order and belonging already to the level of all national economy. In

this regard value judgment of the practicians operating in the corresponding environment is important in-cluding the essential measure are reflection of the objective processes happening in it.

4. RESULTS OF A RESEARCH

The carried-out analysis of the changes which happened in a banking system allowed to mark out the following features: optimization of management with active involvement of new technologies, at the same time proceeding against the background of centralization and concentration of presence, nationalization, insufficient security and diversification, disproportion of development of the elements forming it. Apparently, these features are quite contradictory set. On the one hand it is characterized by an essential measure of structural imbalance in institutional, territorial aspects. This imbalance is considered by many as a result of activity of the domestic regulator, but considerably it is caused also by the objective factors accompanying development of the Russian economy for decades and defined, including, and its structural problems. And it, along with the character and rates of transformations taking place in its contemporary history could not but affect a banking system. On the other hand, rather steady dynamics of financial results in an essential measure formed by the activity of the largest state banks is characteristic of the last, they, mainly, show also rather an indicative example, forward improvement technological components of conducting banking business. All these features are the main maintenance of the separate factors of branch

level defining possibilities of achievement of the main goals of the regulator in relation to the banking sector. But they cause the imminent need of correction of its activity regarding the neutralization of their negative potential.

The factors bearing the potential of influence on the development of a banking system were grouped them in criterion of belonging to this or that level of an economic system: macrolevel factors (economic, political and legal, natural, technological, sociocultural); mesolevel factors (a situation in the bank sphere, the regulatory and legislative base, a condition of the enterprise environment). The integrated factors in a consequence were detailed. The influence of each factor rested own ball assessment. The received results revealed the increasing scepticism in estimates of prospects of development of a banking system. It was expressed in values such uncontrollable the monetary authorities of factors as a condition of the markets, mainly the financial market, which is more and more feeling influence of the accruing capital outflow from the country and withdrawal from it of foreign investors. It is possible to carry to the developed level of risks in the industry, the business which is the result of the general risks in Russia and also to the existence of the essential institutional barriers interfering development of a banking system and, respectively, all national economy.

By means of the calculated shares of influence the weighed factorial model having an appearance: $B=f(w\_1, w\_2,…, w\_24)$, где B – current state of a banking system; $w\_1, w\_2…$ – weight (influence

share) of a concrete factor. The current state was expressed by an indicator of total assets of a system. Detection of the concrete function chart of influence of each factor (or sets of factors) on a banking system in general is a labor-consuming task as an influence function of «f» in fact, represents a black box. However, carrying out a research of the variables entering this function – a share of influence of concrete factors is possible. For this purpose, factors were consolidated on groups that facilitated calculation of the average weighed influence share counting on one factor and also a total share of influence of groups of factors of different levels.

Results of modeling showed that the greatest total share of influence is occupied by group of factors of mesolevel, namely factors of the subgroup Situation in the bank sphere. Extent of influence has a direct correlation with a number of the factors having this degree. The coefficient of correlation made 90.48%, with use of dependence of a share of influence on a number of factors the sensitivity (resistance) of the model to changes of the number of input variables (factors) was analyzed. In other words, it is tracked whether leads an exception of one of factors of model, to high-quality changes of an average share of influence of other factors (counting on one factor). It showed that change of an average share of influence not strongly affects a banking system in general. Average change was 0.16%. But together with it, the most part of excludable factors changes an average share of influence on value above of an average. In total there are 14 such factors. Cumulative changes on groups of factors are presented in table 1.

Table 1 - Cumulative changes of a group share of influence at a factor exception

Subgroup of an excludable factor	Change of a group share of influence at a factor exception
Macrolevel factors	1,44%
Political and legal	0,23%
Economic	0,52%
Tecnological	0,22%
Scoiocultural	0,15%
Natural	0,32%
Mesolevel factors	2,30%
Situation in the bank sphere	1,40%
Condition of the enterprise environment	0,96%
Regulatory and legislative base	-0,06%

The exception of any factor influenced change of a group share of action (that is change of a total share of influence of subgroup). For confirmation of this assumption the dispersive analysis of a group share of influence which yielded the following results was carried out: average of group dispersions made $\bar{\sigma}^2 = 0,000128$, between group variance - $\delta^2 = 0,00024$. The received table of values of the correlation relations showed close connection between a variation of a share of influence of one factor and the group phenomenon. That is, in view of active intergroup interactions, change of influence of one factor entering into one any group plays a role in change of influence of other groups of factors on a banking system in general. The constructed factorial model confirmed that the banking system is difficult complete education which factors of development are closely

connected among themselves. But at the same time, the importance of the influence of an exception of factors. It is about macro environment factors which are connected with external conditions - probable toughening of a sanctions regime, and all circumstances following from this – capital outflow, volatility of national currency, restrictions in access to foreign sources of funding, etc.

The exception of action of this factor in essence means obtaining bigger maneuverability by the Central Bank in influence by it on credit institutions and also increase in value of the factors controlled by it. The role carried to different groups of factors, was also highly appreciated. However, it, at all importance of its role in optimization of operating activities, in the cumulative action does not exceed the influence of external factors. Thus, the last actually block the positive potential of forward technological transformation in the sense that they do not play an essential role in realization of credit and investment opportunities of a banking system and does not promote properly building of its assets expressed in granting the credits to the non-financial sector and the population. In other words, the technology factor operating in the direction of large-scale digitalization of bank activity has the expressed restrictions in expansion of credit investments in economic development. And these restrictions are rather accurately realized by bank community. They are confirmed by sluggish social and economic dynamics against the background of not the first year of the expanding offer of banking services on an innovative basis. On the other hand, the process of digital transformation proceeding in the conditions of toughening of

supervising practice and obviously palliative decisions on the introduction of the concept of proportional bank regulation and supervision provokes acceleration of trends of centralization and concentration in the market of banking services. And in this sense, it obviously does not promote minimization of structural imbalance of a banking system, including in territorial aspect. And here more essential measure of differentiation in the regulating process joined not only large participants of the market, but also small and medium-sized banks, which existence is justified by the existence of opportunities of an intensification of the competition in the local markets, increases in availability of banking services and as a result of it, higher measure of social orientation of their business.

5. CONCLUSION

The revealed degree of coherence of factors of development of the Russian banking system and also their external conditions accompanying a present stage of the functioning of the Russian economy complicate a problem of realization by the domestic regulator of the main function consisting in build-ing and productive realization of the credit investment potential for the benefit of the development of all national economy. Preservation of action of the negative external political and economic background accompanying development of the Russian economy inevitably will reduce effectiveness of the stabili-zation and stimulating decisions of the monetary authorities. Partly it

was confirmed by the inflationary impulses received by the Russian economy in the first half of 2018, an adequate reflection on the per-centage policy of the domestic regulator that does the prospects of the subsequent transition to mitiga-tion of a monetary course uncertain. Demonstration of limitation of internal opportunities for achieve-ment of the declared purposes on rates of social and economic dynamics became an important result of this stage of development of national economy and its banking sector.

This limitation is also concerning opportunities of realization of the main directions of develop-ment of the financial market, as the most important of which active interaction of a banking system with other sectors of the economy on the basis of the forward expansion of the use of advanced tech-nologies appears. Decisions which are accepted within regulating and supervising the practician (at all their importance and timeliness), with all evidence continue to work for the interests of the largest par-ticipants of the market. They in essence close a banking system in themselves when need of ensuring financial stability of credit institutes is protected to the detriment of the solution of other macroeco-nomic tasks. And all of these proceeds against the background of the general institutional disorder dis-couraging business and institutional activity. It does not allow to qualify technology factor as self-sufficient for the solution of a set of economic and social problems of the Russian reality. In this regard, again and with a bigger topical character there is about a question of coherence of the directions of the state economic policy also its coordination with institutional transformations, the structural perturba-tions which long

ago were imminent. The complex of decisions in these important functional areas with all evidence has to be complemented with active steps on forward elimination of external factors, the isolationism of domestic economy excluding deepening. Realization of these frontal complex efforts will allow to eliminate the fragmentariness of the efforts of regulators taking today place, to fully use the potential of technological innovations in the interests not only a banking system, but also all Russian economy.

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