How the institutional environment affects the banking sector: evidence from BRICS

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Abstract. The BRICS countries are the largest economic bloc, and in many forecasts it is believed that the prospects for the growth of the world economy are related to their development (World Bank 2015, Randers 2012). On the one hand, the backwardness of the banking systems of the BRICS countries may be a factor in the financial vulnerability of countries in the future; on the other hand, the creation of institutional conditions for the effective functioning of the banking system is a potential source of economic growth in the BRICS countries. In this article the institutional environment of the banking system of the BRICS countries are analyzed. There is exploration of the key statistical characteristics of the banking sector, the main trends in its development. The institutional structure of the banking system is represented by external and internal institutions. The main aspect of the study is to reveal the characteristics of the external institutional environment. The purpose of our study is to test the following hypothesis: factors of the external institutional environment affect the banking system. The subject of the study is the BRICS countries banking system. The period of study: 2004 - 2015. We selected three characteristics: the degree of development of the banking system, the stability and efficiency of the banking system. We used the construction of econometric models to test the hypothesis. The findings of the investigation have distinguished the main characteristics of the external institutional environment that have an impact on the banking sector and determine its effectiveness: the size of the public sector and the degree of state intervention in the economy; tax freedom; freedom of doing business; historical and political characteristics; investment and monetary freedom.

1. Introduction
Banks are one of the key financial institutions of the economy. They contribute to economic growth in the country through various instruments. Such as: lending to the private sector, accumulating and investing free household funds. During the economic crisis, the banking system often behaves prodigiously: lending to the private sector is declining, there is no liquidity in the real sector, and household consumption capacities are declining. One of the key areas of research in this area is the identification of factors that determine the effectiveness of the banking system.

The stability of financial markets in the long run depends on a certain set of informal and formal norms and rules of its functioning. According to the idea of the Austrian economist J. Schumpeter [1, p. 31] any financial intermediary, in our case a commercial bank is the main element of institutional
changes in the financial structure of the economy. So there is a need to explore the contribution of institutional factors to the development of the banking industry.

It should be noted that the issues related to the institutional environment of the banking sector, problems and key factors of development strategies, and the development of measures aimed at solving problems through institutional improvement of the banking system acquire particular relevance and practical importance. To define the concept of the institutional environment of the banking system, let us turn to its interpretation, which was suggested by classics of institutional analysis. Further, we will consider various definitions of the concept of institutional environment. According to the classics of institutional analysis (D. Nort, L. Devis), it is a set of basic social, legal, political, formal and informal rules of the game, which form the basis for interaction of economic entities about production, distribution and exchange of material goods. O. I. Williamson [2, p. 134] gave the following definition of the institutional environment - the set of rules of the game that determine the context in which economic activity is carried out. A. E. Shastitko, A. N. Oleinik, O. V. Stepanova [3, p. 64] consider the institutional environment as a characteristic of the external environment, social, political and legal rules regulating the behavior of economic agents and ensuring the achievement of harmony among people.

2. Institutional environment of the banking system

We can define the banking institutional environment as a set of internal and external rules of the game in which banking activities are carried out, determining the nature of the interaction of economic agents in this sphere and the effectiveness of its functioning.

We can say that the institutional environment and its key characteristics predetermine the development of the modern banking sector. Institutes have a major role in the creation and organization of this market. They form the nature of the relationship between market actors and allow them to realize their functions and interests. Therefore, it is necessary to analyze its characteristics, which affect the effectiveness of the banking sector. Then it is necessary to assess their significance. In general, the institutional structure of the banking system can be represented as a combination of internal and external institutions.

Table 1. Structure of the banking sector institutional environment.

| External institutions | Internal institutions |
|-----------------------|-----------------------|
| Institutions in which the country's banking system operates. Including the degree of development of the legislative, tax and judicial system. Represents a basis for the entire financial system. This can include characteristics of state strength degree, bureaucracy, ease of doing business, economic and financial freedom, the power of law, etc. | Regulatory institutions. Rules regulating the activity of the credit market (legislation in the credit sphere); institutions of state control (CB). |
| Informal institutions. Corruption of the economy, propensity or avoidance of risk, mentality, level of trust, etc. | Financial institutions. Legislation in the financial sphere. Various venture and investment funds, risk insurance procedures. Providing credit processes with investment, financial, credit, material and technical resources |
| Informal institutions of the banking sector. (business customs and traditions in the banking sector, conditional agreements, etc.) | |
So, there can be determined the institutions that structure the internal activities of the bank, its current financial and economic activities, and the effectiveness of the work of its personnel. On the other hand, these are the institutions that are designed to ensure the effectiveness of the economic activity of the bank as part of the economy. Obviously, the degree of specialization and centralization of world banking systems was formed not only under the influence of objective economic factors, but also by certain historical facts and business traditions.

3. BRICS banking system

The banking system of the BRICS countries is formed under the influence of a number of political and historical factors. The bulk of assets are controlled by banks with state participation, and in Eastern Europe – by banks with foreign participation. It should be noted that the BRICS countries are characterized by significant state ownership in the banking sector. This feature has allowed the credit organizations of the BRICS countries to cope with the global financial crisis more easily. The BRICS countries are the largest economic bloc, and in many forecasts it is believed that the prospects for the growth of the world economy are related to their development (World Bank 2015, Randers 2012). On the one hand, the backwardness of the BRICS countries banking systems may be a factor of countries financial vulnerability in the future; on the other hand, the creation of institutional conditions for the banking system effective functioning is a potential source of economic growth of the BRICS countries.

We can distinguish the following main types of banks in the BRICS countries: state banks, offshore banks, banks with foreign capital and private banks. In the analyzed countries, the main positions belong to banks with state participation.

More than 160 banks of the BRICS countries with a combined capital of the first level of about $ 1 trillion are included in the TOP-1000. However, this is 6 times higher than the similar size of the capital of any of the world's top five banks. The leading banks of Brazil, India and Russia have a combined capital less than $ 150 billion. Only two banks of China are in TOP-20 banks of the world in terms of capital, having 113 and 96 billion dollars accordingly. Monetary institutions of the BRICS countries consistently fulfill their function of lending to industry, agriculture and households, despite the weakness of their capital base. The lending range is from 70% of GDP in India to 260% of GDP in Brazil. BRICS banks have consistently strengthened their positions in global finance since 2000. This is reflected in key financial indicators: capital, assets, and profits are growing. As a result, their positions in TOP-1000 banks of the world strengthen [4, p. 123].

The Chinese economy is characterized by an actively growing and large-scale banking sector. The assets of China's banking sector exceed its GDP more than twice and grow at a significant pace. Next comes the Brazilian banking system, its overall size is larger than the country's GDP by 1.3 times. The assets of the banking system of the Indian economy are significantly inferior to the leaders. They are about 75% of GDP. For the Russian economy - 95%, but here they grow at the slowest pace among the BRICS countries.

The most important reason for explaining the differences in the size of the banking sector in these countries is the difference in the savings behavior of the population. So India and China - saving nations, here on average people save 30% of disposable income. While Russia is moving towards a European savings culture, the saving rate here is at the level of 12%. This explains the low ratio of deposits to GDP in the Russian economy (in 2015 - 37.51%). The Russian banking sector stands out among the banking sectors of the rest of the BRIC countries in a disorganized structure and a relatively large number of banks. There are more than 1,000 credit institutions operating in the country (in Brazil, India and China, several times less). But the size of the branch network of Russian banks is much smaller than in other developing countries. So, on average, one Russian bank (excluding Sberbank) has only 3 branches (in Brazil - 75, and in India - 163). This indicates a low competition in the domestic banking sector due to the fact that the vast majority of lending institutions are regional banks operating in a narrow geographic niche and focused on a limited number of clients. The banking
systems of the countries differ greatly in terms of profitability, but one can note the tendency for all BRICS countries to reduce it.

Studies conducted in recent years in the banking sector have demonstrated the need to consider not only purely economic characteristics, but the institutional environment. La Porta [5, 1160] one of the first proposed to investigate the influence of the legal system and the protection of investors in the development of financial markets. L. Moretti [6, p. 43] analyzes the relationship between the financial market, the socio-institutional environment and the productivity of the enterprise. The developed institutional environment increases the influence of the banking sector on the development of the firm, i.e. allows you to effectively allocate financial resources. They talk about the need to improve this environment for the growth of economic productivity. On the basis of a panel study on the Chinese economy, I. Khasan, P. Wachtel, M. Zou [7, P. 167] analyze how institutions (legal and political), finances and rates of economic growth are interrelated. S.H. Lowe et al. reviewed how various indicators of the banking sector and the stock market depend on institutional characteristics in developed and developing countries. Among Russian economists it is necessary to note PA. Leontyev, who describes the structure of the institutional environment of the banking system. Galayeva L.E. and Maksimchuk EI. [8, P. 1535] identify the main elements of the institutional structure and suggest a concept for its improvement.

4. Regression analysis

A review of the literature has shown that there are various studies of the institutional environment of banking systems. However, it has not been studied which characteristics should be analyzed.

The purpose of our study is to test the following hypothesis: factors of the external institutional environment affect the banking system. The subject of the study is the BRICS countries banking system. The period of study: 2004 - 2015.

We relied on the experience of previous studies to select the dependent variables of the model. It is believed that an effective institutional environment positively affects the following characteristics of the banking sector: the level of competition, the stability of the banking system, the effectiveness of its functioning, risks, and others. We selected three characteristics: the degree of development of the banking system, the stability and efficiency of the banking system. Thus, we analyzed data on banks of the BRICS countries. In addition, we reviewed the main indices reflecting the level of development of the institutional environment. We take data from the World Bank's Database (Governance Indicators, Banking Regulatory Study), Global Competitiveness Report, Business Report, International Country Risk Guide, Index of Economic Freedom [9, 10, 11, 12]. In each of these indices there are indicators that characterize the level of development of the economy, institutions that have an impact on the banking sector.

We used the construction of econometric models to test the hypothesis. Independent variables were chosen based on the experience of previous studies. At the first stage it was necessary to identify a number of aggregate indicators that characterize the external institutional environment of the banking sector. In the course of the work, many specifications were built. As a result, we selected the models with the greatest explanatory power for each of the investigated aspects. The tables show coefficients for independent variables and the general quality of multiple regression equations. GDP per capita is taken as a control variable.

Table 2. Degree of the banking system’s development (bank deposits / GDP, bank assets / GDP).

|                           | bank deposits / GDP (%) | bank assets / GDP (%) |
|---------------------------|-------------------------|-----------------------|
| credit information index  | 1.136*** (0.293)        |                       |
| efficiency of public administration | 91.287*** (0.102)   |                       |
| force of law              | -20.703*** (0.447)      | -9.727*** (1.353)     |
| size of the government    | -2.784*** (0.890)       | -0.585*** (0.216)     |
| tax freedom               | -0.237*** (0.089)       | -1.158*** (0.105)     |
| time                      |                         |                       |
A statistically significant reverse strong economic relationship was shown by the size of the government and tax freedom. For aggregate banking assets, factors related to the ease of doing business in the country are significant, that it is necessary to take into account the government when carrying out a policy to stimulate the development of entrepreneurship. Besides, we received additional confirmation of the importance of the information resource - a positive relationship between the availability of credit information and deposits was revealed.

### Table 3. Stability of the banking system (bank loans / deposits).

| factor                  | bank loans / deposits |
|-------------------------|-----------------------|
| size of the government  | -23.935*** (4.269)    |
| property registration   | 3.778*** (0.332)      |
| monetary freedom        | 3.185*** (0.576)      |
| tax freedom             | -0.973*** (0.479)     |
| R²                      | 0.973                 |

*p < 0.1.*p < 0.05.***p < 0.01.

The degree of independence of the authorities conducting monetary policy and the freedom to conduct business influence the stability of the banking system. Excessive government regulation leads to destabilization of the banking system.

### Table 4. The effectiveness of the banking system (return on assets, non-interest income in total revenue).

| factor                  | non-interest income (%) | return on assets (%) |
|-------------------------|-------------------------|----------------------|
| quality of management   | 95.386*** (0.139)       |                      |
| property registration   |                         | 0.026*** (0.010)     |
| monetary freedom        |                         | 0.045*** (0.009)     |
| investment freedom      |                         | 0.040*** (0.010)     |
| R²                      | 0.830                   | 0.529                |

*p < 0.1.*p < 0.05.***p < 0.01.

The return on assets is growing with the reduction of government pressure on the banking system. If the Central Bank has the freedom to conduct monetary and investment policies, return on assets of the banking system is increasing. Non-interest income of the banking system shows a positive correlation with the quality of management. This characteristic indicates the effectiveness of the state.

### 5. Conclusion

Conducted analysis confirmed our hypothesis: a more developed institutional environment positively affects the banking sector. Understanding the interrelationships examined helps to build public policy in the banking sector, which contributes to the successful development of the economic system and to its competitiveness. We can single out the following main characteristics of the external institutional environment that have an impact on the banking sector and determine its effectiveness:

- the size of the public sector and the degree of government intervention in the economy. The analysis showed that this factor is inversely related to all the investigated dependent variables. This characteristic of the institutional environment has been significant in all analyzed models for the BRICS countries, and it has a negative impact on the banking sector, which should be taken into account when carrying out economic policy.
• tax freedom is a measure of the tax burden. It includes both a direct tax burden and the total amount of tax revenues as a percentage of GDP;
• freedom of doing business. Two indicators represent this characteristic: ease of registration of property rights and duration of the procedures. The results of the investigations have showed that institutional conditions, facilitating the development of business, lead to a more efficient functioning of the banking system.
• historical and political features, traditions;
• investment and monetary freedom, which perform the degree of stability of the policies pursued, independence of prices from state influence and restrictions in financial flows.

The banking sector is a key element of the monetary system and the most important factor, contributing to the economic development of the country. One of the most important characteristics of the banking system is its institutional environment. It is an objective factor, influencing the nature of the functioning of the banking system. Set of institutions, system of their interrelation, the quality of the functions performed by them, the nature of the regulatory impact creates framework conditions for individuals, enterprises, and the state to achieve their goals and improve welfare. The financial behavior of economic agents depends not only on economic factors, but also on the social and cultural characteristics of the population, which have a direct impact on their savings and investment strategies. Therefore, it is required to define and systematize the system of indicators, characterizing the quality of the institutional environment of the banking system and allowing to evaluate its development both in time and in space.

We can conclude that the institutional environment is that factor, without which further development of the modern Russian banking sector is not possible. Institutes play a key role in ensuring this development. They determine the character of long-term and stable interaction between economic entities and enable them to function effectively in the economic system. The results allow make a conclusion about the importance of taking into account institutional factors. The findings of the study are important from a practical point of view, since understanding the relationships examined allows the government to help build an effective economic policy, stimulating the successful development of the banking sector.

6. References
[1] Zaletny A A 2013 Banks in modern Russia: institutional analysis of investments (Moscow: TEIS) 192
[2] Stepanova O A 2009 Institutional environment, the Russian version. J. of Russian Entr. 1 61-75
[3] Williamson O I 1996 Economic institutions of capitalism: Firms, markets, "relative contracting. Ed. Katkalo V.S. (SPb : Lenizdat) 44-52
[4] Shavshukov V M 2012 Emerging markets of the BRICS countries in the global finance system developing Herald of St. Petersburg State University 1 119-135.
[5] La Porta R., López-de-Silanes F, Shleifer A & Vishny R W 1997 Legal determinants of external finance J.of Fin. 52 1131–1150
[6] Luigi M 2014 Local financial development, socio-institutional environment, and firm productivity: Evidence from Italy Europ. J. of P. Ec. 35 38–51
[7] Hasan I, Wachtel P, Zhou M 2009 Institutional development, financial deepening and economic evidence: Evidence from China J. of Bank. & Fin. 33 157–170
[8] Galyaeva L E, Maksimchuk E I 2012 Development of institutional environment of bank crediting of small business Ec. Sciences 11 1534-1538
[9] Doing Business URL: http://www.doingbusiness.org/
[10] Index of Economic Freedom URL: http://www.heritage.org/index/
[11] The Worldwide Governance Indicators (WGI) project URL: http://info.worldbank.org/governance/wgi/index.aspx#home
[12] International Country Risk Guide URL: https://www.prsgroup.com/about-us/our-two-methodologies/icrg