

# Stimulating Enterprises' Innovation Activity: Financial Aspect

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**Abstract**— The fast productive forces improvement put innovation to the economic development basis. Innovative economic development is a complex dynamic process causing many problems, and the state gets predominant role to play in the solution of these problems. The advanced foreign countries experience shows that effective state support measures can increase innovation activity and ensure a high level of innovative development in the country. At the same time, development of a system for financing the innovation activities of enterprises on a regular basis is essential for the establishment of a competitive innovation activity sector. An effective financing innovation activity system, for its part, will, firstly, contribute to the rapid introduction of innovations at all levels of the national economy; secondly, the preservation and development of strategic innovation potential in priority areas of development; thirdly, the creation of the necessary conditions for the preservation of human capacity in science, technology, and the prevention of its outflow from the innovation sphere. Without such a system the effectiveness of financing the innovation activities of enterprises reduces due to the inconsistency between the amount of funds allocated. The article justifies the relevance and need for the innovations' development under modern economic conditions. The level of innovative development of the Russian Federation is analyzed using statistics. A comparative analysis of the innovative activity of economic entities in certain parameters in Russia and several other countries is presented. The main sources of financing innovation are examined. The necessity of their use under certain economic conditions is substantiated.

**Keywords**—investment, innovation, innovation activity, funding, business entities

## I. INTRODUCTION

Nowadays, world's leading countries turn towards innovative society development and innovative economy based on knowledge construction, and that became the characteristic features of modern world development. The experience of many different countries demonstrates intensive research and development of new technologies based on them, access to international high-tech products with international markets, which enhances competitiveness and ensures the leading position of the national industry. It is becoming a strategic model of economic growth [1].

To ensure the sustainable Russian economy development and increase the domestic industry competitiveness, the

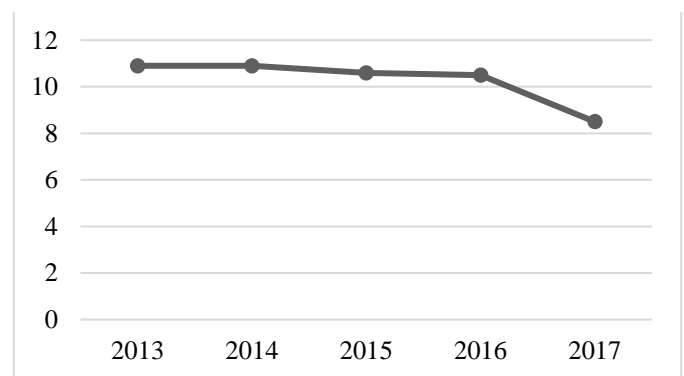
innovation component requires particular attention. In turn, improving the efficiency of business entities innovation activities will strengthen their position in the world market and the state of the country generally.

Moreover, as is well known, the innovation's implementation is impossible without a sufficient investment, which requires more efficient financial sources to solve the tasks.

## II. ANALYSIS OF THE RUSSIAN INNOVATIVE DEVELOPMENT FEATURES

Financing innovation has its own characteristics. This, above all, concerns higher risks of investing funds and, consequently, a higher level of the invested capital cost.

At the current stage of the development, Russian economy is characterized by a limited level of innovative development. Let us analyze some aspects of our country's innovation activities. It should be noted that in the innovative activity of economic entities there has been a downward trend in recent years (Fig. 1).



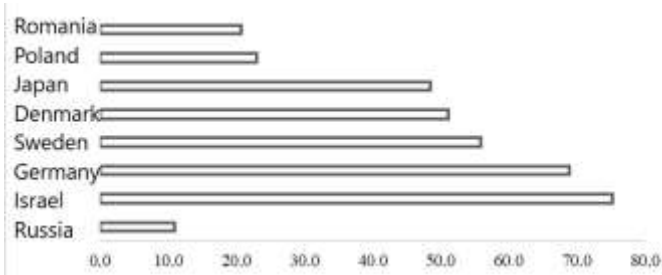
<sup>a</sup> Compiled by the authors based on the economic literature analysis

Fig. 1. Innovative activity of economic entities, %

Since 2015, the proportion of organizations conducting the innovations of particular types in the total number of organizations surveyed has decreased.

Wherein, the total share of enterprises that made innovations in the Russian Federation of the total number in the

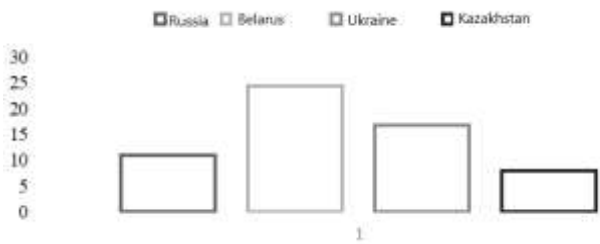
period under review has not exceeded 11 percent. In comparison with other world's developed countries, this is one of the lowest indicators (Fig. 2).



<sup>b</sup> Compiled by the authors based on the economic literature analysis

Fig. 2. The total level of innovative activity in organizations in 2013

The level of innovation activity in Russia is almost seven times lower than in Israel, six times lower than Germany and four times lower than Japan. The Russian Federation has also quite modest indicators, in comparison with the innovation activity level in some countries of the CIS.



<sup>c</sup> Compiled by the authors based on the economic literature analysis

Fig. 3. The aggregate level of innovation activity of organizations in 2013., %

Thus, for example, the innovative activity of organizations in the Republic of Belarus in 2013 was two times higher than in our country. Thus, the analysis indicates the lack of interest of Russian enterprises in innovative development, because in Russia innovations are not always considered as a mean of achieving a competitive advantage.

Most enterprises are not interested in the use of new technologies to attract consumers, because other factors unrelated to the innovation process create competitive advantages. Compared with many foreign countries, the Russian Federation has a very low level of R & D costs, a low technological level and low labor productivity.

### III. ENTERPRISES INNOVATIVE ACTIVITIES FINANCIAL ASPECTS

Let us analyze in more detail some financial aspects of innovative development in modern economic conditions in order to determine the objectives of the study, in particular, to analyze the structure of domestic expenditures on research and development by sources of funding.

#### A. Analysis of the funding innovation enterprises sources

The total amount of research and development costs in our country increases annually, an average, by ten percent.

Moreover, if consider this indicator as a percentage of gross domestic product, it is just over one percent [2].

An analysis of the structure of internal expenditures on R&D by source of funding is presented in Fig. 4.

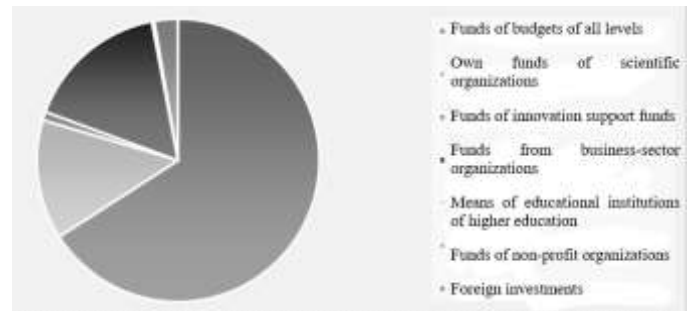


Fig. 4. Structure of domestic expenditure on research and development by sources of funding in 2017, %

The major source of domestic expenditures on R&D funding is still the budget funds; their share is more than 65%. Meanwhile, funds from business-sector organizations account for only 16%.

Thus, among the sources of innovation activity funding, government funding gets a special role to play. As a rule, it is carried out in terms of the federal investment program and the program of competitive investment resources distribution in the case of any projects of particular importance for the socio-economic development of a country [3, 4].

The equity financing sources, apart from profit, include depreciation, savings, fixed assets, land, etc. The organization's equity can be formed at the expense of such a source of funding as the state distribution of budgetary funds. When the profit allows an enterprise providing its financial sustainability in one way or another and to carry out expanded reproduction, the budget funding sources of investment projects are more global and focused and allow achieving a consensus of specific organizations and the state, enterprises and regions.

Industrial and social infrastructure development and environmental protection and ensuring the environmental safety of the population are the important part of the state budget funding. First of all, the state is interested in creating favorable starting conditions for start-up entrepreneurs. As a rule, they do not have enough material and financial resources to establish their organization's production infrastructure, for example, roads, communications, etc [5, 6].

At the same time, an enterprise is often unable to make investments in the material and technical base to provide transport, recreational, household, housing and communal and other services. The risk of expenditures on the production and social infrastructure establishment should primarily fall on the state structures. The state should mainly contribute to the creation of favorable "starting" conditions for the innovative business development, focused more on long-term financing.

In recent years, venture financing has become an increasingly common form of funding innovation in many

developed countries, including Russia. Venture financing has its own characteristics. Firstly, funding is provided to new or existing firms with significant potential. Secondly, venture financing is provided to venture business or enterprises that create new niches in the market, because these economic entities do not have material security, history and income that allow them receiving a loan. Thirdly, the main criterion in assessing the prospects for the possibility of receiving funding is the personal managers' experience. Fourth, entrepreneur sends some of the holding and control over the business to the investor. Fifthly, investments requiring high returns are structured so that they will be returned in period from three to seven years. Sixth, venture capitalists look for 20 - 50% of the annual profit on their investments by the time of the company liquidity. Thus, the analyzed statistics indicate a low level of economic entities' innovation activity, insufficient interest of the business sector in funding and implementing various types of innovations.

### *B. Effectiveness evaluation of innovation's financial underpinning*

Problems, identified in the field of innovative development of the country, emphasized the necessity to choose the most effective financing innovation sources in certain economic conditions. This is the main goal of this study.

To improve the innovation activity funding efficiency, enterprises can use various financial instruments: lending, including investment tax credit, leasing, debt sources (bonds), equity instruments (shares), franchising, factoring, forfeiting, and others.

Clearly, each of these sources of financing innovation has both its own advantages and disadvantages when used in certain economic conditions. Moreover, this financial tool can be used at various stages of enterprise development [7, 8].

For example, bank lending is one of the most common and simple ways to finance innovation, but the loan belongs to the category of short-term secured funding. If the company needs substantial long-term borrowed funds, then obtaining a loan will be a longer and very difficult process [9]. In addition, innovators often do not have sufficient justification for the resources obtained, which are crucial for the bank.

The use of equity as an additional financial source of innovative activity requires maximum openness and transparency of economic entities activities. This funding source is suitable for larger and more financially stable companies.

### *C. Leasing as a funding source of innovation*

Leasing becomes particularly relevant as innovation's funding source and one of the most efficient ways to acquire fixed assets. Note that increasing the efficiency of using this financial tool requires solving some issues [10].

In particular, it is necessary to create a more efficient mechanism of private leasing structures' State funding. These structures could have the opportunity to compete in the budgetary resources allocation to finance innovative activities of economic entities on an equal basis with the State structures.

For example, it is possible to use a technique that allows determining the amount of government subsidies allocated for investing leasing companies engaged in financing innovation activities in the Russian Federation:

$$SG_n = PU_n * RC, (1)$$

Where  $SG_n$  - the amount of government subsidies allocated to finance the leasing company in the  $n$ -th period of time;  $PU_n$  - the amount of retained profit of the leasing company in the  $n$ -th period of time;  $RC$  - the amount of the correction factors used to determine the degree of leasing companies' reliability.

At the same time, the values of the coefficients can vary from 1 to 0.1 and be determined using the reliability rating of Russian leasing company, compiled by the Expert RA rating agency. The highest rating value, defined as "Exceptionally High Level of Financial Stability," equals a coefficient equal to one. Each subsequent value of the coefficient is reduced by one tenth.

Generally, the innovative development level of a country is influenced by multiple factors, which can be divided into groups according to various criteria. This dependency is represented as a function:

$$y = f(Dem, Econ, Fin, Lab, Soc, Scien, Env, Nat, Pol, Leg), (2)$$

Where Dem – demographic factors, Econ – economic factors, Fin – financial factors, Lab – labor factors, Soc – social factors, Scien – scientific factors, Env – environmental, Nat – natural, Pol – political, Leg – legal.

### *D. Risks associated with the leasing implementation*

Business expansion entails an increase in information and financial flows within the company, and extra personnel involvement in the management and fixed assets maintenance. New business processes that need to be managed are emerging. If all this is not taken into account and the management processes are not planned in advance, the resulting chaos in management can significantly slow down the development of the enterprise and even cause its bankruptcy.

There are several main types of risks associated with the funding of innovation activities through leasing tools. The main risk for a leasing company is the counterparty credit risk associated with its failure to fulfill its obligations. This situation is caused by the possible realization of operational risks within the lessee company. In most cases, leasing transactors are faced with a legal, tax and macroeconomic category of risk. Legal concerns non-fulfillment of contractual obligations by suppliers (sellers) and lessees.

In general, the state of legislation and its dynamics provoke the emergence of legal (legal) risks. The constant changes of the legal base, as well as the legislation contradictions, make it difficult to conduct business.

Tax exposure is the ambiguity of the sale and leaseback interpretation in terms of value added tax refund, tax savings for the lessee, the redemption price of the leased asset.

The reason of tax risks can be obscure wording or contradictions that are contained in the legislative acts regulating the tax sphere. This scale up risks connected with the leasing transaction, because, despite all efforts to follow the law, the leasing company may face the risk of potentially high fines. Nevertheless, the main risk for the lessor is the lessee's inability.

Largely, macroeconomic risks are associated with the restrictions on the raw materials' import, which leads to restrictions on production activities by lessees: carriers, processors of imported raw materials [11, 12].

The minimization of risks for a leasing company consists in following: a thorough expert examination of the leasing company bank economic security; insurance company, the credit history of the lessee, and its management bodies. The establishment of a credit history bureau would be very useful in this process. Mutually acceptable compromises are possible, but only if the lessee has an impeccable reputation and reliable security.

Reducing the lessee's financial status evaluation criteria, upfront payment decrease and lengthening the lease terms do not always benefit the leasing development system. Rather, they are a consequence of increased competition and lead to a deterioration in the quality of the portfolio. Mutually acceptable compromises are acceptable. For example, to conclude a transaction without an advance payment as security, taking additional collateral or receivables of the lessor under a previous leasing agreement.

#### IV. DISCUSSION

In the current context, innovation is the basis for the dynamic development of any economic system is innovation, as it ensures its high competitiveness level. The degree of the national innovation sphere development forms the basis of sustainable economic growth, is a necessary condition for the country's full participation in the global division of labor.

Innovation, innovation development, innovation activities of economic entities, as well as their investment component are given considerable attention from the scientific community both in our country and abroad. The works of Hussinger K. [13], Nechaev A.S [14, 15], A. Conti [16], Wu, P.-C. Lee, C.C. [17] and many others.

But hereby, despite the fairly large amount of research in this area, there is still a significant number of unsolved problems, in particular, related to the financial aspects of the implementation of innovative development strategies in individual enterprises, municipalities, regions and the country in general.

#### V. CONCLUSION

Thus, the relevance of the innovation development of economic entities, the innovation strategy implementation in

regions and the country, is not in doubt both from the scientific community and from the government authorities.

At the same time, one of the main tasks of innovation development is to increase the efficiency of all sectors of the economy. The innovation economy is organically incorporated into the economy through the production of new goods, innovations, new technologies and sources of raw materials in production, changes in the sectoral structure and the development of new markets [18].

Currently, the business of the largest enterprises with sufficient financial, industrial, human, and political resources in our country is a key participant in the process of innovation commercialization. At the same time, the level of innovation activity and the development of R & D in Russian enterprises lag significantly behind the world average.

Notwithstanding some positive results of innovation at the federal and regional levels, in general, its effectiveness remains very low; this is due to several reasons considered in our study.

The development of business innovation is possible only on the basis of a developed financing system, which principles should be focused on the multiplicity of funding sources and assume fast and effective implementation of innovations with their commercialization, ensuring better financial return from innovation activities

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### **References**

- [1] A. Agrawal, C. Catalini, A. Goldfarb and H. Luo, "Slack time and innovation", *Organization Science*, vol. 29(6), pp. 1056-1073, 2019.
- [2] J. Haan, R. Pleninger and J. Sturm, "Does the impact of financial liberalization on income inequality depend on financial development? Some new evidence", *Applied Economics Letters*, vol. 25(5), pp. 313-316, 2018.
- [3] D.W. Diamond, "Financial intermediation and delegated monitoring", *Review of Economic Studies*, vol. 51 (3), pp. 393-414, 1998.
- [4] E.M. Grochowski, J. Warschat and R. Dasher, "The impact of collaboration with big companies on entrepreneurial technology innovation", *Conference on Management of Engineering and Technology*, 2016.
- [5] R.W. Goldsmith, "Financial Structure and Development", New Haven: Yale University Press, 1969.
- [6] B. Gutiérrez-Nieto and C. Serrano-Cinca, "20 years of research in microfinance: An information management approach. International", *Journal of Information Management*, vol. 47, pp. 183-197, 2019.
- [7] E. Douglas and C. Prentice, "Innovation and profit motivations for social entrepreneurship: A fuzzy-set analysis", *Journal of Business Research*, vol. 99, pp. 69-79, 2019.
- [8] A.E. Johansson, C. Raddats and L. Witell, "The role of customer knowledge development for incremental and radical service innovation in servitized manufacturers", *Journal of Business Research*, vol. 98, pp. 328-338, 2019.
- [9] K. Blackburn and V.T. Hung, "A theory of growth, financial development and trade," *Economica*, vol. 65 (257), pp. 107-124, 1998.

- [10] J. Schymik, "Globalization and the evolution of corporate governance", *European Economic Review*, vol. 102, pp. 39-61, 2018.
- [11] M. Corstjens, G.S. Carpenter and T.M. Hasan, "The promise of targeted innovation", *Sloan Management Review*, vol. 60(2), pp. 39-44, 2019.
- [12] B. Gutiérrez-Nieto and C. Serrano-Cinca, "20 years of research in microfinance: An information management approach. International", *Journal of Information Management*, vol. 47, pp. 183-197, 2019.
- [13] K. Hussinger and S. Pacher, "Information ambiguity, patents and the market value of innovative assets", *Research Policy*, vol. 48(3), pp. 665-675, 2019.
- [14] A.S. Nechaev, S.V. Zakharov and A.O. Troshina, "Innovation risk minimization and neutralization methods", *International Conference on Quality Management, Transport and Information Security, Information Technologies (IT and QM and IS)*, pp. 552-555, 2017.
- [15] A.S. Nechaev, A.S. Bovkun and S.V. Zakharov, "Innovation management characteristics of industrial enterprises", *International Conference on Quality Management, Transport and Information Security, Information Technologies (IT and QM and IS)*, pp. 556-559, 2017.
- [16] A. Conti, N. Dass, F. Di Lorenzo and S.J.H. Graham, "Venture capital investment strategies under financing constraints: Evidence from the 2008 financial crisis", *Research Policy*, vol. 48(3), pp. 799-812, 2019.
- [17] P.-C. Wu and C.C. Lee, "The non-linear impact of monetary policy on international reserves: macroeconomic variables nexus", *Empirica*, vol. 45(1), pp. 165-182, 2018.
- [18] Q.T.K. Nguyen and P. Almodóvar, "Export intensity of foreign subsidiaries of multinational enterprises: The role of trade finance availability", *International Business Review*, vol. 27(1), pp. 231-245, 2018.