



CHARACTERISTICS OF VENTURE CAPITAL INVESTING IN A CLIMATE OF THE DIGITALIZATION OF THE RUSSIAN ECONOMY

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ABSTRACT

This paper explores some of the key characteristics of venture capital investing in a climate of the digitalization of the Russian economy. The authors analyze some of the key conditions, areas, and target indicators for the digitalization of the Russian economy. The paper identifies a set of key priorities for and regional and sectoral characteristics of venture capital investing for the period from 2010 to 2017 and explores some of the prospects for its future development based on a calculation of the marginal efficiency of investment in fixed assets. The authors investigate the activity of the Moscow Exchange's Innovation and Investment Market and private equity funds in Russia. The paper describes three major forms of management technology for implementing and managing venture capital investment – outsourcing, outstaffing, and insourcing. The authors analyze several types of outsourcing from the perspective of the possibility of employing them in a climate of the digitalization of the Russian economy.

Key words: venture capital investing, digital economy, innovation projects, private equity funds, outsourcing, outstaffing, insourcing.

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1. INTRODUCTION

In today's conditions of social-economic development in most countries and regions, the determining factors for their competitiveness are the innovation/technological aspects of activity. In the world's top economies, the market for venture capital is currently one of the more rapidly developing ones, taking up as much as 15% of the global market for capital. A leading role in said market is played by venture capital investors, entrepreneurs, and consumers, as well as the system of financial/economic relations among them.

Venture capital investing can be viewed as an independent type of investing which is characterized by the following: high levels of financial and investment risk, with a positive return of no more than 15%; venture capital investing taking place mainly at the early stages of the innovation process; funds tending to be invested in the more promising types of economic activity and companies, which facilitates boosts in the innovation potential of the national economy; the availability of considerable reserves for deriving profit and ensuring high levels of profitability in financial/economic activity; the resulting effect tending to be attained in a long space of time – no less than five years.

Based on the above characteristics, there is a need for a deeper insight into issues related to the advisability, financial implementability, and efficiency of innovation venture capital projects in a climate of the digitalization of the Russian economy.

2. METHODS

To analyze and assess the level of development of venture capital investing in a climate of the digitalization of the Russian economy, the authors employed a variety of research methods. The dynamic method helped identify the key stages in venture capital investing. In conjunction with coefficient and statistical analysis, the authors conducted monitoring of the marginal efficiency of investing in fixed assets in Russia. Based on the materials from a sampling inquiry carried out by Rosstat, the authors assessed some of the key objectives of investment activity and the degree to which those objectives are aligned with the latest global trends in social/economic and technological development [1].

Using comparative analysis, the authors explored the marginal efficiency of investment processes through the lens of the nation's regions and sectors. The structural method was employed to identify the highest-priority types of economic activity for venture capital funds to invest in amid the making of the digital economy.

3. RESULTS

The development of the venture capital industry is a priority area of the state's economic policy, being a crucial condition for galvanizing innovation activity and a leading form of implementing the digitalization of the Russian economy. The present-day world is consistently moving ahead, increasingly implementing novel technology, with the key focus being on information technology. Mankind has been witnessing since the 1990s the rapid development of processes related to the digitalization of the economy. The digital economy is a virtual space that supplements our objective reality. The significant amount of interest for the virtual environment is due to that it has become a real production force which is giving birth to new goods, services, and ideas. In 2017, to help activate the process of integrating the Russian economy into the global economic system, the government signed into law 'The Digital Economy of the Russian Federation' program (hereinafter 'Program').

The Program is aimed at achieving target performance indicators in the area of putting together the ecosystem of the digital economy, cultivating information security and infrastructure, fostering human resource development, and developing technological reserves.

In particular, the Program is expected to result in the successful operation of at least 10 pacesetter companies that will be competitive in global markets and 10 sectoral digital platforms for the key domain areas of the economy.

Apart from helping resolve economic objectives related to boosting the efficiency of the national economy, the Program has a pronounced social orientation toward the development of healthcare and education. For instance, there are plans to prepare for the digital economy as many as 800,000 employees with higher education and secondary-level vocational one in the area of information technology on the average global level, with 40% of the population expected to acquire relevant digital skills and 97% of all households expected to have broadband access to the Internet (100 Mbps) [2]. In 2015, 66.8% of all Russian households had broadband access to the Internet, including 71.6% in cities and 51.9% in rural areas. Implementing the Program is expected to help increase significantly the number of urban and rural residents using the Internet to access state and municipal services in the area of healthcare, property and land use, social support, education and science, etc. In 2015, these services were used by just 39.6% of the population aged 15–72, including 43.9% in cities and 21.9% in rural areas [3].

In the aggregate, this is expected to facilitate boosts in the efficiency and competitiveness of the national economy amid global changes through the provision of urban and rural residents across the nation with equal access to various goods, services, and cutting-edge technology. Thus, the digital economy is expected to serve for the benefit of society as a whole and each person in particular.

The objectives of innovation activity within the digital economy imply the formalized description and representation of business processes and ideas in the form of logical schemes and their integration into the production system. This goal could be achieved via venture capital investing. The market for venture capital investing is currently gaining strong traction around the world, its total volume having exceeded \$127 billion. Russia's high investment risks are what is behind the nation's low share in the global market for venture capital investing (less than 1%), with investors, thus, compelled to direct their venture capital investing activity toward foreign markets, including the US, China, and Japan. These nations account for more than 90% of the global market for venture capital investing.

Viewing the structure of venture capital investing in Russia through the lens of the nation's sectors helps identify the following key considerations. Firstly, over half of the market in the period 2010–2017 was accounted for by information/telecommunications technology and Internet projects. Secondly, venture capital investors are particularly keen on investing in the creation of novel materials using nanotechnology, social technology for living and health, and technology in the area of energy conservation and energy efficiency. Thus, the sectoral structure of venture capital investing is demonstrating some solid preconditions for the use of mechanisms of venture capital investing to help speed up the processes of digitalization of the Russian economy. At the same time, there is concern about the narrow sectoral orientation of venture capital investing, which may be fraught with negative social/economic consequences going forward.

To explore the sectoral priorities for venture capital investing, it helps to analyze the indicator of the marginal efficiency of investment, which is computed as the ratio of the change in the share of gross value added to the deviation in the share of investment in fixed assets through the lens of various types of activity. Table 1 lists the authors' cumulative-total calculations.

Table 1 Coefficient of the marginal efficiency of investment in fixed assets in the Russian federation, 2010–2014

Types of economic activity	2012–2014	2011–2014	2010–2014
Financial activity	0.208	0.213	0.714
Extraction of mineral resources	-0.355	-0.563	0.112
Manufacturing	0.060	-0.294	0.423
Construction	0.476	0.323	-0.099
Production and distribution of electricity, gas, and water	0.147	0.909	1.656
Agriculture	-10.000	-0.556	-2.609
Transportation and communications	0.239	0.146	0.321
Education	1.667	20.000	15.000
Healthcare	-0.566	-1.2000	-1.000

Note: Calculated by the authors based on data from [3].

It can be concluded based on the data in Table 1 that the marginal efficiency of investing in fixed assets manifests itself over time (a period of over 3 years). The longer the period of time, the greater the effect from investment, which reflects its long-term nature and must be taken into account in assessing the efficiency of investment activity. The most pronounced positive efficiency of investing in fixed assets is in the area of production and distribution of electricity, gas, and water, financial activity, manufacturing, and transportation and communications. These types of activity are the most attractive for venture capital investing. At the same time, there are certain types of economic activity across which the coefficient of marginal efficiency has sustainably negative values, namely agriculture and healthcare. It is these sectors that especially lack innovation projects employing cutting-edge technology, so characteristic of the digital economy. Implementing the Program is expected to finally speed up improvement in the investment attractiveness of healthcare, education, and other types of economic activity [2; 4].

Regionally, the market for venture capital investing is characterized by considerable disproportions. The way in fostering innovation/technological entrepreneurship and cultivating the venture capital sector is currently led by Moscow, Saint Petersburg, Tomsk, Novosibirsk, Ekaterinburg, and Kazan. In the rest of the regions, the situation is much more complicated, which is restricting the potential for putting in place a single technological space, hampering the balanced development of Russian regions and the country as a whole, and impeding the speedy development of the digital economy in Russia. So what are some of the causes behind this state of affairs? [5].

To answer the above question, it may help to explore the dynamics of the indicator of the marginal efficiency of investment in fixed assets through the lens of Russia’s federal districts across the key types of economic activity. Table 2 lists the authors’ cumulative-total calculations covering the period 2010–2014.

Thus, as is evidenced from Table 2, positive trends on the marginal efficiency of investment in fixed assets have been exhibited by Central Federal District (CFD), Northwestern Federal District (NWFD), Volga Federal District (VFD), Siberian Federal District (SiFD), and Far Eastern Federal District (FEFD). It is no wonder the centers of the above federal districts are leading the way in the development of venture capital investing in Russia. These districts appear to offer the essential preconditions for the future development of venture capital investing in various types of economic activity, as they possess the potential for proper financial support for the venture capital business.

Table 2 Coefficients of the marginal efficiency of investment in fixed assets in financial activity, manufacturing, production and distribution of electricity, gas, and water, and agriculture in the Federal Districts of the Russian Federation, 2010–2014

Types of economic activity	2012–2014	2011–2014	2010–2014
1. Central Federal District (CFD)			
1.1. Financial activity	0.065	0.034	0.023
1.2. Manufacturing	-30.000	1.556	1.143
1.3. Production and distribution of electricity, gas, and water	0.444	0.528	0.296
1.4. Agriculture	- 0.800	- 0.714	0.364
2. Northwestern Federal District (NWFD)			
2.1. Financial activity	-3.333	-0.571	2.222
2.2. Manufacturing	- 1.270	- 2.809	- 2.128
2.3. Production and distribution of electricity, gas, and water	0.012	0.229	0.120
2.4. Agriculture	0.676	0.357	0.714
3. Southern Federal District (SoFD)			
3.1. Financial activity	0.769	0.400	-2.727
3.2. Manufacturing	0.235	0.020	0.014
3.3. Production and distribution of electricity, gas, and water	0.037	0.123	0.318
3.4. Agriculture	- 0.833	1.739	0.621
4. North Caucasian Federal District (NCFD)			
4.1. Financial activity	- 0.263	0.238	- 0.139
4.2. Manufacturing	-0.188	0.381	- 0.585
4.3. Production and distribution of electricity, gas, and water	- 0.136	-0.030	- 0.031
4.4. Agriculture	0.552	- 3.000	- 0.543
5. Volga Federal District (VFD)			
5.1. Financial activity	0.530	2.857	2.500
5.2. Manufacturing	-0.230	-0.019	0.112
5.3. Production and distribution of electricity, gas, and water	2.500	4.286	1.328
5.4. Agriculture	- 12.500	0.200	- 1.287
6. Ural Federal District (UFD)			
6.1. Financial activity	0.294	0.110	- 1.250
6.2. Manufacturing	- 6.364	2.857	1.554
6.3. Production and distribution of electricity, gas, and water	- 0.062	0.072	- 0.667
6.4. Agriculture	1.111	- 8.571	- 2.000
7. Siberian Federal District (SiFD)			
7.1. Financial activity	0.286	0.556	0.556
7.2. Manufacturing	0.025	0.592	3.226
7.3. Production and distribution of electricity, gas, and water	0.035	- 0.132	- 0.220
7.4. Agriculture	- 2.333	0.404	1.111
8. Far Eastern Federal District (FEFD)			
8.1. Financial activity	- 0.263	- 0.250	0.270
8.2. Manufacturing	0.108	-0.024	-0.135
8.3. Production and distribution of electricity, gas, and water	- 0.499	3.636	0.703
8.4. Agriculture	- 0.870	- 0.909	- 0.117

Note: Calculated by the authors based on data from [3].

The most complicated state of affairs is recorded in the North Caucasian Federal District (NCFD), where the marginal efficiency of investment in fixed assets has predominantly had negative values both in financial activity and in manufacturing. Note that the district is

characterized by mostly negative values of the marginal efficiency investment in fixed assets on many types of economic activity except for tourism. Accordingly, this may need to be taken into account in implementing regional investment policy.

Thus, it may be concluded that the availability of financial/economic centers and their efficient operation in the region are the basis for the development of both investment activity as a whole and venture capital investing in particular.

Positive trends on the marginal efficiency of investment in fixed assets in manufacturing have been exhibited by the overwhelming majority of Russia's federal districts – CFD, Southern Federal District (SoFD), VFD, Ural Federal District (UFD), and SiFD. These federal districts possess certain preconditions for the development of venture capital investing in manufacturing.

The way on the marginal efficiency of investment in fixed assets in agriculture is led by SoFD, SiFD, and NWFD. Positive dynamics have also been recorded in CFD. Sustainably high values of the marginal efficiency of investment in fixed assets in the area of production and distribution of electricity, gas, and water have been recorded in CFD, NWFD, SoFD, and VFD.

FEFD has demonstrated the highest values of the marginal efficiency of investment in fixed assets in the area of production and distribution of electricity, gas, and water and extraction of mineral resources [6].

Among the current trends related to the effect of venture capital investing on the process of digitalization of the Russian economy are the use of syndicated funding; no capital being provided by banking and insurance establishments and pension funds to fund long-term venture capital investments; the growing role of venture capital funds and the focus mainly on short-term venture capital projects with clear, realistic, and specific prospects and high levels of financial profitability [7; 8].

At the macrolevel, venture capital investments are regulated and funded in Russia through the Moscow Exchange's Innovation and Investment Market, the exchange sector for high-tech companies created by PJSC Moscow Exchange jointly with JSC Rusnano. The key objectives for the Innovation and Investment Market include creating an efficient mechanism for attracting investment into the high-tech sector of the Russian economy, building an investment chain for innovation projects, and cultivating public-private partnerships (PPPs) [9].

Currently, the Innovation and Investment Market features 25 different types of securities, the sector's total capitalization being 393.53 billion rubles. During a period of 10 months in 2017, the volume of trade on the Innovation and Investment Market increased 9 times on 2016, totaling 1608.2 billion rubles [9]. The 3-year period from 2015 to 2017 was characterized by a clear-cut trend of increase in the issuance of shares and decrease in the issuance of bonds by more than 10 times. What does this tell us? According to signaling theory, a company with bright and clear prospects that is implementing a successful innovation project is hardly likely to issue shares, as in that case their market price will go up sharply, and consumers of the additional issue of shares will take a considerable portion of revenue away from its current shareholders. Thus, the company is going to look for other ways of funding their projects. At the same time, in implementing venture capital investing, a company with indistinct prospects will be interested in the issuance of shares, which will help it share its losses with its new shareholders. Thus, the focus on sharp increases in the share of joint-stock capital on the Moscow Exchange's Innovation and Investment Market attests to increased levels of risk involved in venture capital investing in Russia. Importantly, increased levels of risk may entail tougher requirements on the part of investors for returns on investment.

Funding by way of venture capital investing is provided by venture capital funds and private equity funds. VC funds mainly invest at the seed stage of recipient company's development, while PE funds tend to invest during the more mature stages. Table 3 lists Russia's largest private equity funds today.

Table 3 Russia's top private equity funds

Name	Investment stage preferences	Brief description	Deals
1. Baring Vostok Capital Partners	Growth stage; late stage	The oldest and largest player in the CIS market, which has invested over \$2.4 billion in 67 companies since 1994.	Yandex; CTC
2. United Capital Partners	Growth stage; late stage; investing in Russian and foreign marketable securities	An independent private investment group with a successful track record of investing in various sectors of the Russian economy.	InCity; Uralmash
3. Russia Partners	Growth stage; late stage	One of Russia's oldest funds with over 60 investments in various sectors of the economy and a proven track record of investing internationally.	MTV
4. Runa Capital	Seed stage; growth stage	The fund specializes in projects in the area of virtualization, mobile services, and IT solutions for various sectors of the economy	Acronis; Parallels

Note: Data from Wikipedia and Forbes.

Overall, private equity funds are actively engaged in investing in various sectors of the economy, including IT and finance. These funds tend to invest in businesses at their growth and late stages of development. An exception is the Runa Capital fund, which funds projects in the area of virtualization, mobile services, and IT solutions for various sectors of the economy at the initial stage.

4. DISCUSSION

When it comes to implementing and managing venture capital investing in innovative projects at the microlevel, the greatest promise in terms of organizing venture capital investing is with the following three forms of management technology:

- - outsourcing, which involves the transfer of certain business processes of an innovation project to the enterprise being served;
- - outstaffing, which implies the letting out, on a gratuitous basis, by the outstaffing enterprise of production personnel possessing the needful competencies required to perform the transferred project functions of the company undertaking an innovation project;
- - insourcing, whereby the project team engaged in implementing an innovation project handles on its own some of the project's business processes [10; 11].

The principal types of outsourcing employed in a climate of the digitalization of the Russian economy are international resource outsourcing, production outsourcing, operational outsourcing, process/control outsourcing, PR outsourcing, and HR outsourcing.

Thus, outsourcing is capable of successfully integrating into Russia's digital economy, with operational, international/resource, and process/control outsourcing expected to be the more significant types of outsourcing under said conditions. It may help to employ outsourcing within Russia's digital economy across the following areas:

- - putting in place a system of examination of innovation projects (technical, environmental, economic, legal, etc., examination);
- - maintaining control over the movement and the use of material assets, basic production assets, and land resources;
- - conducting analysis of financial management and administering monitoring of the movement and control over the use of financial resources;
- - assessing the efficiency and the appropriate use of labor resources at the enterprise and its system of pay;
- - optimizing pricing policy and marketing activity;
- - taking appropriate measures to optimize financial and tax accounting;
- - identifying the reserves for boosting the (financial, commercial, budgetary, environmental, and social) efficiency of venture capital investing in innovation projects [12].

5. CONCLUSIONS

A distinctive characteristic of innovation activity in Russia at this time is the focus on making quick profit rather than on long-term prospects. Over 70% of companies enlist venture capital investing for the purpose of expanding their product range with a view to taking hold of a new segment of the market. Strategies oriented toward the minimization of production costs are currently employed in Russia by about half of innovatively active enterprises. There are very few companies implementing a first-mover strategy. All this substantiates the need to galvanize venture capital investing and orient it toward Russia's strategic objectives for long-term economic development. In a climate of the digitalization of the Russian economy, venture capital investing is expected to be focused mainly on IT, biopharmaceutics and healthcare, power engineering, the social sphere, and the consumer sector of the economy.

Of major significance for the development of the national economy is venture capital investing within the consumer sector. This type of investing has been keenly pursued in Europe and Asia due to the expansion of the reach of social networks, including Facebook and Twitter.

There are bright prospects for the development of venture capital investing in healthcare, which is expected to help improve the quality of care for residents in remote areas, including the countryside, through the development of IT [13, 14].

Thus, the prospects for the development of venture capital investing and its effect on the digitalization of Russia's economy are somewhat equivocal. They are determined by a large number of factors and conditions forming at the various levels of the nation's social/economic system. Unfortunately, the nation is not fully capable yet of making proper use of its natural edge, while it has not learnt yet to create and promulgate "novel" advances either. On the whole, the authors are of the view that, to a greater degree, the slow pace of innovation-driven economic development and the sluggish development of venture capital investing in Russia must be associated with the inefficiency of the nation's relevant public authorities, which seem, for now, to lack the ability to come up with efficient mechanisms and tools for direct and indirect action.

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