Venture Capital Financing as a Mechanism for Impelling Innovation Activity

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Abstract:
This paper aims to provide an insight into the foundations of the development of the institution of venture capital financing, as well as summarize and conceptualize the experience of more economically developed countries, where the more favorable conditions have been created for the conduct of venture capital business. The authors’ summarization of theoretical, methodological, and empirical data has made it possible to formulate the major issues characteristic of the making of the venture capital sector in countries with a transitive economy (Russia, in particular), as well as propose a set of solutions aimed at optimizing the legal and institutional space in the venture capital sector with a view to boosting the innovation activity of businesses. The authors derive the following major inferences:

Venture capital financing is a modern institution whose activity is aimed at accumulating and redistributing temporarily available investment resources that are sought after in the sphere of innovation entrepreneurship;

Countries whose economy may currently be recognized as transitive are characterized by a set of uniform issues: underdeveloped infrastructure in the national innovation system; lack of sources of venture capital financing; businesses reporting decreased innovation activity levels due to lack of economic incentives; lack of personnel resources;

The evidence from the experience of more economically developed countries suggests that to enable the proper making of the institution of venture capital financing in countries with a transitive economy a set of interrelated objectives may need to be undertaken, namely: ensuring legal optimization; boosting investment attractiveness; altering the nature of partnership between the state, business, and science-and-education sector; reducing state participation in economic and research activity.

Key Words: venture capital financing, venture capital funds, investment, innovation, national innovation system, high-tech products

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**Introduction**

The ability of national economies to create, implement, and successfully domesticate cutting-edge scientific-technological solutions, make effective and intensive use of human (including intellectual) capital, and come up with funding commensurate with need is what determines, in large part, their competitive potential and strategic positions in external and internal markets (Nonaka and Takeuchi, 1995; Quinn 1992; Birkshaw, Hamel and Mol, 2008; Dzhukha *et al.*, 2017; Cipovová and Dlaskova, 2016). This issue is topical not only for more economically developed countries whose economies may already now be regarded as post-industrial but also for countries with transitive economies, i.e. those transiting from industrialization to post-industrialization.

What is crucial to the intensive and science-driven development of the global economy is that innovation systems formed at national levels must be in a fit state. The rationale behind this tenet is that the shift from a stochastic to an institutionalized innovation environment requires significant funding (above all, from sources other than the state’s operating budget) if the nation is to implement a series of major investment-infrastructural projects. Yet, at the same time it is worth understanding that business entities operating presently within the real sector of the economy are substantially limited in the ability to self-finance their innovation activity, which is quite capital intensive. That being said, the use of traditional tools utilized in commercial banking and the financial market (loans, debt instruments, etc.) does not bring in much funding for them to invest in long-term projects (Pfirrmann, Wupperfeld and Lerner, 2012; Kormishkin *et al.*, 2016; Vovchenko *et al*., 2017; Theriou, 2015; Thalassinos *et al.*, 2015; Thalassinos and Kiriazidis, 2003; Thalassinos, 2008). This is due to the fact that under present conditions of financial-economic instability credit risk, as well as the risk of a business failing to meet other financial obligations, is quite high. This aspect is compounded by the fact that the innovation activity of business entities operating within the real sector of the economy is not only capital intensive but quite risky as well.

A special role here is played by venture capital financing, a special form of syndicated (collective) investing in innovations that presupposes setting up special venture capital funds that act as an intermediary between venture capital investors and the senior management of the business entity engaged in innovation activity. Since the venture capital fund is an intermediary that institutionalizes venture capital financing, economic gains from innovation projects (investment venture capital profit) go to the business entity (termed a ‘venture capital firm’) and also to the venture capital investor. The venture capital investor may be a private (natural) person or a large financial, industrial, commercial-and-intermediary, insurance, or service corporation (i.e., legal persons). Furthermore, quite often venture capital firms are set up in the form of joint stock companies (corporate establishments). The venture capital fund, representing the interests of its investors, gets an ownership share in the capital of venture capital firms, and in some cases this share may
account for up to 50–75% of the cost of the venture capital firm, but in practice the venture capital fund normally receives a blocking stake in the venture capital firm (25% + 1 share). Consequently, by reducing its participation share in the capital of the venture capital firm the venture capital fund does not take on any obligations respecting the management of the business, which makes it possible to keep risk levels down (Dudin, Lyasnikov, Kuznetsov and Fedorova, 2013; Vanacker, Heughebaert and Manigart, 2014; Novokreshchenova et al., 2016; Fetai, 2015; Boldeanu and Tache, 2016; Akopova and Przhedetskaya, 2016).

Of no less importance is the motivation component of venture capital business, consisting in the following: in the event the founder (founders) of a venture capital firm does (do) not hold a majority stake in the investment, they may engage in corporate opportunism, reducing the level of their interest in the outcomes of the firm’s activity, or pursue additional gains on the side – via, say, disclosing confidential information to the firm’s competitors or other potential investors (Bigus, 2006). Venture capital investors, in turn, are not interested in taking an active part in the venture capital firm’s business – their interests are provided for by the transparency of that business and the possibility of a future return on their investment in that business capital. That is compared with traditional forms of investing, where the owner of capital plans on getting a return at a level that is not lower than the average rate of return in the financial market and on condition of participating in the profits.

Venture capital investors investing money in innovation project undertaken by a venture capital firm normally do so in pursuit of greater yields (35% and up per annum). Capital returns in the form of dividends on shares issued by the venture capital firm or through the sale of one’s stake (block of shares) at the time of withdrawing from the project as a result of the latter coming to an end. The second way for venture capital to return to the investor appears to be the most common at the moment. To note, investing in a venture capital business has one essential characteristic – the investor receives a return on capital only at the end of the innovation project and based on its results. During the implementation of the investment project, all generated economic gain is reinvested in the venture capital business.

Countries with a post-industrial economy have a well-developed and highly adaptive culture of conducting venture capital business and operating the institution of venture capital financing (Bengtsson and Hsu, 2015). Consequently, the activity of venture capital investors in those countries is quite high, which is conducive to outperforming scientific-technical progress rates and the rapid development of national innovation systems. On the contrary, in countries with a transitive economy the institution of venture capital financing is currently only in the early stage of its making, which is testimony to the scientific-technical and innovation potential of venture capital business being quite low there for now, incapable of facilitating outperforming growth rates in the national economy and the innovation system.
Based on the above, it appears worth exploring the specificity and major distinctive characteristics of the institution of venture capital financing for the purposes of helping boost innovation activity in the entrepreneurial and corporate sector of transitive economies.

**Methods and research review**

This paper is a content analysis of relevant scholarly theoretical-methodological research, as well as of the empirical experience of developed countries with a post-industrial economy that have created effective national venture capital institutions. The current literature contains a certain set of approaches to conceptualizing the essence and content of venture capital financing. In particular, venture capital financing may be considered (Pfirrmann *et al.*, 2012; Dudin and Frolova, 2015; Chemmanur, Loutskina and Tian, 2014):

- from a motivational standpoint – by investors inclined to take increased risks with a view to deriving greater returns on investment than could be generated via traditional forms of investing;
- from a goal-setting standpoint – by venture capital investors and venture capital businessmen focused on deriving major results from the implementation of specific scientific-technical ideas, which, if commercialized, could help maximize their economic gain and satisfy the interests of all the parties involved;
- from an institutional standpoint, meaning that venture capital financing is one of the higher evolutionary forms of financial relations capable of ensuring high levels of the innovation activity of entrepreneurs and corporations based on business interaction regulated in terms of all statutory and legislative requirements.

In the authors’ view, it, above all, pays to take a functional approach to construing venture capital financing, which implies engaging in a mutually beneficial exchange of funds invested for a stake in the venture capital firm’s capital with a view to achieving outperforming growth rates for the venture capital business, which would not only result in a major economic gain for all the parties involved but also facilitate local boosts in innovation activity, which, factoring in the synergetic effect, should be conducive to the acceleration of scientific-technical progress both domestically and globally. In this context, venture capital investments and venture capital are to be construed as monies and financial resources that are extended by special institutions of collective investors (venture capital funds) to young and fast-growing companies possessing significant potential harnessing which may in the long run result in a small company getting transformed into a corporation capable of contributing tangibly to the growth of the national economy.
Results

Venture capital financing is not so much an institutional trend in present-day economics but a body of entrepreneurial experience accumulated over a long historical period and associated with the need to attract sizable investments to help fund projects and enterprises with high levels of risk. The current state of the economy is characterized by high levels of competition in all areas and spheres of the real sector, which is why small entrepreneurs, as well as large corporate establishments, are compelled to continually look for solutions and ideas that would ensure them the more lucrative competitive positions and help maximize their economic gain. Therefore, presently the demand for venture capital is quite high, since it is not only about private entrepreneurs and corporations being interested in maximizing their economic gain but also about state-run institutions being oriented toward ensuring well-balanced national economic growth driven by an increased share of high value-adding economic activities. And high added value can actually be generated through innovation projects oriented toward the implementation of novel technical and technological ideas that are predicated on fundamental and applied scientific achievements.

Among the more economically developed countries, the way in terms of the development of the venture capital sector is currently led by the US, whose relative share in the global volume of venture capital investments is nearly 50% (Pfirrmann et al., 2012; Chemmanur et al., 2014). Venture business ensures the US technological and economic leadership in global markets, with special tax concession and budgetary stimulation mechanisms used at the state level to stimulate activity in the venture capital sphere (both on the side of demand for and on the side of supply of investments). A number of major breakthrough technologies developed by American venture business have been implemented in the areas of microelectronics, biotechnology, computer science, telecommunications, and soft goods manufacture, with a focus on developing novel computer hardware.

Yet, at the same time, the experience of the United States with respect to the development of the institution of venture capital financing indicates that risks associated with the conduct of venture capital business and implementation of innovation projects are a lot greater than those faced in traditional business. Research indicates that, compared with the traditional market, where out of 10 new entrepreneurs an average of just 2–3 stay active in the mid-run (the Pareto Principle in action), in venture capital business no more than 3–5 venture capital firms out of 100 new ones are able to transform into large corporate establishments capable of producing and implementing progressive technologies. But it is these figures for venture capital firms that have ensured the US global leadership in the long run. In particular, based on data from the Strategy Analytics consulting agency, the Apple Company now owns around 91% of all profit generated in the global market for smart phones (Strategy Analytics, 2016).
Japan has also successfully domesticated best venture capital financing practices. In fact, it is this institution that was among those that once enabled the nation to achieve a technological breakthrough, known as the “Japanese technological miracle”. This phenomenon, consisting in the active use of innovations to stimulate national economic growth and social-economic development, has, in many respects, become a classic example of how high-tech solutions can help create high value added and form a new type of national wealth that is based on the intensive use of the human and intellectual capital of a nation (Riyanto and Schwienbacher, 2006).

In Japan and the US, a major part in venture capital financing was initially played by private and public capital, and it is only in the last three decades that the leading positions in the supply of venture capital have come to be occupied by large corporate establishments. By contrast, over the years countries integrated into the European Union have developed a different kind of institution of venture capital financing – here, a leading role in the formation of venture capital has been played all along by major industrial corporations, which started to develop most actively following World War II. Therefore, in the European Union venture capital financing is most of the time effected not through relevant funds but by way of direct corporate venture investing (Bottazzi, Da Rin and Hellmann, 2004; Grilli and Murtini, 2014), where a large corporate establishment invests in a small innovation enterprise (a venture capital firm). In addition, European countries quite often resort to venture capital financing in the form of creating a joint enterprise, which enables the corporations involved to derive competitive advantages based on pooling together intellectual resources and financial and physical capital.

The experience of “new industrial countries” indicates that these nations have achieved the most attractive conditions for the implementation of innovation high-tech projects. In particular, among the top nations in the world in this indicator is Singapore, with its friendly environment that is favorable to and supportive of conducting meaningful business in terms of the way the government regulates the national economy. In 2015, Singapore’s venture capital market reported a total of $1.2 billion worth of deals, $1.1 billion in 2014, and $1 billion in 2013 (Wonglimpiyarat, 2016).

It stands to reason that the venture capital experience of more industrially developed countries may well benefit those with a transitive economy. In 1993, with support from the European Bank for Reconstruction and Development, several pilot projects were launched in Russia dealing with the creation of venture capital funds, which in 1997 were transformed into the Russian Venture Capital Association. At present, the Association operates as a state fund of venture capital funds which is focused on the support and development of venture business in Russia. In 2015, the Russian venture capital market registered a total of $300,000 worth of deals, which, for now, is some two orders of magnitude less than the combined figures exhibited by Asian and European countries and the US (Polyakov, Chertina and Tamaev, 2015).
It, however, is worth noting that there is some real work that is currently being carried out in Russia, with support from the government, in the way of developing the national innovation system. Funds from the state budget have helped create a number of major venture capital oriented establishments, like Skolkovo, Rosnano, the Innovation Facilitation Fund, the Strategic Initiatives Agency, etc. These and similar corporate establishments, actively developing at present in the national venture capital market, are open to investing from nearly 300 venture capital funds with a combined capital of $30 billion. That being said, not all Russian business entities operating within the innovation sector are characterized by high levels of innovation activity – a major portion of these companies is engaged in activity related to leasing to various firms (which, most of the time, have nothing to do with venture capital and innovation related business) (Tverev, 2015). This is a direct consequence of protectionism and paternalism practices in the economy on the part of the government, with the executive having yet to develop relevant mechanisms for control over the use of funds from the state budget and use of state-owned property that is currently in the possession of corporate establishments, the latter expected to facilitate the development of venture capital business and activation of entrepreneurship across the nation. But, on the other hand, the Russian economy has definitely received some form of a stimulus from the measures implemented as part of putting together the national institution of venture capital financing.

Thus, it is obvious that countries with a transitive economy may want to focus more of their attention on promoting the proper making and development of the national institution of venture capital investing as a crucial dimension capable of ensuring sustainable social-economic development and well-balanced economic growth.

**Discussion**

Among the most pressing issues facing Russia and most other countries with a transitive economy is the lack of sources of funding. In fact, in Russia collective (syndicated) investing development is still in its incipience. The availability of special share funds, concerned with investing capital in the real sector and its high-tech segments, is a fact known at the moment to no more than 10% of Russia’s adult population (Tverev, 2015). Besides, a major portion of new entrepreneurial establishments is created in the retail and services sector, i.e. a traditional sector, while the venture capital sector mainly features the subsidiaries and dependent establishments of national industrial and financial corporation’s (both privately and publicly owned) and educational institutions. That being said, almost no use is being made of the potential of Russian science, while the crucial trilateral interaction of the state, business, and the science-and-education sector is not being given the attention it requires either.

It is also worth pointing up the issue of transfer of rights to intellectual property created in science-and-education institutions with funds from the state budget. Under Russian legislation, this kind of intellectual property belongs to the state.
Consequently, venture capital investors (both Russian and foreign) will hardly be interested in investing in the creation of this type of property based on Russian science-and-education institutions. And, considering that innovation activity is conducted only in state-run budgetary universities and research-and-development institutions, it becomes obvious that there is not much of a chance for interaction between venture capital investors and these establishments being possible. Therefore, a major portion of Russian innovation solutions hardly ever make it beyond the stage of an idea – or that of prototype creation at best. Incidentally, quite representative here is the experience of the United States, where there is a special law, known as the Bayh-Dole Act (1980), which permits developers to make use of intellectual property created with funds from the state budget (Bayh-Dole Act of 1980). It definitely would pay to adopt similar laws in Russia, as well as other countries with a transitive economy, where intellectual property created via state sources of funding is owned wholly by the state, which prevents venture capital from flowing freely into the domestic economy.

There are also a number of other issues in the development of the institution of venture capital financing in countries with a transitive economy that have been pointed up by experts in the venture capital market and consulting agencies, like:

- the low development level of innovation infrastructure and the slow pace of material-technical and technological upgrading to the real sector;
- insufficient stability and capitalization levels observed across the banking sector, which is not doing much in the way of cultivating long-term, as well as project-related, lending;
- the limited roster of sources of funding; in particular, no use is made of off-budget funds (the pension fund, health insurance fund, and social insurance fund);
- lack of economic incentives for entrepreneurs capable of engaging in innovation activity;
- corruption in state government;
- the information closeness of state corporate establishments involved in innovation activity;
- the lack of regular solvent demand for the outcomes of activity undertaken by venture capital firms;
- national labor markets lacking competent specialists.

An important way to stimulate the development of national innovation systems in transitive economies is creating innovation clusters. In Russia, many regions have single-industry specialization, which in the event of an economic crisis may require additional subsidies from the state budget. Certain countries with a transitive economy are undertaking projects related to the creation of innovation clusters. Thus, for instance, a number of states in India have been engaged in developing
telecommunications, pharmaceutical, and biotechnological clusters by way of public private partnership arrangements (Atherton, 2009; Block, de Vries, Schumann and Sandner, 2014).

The second consideration that needs to be addressed is that a venture capital business is an initially small business with high potential for growth and being transformed into a large corporate establishment that will contribute sizable funds to the national revenue. Therefore, special attention ought to be devoted specifically to small innovation entrepreneurship, which ought to be encouraged to engage both in major national innovation-infrastructural projects and in interaction with major national and industrial corporations, as well as the science-and-education sphere.

The third major consideration is the preparation of future personnel for managing a venture capital business, as well as the preparation of engineers and technicians who will develop new innovation solutions that will then be implemented in practice. Here, it pays to activate work on the development of the segment of institutions of higher learning created using private capital. Such universities will be able to not only prepare future personnel to work in the innovation economy but also conduct research-and-development work in the area of critical technology – provided, of course, there is a well-developed institution of venture capital financing in place.

The recessional trends, which have manifested themselves most pronouncedly in the global, and the Russian, economy over the last 3 years, have resulted in spikes in venture capital risks and declines in innovation entrepreneurial activity. Yet, the evidence from practice suggests that economic downturns may open up whole new vistas of opportunity both for entrepreneurs and for financial and investment institutions. In this regard, to enable the successful development of venture capital business in Russia, and other countries with a transitive economy, the following key issues may need to be resolved:

- firstly, the need to coordinate at the state level the major tenets of scientific-technical policy and strategy for national development with key scientific ideas and postulates describing the institutionalization of the venture capital market;
- secondly, there is a need to reduce state participation in the economy (above all, in the innovation sphere) – this should open up new vistas of opportunity for venture capital investors, which, in turn, should pave the way for the influx of venture capital that is needed for the implementation of local and national innovation projects;
- thirdly, there is a need to continually enhance the legal space wherein national venture capital business operates, striving to harmonize national legislation with internationally accepted regulations and rules for the
conduct of venture capital business – both on the side of capital demand and on the side of capital supply;

- fourthly, countries with economies dependent on resource rents need sectoral and technological modernizing, which is going to help them develop, via the redirection of rent profits, their scientific-technical potential, which will be accessed by their venture capital business;
- fifthly, there is a need to actively develop national financial markets, which will ensure the right demand for, supply of, and circulation of the securities of high-tech companies and enterprises operating within the real sector of the economy.

Conclusions

The evidence from the experience of more economically developed countries suggests that boosts in the innovation activity of businesses in the economy depend on the conditions created for them and the availability of uncommitted resources needed to fund high-tech ideas and solutions. The development of the institution of venture capital financing ought to be viewed as a new evolutionary form of syndicated investing that may help resolve objectives related to the transition of national economies from industrial to post-industrial development, which is expected to be accompanied by the optimum use of the population’s intellectual potential.

In countries with a transitive economy, the institution of venture capital financing, which is so crucial to stimulating innovation entrepreneurial activity, is currently only in the early stage of its making. This is why, the experience of post-industrial economies with a well-developed venture capital sector may serve as a reference that may provide an insight into potential challenges and threats to high-tech business, as well as help establish specific priorities for its development in alignment with national state interests.

The innovation potential of entrepreneurship ought to be harnessed efficiently with a view to ensuring well-balanced economic growth and cultivating whole new forms of national wealth creation that will no longer have the nation depend on exploiting its resource rents. It is largely thanks to venture capital financing that just a while ago initially tiny firms managed to launch a series of breakthrough technologies, turning, eventually, into national flagship companies in the economies of the US, Japan, and a number of Asian and European countries. For countries with a transitive economy (including Russia, in particular), the development of the institution of venture capital financing is an objective necessity, as considerable state participation in the national economy, which is still going on to this day, has impeded the nation’s capacity to harness its scientific-technical and technological potential to the fullest.
As part of this work, the authors have examined a set of general theoretical-methodological issues related to the making and operation of the institution of venture capital financing. The authors intend to focus in their future papers on the major approaches to organizing venture business and assessing venture capital risks that are most characteristic of it.

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