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The role of high-risk funds in financing innovative ventures in Poland

Abstract

The phenomenon of a capital gap is a problem faced mainly by young, innovative enterprises. Due to running high-risk business activities, access to traditional financing is limited for them. This is why they seek alternative sources of financing. The paper attempts to answer the question of whether financing business activity by high-risk funds and by public capital is a good solution to support innovation. The paper shows the special role of financing ventures with high development potential, particularly those innovative ones, by means of high-risk capital. The article also describes the essence of private equity/venture capital operations and the principles of the activity of the Polish Development Fund (Polski Fundusz Rozwoju), noting PFR Ventures. The paper is based on rich literature, both in Polish and English, which includes results of several studies indicating the relationship between the use of risk capital and innovative business activity. The applied research method was based on a literature review, on the grounds of which the essence of the problem of financing innovative projects was indicated.

Keywords: innovations, financing innovation activity, private equity/venture capital, Polish Development Fund
JEL Classification Codes: G24, O31

Introduction

The existence of a capital gap, defined here as the lack of access to capital necessary to finance ventures, and innovative ventures in particular, is still a current problem of companies in Poland and around the world. Access to funding sources may be decisive of development or survival of business entities that face the need to find capital to finance their operational activities, development, or expansion. Obtaining investment funds from traditional sources as well as insufficient equity capital are the main reasons that have led to the rise of alternative sources of development capital. The reality of business entities' functioning in a dynamically changing environment makes it necessary for companies to adjust to it constantly and to optimise business decision-making. One of the most important of those decisions is that of selecting financing sources. It is especially difficult in the case of innovative, cutting-edge companies that are riskier by definition. For them, the selection of private investors is quite limited and a well-made decision about choosing the financing method may affect their future viability.

The goal of this paper is to show the relations between development of innovative business entities in Poland and the way they are financed by private equity/venture capital funds and by institutions with access to public capital. The paper shows the special role of financing ventures with high development potential, particularly those innovative ones, by means of high-risk capital; ventures that are risky enough for other financing methods may be more difficult to access.

The goal of this paper it to tackle a question of whether risk funds – private equity/venture capital[1] can indeed become one of the dominating sources of capital necessary to finance innovative investments. Their specificity lies in the fact that capital is brought to a business entity by means of purchasing shares or stock, so it is not debt capital the company would have to pay interest on or one with imposed and pre-defined repayment terms. Additionally, the investor gains the possibility of co-managing a given business entity, which may translate into the investor's focus not on immediate profit, but on the company's development and its appreciation, achieving profits in the long term. Focusing on the development of a portfolio company is essential in the context of investing in ventures characterised by high innovation potential.

The next question associated with the goal of this paper is about the role of public capital in supporting innovation and state participation in recapitalising ventures that have limited access to other financing sources. This paper recognises the importance of further development of innovation in Poland and attempts to respond to these questions.

[1] Most studies by foreign centres show a positive relation between private equity/venture capital financing and innovation. See e.g., Dutta, Ganguly, Ge. *Economics of Private Equity*. In: Baker et al. [2015], p. 28.

The paper is divided into four parts that describe themes associated with financing innovation. First, it describes the phenomenon of a capital gap, followed by the role of high-risk funds in bridging this gap. Further, we focus on the importance of supporting research and development activities and on financing innovation with public funds, using the example of the Polish Development Fund Group (Grupa Polskiego Funduszu Rozwoju).

1. Financing innovation and the capital gap

Development of innovative ventures has a significant and positive impact on the economy of any given country. Contemporaneously, innovation is perceived as the effect of cooperation between scientific institutions and economic practice, which results in implementing new or significantly improved products, services, or processes [Zembura, 2016, p. 110].[2] Introduction of these novelties to the market is quite expensive and entrepreneurs who want to apply innovative solutions may experience the need to obtain significantly greater financing than would be the case with less innovative solutions. Nowadays, aside from the ability to adjust to dynamic changes in business environment, maintaining competitive position or increasing productivity, the ability to introduce innovation is more and more important in the long term [Parpaleix et al., 2019, pp. 7–41].

Theoretically, companies that own an innovative product or service and who search for capital to finance their activities have a wide spectrum of choices, starting with funds that come from net profit, ownership contribution, issue of shares, or fixed assets sales, through free funds in the form of savings, all the way to loans and credit lines. However, not every company can use its own funds, and when it is a relatively new company that has no sufficient fixed assets that could provide security for the investor, the company may experience difficulties in obtaining outside funds. Characteristics of innovation, especially risk associated with its success potential, make it especially difficult to obtain outside funds for developing or implementing it. Analysing the typology of barriers encountered in companies' innovative operations it is worth mentioning especially those that are associated with access to investment financing sources – company's own as well as such outside funds as high-risk capital or aid funds.[3]

From the point of view of the economy as a whole, corporate access to capital is a strategic issue, because starting and developing companies has a direct impact on the entire country's economic growth. Traditional forms of financing are available for companies that have existed on the market for a longer time and that have products or services unburdened with high

[2] A rich body of research on business innovation in the context of creating a competitive advantage, along with a literature review on the subject, is included in multiple papers by Polish scholars. See, e.g., Caputa et al. [2017], pp. 25–36.

[3] Many sources discuss the typology of barriers to innovation and provide research results in this domain. See e.g., Knosala, Deptuła [2018], pp. 112–115.

risk. On the other hand, entrepreneurs who pursue innovative ideas, or who are only beginning to develop their operations, have a much more limited access to traditional sources of financing [Antonowicz et al., 2017, p. 163]. A capital gap appears when the need for capital exceeds significantly available funds. That gap is filled by means of alternative forms of business financing [Jabłońska et al., 2018, p. 27], including instruments such as private equity/venture capital or public instruments.[4]

2. Essence of the operation of risk capital funds

Financing ventures with risk capital funds seems to be an attractive alternative to bank loans, as banks frequently find lending to some businesses too risky. Risk capital funds are directed at companies characterised by a special potential for growth and support them not just with capital, but also with their know-how and experience.[5]

To turn their idea into success, small companies that have an innovative product or even just an idea for it, but do not have a way to obtain traditional capital and too little knowledge, find private equity/venture capital funds a very attractive source of capital. Additionally, those funds provide assistance in managerial support, obtainment of experienced staff, support in legal services, as well as have a perspective of longer-term cooperation. All these are arguments in favour of considering attracting a private equity/venture capital investor. High-risk capital seems to fill the capital gap perfectly well and forms an alternative source of financing mainly for companies that are developing dynamically and that have an innovative idea for business, product, or service in a sector considered to be prospective. Companies that operate in less innovative or cost-intensive sectors of the economy have a much lower chance to obtain this type of capital.[6] The companies that intend to or are already carrying out innovative activities must consider the fact that the riskier their venture is, the more they should lean towards obtaining high-risk capital in order to finance it. In general, high-risk capital may be divided into venture capital, private equity, or a combination of these two instruments.[7] The first of these is used to finance new ventures that are not verified by the market yet, known as start-up ventures that are gaining significance due to technological revolution and are playing an increasingly important role in the economy. These business entities mainly function in technologies and rapid progress industries and base their concept on designing new products or services under extreme uncertainty [Antonowicz et al., 2017,

4 Many other forms of financing business operations exist. Among them we can list leasing, accounts receivable financing, mercantile credits, aid funds, or crowdfunding. However, these forms will not be discussed here as they go beyond the scope of this paper that deals with financing with the use of high-risk capital.

5 More about specificity of how those funds function, see e.g., Leeds [2015], p. 23; Pruchnicka-Grabias [2017]; Sobańska-Helman, Sieradzan [2013]; Wrzesiński [2013]; Ostaszewski et al. [2017], pp. 238–262.

6 Agriculture, transport, or retail are examples of less innovative sectors. Construction, the chemical industry, or power industry are examples of cost-intensive sectors; in their case, the amount of capital needed would be significantly higher than in other sectors.

7 A rich foreign literature review on this topic can be found in a paper by Fellnhofer [2017], pp. 173–188.

p. 136].[8] Consequently, they inscribe themselves within the scope of venture capital and are their natural capital recipient. On the other hand, private equity is geared towards financing ventures in later development phases.

According to the latest research devoted to the venture capital market in Poland, VC funds are gaining interest of foreign investors, are characterised by growing maturity, and fill the capital gap by financing innovative ventures.[9]

Support provided by those funds is an excellent way to finance innovative ideas, because resources that come from the private equity/venture capital sector improve the capital structure of portfolio companies, hence opening up opportunities to gain further financing from other sources that have been accessible previously. However, entrepreneurs must consider the fact that high risk for the investor is associated with high expectations when it comes to return on investment [Grzegorczyk, 2014, p. 50]. No matter whether the funds come in from independent venture capital – IVC – or corporate venture capital – CVC, development of portfolio companies is positively correlated with this type of financing. CVC operates similarly to IVC; it only differs in that a corporation is one of the main investors. Operating in accordance with the rules of venture capital is based on aiming at maximising profits, diversifying investment, making project selection, as well as capital exit upon a predetermined length of a given investment. CVC also strives for non-financial goals imposed by the investor (corporation) that determines the range of a project's activity, which is usually strictly associated with the sector in which a given corporation operates. Much research confirms the correctness of the assertion that financing companies with the use of high-risk capital (IVC and CVC alike) influences positively their economic growth [Colombo, Murtinu, 2017, pp. 35–66].[10]

It is important to note that there is another way of financing innovative projects – using mezzanine capital.[11] It is an intermediate instrument between debt and equity financing and is constructed concurrently as both debt and capital. When supporting a given venture, the investor accepts elevated risk but expects in return to participate in profits from the investment, albeit at a lower level than that in the case of financing with private equity/venture capital funds. Mezzanine makes it possible to obtain investment capital and ensures that the investor gets a cut of profits as long as the venture is successful [Golej, 2016, pp. 57–79].

[8] More on start-up companies and seeking new opportunities by innovating can be found in e.g., Humble et al. [2019], pp. 38–44.

[9] A report on the situation of venture capital funds in Poland, along with an overview of the most important funds that operate on our market, is included in Krzysztofiak-Szopa, Wisłowska [2019].

[10] The authors analysed the influence of IVC and CVC financing on the development of portfolio companies – the results of their research confirm the positive relation here.

[11] The place of *mezzanine* in the structure of financial reporting fits between own capital and outside capital, and it is considered to be debt capital. Due to the thematic range and volume of this paper, this type of financing will not be discussed further, but it might contribute to further research considerations as an interesting form of financing. See also Błach [2018], pp. 131–132.

3. Support for research and development by public institutions

The existence of a gap on the Polish capital market within the frame of financing innovative companies was noted not just by high-risk capital funds, but also by public institutions. A need and an opportunity for public capital arises when neither banks, nor specialised private equity/venture capital investors have a possibility of bringing in their financing offer. The issue of the capital gap was identified by animators of the economic life as early as in the beginning of the 1990s. It was then that many institutions dealing with providing professional, multi-faceted financial support to the development of domestic companies took shape. Moreover, this type of activity intensified when Poland joined the European Union and when a significant number of structural funds was devoted to increasing growth potential and competitiveness of domestic business entities, especially those innovative ones. It is important to note that in Poland innovativeness of small and medium-sized enterprises is determined not only by financial factors, but by external environments, also known as the potential of the environment, which, through their interactive impact, have a significant impact on the functioning of organisations in Poland.[12]

One way of state aid in supporting innovation in Poland is to finance research and development. It is worth noting that knowledge and capacity to use it effectively is an important prerequisite for achieving a high level of innovation [Grzegorczyk, 2014, p. 55]. It is relatively expensive to operate in this domain, so it seems optimistic to observe the GUS (Statistics Poland) data indicating a steady increase in national investment for R&D activities and the relationship between these investments and GDP. Unfortunately, Poland is still relatively weak in comparison with other countries of the European Union, as R&D spending is below the average for all EU countries.

Table 1. Investments in R&D in Poland, 2013–2019

Items	2013	2014	2015	2016	2017	2018	2019
Number of R&D entities	3,122	3,474	4,427	4,871	5,102	5,779	5,863
Gross domestic expenditure on R&D operations (GERD[13]), in million PLN	14,424	16,168	18,061	17,943	20,578	25,648	30,285
Relation of gross domestic expenditure to R&D (GERD) to GDP, in %	0.87	0.94	1.00	0.97	1.03	1.21	1.32

Source: Główny Urząd Statystyczny (Statistics Poland) [2020].

[12] Directions of the interaction with the environment are not a topic of this paper, yet it is worth to cite research conducted by Lachiewicz, Matejun [2016], pp. 69–81.

[13] Gross domestic expenditure on research and development.

According to Statistics Poland, 26.1% of industrial and 21% of service enterprises declared innovative activity. In the same period, 24% of industrial and 19.6% of service enterprises introduced innovation, understood here as new or significantly improved products or business processes. Product and business process innovation was more frequently introduced by industrial than service enterprises [Główny Urząd Statystyczny, 2020].

When addressing the relation between innovation and investment in R&D activity, it is worth mentioning that knowledge and an ability to transform it into innovation is a key element. In order to support this process, individual countries, including Poland, create ecosystems that support innovation. A key role in these ecosystems is played by business environment institutions, especially innovation centres that provide a platform linking entrepreneurship, science, and education.[14] They take into consideration current expectations and needs of entrepreneurs and high-risk capital investors. Projects that deal with implementing results of R&D activities as well as technology transfer to business are considered high-risk ventures with high capital needs.[15]

In the context of R&D, it is worth mentioning that, as of 1 January 2019, the provisions applying to the Polish tax system provide relief for entrepreneurs. It is known as the innovation box.[16] Thus, Poland joined a group of countries that support commercialisation of research and development and introduced relief for companies that profit from commercialisation of intellectual property rights resulting from R&D. This relief provides an opportunity to reduce the corporate income tax rate that meets the criteria set out in the law. Aside from the innovation box relief, entrepreneurs may seek funding by the Operational Programme, called Intelligent Development (Program Operacyjny Inteligentny Rozwój, PO IR),[17] which does not only finance corporate innovation, but also provides funds for solidifying connections between science and business and strengthening the position of national research bodies within the European Research Area.

Innovative projects that used public R&D funds won competitions and acceleration programmes for start-ups by the Polish Agency for Enterprise Development (Polska Agencja Rozwoju Przedsiębiorczości, PARP), received grants from the National Centre for Research and Development (Narodowe Centrum Badań i Rozwoju, NCBiR), or other forms of support, and that still need financing for further development, may become targets for high-risk capital funds investors. Therefore, it is possible to state that, broadly speaking, financing of R&D and financing of projects by means of high-risk capital funds are complementary ways of capital support.

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[14] See more in Bąkowski, Mażewska [2018].

[15] Importance of cooperation between innovation centres and R&D activities is an ever current theme; see e.g., Dąbrowska, Halberstadt [2011].

[16] The Innovation box is known in other countries as the Intellectual Property Box, IP Box, or Patent Box.

[17] This programme is in implementation for the years 2014–2020 as a successor of the Innovative Economy Operational Programme (Program Oeracyjny Innowacyjna Gospodarka, PO IG).

4. Financing innovation with public funds; the PFR Group example

The world is witnessing an increase in public institutions' interest in supporting innovative ventures that make a significant contribution to job creation and raise productivity. These investments are characterised by certain features, such as the share of private capital, being supra-regional, ensuring long-term financing without exerting pressure on accelerating the moment of disinvestment, specialisation within a given sector of the economy, or portfolio diversification within a single, larger fund.[18]

Operations of the Polish Development Fund (Polski Fundusz Rozwoju, PFR) on the Polish market is a good example of a combination of capital support with the use of non-public and state funds. This institution provides investment or R&D loans to SMEs and supports their expansion abroad. The PFR is a group of financial and advisory institutions for entrepreneurs, local governments, and private individuals, who invest in balanced social and economic development of the country. Its priorities revolve around infrastructure investments, innovation, development of entrepreneurship or export, and foreign expansion of Polish enterprises.[19]

The PFR Ventures Company has been in operation under the PFR Group since 2016. It is involved in developing the Polish venture capital investment market. Its goal is to provide repayable financing to innovative companies by means of select financial intermediaries. PFR Ventures mainly manages venture capital funds dedicated to companies at various stages of development, starting with the most nascent pre-seed, all the way to the expansion phase and independent fund managers. It operates in the form of the Fund of Funds (FOF), which means that it enters into investment agreements with other funds that offer financial support to innovative enterprises that operate on the Polish market.[20]

Funds managed by PFR Ventures investments are associated with various forms of supporting innovative entities. Promoting technological cooperation between enterprises, commercialisation of research and development, or expansion onto foreign markets are the most important forms of such support. PFR Ventures requires some funds to bring in own contribution by a co-investing fund on a commercial basis, which should, in principle, affect the link between interests of all investors and pursuit of the common objective of further development of the portfolio company that is the subject of the investment. The National Capital Fund (Krajowy Fundusz Kapitałowy, KFK), another entity of this type, used to operate in a similar fashion; 100% of its shares was purchased by the PFR from Bank Gospodarstwa

[18] An extensive report on supporting entrepreneurship by state institutions, along with examples, can be found in Szkuta et al. [2017].

[19] Information about the operations of the Polish Development Fund comes from, inter alia, a document titled *Strategia Polskiego Funduszu Rozwoju. Podsumowanie działalności i strategia grupy kapitałowej Polskiego Funduszu Rozwoju na lata 2019–2021*" as well as information posted on the PFR www.pfr.pl portal.

[20] The way PFR Ventures works, description of venture capital funds it cooperates with, and its investments in portfolio companies, can be found on the www.pfrventures.pl Internet portal.

Krajowego (National Holding Bank).[21] This transaction achieved the benefits of operating at a larger scale and consolidated competencies existing within the frame of the FOF. Currently, the KFK operates under the auspices of a single entity – PFR Ventures.[22]

It is worth noting that the operational formula PFR Ventures uses is similar to that of grants. This means that particular companies that apply for co-financing are not financially supported directly by PFR Ventures, but by means of investment funds that are active on the market and operate on behalf of PFR Ventures. Those funds circulate the capital allocated to them and invest in promising companies with high growth potential. Such a formula leaves the decision as to the directions of allocating the capital to fund representatives who are experienced in this regard. The extent of decision-making is, therefore, transferred to commercial entities that make decisions about investing in particular enterprises on the basis of professional analysis and assessment of business entities. By transferring funds to specialised funds, PFR Ventures sets only general investment goals for them, thanks to which it creates a tool to support innovative enterprises operating on the Polish market. Hence, it contributes to narrowing the capital gap that commercial private equity/venture capital funds were unable to fill. PFR Ventures also co-finances the purchase of innovative technologies provided by entities from all over the world.

From the moment it was established in 2016, the PFR Group can boast of many achievements, which are demonstrated by specific examples – it became the largest venture capital platform in Central and Eastern Europe, it became a single point of contact for interested entities, and clearly determined competence centres for investment activities as well as pro-development and social responsibility of business entities. Numbers prove the effectiveness of this entity: since its inception, PFR Ventures has invested the total of PLN 8.3 bn directly or by means of funds it manages. Along with partner support, investment projects valued at PLN 26.2 bn were put into effect. The Group's strategy anticipates investing PLN 24 bn by 2021, and as much as PLN 3.6 bn will be invested within the frame of venture capital/ private equity funds.

Summary

Implementing innovation is important not only from the vantage point of enterprises, but also at the macro scale, as it influences competitiveness of the economy internationally. Thanks to supporting the creation and development of new, innovative enterprises, influence is exerted on limiting unemployment, increasing competitiveness, development of technologies, as well as improving economic well-being of society. This paper discussed one of many

[21] Purchase of those shares took place on August 3, 2019.

[22] The merger is the effect of the entry into force of the Act on the development institution system, dated July 4, 2019, which regulated the functioning of the PFR Group.

aspects of innovation, namely selecting financing courses, which is significantly limited for risky and innovative entities as compared with traditional and verified forms of conducting business. Selecting sources of financing is a broad theme and this paper only focused on a small number of possible capital support that are significant and attractive for developing innovative entities: financing with the use of high-risk capital and public institutions. Financial as well as extra-financial support in the form of know-how offered to innovative enterprises may become an attractive source of financing their activity, development, and expansion as an alternative to own capital and bank loans. This paper shows that it is indeed the lack of access to capital that is a fundamental problem young and innovative enterprises face.

The activity of state institutions that function not only on the domestic market is unable to replace commercial financial markets. However, the support they provide contributes to narrowing the capital gap that limits developmental opportunities of many innovative entities. Considering the ever-present lack of willingness of banks and other investors to invest in relatively small investment projects, the activity of private equity/venture capital funds and entities that form the PFR Group may become a significant source of financing many ventures. As this paper mentions, high-risk capital that comes from funds and public sources may form an attractive alternative to the most common forms of funding enterprises in Poland, namely own capital and bank loans. This, in turn, may contribute to narrowing the existing capital gap. These funds may also become a flexible form of financing development or foreign expansion of Polish entities.

This paper has attempted to provide an answer to the question of whether funds that come from high-risk capital or public sources may contribute to stimulating innovativeness of Polish enterprises. Basing on the literature review as well as sources that validate activities undertaken by public entities (mainly the ones that form the PFR Group), offering capital support to enterprises and stimulating the market of high-risk capital funds should be considered highly beneficial; such activities inscribe themselves in global economic tendencies. It is possible to assume that it will translate into measurable rates of economic growth in near future. The attempt made in this paper to indicate the appropriate instrument that may contribute to reducing the capital gap in the domain of innovative activity of enterprises is only a sliver of possible actions that can be taken by entrepreneurial entities wishing to conduct innovative business activities.

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