

Financing Innovation with a Focus on Venture Capital

Klaudia Šoltésová¹

¹ University of Economics in Bratislava, Faculty of Business Economy
in Košice

Tajovského 13, Košice 041 30 Slovak Republic

klaudia.soltesova@euba.sk

<https://doi.org/10.53465/EDAMBA.2021.9788022549301.507-517>

Abstract. Innovation, research and development are directly linked to the overall global competitiveness of countries and support overall economic growth. Innovation is primarily associated with the improvement of certain areas, products or services. It is based on improving the framework conditions and access to research and innovation funding to ensure that innovative ideas lead to the creation of products and services that deliver growth and jobs in each country. Entrepreneurs decide on the possibilities for obtaining additional finances on the basis of corporate goals, company development and strategic intentions. At present, companies do not have to rely solely on their own sources of financing or bank loans, as the market also offers alternative sources of financing. Companies can benefit from the help of investors who, in addition to providing finance, also offer important experience and advice in the business area. These sources also include venture capital, which is particularly important for small and medium-sized companies with growth potential, which are mostly exposed to high risk and have a low creditworthiness to obtain additional resources. EU funds and programs contribute to solving structural problems and to supporting growth and competitiveness in Slovakia. The aim of this paper is to provide an overview of the various sources of financing innovation in the company with a focus on the use of venture capital in Slovakia and other EU countries. The paper also identifies the main barriers that limit the innovative activity of companies.

Keywords: Financing innovations, Venture capital, V4 countries

JEL classification: G 15, G 24

1 Introduction

We can approach innovation from different perspectives and serve different purposes. We encounter innovations on a daily basis and make our lives much easier. At present, the quality of life is highly dependent on the constant increase of added value in all

areas. Innovation is primarily associated with the improvement of certain areas, products or services. The implementation of marketing innovations supports the sale of products, their main task is to engage the customer through a new design, packaging or promotion. Organizational innovations are related to the overall change of organization and structure in the company. Innovative changes in processes are mainly related to changes in technology, which is also closely related to product innovations. This article provides various opportunities and information in the field of obtaining funding from various funds and programs of the European Union. Main goal is to improve the framework conditions and access to research and innovation funding to ensure that innovative ideas lead to the creation of products and services that deliver growth and jobs in each country.

1.1 Financing Innovations

Innovation is key to improving living standards and can affect individuals, institutions, entire economic sectors and countries in different ways. The correct measurement of innovation and the use of research innovation data can help policy makers better understand economic and social change, assess the contribution of innovation to social and economic objectives, and monitor and evaluate the effectiveness and effectiveness of their policies. (Oslo manual, 2018)

The most widely used and widely used classification of innovation is the OECD-Oslo Manual Classification (2005). The Oslo Manual is a document defining basic concepts in the field of innovation and innovation processes. The OECD Oslo Manual defines four basic types of innovation:

Product Innovation – An upgraded product (an innovated product (good or service) is an indication of a product that is new or significantly improved. This innovation includes significant improvements to its characteristics, technical specifications, components, materials, in-product software, user accessibility, or other functional characteristics.

Process innovation – Process innovation - a new or significantly improved way of production or system of suppliers and distributors. This innovation also includes significant changes in technology, equipment or software.

Marketing innovations – represents the introduction of a new or significantly improved marketing method, which includes significant changes in connection with the design or packaging of the product, product placement, product promotion or product pricing.

Organizational innovation – are characterized by the introduction of new organizational methods in the structure of the company, workplace organization or external relations.

The evaluation of innovation can be carried out at two levels - microeconomic (corporate) and macroeconomic (regional, national). At the microeconomic, i.e. corporate level, the level of innovation can be measured by research and development, the efficiency of production processes, customer satisfaction, the transfer of innovation and technology, the motivation of employees, etc. This level includes, for example, the

revenue from the sale of new products, research and development costs, the life cycle of a new product, the number of patents or the introduction of new production and information technologies.

At the macroeconomic level, the assessment and measurement deals with the competitive advantages of regions or states. In this case, innovations can be evaluated using different frameworks and pre-prescribed indicators dealing with technologies, human resources, transfer, processes, or marketing. Another way is to monitor research and development spending as a percentage of GDP (Sabadka, 2009).

1.2 Innovation Funding Opportunities

We allocate sources of funding for innovation into private and public sources of funding. Private sources of financing innovation include internal and external resources of the enterprise, banking resources, venture capital and business angel resources. Public sources of funding for innovation include state and regional financial support and European Union financial resources. We include framework upgrade, structural funds and other financial resources among the financial resources from the European Union (Burger, 2016).

EU funds and programs contribute to solving structural problems and to supporting growth and competitiveness in Slovakia. Slovakia is one of the largest recipients of solidarity from the EU. From the multiannual financial framework, Slovakia receives support of more than 15 billion EUR to address development challenges, equivalent to around 2.5% of GDP per year. This budget is used to invest in a variety of areas, from job creation to growth and promotion of sustainable transport, environmental protection to investment in research and innovation. It is R&D expenditure that is intended to help the transition from a predominantly production-based economy to an economy based on domestic innovation and technology (European Commission, 2019).

1.3 Financing Innovation from Repayable Sources

The most frequently used sources for financing innovations from repayable sources are bank loans, venture capital and other sources of financing through funds at the national and international level for entrepreneurs.

Supporting innovation by SMEs is necessary for EU competitiveness and employment rate. The European Commission to set aside funding in 2014-2022 to support investment in innovative start-ups through venture capital funds. Venture capital is a catalyst for innovation, job creation and economic growth. It can also provide SMEs with capital to improve their access to finance, help get their businesses off the ground. The development of a European venture capital market requires a comprehensive investment strategy to support less developed venture capital markets and reduce dependence on the public sector. The Commission provides support based on project merit and not driven by geographical location of venture capital funds or investment sectors. On the other hand, this approach is demand-based, favouring the most developed venture capital markets. This leads to a concentration of investment in the EU's largest economies, while underdeveloped markets and sectors may receive less

financial support. The EU venture capital market is still highly dependent on the public sector and the low rate of return is one of the reasons for the low interest of private investors (European Court of Auditors, 2019).

Venture Capital	Bank loans	Other financing options
- Venture capital funds operating in Slovakia	- Investment loans - EU funding programmes and open calls - EIB loans	- Innovation fund

Fig. 18. Financing innovations from repayable sources.

Source: Based on data from Slovak Business Agency, 2021

Venture capital investments create and expand business activities, which form a new segment of the business sector and accelerate the production of new knowledge, competitiveness and ensure further economic growth. Venture capital investments can be broken down according to several characteristics. In the broadest sense, if we start from the ideal situation in the development of the company, we distinguish the following types of financing (Chovancová et al., 2006):

- pre-seed funding,
- start-up financing,
- early development financing,
- development financing,
- rescue financing,
- replacement financing,
- managerial redemptions,
- acquisition financing,
- mezzanine.

1.4 Financing Innovation from Non-repayable Sources

Entrepreneurs participate in various operational programs, regional programs and community programs, which offer a wide range of financial assistance, when using non-repayable sources of financing.

Operational programmes	Cross-border cooperation	National Programmes	Community Programmes
<ul style="list-style-type: none"> - Operational Programme Research and Development - European Regional Development Fund 	<ul style="list-style-type: none"> - Interreg V-A SK-CR - Interreg V-A SK-AT - Interreg V-A PL-SK - Interreg V-A SK-HU 	<ul style="list-style-type: none"> - Slovak Research and Development Agency 	<ul style="list-style-type: none"> - Research and Development - Implementation - Marketing

Fig. 2. Financing innovations from non-repayable sources. *Source: own processing based on data from Slovak Business Agency, 2021*

2 Data and Method

To compare innovation activity, we focused on the Czech Republic, Hungary, Poland and the Slovak Republic. At the same time, all these countries are comparable to the average innovation activity of companies in the EU. Country data were obtained from The Community Innovation Survey, which provides information on innovative companies and different types of innovation.

The Community Innovation Survey is based on innovation statistics, which are part of the EU science and technology statistics. The surveys are carried out every two years by EU Member States and a number of European Statistical System member countries. The following figure provides the latest overview of enterprises that carried out innovation activity in the years 2008 to 2018.

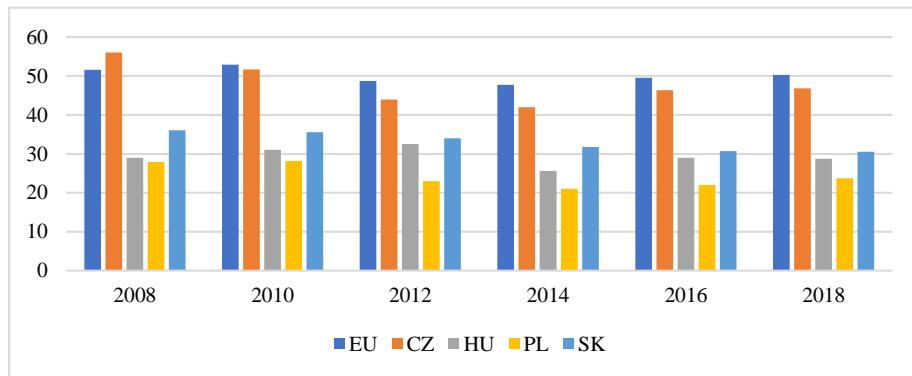


Fig. 3. Enterprises with innovation activities during 2008-2018. *Source: own processing Based on The Community Innovation Survey, 2021*

We can see in the figure that the Czech Republic has the best position among the monitored countries. The number of innovative companies has been at the level of 40-

50% since 2008, which was significantly higher than in the other countries surveyed. The Czech Republic is closest to the European average of innovative enterprises in terms of the number of innovative enterprises. In second place in the number of innovative enterprises was the Slovak Republic, whose number of innovative companies was at the level of 30-40%. However, the number of enterprises with innovation activity decreased steadily during the period under review. The third place was occupied by Hungary and the last place by Poland with the number of innovative companies at the level of 20-30%, which represents only about half of the innovative companies in the EU.

According to the 2018 Community Innovation Survey for Slovak republic, 30,5 % of enterprises in industry and services had innovation activity. However, even in these companies, they encountered problems that limited them in their innovation activities. As the main factor limiting innovation activities, 27.2% of innovative companies consider difficulties in obtaining state subsidies or grants. Excessive costs for innovation are a barrier for 26.3% of innovative companies. The third biggest barrier to introducing innovations was the lack of internal financing, which was reported by 25.8% of companies. The following figure provides an overview of individual hampering factors limiting innovation activities in innovative enterprises.

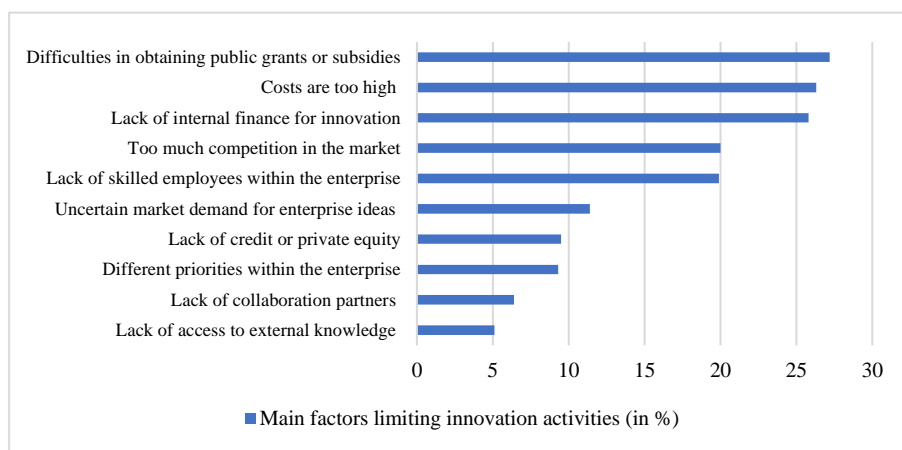


Fig. 4. Main factors limiting innovation activities. *Source: own processing Based on The Community Innovation Survey, 2021*

Based on the observed data for individual countries, a prediction model was created, which shows the expected possible development of innovation activity of enterprises. The prediction model was created using IBM SPSS software, which uses a forecasting feature while providing advanced features that allow to make reliable forecasts using time series data. Using this software we are capable to predict the possible development of the number of innovative companies until 2025, based on observed data.

As we can see from the figure, individual countries have a relatively stable number of innovative companies, most of the surveyed countries, together with the European average, recorded a slight decrease in innovation activity in the period from 2012 to 2017. Nevertheless, they managed to reverse this trend and support the innovative activity of companies in the years 2018 – 2019. The development forecast indicates that individual countries will continue to have a relatively stable development trend and will be at the level of 25 – 50%. The only country with a negative forecast is the Slovak Republic, where a negative trend could occur and the number of companies with innovation activity will decrease if companies do not receive sufficient financial support for innovation. The forecast for the Slovak Republic shows that in the future the number of innovative companies could theoretically be reduced to 25%, from the current 30.5%, which is not a good sign for the economic development of the country.

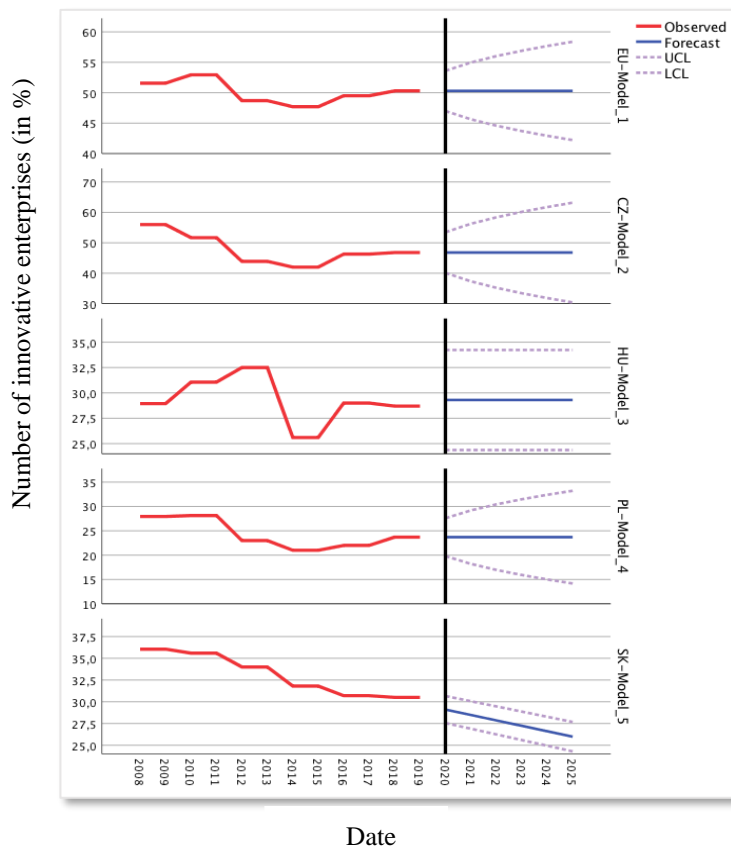


Fig. 5. Prognosis of innovation activities in enterprises. *Source: own processing*

3 Venture Capital in V4 Countries

Invest Europe, an association representing European private equity, venture capital and the infrastructure sector, as well as its investors, today published private equity statistics for Central and Eastern Europe in 2020. Private equity companies invested in a record 566 companies in Central and Eastern Europe in 2020, mainly due to dynamic small and medium-sized enterprises and startups, which supported the recovery from the impact of COVID-19 and long-term economic and social development across Europe. The report shows that the number of companies receiving private equity investments increased by 15% to the previous year's record and exceeded the five-year average by 46% (Slovca, 2021).

Table 33. Type of investments by country, 2019-2020 (in € thousands). *Source: Own processing based on data from Invest Europe, 2020*

STAGE FOCUS	CZECH REP.		HUNGARY		POLAND		SLOVAKIA	
	2019	2020	2019	2020	2019	2020	2019	2020
<i>Seed</i>	1 404	792	33 082	50 243	5 932	16 670	0	5 570
<i>Start-up</i>	9 768	9 015	71 163	49 880	51 138	45 091	16 247	13 645
<i>Later stage venture</i>	13 130	4 400	34 095	25 410	43 855	50 157	5 725	1 700
Total venture	24 301	14 207	138 340	125 532	100 925	111 918	21 972	20 915
<i>Growth</i>	125 502	25 000	27 581	40 883	92 777	123 850	9 756	1 500
<i>Rescue/Turnaround</i>	0	0	1	7 314	0	0	2 000	0
<i>Replacement capital</i>	0	0	0	0	11 845	0	0	0
<i>Buyout</i>	87 679	240 653	54	52 553	382 990	195 171	6 000	0
Total	237 482	279 860	165 976	226 283	588 536	430 939	39 728	22 415

Based on the table, we can see that among the V4 countries in 2019, the Slovak Republic was the country that used the least risk capital. In the following year 2020, the Slovak Republic ranked 3rd among the monitored countries, when the Czech Republic used risk capital the least. The risk capital in both used mainly as Seed Capital, Start-up capital or as Later Stage Capital.

In 2020, the Slovak Republic was the only country that did not use the management buyout, which is a transaction where a company's management team purchases the assets and operations of the business they manage. A management buyout is appealing to professional managers because of the greater potential rewards and control from being owners of the business rather than employees.

The overall venture capital utilization ratio decreased among the years. The most significant decrease in the use of venture capital was observed in the Czech Republic,

while Poland was a country where the use of venture capital increased. The following figure shows the degree of risk capital involvement according to the stage at which the company is located.

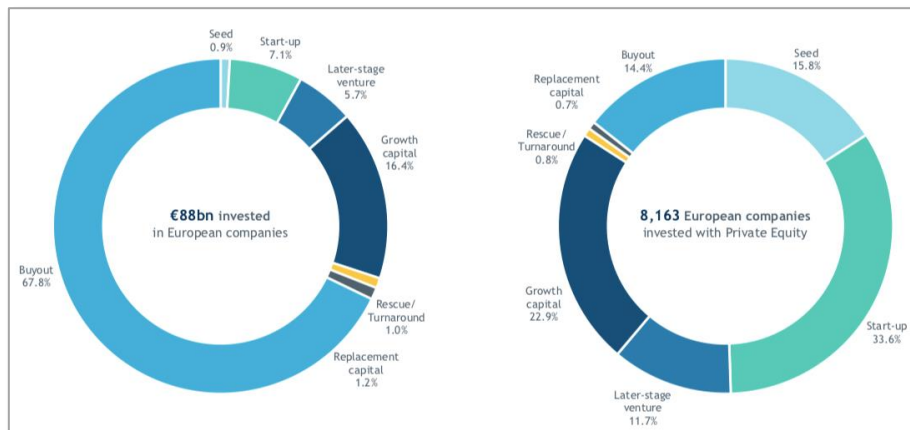


Fig. 3. Investments by stage, 2020. Source: Invest Europe, 2020.

In 2020, the most frequently used financing was management buyout of a company, when investors used a significant amount of borrowed capital to cover costs. Usually by buying a majority or controlling shares.

The second most commonly used form of investment was investment in the growth capital, which was often a minority investment. Nevertheless, this type of investment enters relatively advanced companies looking for capital to expand and improve operations or enter new markets in order to accelerate business growth. The third most common method of financing was to finance start-up companies after full product or service development. This capital investment is used to cover capital expenditures and initial working capital.

4 Conclusion

Central and Eastern Europe has recently been seen as a fast-growing hub in Europe, attracting local and global investors, resulting in large-scale new accelerators, a VC fund and the availability of early-stage funding in the region. However, the activity of private equity funds in Slovakia is relatively small compared to international companies. The Slovak Republic offers a relatively limited market, which also generates fewer investment opportunities with growth potential.

In comparison with the innovation activity of companies between countries, it was clear that the innovation potential of the Slovak Republic has had a negative direction in recent years. The Czech Republic has the highest innovation activity of enterprises,

which is also at the level of the European average in the number of innovative enterprises.

Foreign investors are also more interested in larger markets, such as Poland, which has experienced high investment growth in recent years. Venture funds are usually invested by wealthy individuals, banks, but also the public sector, as evidenced by a number of venture capital funds in Slovakia with the participation of public funds.

One of the reasons why this type of capital is so rarely used in Slovakia is the relatively low awareness of Slovak entrepreneurs about venture capital and the readiness of companies for this type of financing. On the one hand, there are entrepreneurs who complain that they have lack of capital and their companies are undercapitalized. On the other hand, there are investors who talk about the lack of investment opportunities as the Slovak Republic represents a relatively small investment market.

The most frequent ventures or private equity investors are mainly looking for companies with high growth potential, which cannot always be found in the Slovak business environment. All these factors also contribute to the fact that financing innovations through venture capital and private equity is used much less in Slovakia than in the surrounding countries.

References

1. BURGER, P. 2016. *Inovačná a klastrová politika*. 1.vyd. Košice: Elfa. ISBN 978-80-8086-257-2.
2. CHOVANCOVÁ, B. et al. 2006. *Finančný trh - Nástroje, transakcie, inštitúcie*. 1. vyd. Bratislava : IURA EDITION. 2006. 611 s. ISBN 80-8078-089-7.
3. CFI. 2021. Venture Capital. [online]. [cit. 2021-05-20]. Accessible from: <https://corporatefinanceinstitute.com/resources/knowledge/finance/what-is-venture-capital/>
4. ECA. 2019. EU venture capital for SMEs: significant funding in need of more direction, say Auditors. [online]. [cit. 2021-05-20]. Accessible from: https://www.eca.europa.eu/Lists/ECADocuments/INSR19_17/INSR_Venture_capital_EN.pdf
5. EUROSTAT. 2021. Science, technology and innovation. [online]. [cit. 2021-05-20]. Accessible from: <https://ec.europa.eu/eurostat/web/science-technology-innovation/data/database>
6. OECD.ORG. 2020. Defining innovation. [online]. [cit. 2021-05-20]. Accessible from: <https://www.oecd.org/site/innovationstrategy/defininginnovation.htm>
7. SABADKA, D. 2009. Inovačná výkonnosť krajín EÚ. In: *Transfer inovácií*. [online]. č. 14. s. 240-242. ISSN 1337-7094. [cit. 2021-05-20]. Accessible from: <https://www.sjf.tuke.sk/transferinovacii/pages/archiv/transfer/14-2009/pdf/240-242.pdf>
8. SBA. 2021 Startupy. [online]. [cit. 2021-05-20]. Accessible from: <http://www.sbagency.sk/startupy>
9. SBA. 2019. Financovanie inovácií z návratných zdrojov. [online]. [cit. 2021-05-20]. Accessible from: http://www.sbagency.sk/sites/default/files/file/financovanie_inovacii_z_navratnych_zdrojov.pdf
10. SBA. 2019. Využívanie alternatívnych zdrojov financovania msp. [online]. [cit. 2021-05-20]. Accessible from:

http://www.sbagency.sk/sites/default/files/vyuzivanie_alternativnych_zdrojov_financovani_a_msp.pdf

11. SLOVCA. 2021. Private equity. [online]. [cit. 2021-05-20]. Accessible from: <https://www.slovca.sk/sk/statistiky/2921/private-equity-investovalo-do-rekordnych-566-spolocnosti-v-cee-v-2020.html>