

DOI: 10.55643/ser.4.50.2023.534

Roman Yankovoi

PhD in Economics, Associate Professor,
Doctoral Student, Zhytomyr
Polytechnic State University, Zhytomyr,
Ukraine;
e-mail: javagaz@ukr.net
ORCID: [0000-0001-5307-0991](https://orcid.org/0000-0001-5307-0991)
(Corresponding author)

Lyazzat Sembiyeva

D.Sc. in Economics, Professor, Head of
the Department of State Audit,
L. N. Gumilyov Eurasian National
University, Astana, Kazakhstan;
ORCID: [0000-0001-7926-0443](https://orcid.org/0000-0001-7926-0443)

Received: 06/10/2023

Accepted: 12/12/2023

Published: 25/12/2023

© Copyright
2023 by the author(s)



This is an Open Access article
distributed under the terms of the
[Creative Commons CC-BY 4.0](https://creativecommons.org/licenses/by/4.0/)

FINANCIAL INSTRUMENTS IN THE DEVELOPMENT OF BUSINESS INNOVATIONS

ABSTRACT

This article analyzes the role of financial instruments in supporting and stimulating business innovations, considers venture financing, lending, crowdfunding and other mechanisms as key levers for the development of innovative projects and startups. The purpose of the study is to identify and analyze the factors that make certain financial instruments more effective in supporting innovation. The advantages and disadvantages of each instrument are considered, and their ability to adapt to the changing business environment is discussed. The article utilizes a variety of research methods, including literature review, case studies, and comparative analysis, to provide a comprehensive view of the topic. The study shows that venture capital investments often provide not only capital, but also valuable knowledge, mentoring, and access to a network of contacts. The results indicate that traditional bank lending is often inaccessible or insufficiently flexible for innovation-oriented companies due to the high level of risk. However, specialized loan programs, such as government guarantees and subsidized loans, can increase the availability of credit for innovative projects. Crowdfunding is an effective tool for validating market demand and raising initial funding, especially for projects that go beyond traditional investment models. The results emphasize the importance of financial innovations, such as fintech solutions and digital currencies, which can simplify access to capital and reduce transaction costs for innovative enterprises. One of the key challenges is the divergent understanding of risk between investors and innovators. The article emphasizes that bureaucracy and complexity of processes for obtaining financing can significantly slow down or even stop innovation initiatives, and the flexibility and adaptability of financial instruments are key to effectively supporting innovation, especially in the context of a rapidly changing market and technological progress. These results provide important insights into various aspects of innovation financing and can be used to develop more effective strategies and policies in this area.

Keywords: financial instruments, business innovations, venture capital financing, lending, crowdfunding, innovation process, startups, financial innovations

JEL Classification: L21, M15, M21, O12, O32

INTRODUCTION

In the era of rapidly changing technologies and innovations, the role of financial instruments in business development is becoming particularly relevant. How efficiently and flexibly companies can use financial resources directly affects their ability to adapt to market changes, implement innovations and ensure sustainable development. Modern companies are increasingly aware of the need for sustainable development and corporate responsibility. Innovations in the areas of ecology, energy efficiency and social responsibility require significant investments, which can be provided through various financial instruments. In this regard, the study of the role of financial instruments in the development of business innovations is relevant and necessary to understand current trends in business, finance and innovation development. Promoting and creating a favourable environment for companies' innovation activity is becoming an extremely important task. In different parts of the world, this goal is recognized as one of the key political priorities. Many countries, in addition to direct funding for R&D through grants or public procurement, provide tax incentives to innovative companies. These companies often find themselves in a high-risk situation. However, innovations can enhance the economic efficiency of enterprises and help them recover faster from economic

shocks. Thus, it is important for the state not only to support but also to intensify the innovation activity of small and medium-sized businesses.

LITERATURE REVIEW

The effectiveness of tax instruments to stimulate business innovation is often discussed in academic papers. B. Hall examines the political aspects of tax incentives, analyzes the potential effectiveness of such instruments, and reviews the empirical evidence of their actual impact [1]. Particular attention is focused on two key and most studied incentives: R&D tax credits and super deductions, as well as IP indices (a discount on corporate taxation of income from patents and other intellectual property). R. Thomson [2] and K. Kozmey and M. Rusu [3] emphasize the need for a deeper analysis of the effectiveness of tax incentives for R&D and the development of a tax strategy aimed at supporting innovation. The study of the national tax strategy indicates that there are no tax incentives for innovative small businesses. State assistance to small businesses in the field of taxation is focused on one mechanism - the simplified taxation system, which, although systemic, has its drawbacks [4]. The purpose of financial services available through digital platforms is to contribute to poverty reduction and promote financial inclusion goals of developing economies [5]. Ideally, there are three key components of any digital financial service: a digital transaction platform, retail agents, and the use of a device, most often a mobile phone, by customers and agents to conduct transactions through the digital platform [6]. An analysis of the scientific literature shows that the aspect of assessing the effectiveness of tax support for innovative businesses requires more attention. This emphasizes the need to identify the most effective mechanisms of tax incentives for innovative businesses that are already in place.

AIMS AND OBJECTIVES

The aim of this article is to analyze the role of financial instruments in the development of business innovation. This means that the main focus of the article is to consider various financial mechanisms, their effectiveness and their impact on supporting and stimulating innovation in the business sector. To achieve this goal, the following objectives were identified: review of various financial instruments; analysis of the impact on innovation processes; assessment of challenges and constraints; recommendations for enterprises.

METHODS

To conduct a comprehensive analysis of the role of financial instruments in the development of business innovation, the following research methods were used in this article. Literature analysis: a review of academic literature, scientific articles, publications, and other authoritative sources that focus on financial instruments and their impact on innovation development. This method allows to collect and synthesize existing theoretical and empirical knowledge on the topic. Case study: analysis of specific examples of companies or startups that have successfully used financial instruments to develop innovation. This method helps to understand the practical application of theoretical concepts. Statistical analysis: using statistical data and reports to assess the trends, effectiveness, and impact of various financial instruments on innovation. Expert surveys: soliciting the opinions of experts, financial analysts, and entrepreneurs through interviews or surveys to gather in-depth insights and professional assessments. Comparative analysis: comparing different financial instruments, their characteristics and their impact on different types of businesses and innovative projects. The use of these methods allows us to conduct a comprehensive and objective study, ensure the scientific validity of the analysis, and provide readers with a deep and multifaceted understanding of the role of financial instruments in the development of business innovation.

RESULTS

Financial instruments play a crucial role in fostering innovation by offering the capital and resources needed to develop and deploy new ideas, technologies, and products. Below are the main aspects that emphasize the role of financial instruments as an enabler of innovation:

1. *Venture capital financing*: This is one of the key instruments supporting the early stages of development of innovative projects, especially in the case of start-ups. Venture capitalists provide not only capital but also strategic support and mentoring. Venture capital provides access to risk capital for startups and innovative companies, which often find it difficult to obtain traditional financing due to the high level of risk and uncertainty. Venture capitalists provide not

only funding but also valuable expertise, business connections and strategic support, which is critical for the successful development of innovative projects. Because of their willingness to invest in risky projects, venture capitalists stimulate the development of new technologies, products, and business models. Venture capitalists often prepare companies for an initial public offering (IPO) or sale, which can be the culmination of a company's growth. Venture capital financing contributes to the development of innovation ecosystems by creating conditions for interaction between startups, investors, research institutions and corporations. As a result, venture capital financing plays a critical role in stimulating and supporting innovation, providing not only financial resources but also strategic support that is necessary for the successful commercialization of new ideas.

2. *Lending and borrowing:* Traditional bank loans can finance the development of innovations, although they often require guarantees or collateral. For enterprises, this is an important tool for raising capital for the implementation of innovative projects. Traditional lending and borrowing play an important role in financing innovation and business development. These financial instruments provide companies with access to capital that can be used to implement new projects, develop products, and improve technologies. Below, we will look at the key aspects and importance of lending and borrowing in the context of innovation. For many companies, especially small and medium-sized enterprises, bank loans are one of the main sources of external financing. It allows them to obtain the necessary capital to develop innovations. The financial market offers a wide range of loan products, including short-term loans, long-term loans, credit lines, and other forms of financing that can be tailored to specific needs and projects. Unlike venture capital funding, bank loans often require collateral or guarantees. This can be a limitation for startups or companies with limited assets but can be used effectively by established companies. Loans come with a clear repayment schedule, which requires companies to plan their cash flow and financial management. Governments often introduce special loan programs or guarantees to stimulate innovation by reducing interest rates or collateral requirements for certain categories of businesses or innovative projects. The risks associated with defaulting on loans should be borne in mind, which can lead to financial difficulties or bankruptcy. In summary, lending and borrowing are important tools to support innovation by providing companies with the necessary capital to implement innovative ideas and grow their businesses [1-2].
3. *Government funding:* governments often offer grants, tax breaks, and other forms of support to stimulate innovation, especially in key sectors of the economy or to support research in green energy, health, and technology.
4. *Crowdfunding:* This is an innovative financial instrument that allows entrepreneurs to raise funds directly from a wide audience via the Internet. It is especially effective for projects with a high potential for popularity among consumers. Role in the development of business innovations:
 - *Democratization of financing:* Crowdfunding opens up access to finance for a wide range of entrepreneurs, including those who may have limited access to traditional sources of finance.
 - *Market testing:* it allows entrepreneurs to test their ideas on real users and collect feedback before mass product release.
 - *Marketing support:* Crowdfunding campaigns can serve as a powerful marketing tool, drawing attention to the product and generating interest from potential customers.
 - *Community mobilization:* they allow you to engage and mobilize communities around a specific product or idea, creating a loyal base of supporters.

Challenges and limitations: dependence on marketing (the success of a crowdfunding campaign often depends on the effectiveness of marketing efforts); limited time (most campaigns have a limited time window within which to reach the financial goal); risk of not reaching the goal (there is a risk that the project will not raise the required amount, which may lead to the failure of the campaign); piracy of ideas (submitting ideas in the public domain may increase the risk of copying or pirating ideas). In general, crowdfunding is an innovative financial instrument that can significantly contribute to the development of business innovation, although it has its own specific challenges and limitations [3].

5. *Stock market and IPO:* Companies can use the stock market to raise capital by issuing shares. Initial public offerings (IPOs) are often the key to innovative companies seeking to attract significant investment.
6. *Private equity:* Angel investors and private equity funds can provide important financing for innovative projects, especially those with high growth potential.
7. *Strategic partnerships:* Cooperation with large corporations or strategic partners can provide not only financial resources but also valuable experience, and access to markets and technologies.

In light of this, financial instruments are critical to fostering innovation, as they provide the necessary resources for the development, testing, production and commercialization of innovations. The effective selection and use of these instruments can significantly increase a company's chances of success in a competitive innovation landscape.

After analyzing the research papers, we can note the active use of tax incentives in scientific papers. Based on this, we can formulate the following hypotheses: 1) of all the tax support instruments, tax privileges are the most effective; 2) the benefit of income tax privileges varies depending on the company's profitability; 3) the lowest recommended rate of social and pension insurance contributions to stimulate participants in the innovation process correlates with the level of salary [4-6].

In order to support or reject the first hypothesis based on the study of global experience in the field of tax support for business innovation in recent years, we seek to identify the most effective means of such support. To create a model and study the relationships between the variables, as well as to find out the joint impact of these variables on a certain existing result, we will use the method of regression analysis. The multiple linear regression method involves determining a linear relationship between a group of independent input variables and one output dependent variable.

To support scientific research in companies, that are unable to obtain loans or other incentives, many countries provide reimbursements or similar benefits. Typically, these benefits are more generous to startups and small businesses than to large corporations, as is the case in Australia, Canada, and France. However, in some countries, tax incentives for R&D may be less generous to small businesses, especially when these countries provide tax rebates and preferential corporate tax rates, as is the case in China and Croatia. In general, the rates of tax subsidies for R&D vary considerably across countries.

Tax measures in favour of innovative enterprises may have their advantages, including potentially increasing the effectiveness of incentives and reducing tax revenue losses. However, the potential benefits and costs of such policies should be carefully weighed. When formulating tax initiatives, severe restrictions, such as minimum turnover or headcount, should be avoided. Ideally, tax measures for innovative companies should be focused on the basic parameters of their activities [7].

At the initial stage of creating an innovative product or idea, a company needs funding for research and development. Since this activity is not profitable and involves the highest level of risk, it is reasonable to use the company's own resources or try to attract investments from business angels. For example, to attract investment, you can contact the Association of Private Investors, which is a full member of the European Business Angel Network (EBAN). A condition for receiving investment is the availability of a detailed business plan, financial model, professional presentation, and willingness to partially co-finance the project. It is important to note that this stage is crucial for the development of innovation activities, as it can influence whether the innovation process can fully unfold or even survive a halt.

When a company implements its idea and creates a physical model of the product, it moves to the stage of innovation transfer. At this stage, the risk is reduced, there are first calculations, the ability to develop a sound business plan, and the company can consider participating in grant programs. In addition, you can consider options for attracting venture capital and business angel investments. To raise funds, you can turn to resources such as the Ukrainian Startup Fund, the Association of Private Investors of Ukraine, and the Ukrainian Venture Capital and Private Equity Association.

When an enterprise has a ready-made innovative product and potential customers, it moves to the stage of implementing the innovation by creating a specialized small innovative enterprise, often called a startup. At this stage, private investment and loans are added to the available means of financing. Starting from this stage, financing becomes more accessible, especially due to the availability of a finished product and first sales. The company can make full use of budgetary, banking and international financing programs. For example, these may include loan programs with government guarantees on a portfolio basis, affordable loans at 5-7-9%, the EU4Business initiative, the Entrepreneurship Development Fund, and others. It should be noted that obtaining loans may be accompanied by restrictions, such as the need to provide collateral for affordable financing and high-interest rates [5].

At the stage of introducing innovations at an existing enterprise, when the company is preparing for mass production, new opportunities for attracting financing are opening up. These opportunities include factoring, issuing bonds, corporatizing the company, and entering the initiative operating markets (IOMs). Factoring services can be particularly useful for businesses that have deferred payments from their customers. The main benefits of factoring include increased competitiveness, optimization of working capital, accelerated growth and lower production costs. Ukrainian banks such as Raiffeisen Bank, OTP Bank, Pivdenny Bank and others offer factoring services. It is important to note that financing tools can be combined and expanded as they become more accessible to different types of businesses, and in the context of digital transformation, such tools are becoming more and more common. In addition, to improve access to finance for Ukrainian

enterprises, the state needs to raise awareness of the use of alternative financial instruments. The proposed theoretical and practical approach to substantiating the choice of financial instruments to support business innovation allows for taking into account different stages of innovation development and the use of both traditional and alternative financial instruments.

To support R&D in companies that cannot obtain loans or other incentives, many countries provide compensation or similar benefits. Typically, these benefits are more generous to start-ups and small businesses than to large corporations, as is the experience observed in Australia, Canada and France. However, in some countries, tax incentives for R&D may be less generous to small businesses, especially when these countries provide tax rebates and preferential corporate tax rates, as is the case in China and Croatia. In general, the rates of tax subsidies for R&D vary considerably across countries.

Tax measures in favour of innovative enterprises may have their advantages, including potentially increasing the effectiveness of incentives and reducing tax revenue losses. However, the potential benefits and costs of such policies should be carefully weighed. Severe restrictions, such as minimum turnover or number of employees, should be avoided when designing tax initiatives. Ideally, tax measures for innovative companies should be focused on the basic parameters of their activities [3].

To create and study in-depth multivariate linear econometric models, we collected and systematized statistical information for 37 OECD countries for 2020. OECD members follow a common methodology, which makes it an excellent tool for analyzing and predicting economic trends.

We take the Global innovation index ranking (Y) as the dependent variable. The main advantage of this index is its ability to cover all aspects of innovation activity in 129 countries. The main sources of international statistics are The World Bank, the Organization for Economic Cooperation and Development (OECD), the International Telecommunication Union, and the Executive Management Questionnaire, which is organized annually by the World Economic Forum. This index also allows us to assess innovation capabilities and infrastructure conditions to support innovation.

The following indicators were selected as independent variables: Deferred income tax payments (X1), Deferred value-added tax payments (X2), Deferred payments to social and pension funds (X3), Deferred local tax payments (X4) and Tax rebates (X5). These tax incentive measures are used in the context of economic strategy and are described in the publications of the Organization for Economic Cooperation and Development (OECD).

Indicators for studying the interaction between forms of tax incentives and the innovative progress of enterprises are presented in Table 1.

Table 1. Indicators for analyzing the impact of tax support on the innovative development of enterprises. (Source: [8])

Notional value	Y	X1	X2	X3	X4	X5
Indicator	Global innovation index	Deferral of income tax payments	Deferred payment of value-added tax	Deferral of social security and pension contributions	Deferral of local taxes	Tax incentives
Unit of measurement.	Ranking value	Binary value				

The selected indicators are based on the results of the scientific works of scientists. In particular, J. Forman-Peck [7] focuses on the provision of tax credits to innovation-oriented enterprises. In their studies, M. Kyzym and L. Kasyanova [5] identify various forms of tax incentives for innovation, including the use of tax benefits, as well as lower tax rates on profits and social security contributions.

The study of the impact of these factors on the innovation activity of enterprises in OECD countries allows us to examine the results of the use of tax support mechanisms by states for the period 2000-2020.

The relationship between the initial indicator (Y) and the factor characteristics (X1, X2....Xn) is presented in the form of a linear multivariate regression equation according to formula 1 [8]:

$$\hat{Y} = b_0 + \sum b_i \cdot X_i \quad (1)$$

To study the impact of all available instruments of tax incentives for innovation on the progress of enterprises, we will conduct a correlation analysis of indicators. This will help us determine the intensity of interaction between performance indicators and factors. This will be used to build a mathematical model of the economy. According to the correlation matrix (Table 2), there are no strong correlations (> 0.6) between the values, which indicates that there is no collinearity problem.

To determine the contribution of tax incentives to the innovative development of enterprises in the context of economic strategies, we will use a linear regression model. The basic form of the model is as follows:

$$Y = b_0 + b_1 \cdot X_1 + b_2 \cdot X_2 + b_3 \cdot X_3 + b_4 \cdot X_4 + b_5 \cdot X_5 \quad (2)$$

Table 2. Correlation matrix of the variables described in the model. Note: X1 - deferral income tax; X2 - deferral value-added tax; X3 - deferral social security and pension contributions; X4 - deferred local taxes; X5 - tax incentives; Y - Global Innovation Index. (Source: calculated by the authors)

Variable	X1	X2	X3	X4	X5	X6	Y
X1	1.00	-0.28	-0.24	-0.12	0.10	0.18	1.00
X2	-0.28	1.00	0.02	0.36	0.27	0.26	-0.28
X3	-0.24	0.02	1.00	0.26	0.04	0.32	-0.24
X4	-0.12	0.36	0.26	1.00	0.27	0.15	-0.12
X5	0.10	0.27	0.04	0.27	1.00	0.50	0.10
Y	0.18	0.26	0.32	0.15	0.50	1.00	0.18

The study was performed using the Statistica program. Based on the initial model, we consistently excluded the variables with the highest p-values. The results of the analysis are presented in Table 3. The study registered negative indicators for deferred payment of local taxes (X4), indicating an inverse relationship. This phenomenon can be explained by the rare use of deferred payment of local taxes.

Table 3. Regression results for the dependent variable Y.

Regression results for the dependent variable Y	Change	X1		X2		X3		X4		X5		Observations	R2	Ad-justed R2	F-statistic
(1)		0.29	0.15	0.26	0.15	0.40	0.15	0.11	0.15	0.41	0.14	36	0.44	0.35	4.7(5.3)
(2)	-	-	-	-	-	0.29	0.14	-	-	0.49	0.14	36	0.35	0.3	8.51(2.33)

The highest values are observed for X3 - deferral of social insurance and pension contributions, and for X5 - tax privileges. Thus, our model is presented as follows:

$$Y = 0,29 \cdot X_3 + 0,49 \cdot X_5 \quad (3)$$

Based on the calculations, tax incentives were found to be the most effective means of tax incentives for innovation (X6). Thus, the hypothesis about the superiority of tax privileges in the context of tax support is supported. Let us consider the optimality of providing social insurance benefits and pension contributions for the state and for innovative SMEs. Given that innovative enterprises are typically more profitable and pay higher wages, it may be advisable to reduce social and pension contributions to increase the attractiveness of high wages and stimulate innovative growth.

Social and pension contributions play an important role. Reducing such contributions can help to increase wages in innovative businesses and their dynamics. To test or refute hypothesis 3, we will use the Simulink program to create a model. This model will help us to estimate the benefits of a preferential regressive rate for social and pension contributions (Table 4).

The parameters for creating the model were chosen based on the amount of social insurance and pension contributions at different wage levels (from minimum to maximum with a certain growth interval) and taking into account tax benefits.

Table 4. Modelling parameters for the use of a preferential regressive social security and pension contribution rate. (Source: [8])

Indicator	Minimum wage	Step of salary increase	Social insurance and pension contribution rate	Tax relief
The symbol for	Min_salary	Step	ESV	ESV1
Unit of measurement.	monetary units	monetary units	monetary units	monetary units

```

graph LR
    A[200 Siep] --> B[X]
    C[200 Min_salary] --> B
    B --> D[+ +]
    D --> E[Z_P]
    E --> F[+ -]
    E --> G[X]
    H[0,02 ESV] --> F
    I[Saiaiy] --> G
    F --> J[Summ_ESV]
    G --> J
    J --> K[Y]
  
```

The "Min_salary" module sets the minimum wage, which is incremented by the value from the "Step" module. "ESV" is the current rate for social insurance and pension, which is decremented by the value from the "ESV1" module each time the salary increases. Using the Matlab program, we construct a graph that illustrates the relationship between wages and the dynamics of the social security and pension rates (where the X-axis represents wages and the Y-axis represents tax revenues at the regressive rate). The graph of modelling budget revenues from wages shows that when the regressive rate is adapted, budget revenues continue to grow until the rate reaches 12% (Figure 2).



11

maximises state budget revenues. Thus, the optimal contribution rate depends on the level of wages, which supports Hypothesis 3.

Thus, tax privileges and the possibility of deferring social insurance and pension contributions have proven to be the most effective tax support instruments. In the context of innovative businesses, the optimal contribution rate for social insurance and pension provision that would facilitate their innovation activity is 12%. Model calculations have shown that the established criteria for supporting the innovative business movement can serve as an effective platform for their development [4-5].

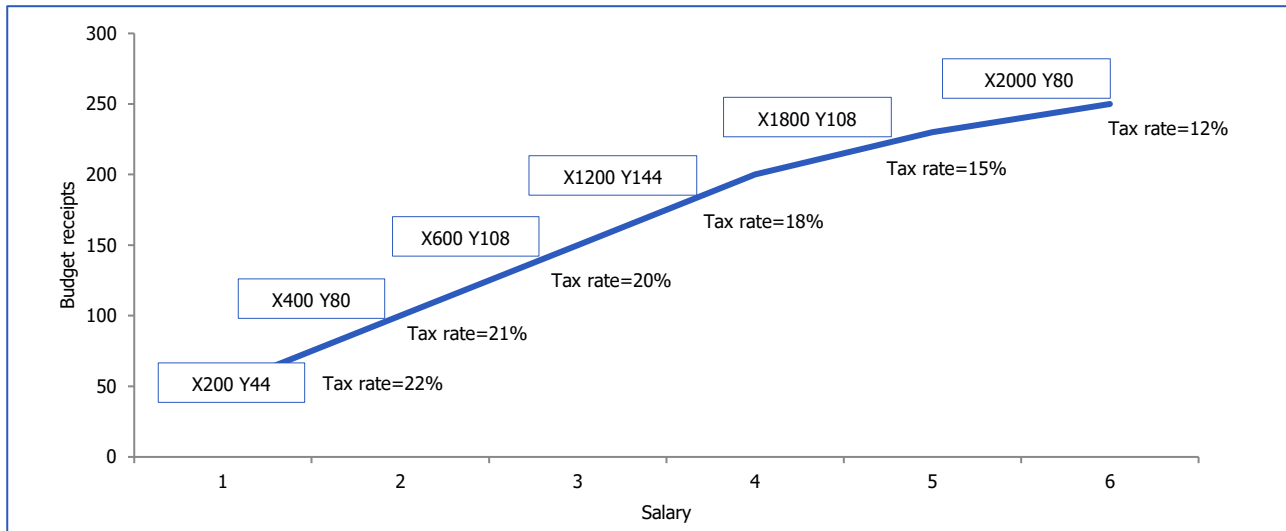


Figure 3. The relationship between budget revenues and the preferential regressive rate of social insurance and pension contributions at a tax rate ranging from 22% to 12%.

Based on the research, we can determine that among the initiatives to support innovative companies, the importance of the stimulating impact of tax mechanisms is growing, which are increasingly aimed at encouraging innovation activity. The presented approach to substantiating the effectiveness of tax measures to support innovative business, unlike traditional ones, takes into account the degree of innovation maturity and helps to choose the best way to use tax incentives [6-10].

Measures to counter the spread of the coronavirus have become a serious challenge for businesses, especially for certain sectors. Since the beginning of 2020, businesses in Ukraine have found themselves in challenging circumstances that have led to a decline in commercial activity and a significant reduction or even loss of profits. The crisis is manifested in a reduction in the availability of financing for companies, particularly those facing major risks and uncertainties. This applies primarily to innovative enterprises and start-ups [11-15].

DISCUSSION

Innovative enterprises face significant challenges in terms of obtaining financing at different stages of their development. Access to financial resources remains one of the main obstacles to the viability and growth of innovative businesses, especially in times of crisis, when risks outweigh opportunities. In this context, it is important to provide the following recommendations to improve access to finance for innovative business activities: Conduct regular monitoring of the conditions and needs for financing innovative business activities in order to develop programmes to facilitate access to finance. Developing alternative sources of financing by raising public awareness and improving the regulatory environment. Crowdfunding is a relevant area, and this may include the creation of domestic crowdfunding platforms, the development of government support for this type of financing, and cooperation with investors and banks. Creating a stable venture capital market through investment in venture capital funds with the involvement of professional investors and expert teams. Improving access to credit for businesses by improving credit guarantee schemes, unsecured credit assessment mechanisms and lowering interest rates. To support the development of factoring and leasing financial services. Expanding government innovation development programmes aimed at creating new and developing existing innovative enterprises, as well as commercialising the results of scientific and technological activities. In today's business environment, a variety of financial instruments play a key role. Venture capital financing, lending, crowdfunding and other means of raising capital

open the door to various types of innovative projects. This diversity allows businesses to choose the most appropriate method of financing depending on their stage of development, risks and business specifics [16-20].

The choice between venture capital funding and more traditional financial instruments such as loans remains a matter of debate. On the one hand, venture capital funding provides not only capital but also access to expertise and networks. On the other hand, traditional loans may be more accessible to stabilised businesses that are not looking for rapid growth.

Crowdfunding as a financial instrument is attracting considerable interest. This method allows not only to raise capital, but also to create a community of supporters around a product or idea. However, there is a debate about its effectiveness and sustainability, especially in cases where campaigns do not reach their financial goals.

Risk management remains a key topic in the context of using financial instruments for innovation. How much risk is a company willing to take in exchange for a potentially large reward? This issue is particularly relevant when considering venture capital financing, where high levels of risk can be accompanied by significant rewards [21-25].

Technological developments are also changing the landscape of innovation finance. Digitalisation and the emergence of concepts such as blockchain and cryptocurrencies are opening up new financing opportunities, while also creating new challenges and security and regulatory issues. The debate on the future of innovation finance is being set in the context of a changing global economic environment, technological innovation and the rise of start-up culture. How will the role of different financial instruments change in the future? Will new instruments emerge that can better support innovative ideas?

To sum up, the role of financial instruments in the development of business innovation remains a subject of active debate. On the one hand, they provide vital capital for the development of innovative ideas. On the other hand, their selection and application require careful analysis and risk management to ensure sustainable business development.

CONCLUSIONS

Financial instruments are crucial in stimulating and supporting business innovation. They provide not only the necessary capital but also opportunities for growth, development and scaling of innovative projects. Venture capital funding has proven to be particularly important for start-ups and innovative projects that require significant investment and expertise to develop. Traditional lending remains an important financial instrument, especially for stable businesses seeking access to additional funds to implement innovative initiatives. Crowdfunding is demonstrating its potential as an alternative way of raising funds, providing access to a wider audience and enabling innovative ideas to be tested among potential consumers. Risk management is a key aspect when choosing financial instruments. Businesses must weigh the potential rewards and risks associated with different types of financing. The financial sector is constantly evolving, particularly with the emergence of new technologies such as blockchain and cryptocurrencies. Businesses need to be prepared to adapt to these changes and take advantage of new opportunities. The future prospects for financing innovation will depend on the ability of the financial sector to adapt to the changing business environment, technological innovation and the ever-evolving needs of the innovation sector. In conclusion, financial instruments play a crucial role in the development and support of business innovation. The effective use of these instruments can stimulate innovation, ensure sustainable development and help businesses achieve competitive advantage in their industries.

ADDITIONAL INFORMATION

All authors have contributed equally.

REFERENCES

1. Hall, B. (2019). Tax Policy for Innovation. NBER Working Papers, 25773. <https://www.nber.org/papers/w25773>
2. Thomson, R. (2017). The Effectiveness of R&D Tax Credits. *Review of Economics and Statistics*, 99(3), 544-549. http://dx.doi.org/10.1162/REST_a_00559
3. Cozmei, C., & Rusu, M. (2015). The EU Tax Treatment Competition for Knowledge Based Capital – The Special Case of R&D. *Procedia Economics and Finance*, 32. [https://doi.org/10.1016/S2212-5671\(15\)01523-3](https://doi.org/10.1016/S2212-5671(15)01523-3)
4. Ivanov, Yu. B., & Shapovalova, A. O. (2021). Architecture of preferential tools of innovative development of small business. Competitiveness and innovation: problems of science and practice: Materials of the International. Science and Practice

- Conf. (Kharkiv, November 19, 2021). Kharkiv, P. 382–386.
5. United Nations. (2016). Digital financial inclusion. international telecommunication union (itu), issue brief series, inter-agency task force on financing for development, July. United Nations.
http://www.un.org/esa/ffd/wp-content/uploads/2016/01/Digital-Financial-Inclusion_ITU_IATF-Issue-Brief.pdf
6. ITU. (2016). The Digital financial services ecosystem. Technical Report. ITU Focus Group. May.
https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/09_2016/FINAL%20ENDORSED%20ITU%20DFS%20Introduction%20Ecosystem%2028%20April%202016_formatted%20AM.pdf
7. Hall, B. (2019). Tax Policy for Innovation. NBER Working Papers, 25773.
<https://www.nber.org/papers/w25773>
8. Shapovalova, A.O., Ivanov, Yu.B., Tyschenko, V.F., & Karpova, V.V. (2021). Assessment of the effectiveness of anti-COVID tax support for innovation activities of small and medium-sized enterprises in OECD countries. *Journal of Tax Reform*, 7(1), 68–86.
<http://dx.doi.org/10.15826/jtr.2021.7.1.091>
9. Cabinet of Ministers of Ukraine (2016). Resolution draft "On approval of Strategic of small and medium businesses development in Ukraine until 2020".
<http://www.me.gov.ua/Documents/Detail?lang=uk-UA&id=29c94bc5-77f2-44af-bbf4-5f13e382a3b2&title=ProektPostanoviKabinetuMinistriUkrainiproZatverdzhenniaStrategiiRozvitkuMalogoSerednogoPidprimnitstvaVUkrainiNaPeriodDo2020-Roku>
10. Athanassiou, Ph., & Mas-Guix, N. (2008). Electronic money institutions. Current trends, regulatory issues and future prospects. *ECB Legal Working Paper Series*, 7.
<https://www.ecb.europa.eu/pub/pdf/scplps/ecblwp7.pdf?21a28d70b208180883a898dad73451c4>
11. Badev, A., & Chen, M. (2014). Bitcoin: Technical Background and Data Analysis. Federal Reserve Board. *Finance and Economics Discussion Series*, 1-38.
<http://www.federalreserve.gov/econresdata/feds/2014/files/2014104pap.pdf>
12. Fung, B., & Halaburda, H. (2014). Understanding platform-based digital currencies. *Bank of Canada Review*, 12-20. <http://www.bankofcanada.ca/wp-content/uploads/2014/05/boc-review-spring14-fung.pdf>
13. McLeay, M. Radia, A., & Thomas, R. (2017). Money creation in the modern economy. *Bank of England Quarterly Bulletin*, 14-27.
<https://www.bankofengland.co.uk/-/media/boe/files/quarterly-bulletin/2014/money-creation-in-the-modern-economy>
14. The Pulse of Fintech (2019, July 31). Biannual global analysis of investment in Fintech.
<https://assets.kpmg/content/dam/kpmg/xx/pdf/2019/07/pulse-of-fintech-h1-2019.pdf>
15. Lazorenko, T., & Sholom, I. (2020). Digitalization as the main factor in business development. Collection of abstracts of reports of the international scientific and practical conference. *Business, Innovations, Management: Problems and Prospects*, 1, 50-51.
<http://confmanagement.kpi.ua/proc/article/view/201186>
16. Hnydyuk, I.V., & Skladanyuk, M.S. (2022). The development of digital technologies in the market of financial services of Ukraine in the conditions of martial law. Electronic specialist publication. *Economy and Society*, 42(7).
<https://doi.org/10.32782/2524-0072/2022-42-54>
17. Cherkasova, M.V., & Honcharenko, O.M. (2021). Digital transformation of the financial market of Ukraine. Kyiv National University of Economics repository, 588-590.
https://ir.kneu.edu.ua/bitstream/handle/2010/37068/Smcf_123_1121.pdf?sequence=1_C
18. Roschyna, N. V., Shevchuk, O. A., & Kustaryova, K. M. (2021). Research of the international financial market in conditions of digitization: new opportunities. *Economic Bulletin of NTUU "KPI"*, 18.
<https://doi.org/10.20535/2307-5651.18.2021.231459>
19. Digital finance package. (n.d.).
https://ec.europa.eu/info/publications/200924-digital-finance-proposals_en
20. Digital finance. (n.d.).
https://ec.europa.eu/info/business-economy-euro/banking-and-finance/digital-finance_en
21. IFC and the Association of FinTech and Innovative Companies will cooperate for the development of digital finance in Ukraine. (n.d.).
<https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=26321>
22. Melnyk, O.I., & Bodnar, O.A. (2018). Introduction of financial innovations in domestic banking practice. *Modern Economics*, 8, 102–111.
https://www.google.com/url?sa=i&url=http%3A%2F%2Fdspace.mnau.edu.ua%2Fxmlui%2Fhandle%2F123456789%2F3982&psig=AOvVaw00pY66b_WxYkrW

- [cbPdZO0S&ust=1702931652041000&source=images&cd=vfe&ved=0CAkQr5oMahcKEwiAxZv8qJeDAXUAAAHQAAAAAQBA](https://drive.google.com/file/d/1muA2397xKPsbQEM86Ws8fTame-3jplif/view)
23. Trudova, M.E. (2016). Innovative prospects of development in the banking system of Ukraine. *Economy and society*, 3, 485-490. https://economyandsociety.in.ua/journals/3_ukr/83.pdf
24. Catalog of fintech companies of Ukraine 2021. UAFIC. (n.d.). <https://drive.google.com/file/d/1muA2397xKPsbQEM86Ws8fTame-3jplif/view>
25. Bezpal, R. (2021). Fintech innovations: prerequisites for development and current trends. *Economics*, 2, 234. <https://doi.org/10.32702/2306-6814.2021.2.44>

Янковой Р., Сембієва Л.

ФІНАНСОВІ ІНСТРУМЕНТИ В РОЗВИТКУ БІЗНЕС-ІННОВАЦІЙ

У цій статті проаналізовано роль фінансових інструментів у підтримці та стимулюванні бізнес-інновацій, розглянуто венчурне фінансування, кредитування, краудфандинг та інші механізми як ключові важелі для розвитку інноваційних проєктів і стартапів. Метою дослідження є виявлення та аналіз факторів, які роблять певні фінансові інструменти більш ефективними для підтримки інновацій. Розглядаються переваги та недоліки кожного з інструментів, а також обговорюється їхня здатність адаптуватися до мінливого бізнес-середовища. У статті використані різноманітні методи досліджень, включаючи аналіз літератури, кейс-стаді та порівняльний аналіз, щоб забезпечити всебічний розгляд теми. Дослідження показало, що венчурні інвестиції часто надають не лише капітал, а й цінні знання, менторство та доступ до мережі контактів. Результати вказують на те, що традиційне банківське кредитування часто виявляється недоступним або недостатньо гнучким для інноваційно орієнтованих компаній через високий рівень ризику. Однак спеціалізовані кредитні програми, зокрема урядові гарантії та субсидійовані позики, можуть підвищити доступність кредитування для інноваційних проєктів. Краудфандинг є ефективним інструментом для валідації ринкового попиту та залучення початкового фінансування особливо для проєктів, що виходять за рамки традиційних інвестиційних моделей. Результати підкреслюють важливість фінансових інновацій, таких як фінтех-рішення та цифрові валюти, які можуть спростити доступ до капіталу та знизити транзакційні витрати для інноваційних підприємств. Одним із ключових викликів є розбіжності в розумінні ризику між інвесторами та інноваторами. У статті наголошено, що бюрократія й складність процесів отримання фінансування можуть значно сповільнити або навіть зупинити інноваційні ініціативи, а гнучкість та адаптивність фінансових інструментів є ключовими для ефективної підтримки інновацій, особливо в умовах швидкого змінного ринку й технологічного прогресу.

Ці результати дають важливі уявлення про різні аспекти фінансування інновацій та можуть бути використані для розробки ефективніших стратегій і політик у цій сфері.

Ключові слова: фінансові інструменти, бізнес-інновації, венчурне фінансування, кредитування, краудфандинг, інноваційний процес, стартапи, фінансові інновації

JEL Класифікація: L21, M15, M21, O12, O32