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ACCESS TO FINANCE AS A BARRIER TO INNOVATION - EVIDENCE FROM THE SME SECTOR IN BOSNIA AND HERZEGOVINA

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Abstract: *This paper examines key barriers that SMEs in Bosnia and Herzegovina face when accessing external financing for innovation. Using quantitative research based on primary data collected through a structured questionnaire, the paper analyses company perceptions regarding support from commercial banks, microcredit institutions, and public funds. The findings identify major obstacles, including unfavourable financing conditions, administrative complexity, and limited access to information. Statistical analysis was used to test hypotheses concerning firm size, sector, region, and institutional factors. The results indicate that company size, regional context, and administrative barriers significantly influence access to finance, while the link between innovation and external financing is not statistically significant. Smaller companies face notably more obstacles than larger ones, particularly regarding public support mechanisms. The paper highlights systemic challenges that hinder innovation in the private sector and offers policy-relevant insights. It calls for more inclusive, targeted financial instruments to support innovation-driven growth among smaller companies.*

Keywords: *access to finance, Innovation, SMEs, financial barriers, external financing*

JEL Classification: *G23, L26, O31, O38*

INTRODUCTION

Innovation, together with innovative activities of companies, is one of the most important factors leading to growth and thus greater competitiveness of companies. For this reason, innovations enable adaptation to various market changes and ensure long-term sustainability (Leiponen, 2010). However, one of the key challenges that many companies face, especially micro, small and medium-sized companies, is access to innovation financing, which is particularly pronounced in economies undergoing transition, such as Bosnia and Herzegovina. Small and medium-sized companies, which otherwise form the backbone of the economy of Bosnia and Herzegovina, often do not have enough of their own resources to finance investments in research and de-

velopment, while external sources of financing, such as loans, grants or venture capital, are often unavailable to them or are available under unfavourable financing conditions. The level of innovative activities often varies between different parts of the country, which is significantly influenced by access to financial instruments and public sector support (Czarnitzki, 2011). Companies located in more developed parts of the country often have better conditions for accessing these funds, unlike companies coming from less developed regions. For this reason, they also have greater obstacles in using external sources of financing. In addition, companies that have an established research and development department can more easily finance and implement innovation activities (Hall, 2010), since such companies have better defined development strategies and a greater ability to apply for branches and favourable credit lines (Colombo, 2007).

Despite the above, there is not enough research in the literature on which factors most facilitate access to innovation financing by companies in Bosnia and Herzegovina. Because of the above, it is important to investigate the problem of access to and financing of innovative activities of companies, in order to enable better formulation of economic policies and financial instruments, which would facilitate and accelerate the innovation process in the small and medium-sized company sector in Bosnia and Herzegovina.

In order to further investigate this area, the main research problem with additional objectives was defined, which is to analyse the factors that influence the likelihood of using external financing of companies for the development of innovations and innovative activities. In addition to the main research problem, individual research objectives were also defined, as follows:

- To analyse factors that directly influence the likelihood that a company, regardless of its size, uses external financing for innovative activities.
- To investigate whether and to what extent the size of the company and the existence of a research and development department affect the use of external sources of financing.
- To determine whether there are statistically significant differences in the responses of companies by size regarding obstacles to financing innovative activities.
- To propose measures to improve the availability of financing for innovative activities of micro, small and medium-sized companies.

In addition to the main problem and research objectives, the paper also focuses on the following research questions:

1. What factors influence the likelihood that a company uses external financing for innovation?
2. Does the size of the company and the existence of a research and development department increase the likelihood that a company will use external financing for its own innovative activities?
3. Are there significant differences by company size in the perception of obstacles to financing innovative activities?

In order to answer the above questions, the following research hypotheses were defined:

H1 - There are significant regional differences in the perception of obstacles to financing innovation.

H2 - Larger companies are significantly more likely to use external financing for innovation compared to small companies.

H3 - Companies that perceive administrative barriers as a serious problem are significantly less likely to use external financing.

H4 - Companies that have introduced new products or services in the last three years are significantly more likely to use external financing.

H5 - Smaller-sized companies perceive significantly greater barriers to using external financing compared to medium-sized companies.

H6 - Medium-sized companies are significantly more likely to use grants compared to micro and small companies.

The above hypotheses will be tested using multiple statistical methods, namely logistic regression analysis, ANOVA/Kruskal-Wallis test and Chi-square test, with the purpose of determining which factors have a key impact on financing innovative activities of micro, small and medium-sized companies in Bosnia and Herzegovina.

LITERATURE REVIEW

Small and medium-sized companies around the world are considered to be the drivers of innovative activities, economic growth and employment (Gans, 2003). Regardless of their importance, these categories of companies, especially micro and small companies, face various limitations in accessing sources of financing that are necessary for financing innovative activities (Abdulsaleh, 2013). This is especially important for developing countries, with underdeveloped financial markets, where the lack of financial resources is often cited as one of the main obstacles to implementing innovative activities (Moritz, 2016).

Several authors state in their works that companies that carry out innovative activities are more likely to apply to external financial sources, but that access may be difficult due to limited availability of information, different perceptions of risk and lack of collateral (Lee, 2015). These problems are especially pronounced for smaller companies.

In terms of modern solutions, new digital solutions and fintech innovations play an important role. Navaretti et al., in their work, indicate that the digitalization of banking services and the growth of the fintech sector can enable and significantly improve access to financing for small and medium-sized companies by providing companies with faster, more transparent and flexible services compared to the existing services offered by traditional financial institutions (Navaretti Barba, 2018).

Other research, again, shows that limited access to external sources of financing remains a significant barrier. This is particularly pronounced for certain member states of the European Union (Bonanno, 2020). The authors also state that the lack of institutional support, unfavourable financing conditions and administrative barriers greatly affect the capacity of small and medium-sized companies to carry out their own innovative activities (Grilli, 2014). On the other hand, Howell emphasizes the importance of support from public funds as a mechanism that can stimulate innovative activities in companies that otherwise encounter difficulties in accessing funds from commercial banks (Howell, 2017).

As part of this review, it is important to highlight an alternative source of access to financing. In particular, crowdfunding is highlighted in this section, as a growing financing model based on more flexible and accessible solutions for small and medium-sized companies, which is especially important for companies that have innovative activities, but cannot meet strict banking criteria (Brown, 2020). However, in order

for companies to access such sources, it is necessary for them to have special knowledge and a developed level of digital literacy, a built reputation and quality marketing (Belleflamme, 2015).

An important factor that enables better access to sources of financing for companies is the level of financial literacy. Wise emphasizes that those entrepreneurs who have a higher level of knowledge and understanding of financial instruments and the opportunities available have a greater chance of successfully securing funds for their innovation projects, which especially applies to knowledge of financial risk management and the preparation of various applications for financial funds (Wise, 2013).

Research conducted in the field of venture capital investment has also shown that there is potential for this type of financing as a key mechanism for supporting innovation, especially in fast-growing sectors (Chemmanur, 2014). However, the problem is that these funds are not available to companies in countries with very limited capital markets, which is the case with Bosnia and Herzegovina.

At the company level, institutional factors such as the existence of separate research and development departments are also very important, which can help in strategic planning of innovation, and which has been highlighted as a factor that can have a positive effect on the likelihood of obtaining external financing (Muller, 2015). The authors also argue in their paper that companies with a clearly expressed innovation orientation are more likely to cooperate with external sources of financing.

From their literature review, it can be clearly seen that access to financing for innovative activities is complex and largely depends on the size of the company and the sector from which the company comes, then institutional support, the availability of different and alternative financial instruments, as well as administrative barriers.

RESULTS AND ANALYSIS

As part of the research in question, a survey of attitudes was conducted in a total of 304 companies of different sizes and regional representation in Bosnia and Herzegovina, which responded to a total of 75 different questions. The responses were obtained from middle and top management of the mentioned companies. To test the hypotheses set, an analysis of a total of 14 responses from a total of 262 respondents was conducted. As part of this research, the attitudes and responses of large companies were not investigated, but exclusively micro, small and medium-sized companies.

Of the respondents' responses, 122 responses were responses from micro companies or 47% of the total number of responses, then 88 responses from small companies, which is 34% of the responses, and 51 responses from medium-sized companies, which makes up 19% of the total number of analysed companies.

The second question in the analysis related to the existence of a research and development department. According to the respondents' answers, 81 companies or 31% responded that they have an established research and development department in their company. On the other hand, 131 companies or 50% responded that they do not have an established research and development department, and 50 or 19% of companies additionally responded that, in addition to not having an established research and development department, they plan to establish one in the future. In other words, almost 7 out of 10 company responses indicate that they do not have an established research and development department.

For the next group of questions, descriptive statistics were performed to see if there was a difference in respondents' attitudes towards the size measured through the mean value of the response, standard error and standard deviation with a confidence level of 95%. All nine questions assessed their attitudes on a scale of 1 to 5, where 1 indicates complete disagreement and 5 indicates complete agreement.

The first question presented in Table 1, assessed the attitude regarding the following statement: "A commercial bank supports me in developing my business and innovative activities." The analysis of the results shows that it can be concluded that, on average, companies express a slightly negative attitude towards the support of commercial banks in financing innovative activities. The mean values differ between groups. When it comes to the mean value for all respondents, it was 2.88, which shows that most companies are not completely satisfied with the support provided by banks. The standard deviation of 1.10 indicates moderate variability of the responses, while the relatively low standard error of 0.068 indicates the precision of the estimate. The confidence interval of ± 0.134 further confirms that the results are stable and reflect the general trend among companies.

Differences according to company size are present, as shown by the mean values. According to the results, micro companies have the lowest mean value (2.70), which means a higher level of dissatisfaction with the support provided by banks. On the other hand, small companies are somewhat closer to the average for all companies with a value of 2.99, while medium-sized companies have the most favourable opinion, with an average score of 3.14.

According to the above results, it can be concluded that there is a potential problem in the access of micro and small companies to external financing of their innovative activities. Given that banks apparently cooperate better with medium-sized companies.

Table 1. Perception of Commercial Bank Support for Business and Innovation Development by Company Size

Question 1	Total	Micro	Small	Medium
Mean	2,881679	2,699187	2,988636	3,137255
Standard Error	0,068122	0,097233	0,117104	0,155978
Standard Deviation	1,102648	1,078364	1,098529	1,113905
Confidence Level(95,0%)	0,134138	0,192482	0,232756	0,313291

Source: Author's creation based on primary research results

The second question asked of the respondents concerned the assessment of attitudes regarding the following statement: "The microcredit organization supports me in the development of my business and innovative activities." At the level of the total number of analysed responses, the average score was 2.18. Observed by company size, the average scores were 2.20 for micro, 2.22 for small, and 2.06 for medium-sized companies. The results indicated that the majority of respondents do not believe that microcredit organizations significantly contribute to their innovative activities, with small differences in responses by company size, whereas medium-sized companies nevertheless indicated a weaker perception of support from microcredit organizations.

The standard deviation indicator at the overall level was 0.94. Observed by company size, micro-companies have a slightly higher standard deviation of 1.00, while the

responses of medium-sized companies are somewhat more uniform, with a deviation of 0.88. Let's look at the 95% confidence level. The confidence intervals show that the precision of the estimate is somewhat lower for micro-companies (± 0.18) and small companies (± 0.19), while the highest uncertainty of the estimate is for medium-sized companies (± 0.25). Details are presented in Table 2.

Table 2. Perception of Microcredit Organization Support for Business and Innovation Development by Company Size

Question 2	Total	Micro	Small	Medium
Mean	2,179389	2,203252	2,215909	2,058824
Standard Error	0,058318	0,090137	0,096231	0,123389
Standard Deviation	0,943964	0,999667	0,902727	0,881176
Confidence Level(95,0%)	0,114834	0,178435	0,191270	0,247835

Source: Author's creation based on primary research results

In the third question, respondents were asked about the following statement: "Public incentive funds are available to me and help me develop my business and innovative activities." The analysis of the results obtained indicates that companies, on average, have a neutral attitude toward the availability and support of state funds for business development and innovative activities. The average score of the respondents' responses was 2.50. When the results are analysed by company size, the average scores were 2.48 for micro, 2.50 for small, and 2.55 for medium-sized companies, indicating that there is no significant difference in the respondents' responses by company size. The analysis of the standard deviation shows that it is 1.14 at the overall level, which in other words means a relatively wide range of responses among the respondents.

Table 3. Perception of Availability of Public Incentive Funds by Company Size

Question 3	Total	Micro	Small	Medium
Mean	2,500000	2,479675	2,500000	2,549020
Standard Error	0,070461	0,104764	0,123091	0,151628
Standard Deviation	1,140511	1,161892	1,154701	1,082843
Confidence Level(95,0%)	0,138744	0,207391	0,244658	0,304555

Source: Author's creation based on primary research results

Micro companies have a slightly higher standard deviation of 1.16, small companies 1.15, while medium-sized companies have a slightly lower deviation, at 1.08. When analysing the standard error values, a certain level of uncertainty in the results can be observed, with the 95% confidence intervals being widest for medium-sized companies (± 0.30), while they are somewhat narrower for micro and small companies (± 0.20 and ± 0.24). Details are provided in Table 3.

The analysis of question number 4 concerned the assessment of the extent to which respondents agree that a factor, such as the size of the company, can represent an obstacle to the use of external sources of financing, all for the purpose of financing innovative activities. The question was: "Difficult access to external financing due to

the size of the company.” The analysis of the results shows that the average score was 3.34. In other words, this answer suggests that companies consider the availability of external financing as a moderate obstacle to increasing innovative activities. The answers differ significantly according to the size of the company, so the average score for micro companies is 3.59, for small companies 3.20, and for medium-sized companies 2.96. In other words, micro companies significantly consider that there are difficulties in accessing external financing, while medium-sized companies consider that availability is a minor problem.

The analysis of the standard deviation shows a value of 0.99, which represents a relatively higher level of variability in the responses of the respondents. In terms of company size, micro-companies have a slightly lower value than the average of all companies, namely 0.96, small companies have a value of 0.91, while the variability is most pronounced in medium-sized companies and amounts to 1.04. The results for the standard error show that the results are most precise for the average of all companies, as well as for the micro-company level, while they are somewhat less precise for the size of medium-sized companies. These findings for medium-sized companies are also confirmed by the confidence interval at the 95% confidence level, which was ± 0.29 , which can be interpreted as a higher level of uncertainty in the assessment of attitudes for medium-sized companies. Details are shown in Table 4.

Table 4. Perception of Company Size as a Barrier to Accessing External Financing

Question 4	Total	Micro	Small	Medium
Mean	3,339695	3,593496	3,204545	2,960784
Standard Error	0,061038	0,086267	0,097190	0,145416
Standard Deviation	0,987988	0,956748	0,911726	1,038476
Confidence Level(95,0%)	0,120190	0,170774	0,193176	0,292076

Source: Author's creation based on primary research results

The next, fifth question, concerned the examination of attitudes regarding the insufficient supply of financial resources due to other reasons, as a factor that represents an obstacle to the use of external sources of financing. The question was: “Insufficient supply of financial resources (for other reasons).” Analysis of the results shows that the average score of all companies’ responses is 3.48. This data can be interpreted as companies in Bosnia and Herzegovina perceiving the insufficient supply of external sources of financing as a significant obstacle that does not allow the improvement of their innovative activities. If the data are analysed according to the size of the company, then it can be seen that micro-companies have an average score of 3.70, then small companies 3.38, and medium-sized companies 3.12. Given the existence of a significant difference between micro, small, and medium-sized companies, it can be concluded that micro companies are faced with the problems of insufficient availability of external sources of financing to a greater extent compared to the average, while medium-sized companies perceive this problem to a significantly lesser extent compared to both micro and small companies, but compared to the average.

Analysis of the standard deviation value shows that it is 0.93 at the overall level. This value can be interpreted as a relatively broad response level among respondents.

If the variability of responses by company size is analysed, it was recorded to the greatest extent in small companies (0.96), and to a somewhat lesser extent in micro companies (0.88). The standard deviation value for medium-sized companies was 0.90. In addition, the standard error of the estimate indicates that the results are most precise when looking at the average for all and micro companies, with a slightly lower level of precision for medium-sized companies. The confidence interval at the 95% level is ± 0.25 . Details are shown in Table 5.

Table 5. Perception of Insufficient Supply of Financial Resources (Other Reasons) as a Barrier

Question 5	Total	Micro	Small	Medium
Mean	3,477099	3,699187	3,379310	3,115385
Standard Error	0,057662	0,079092	0,102418	0,124804
Standard Deviation	0,933339	0,877169	0,955296	0,899975
Confidence Level(95,0%)	0,113542	0,156570	0,203601	0,250555

Source: Author's creation based on primary research results

The next question number six referred to administrative conditions as an obstacle to financing innovative activities. The question read: “Administrative conditions of financing represent an obstacle.” The results of the analysis of the answers show that the average score for all companies was 3.52, which can be interpreted that there is some concern among the surveyed companies regarding bureaucratic obstacles and requirements that make access to external financial sources more difficult. The analysis by company size shows that there are some deviations from the mean value. Micro and small companies have almost identical values, namely 3.34 for micro and 3.35 for small companies, while the results are slightly higher than the average for medium-sized companies and amount to 3.71. The higher level of the average value for medium-sized companies indicates that these companies perceive administrative obstacles to access to external financial sources as more complex compared to micro and small companies.

The value of the standard deviation was 0.93, which can be interpreted that, similar to the previous questions, there is some variability in the responses of the respondents. When analysed by company size, it can be seen that there is a slightly higher variability in small companies, namely 0.95, while in micro and medium-sized companies it was 0.90 and 0.89 respectively. In addition, the analysis of standard errors shows that there is a certain level of uncertainty in the responses of the respondents, where the confidence intervals at the 95% level are the largest for small companies (± 0.20) and medium-sized companies (± 0.25). Details are presented in Table 6.

Table 6. Perception of Administrative Funding Conditions as a Barrier to Innovation Financing

Question 6	Total	Medium	Small	Medium
Mean	3,515267	3,707317	3,344828	3,352941
Standard Error	0,057417	0,081414	0,101877	0,124691
Standard Deviation	0,929382	0,902925	0,950246	0,890472
Confidence Level(95,0%)	0,113060	0,161167	0,202525	0,250449

Source: Author's creation based on primary research results

Question number 7 referred to unfavourable financing conditions as an obstacle for companies to improve their innovative activities. The question read: “Unfavourable financing conditions are an obstacle”. The results of the analysis show that the mean value of the answer for all companies is 3.57. This result can be interpreted that the surveyed companies perceive unfavourable financing conditions as a significant obstacle that prevents them from improving innovative activities. Observed by company size, the mean value of the answer varied from 3.76 for micro companies, 3.45 for small companies and 3.29 for medium-sized companies. These results can be interpreted that the smaller the company, the greater the burden they perceive due to unfavourable financing conditions for innovative activities.

The value of the standard deviation was 0.93 and is at a similar level to the answers to the previous questions. Observed by company size, the value of the standard deviation varied and ranged from 0.87 for micro, 0.95 for small and 0.94 for medium-sized companies. Given that there is a more significant difference for the micro-company level, the lower value indicates that micro-companies have somewhat more balanced attitudes regarding unfavourable financing conditions compared to companies of other sizes. The level of standard error also indicates, as with the previous answers, that there is a certain level of uncertainty in the results, where it should be emphasized that the confidence intervals at the 95% level are widest for medium-sized companies (± 0.27), while they are somewhat smaller for small companies (± 0.20) and micro-companies (± 0.16). Details are shown in Table 7.

Table 7. Perception of Adverse Financing Conditions as a Barrier to Innovation Financing

Question 7	Total	Micro	Small	Medium
Mean	3,568702	3,764228	3,454545	3,294118
Standard Error	0,057268	0,078369	0,100818	0,132233
Standard Deviation	0,926956	0,869155	0,945760	0,944333
Confidence Level(95,0%)	0,112765	0,155139	0,200387	0,265598

Source: Author's creation based on primary research results

Question number 8 referred to poor accessibility and lack of information as an obstacle to using external sources of financing to improve innovative activities of companies. The question read: “Poor accessibility and lack of information about external sources of financing represent an obstacle.” The average value of the answer for all companies is 3.64, which can be interpreted that companies consider poor accessibility and lack of information about external sources of financing as a significant obstacle to improving their own innovative activities. Additional analysis of the results by company size shows that the mean values also varied, from 3.80 for micro companies, then 3.55 for small and 3.39 for medium-sized companies. This difference in mean values can be interpreted as the smallest companies being most affected by poor accessibility of information and difficult access to external sources of financing. The value for medium-sized companies indicates that these companies are in a slightly better position compared to the other analysed companies.

The analysis of the standard deviation value was at a similar level as for the previous questions and amounted to 0.96. The highest variability of responses can be

observed in small companies and amounted to 1.04, while micro companies have the lowest variability, which amounted to 0.86. This difference can be interpreted that the attitudes of micro companies are more consistent regarding the problems arising from the availability of information. The standard error of the estimate and the confidence intervals at the 95% level are the widest for medium-sized companies (± 0.28), while they are somewhat smaller for small (± 0.22) and micro companies (± 0.15).

Table 8. Perception of Poor Accessibility and Lack of Information as a Barrier to External Financing

Question 8	Total	Micro	Small	Medium
Mean	3,637405	3,804878	3,545455	3,392157
Standard Error	0,059311	0,077150	0,110699	0,140247
Standard Deviation	0,960032	0,855633	1,038446	1,001567
Confidence Level(95,0%)	0,116789	0,152726	0,220026	0,281695

Source: Author's creation based on primary research results

The last question number 9 referred to the analysis of attitudes related to insufficient state support, which represents an obstacle to the improvement of innovative activities of companies. The question reads: "‘Insufficient state support represents an obstacle’ on a scale of 1 to 5, where 1 means I completely disagree, and 5 means I completely agree." The overall average score for the level of all companies was 4.11. This response value can be interpreted as insufficient state support representing one of the greatest obstacles in the use of external sources of financing for the improvement of innovative activities of companies. Observed individually according to the size of the company, there is no significant difference in the responses. The average value for micro companies is 4.15, for small companies 4.07, and for medium-sized companies 4.10. The conclusion that can be drawn is that companies of all sizes have an almost equally negative attitude towards the role of the state in supporting external financing of innovative activities.

The standard deviation analysis shows a value of 0.94 with small variations according to the size of the company. The standard deviation values by company size ranged from 0.89 for micro companies, 0.97 for small companies and 1.01 for medium-sized companies. A lower value compared to the average for micro companies indicates a higher degree of agreement among micro companies when it comes to insufficient state support. The values of the standard error of the estimate and the confidence intervals at the 95% level indicate that the estimate values are the most stable for micro companies (± 0.16), while they are the widest for medium-sized companies (± 0.28). Details are presented in Table 9.

Table 9. Perception of Insufficient State Support for External Innovation Financing

Question 9	Total	Micro	Small	Medium
Mean	4,110687	4,146341	4,068182	4,098039
Standard Error	0,057969	0,080551	0,103233	0,140740
Standard Deviation	0,938308	0,893354	0,968414	1,005085
Confidence Level(95,0%)	0,114146	0,159459	0,205187	0,282685

Source: Author's creation based on primary research results

In addition to the analysis of the results of the answers to the questions, where the attitudes of the respondents towards various aspects were investigated, a hypothesis analysis was also performed. A summary of all testing is shown in Table 10. The results of the performed statistical analysis of hypotheses show that there are significant differences in the perception of companies when it comes to financial obstacles, depending on the area from which the company comes, then according to the size of the company and administrative barriers. Hypothesis 1, which refers to regional differences in the perception of financing obstacles, conducted through testing using ANOVA and the Kruskal-Wallis test, shows a value of 1.79 with a p-value of 0.0297. Given that the p-value is below the threshold of 0.05, we can conclude that there are statistically significant differences in the responses of respondents coming from different areas, according to the perception of financial obstacles.

As part of the second hypothesis, which investigated the connection between the size of the company and access to external financing, testing was performed using the Chi-square test. The results obtained show a value of 6.42, while the p-value was 0.0421, which leads to the conclusion that there is a significant relationship between the size of the company and the possibility of companies using external financing. This testing confirmed the second hypothesis that larger companies have a greater chance of accessing external financing compared to smaller companies.

The third hypothesis investigated the relationship between the impact of administrative barriers on the use of external financing. For the purpose of testing the above hypothesis, a logistic regression was performed, which yielded a result of 4.51 with a p-value of 0.0118. The conclusion that can be drawn from this testing is that this result confirms the significant impact of administrative barriers on the availability of external financing. In order to improve the process, it is necessary to implement regulatory improvements, in order for companies to have easier access to various sources of financing.

The next hypothesis 4 related to the relationship between innovation and external financing, where the Chi-square test was applied for testing purposes. The value obtained through this test is relatively high and amounts to 9.048974, but with a slightly higher p-value of 0.059887, which can be interpreted as not being able to confirm with certainty that there is a significant relationship between innovative activities and the use of external financing. However, since the p-value is very close to the significance threshold, the result obtained can be considered borderline significant. In other words, with a larger sample, the stated relationship between innovative activities and access to external financing could be confirmed as statistically significant.

Hypothesis 5 analysed the relationship between company size and perception of obstacles. For the purpose of testing it, an ANOVA test was conducted, where the value obtained was 9.173106, with a p-value of 0.000142. These results confirm that there is a significant difference in the perception of obstacles that companies of different sizes have. An important conclusion that can be drawn is that smaller companies more often perceive obstacles in accessing sources of financial resources compared to larger companies.

Table 10. Overview of Hypothesis Testing Results and Statistical Significance

Hypothesis	Test Used	Test Statistic	p-value	Significance (p<0.05)
H1: Regional Differences in Perception of Financing Barriers	ANOVA & Kruskal-Wallis	1,790000	0,029700	Yes
H2: Company Size & External Financing Access	Chi-square Test	6,420000	0,042100	Yes
H3: Administrative Barriers & Use of External Financing	Logistic Regression	4,510000	0,011800	Yes
H4: Innovation & External Financing	Chi-square Test	9,048974	0,059887	No
H5: Company Size & Barriers	ANOVA	9,173106	0,000142	Yes
H6: Company Size & Government Grants	Chi-square Test	0,419610	0,810742	No

Source: Author's creation based on primary research results

The last hypothesis 6 was related to the relationship between the size of the company and the use of public funds. The test was conducted using the Chi-square test, which yielded a value of 0.419610, with a p-value of 0.810742. The conclusion that can be drawn is that there is no significant relationship between the size of the company and the use of public funds.

The summary conclusion after the performed hypothesis tests is that the size of the company, administrative obstacles and regional differences are the main factors affecting access to financial resources. On the other hand, sectoral differences and innovative activities did not show a statistically significant impact.

DISCUSSION

The results of the conducted research showed that access to financing represents a significant obstacle to the development of innovative activities of micro, small and medium-sized companies in Bosnia and Herzegovina, which was proven through the application of various statistical tests. The analysis additionally showed that there are certain factors, such as the size of the company, administrative barriers and the area from which the company comes, which significantly affect the access of the company to external sources. Furthermore, the results of the conducted tests showed that there is no statistically significant influence according to the sector from which the company comes and the current level of innovative activities.

During the analysis of the results, it was realized that one of the most important findings is precisely that micro and small companies have a significantly less favourable perception of the availability of external financing, when compared to medium-sized companies. This conclusion and realization was confirmed by descriptive analysis and statistical testing of the second hypothesis, where a p-value of 0.0421 was determined. This result can additionally be interpreted that the size of the company significantly affects the probability that the company will succeed in accessing and using external sources of financing. The results obtained are in line with existing literature and research which also confirm that smaller companies often do not have adequate means to secure the requested financial resources, do not have a long history of business, but also do not have the institutional capacity that is necessary for commercial banks and other financial institutions to consider their requests at all. It is important to emphasize that companies of this size generally do not have a research and devel-

opment department, which additionally negatively affects their ability to prepare and adequately present project proposals that are necessary to obtain financial support for the implementation of their innovative activities.

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A very important confirmation that was reached refers to hypothesis 5, for which it was determined through testing that there is a statistically significant difference in the responses of the respondents, which was confirmed by the p-value of 0.000142. The results confirmed that there is a clear difference in the perception of obstacles to financing innovative activities and the size of the company. It is also important to emphasize that micro companies more often perceive greater obstacles compared to companies of other sizes. These findings are very significant because they indicate that a different approach is needed to enable different measures to support innovative activities of companies, especially those that are micro or small, as companies of this size more often encounter barriers in accessing sources of finance.

The results of the conducted research also confirmed that there is a connection between administrative barriers and the availability of external sources of financing, which also proves hypothesis 3, which is confirmed by a p-value of 0.0118. In other words, complex bureaucratic requirements, lengthy administrative procedures and lack of institutional support significantly affect the reduced availability of external sources of financing that are necessary for innovative activities of companies. These conclusions and findings confirm the results of other research, which have also shown that administrative barriers can discourage companies, especially smaller ones, from seeking support from public funds, through grants or favourable financing conditions.

The analysis of the results also confirmed the hypothesis 1 due to the existence of statistically significant regional differences in the perception of obstacles to financing innovative activities by companies, which is confirmed by a p-value of 0.0297. This can be interpreted as meaning that those companies coming from developed environments have better access to institutional support and infrastructure, as well as more favourable conditions for external financing. On the other hand, companies coming from less developed environments feel greater challenges, which is also important information so that decision-makers can prepare special support measures for companies coming from these environments.

The results of the analysis of hypothesis 4 testing were unexpected, where no statistical correlation was confirmed between the innovative activities of companies, measured through attitudes towards the introduction of new and improvement of existing products and services, and the use of external sources of financing, which was confirmed by a p-value of 0.0598. This result can be interpreted as the fact that companies that carry out innovative activities, if they do not have sufficient institutional

support and capacity, fail to secure the financial resources they need to carry out further innovative activities. However, this level of p-value is borderline significant, and gives us an insight that in the case of an increase in the sample, the p-value may be below the 0.05 level, and thus it can be proven that there is a statistically significant difference.

The analysis of hypothesis six showed that there is no statistically significant correlation between the size of the company and the use of public funds, which was confirmed by a p-value of 0.8107. The conclusion that can be drawn is that public funds are not sufficiently targeted for financing according to the size of the company or that the level of funds is limited, which then opens the possibility of insufficient financing of innovative activities of companies.

Finally, it can be concluded that the results of the research have shown and confirmed that obstacles to financing innovative activities of micro, small and medium-sized companies in Bosnia and Herzegovina arise as a result of a combination of various structural factors, such as the size of the company, then the expressed institutional weakness that exists, which is manifested through various administrative barriers and insufficient support from decision-makers, and information asymmetry.

CONCLUSIONS

The results of the conducted research clearly showed that access to external sources of financing is a serious obstacle to the implementation of innovative activities of micro, small and medium-sized companies in Bosnia and Herzegovina. Furthermore, the results showed that companies rely to a significant extent on their own sources of financing for innovative activities, while on the other hand, external sources, which include loans from commercial banks and microcredit organizations, and public funds, are significantly underutilized. Key factors contributing to underutilization are complex administrative barriers and procedures, unfavourable lending conditions, and insufficient information about possible and available financial instruments.

Worrying conclusions and findings were reached when it comes to micro companies, which, according to the research results, feel the burden of the aforementioned obstacles the most. It is precisely the perception of micro companies that is most pronounced in the area of administrative barriers, unfavourable financing conditions, as well as lack of information, accompanied by insufficient state support. Although small and medium-sized companies also perceive the aforementioned problems, the determined intensity of the problems is most pronounced in the smallest business entities. On the other hand, medium-sized companies, which also expressed a negative attitude and perception towards the aforementioned problems, have a slightly higher level of resilience and better access to external sources of financing.

Statistical analysis confirmed that there are statistically significant differences in the perception of financial barriers, which is related to the size of the company and the area from which the company comes. In addition, statistical analysis showed that administrative barriers have a statistically significant negative impact on the possibility of using external sources of financing, which further indicates that it is necessary to implement reforms to simplify administrative procedures. On the other hand, the results of statistical analysis did not confirm the existence of statistically significant differences and connections between innovative activities of companies and access to external financing, although there is a certain level of connection.

Based on all the results, there is a clear need for the implementation of targeted measures and policies, as well as interventions that would improve the availability of financial resources in the segment of promoting innovative activities of companies, which can be ensured by creating and promoting favourable credit lines, especially for micro, but also small and medium-sized companies in Bosnia and Herzegovina, better availability and targeting of funds from public funds, then by reducing administrative barriers and improving the segment for the availability of information on external sources of funds available to companies.

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