Factors influencing alternative financing of entrepreneurship through crowdfunding

Factores que influyen en la financiación alternativa del emprendimiento mediante crowdfunding

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Abstract: Access to finance is one of the main challenges faced by innovative SMEs, particularly in the early stages of their development. This study analyzes the factors influencing access to alternative finance, with a particular focus on crowdfunding as a viable solution to alleviate the limitations of traditional financing. Using data from the SAFE survey conducted by the European Central Bank for September 2022, key variables related to the firm's profile are examined to determine their impact on the choice of funding sources. The findings reveal that innovative companies face greater challenges in securing bank loans due to the perceived risk and uncertainty associated with their projects. In this context, crowdfunding emerges as an effective alternative, particularly for startups and younger firms, which find in this model a flexible and accessible way to obtain capital. Unlike bank financing, access to crowdfunding is not determined by the sector in which a company operates but rather by its capacity for innovation and growth potential. This study underscores the importance of promoting alternative financing mechanisms to strengthen the entrepreneurial ecosystem. Diversifying funding sources, along with public policies that encourage investment in innovation, can contribute to the sustainable development of innovative SMEs by facilitating their access to financial resources and enhancing their economic impact.

Keywords: Innovation, financing, crowdfunding, entrepreneurship, peer-to-peer platforms.

Resumen: El acceso a la financiación representa uno de los principales desafíos para las PyMEs innovadoras, especialmente en sus primeras etapas de desarrollo. Este estudio analiza los factores que influyen en la obtención de financiación alternativa, con un enfoque en el crowdfunding como una solución viable para mitigar las restricciones impuestas por la financiación tradicional. Utilizando datos de la encuesta SAFE del Banco Central Europeo para el 2022, se analizan varias variables asociadas al perfil de la empresa para determinar su impacto en las fuentes de financiación disponibles. Los resultados revelan que las empresas innovadoras tienen mayores dificultades para acceder a préstamos bancarios debido a la percepción de riesgo e incertidumbre en sus proyectos. El crowdfunding se presenta como una alternativa eficaz, especialmente para startups y empresas más jóvenes, que encuentran en esta modalidad una vía flexible para obtener capital. A diferencia de la financiación bancaria, el acceso al crowdfunding

no está determinado por la actividad económica de la empresa, sino por su capacidad de innovación y su proyección de crecimiento. El estudio destaca la importancia de fomentar mecanismos de financiación alternativa para fortalecer el ecosistema emprendedor. La diversificación de fuentes de financiación, junto con políticas públicas que promuevan la inversión en innovación, puede contribuir a facilitar el acceso a recursos financieros en las PyMEs así como a su desarrollo sostenible, potenciando su impacto económico.

Palabras clave: Innovación, financiación, crowdfunding, emprendimiento, plataformas peer-to-peer.

1. Introduction

Innovation plays a critical role in enhancing firms' competitiveness, efficiency, sustainability, and profitability (Yang, 2019). It enables firms to seize market opportunities, expand their market share, and strengthen their profit potential, thereby fostering entrepreneurial capacity and resilience (Shefer & Frenkel, 2005). As a key driver of economic growth, business dynamism, and job creation, innovation stands as one of the most powerful tools for organizational advancement (Aldieri et al., 2021). In the context of social enterprises, innovation—particularly social innovation—is essential for achieving effective management outcomes and for advancing the development and impact of their social missions.

To sustain business innovation, adequate and sufficient financing is essential, whether for investment or operational expenses. Restrictions on access to financing limit a company's capacity for innovation, impacting a country's economic development as well as the future competitiveness and survival of firms. In this regard, innovation is crucial for long-term growth, enabling businesses to attract new customers.

One of the main challenges faced by entrepreneurs is securing the necessary financing, particularly in the initial stages associated with seed capital. For innovative companies, these financing constraints are even more severe, representing one of the greatest obstacles to launching new ventures. These difficulties have been extensively studied (Angilella & Mazzù, 2015; Beck & Demirgurç-Kunt, 2006; Berger et al., 2005; Brancati, 2015; Canales & Nanda, 2012; Lee et al., 2015), with research concluding that innovative firms are more likely to be denied the required funds compared to non-innovative ones.

In the financial sector, alternative financing methods are those in which funds are sourced from outside the traditional banking system, utilizing financial instruments independent of conventional banking structures (Baum & Silverman, 2004; Gulati & Higgins, 2003; Rohatgi et al., 2024). Among these mechanisms, peer-to-peer and crowdfunding platforms stand out as appropriate financing methods to complement traditional sources for those unable to access or afford bank credit (Coakley & Lazos, 2021; Rahman et al., 2017; Stefanelli et al., 2022). Another reason for choosing crowdfunding over bank loans is the need to finance innovative projects, which are inherently associated with higher risk and, therefore, receive limited or no funding from banks (Cichy & Gradoń, 2016; Konhäusner et al., 2021; Rocca Espinoza et al., 2018).

As an alternative business financing method, crowdfunding can play a crucial role in complementing traditional financing sources, particularly for startups (Yin & Li, 2024). There are five types of business crowdfunding, differentiated by what they offer to funders and the expected outcomes of the business project. These categories range from donations to loans with returns exceeding those of financial institutions. The five types are equity crowdfunding, loan-based crowdfunding (crowdlending), real estate crowdfunding, reward-based crowdfunding, and donation-based crowdfunding.

The introduction of these new financing mechanisms, particularly after the 2008 financial crisis, has revitalized the entrepreneurial ecosystem, which was significantly affected by credit restrictions. These innovative mechanisms have been closely linked to the development of information and communication channels (Segal, 2016). Their existence would be

impossible without current technological advancements, making alternative financing not only a financial innovation but also a technological one.

Empirical research on financing and SMEs has been widely explored, mainly due to the crucial role these businesses play in global economies (Agarwal & Pokhriyal, 2022; Ayyagari et al., 2007; Campello et al., 2010; Jimenez et al., 2012; Popov & Udell, 2012). However, research on innovative SMEs and the sources of financing that enable them to continue their entrepreneurial activities has not been developed to the same extent (Sanga & Aziakpono, 2023), with few empirical studies on Fintech and SME financing. Most studies distinguish only between equity and debt, failing to consider that businesses can substitute and complement different forms of financing. Additionally, there are few works that establish a relationship between entrepreneurship in innovative firms and financing, with most focusing on bank financing (Fombang & Adjasi, 2018; Kaur et al., 2021).

Given that crowdfunding is a relatively new financing source, most research on the topic primarily consists of explanatory studies on its typologies and operational mechanisms, rather than conducting an in-depth empirical analysis of its current state (Sanga & Aziakpono, 2023).

The field of alternative financing is expanding; however, there are still few studies that comprehensively address its effects, antecedents, and impact on business development. This gap in the existing literature highlights the significance and novelty of this research, which aims to fill an underexplored void by providing an integrative perspective on the financing patterns of innovative entrepreneurship. This analysis focuses on the main sources of financing available in the financial market, with particular emphasis on crowdfunding. This study not only contributes valuable theoretical insights but also seeks to influence corporate financial policies by providing tools and approaches that facilitate access to financial resources. In doing so, it aims to support entrepreneurs, investors, and policymakers in creating conditions that promote sustainable business growth. This approach responds to the increasing demand for innovation in the structuring of financing sources within a constantly evolving economic landscape.

Thus, the objective of this research is to analyze specific business factors—such as company size, industry sector, business age, exports, and turnover—that influence entrepreneurship and facilitate access to financing sources for innovative SMEs. Particular attention is given to business characteristics associated with crowdfunding, recognizing that this financing source complements existing ones, making it essential to understand overall business financing behavior.

This article is structured as follows: Section 2 develops the theoretical framework on financing access for innovative SMEs. Section 3 describes the research methodology. Section 4 presents the study's findings. Finally, Section 5 discusses the results, and Section 6 outlines the study's main conclusions.

2. Theoretical framework and hypotheses

The OECD defines business innovation as a new or improved business product or process, or a combination of both, that significantly differs from the company's previous business products or processes and has been introduced to the market or put into use by the company (OECD, 2018).

Two main types of innovation should be distinguished: innovations related to products, goods, or services produced or provided by the company, and innovations that change the company's processes.

Limited access to appropriate financing can restrict a firm's ability to seize growth opportunities, invest in innovation, or expand operations. Companies with low information asymmetry, lower risk, and those that pledge collateral can gain greater access to financing. On the other hand, companies with higher information asymmetry, poor borrower quality, or a higher likelihood of default may receive smaller amounts or face credit rationing (Bertoni et al., 2023; Kirschemann,

2016; Rahman et al., 2017), putting them at a competitive disadvantage compared to firms with easier access to liquidity. Therefore, innovative SMEs, due to their higher risk, are more financially constrained and experience stricter credit conditions than non-innovative SMEs (Godlewski & Weill, 2011; Hall, 2010; Mina et al., 2013).

Numerous studies have concluded that innovative SMEs face greater difficulties in accessing financing compared to non-innovative ones. Lee et al. (2015), in the context of the United Kingdom, found that innovative companies seek more external funding sources than non-innovative companies, but the former are more likely to face credit rationing. Similarly, Brancati (2015) studied the financing options for innovative companies in the Italian market and found that banks ration credit more to innovative firms than to non-innovative ones. Other research has reached similar conclusions (Andreassi, 2003; Angilella & Mazzù, 2015; Freel, 2007; Mason, 2013; Mina et al., 2013; Pederzoli et al., 2013).

Empirical evidence confirms that the demand for and access to financing by SMEs are influenced by a series of specific characteristics of the companies. In particular, factors such as company size, age, or sector significantly affect financing.

The first independent variable analyzed is firm size. The concept of the liability of smallness refers to the resource constraints that smaller firms face when implementing the organizational structures and routines necessary to execute corporate strategies. These resource limitations can hinder key activities such as research and development (R&D), marketing, or business expansion, negatively impacting the firm's ability to innovate and grow, and reducing its attractiveness to potential funders (Gimenez-Fernandez et al., 2020).

In contrast, larger firms tend to have greater bargaining power (Lefebvre, 2022), enabling them to secure more favorable financial conditions, including larger loans with fewer restrictions (Calabrese et al., 2021). Firm size has also been identified as a factor that increases the likelihood of innovation in SMEs. This positive effect is linked to both organizational scale and loan volume, as banks tend to interpret business growth as a signal of greater credibility and financial stability (Ferri & Murro, 2015).

Higher levels of information transparency facilitate access to external financing, particularly bank loans. Conversely, micro and small firms face greater credit constraints due to higher opacity in their financial and operational information (Brancati, 2015; Bruderl & Schussler, 1990). This information asymmetry limits their ability to innovate, especially in contexts where entrepreneurship is associated with small, financially fragile structures (Allen et al., 2013; Brancati, 2015; Casey & O'Toole, 2014; Dierkes et al., 2013; Ferri & Murro, 2015; Garcia-Appendini & Montoriol-Garriga, 2013; Lefebvre, 2022).

In sum, firm size is a key determinant of financing access, as it directly influences perceived risk and project credibility. Therefore, the hypothesis to study is:

H1: Firm size is positively correlated with access to alternative sources of finance.

The second variable, sector of activity, appears to be an important characteristic influencing access to financing. The existence of tangible assets that guarantee debt repayment is a factor that differentiates companies by sectors. This is why some economic sectors experience greater difficulty in accessing financing. Companies in the industrial sector, compared to those in services and trade, face fewer limitations on access to external financing. This greater access to financing may be due to the presence of guarantees through substantial investment in fixed assets (Martinez et al., 2022). In the construction sector, working capital demands due to the coverage of the average maturation period require additional financing. In contrast, companies in the services sector have lower financing needs than other capital-intensive sectors.

Similarly, those sectors with higher innovation activity face greater difficulties in accessing financing, linked to a higher level of risk and a longer recovery period for investment.

The impact of the sector of activity on business financing has been studied in the past (Degryse et al., 2012; Guercio et al., 2016; Martinez et al., 2022). Cosh et al. (2009) stated that companies in capital-intensive sectors need long-term financial instruments, such as loans. On the other hand, those sectors with greater working capital needs tend to use short-term financial instruments (Klapper et al., 2002). The hypothesis to test is:

H2: Access to alternative sources of finance is greater in firm operating in capital-intensive industries.

Thirdly, the company's leverage is negatively associated with export activities; the higher the amount of debt, the less maneuverability the company has to assume additional costs related to the internationalization process due to credit rationing or internal restrictions (Brancati et al., 2018). On the other hand, greater entrepreneurial ambition to expand the business into international markets will require additional financing beyond that generated internally by the company. Kaur and Kaur (2021) confirm that the higher the intensity of a company's export activities, the greater its focus on innovation. However, numerous empirical studies use firm-level data to investigate the links between export activities and financial constraints (Brancati et al., 2018; Forte & Moreira, 2018; Pacheco, 2017; Wagner, 2019), with a lower focus on exports as the percentage of debt in the balance sheets increases. Similarly, companies with access to any form of financing are more likely to engage in export activities (Huang & Liu, 2017).

H3: Firm internationalization, measured as the proportion of sales abroad, is positively correlated with the access to alternative sources of finance.

Fourth, we examine firm age. Similar to firm size, younger companies often face more restrictive lending conditions. Research shows that young firms have significantly lower survival rates than older firms (Dierkes et al., 2013). This initial vulnerability is referred to as the liability of newness, highlighting the difficulties new firms face in securing the financial resources needed for sustainability and growth (Choi & Kim, 2022).

Innovative firms—whether new or established—typically operate in highly uncertain environments (Bayon et al., 2016). Exploring new technologies and markets involves substantial risk with no guaranteed return (Lafuente et al., 2023). This uncertainty is particularly acute for startups, which often lack a solid financial history and the credibility needed to attract investors (Wiklund et al., 2010). These factors hinder their ability to obtain traditional financing such as bank loans.

Moreover, there is greater uncertainty surrounding the long-term viability and success of younger firms (Choi & Kim, 2022), which increases perceived risk among investors. As a result, these firms not only face more obstacles in securing financing but also face stricter terms when funding is obtained—such as higher interest rates or increased collateral requirements.

Another limiting factor is the lack of institutional relationships. Startups often have not had sufficient time to establish strong ties with banks, investors, or other capital providers, further reducing their external financing options (Gimenez-Fernandez et al., 2020; Wiklund et al., 2010; Zuo et al., 2022).

The influence of firm age and size has been extensively documented in research on traditional financing, particularly in relation to bank loan access (Cenni et al., 2015; Farinha & Félix, 2015; Kirschemann, 2016). Findings show that firm age has a positive effect on credibility, increasing the probability of accessing credit as the firm matures (Bolton et al., 2016; Chavis et al., 2011; Comeig et al., 2015; Uchida et al., 2012).

Taken together, previous studies consistently show that both size and age are key factors in assessing firm viability and creditworthiness, significantly influencing the probability of obtaining traditional financing.

H4: Firm age is positively correlated with access to alternative sources of finance.

3. Methodology

3.1 Data

This research examines the business characteristics of SMEs that introduce innovations in products and their effects on financing sources, with particular focus on crowdfunding as a financing channel. The database used comes from the Survey on the Access to Finance of Enterprises (SAFE), conducted biannually by the European Central Bank and the European Commission. The collected data include businesses of all sizes when they apply for financing from banks or other sources. However, the study specifically focuses on financing sources that impact SMEs, defined as businesses with between 1 and 249 employees. The data analyzed corresponds to the period of September 2022 and includes segmented information for the 27 European Union member states, as well as Norway, Iceland, and Liechtenstein (Table 1).

The business structure of SMEs in Europe varies significantly by country, particularly in terms of firm size and age. Countries like Greece and Italy show a high concentration of micro-enterprises (58% and 52%, respectively), suggesting fragmented business environments potentially linked to family ownership, limited access to finance, or underdeveloped markets.

In contrast, Germany presents a more balanced profile: medium-sized firms represent 40%, while micro-enterprises account for only 26%. This indicates a growth-oriented economy supported by solid industrial policy and a mature entrepreneurial ecosystem.

Spain and France fall somewhere in between. In Spain, while micro-enterprises are predominant (41%), over 90% of them are more than five years old, indicating business stability. France shows a greater proportion of younger firms and a more even distribution by size, reflecting a more dynamic entrepreneurial environment.

With respect to firm age, Romania and Norway report high shares of young firms (14% in Romania), suggesting active business renewal. On the other hand, Germany, Spain, and the Czech Republic show lower proportions of young firms, potentially indicating market stability but also possible barriers to new firm entry (Lafuente et al., 2020).

The total number of observations collected in the SAFE survey for this period was 13,829 companies, after eliminating responses from larger companies (more than 249 employees) and missing values for companies that omitted information regarding their level of innovation.

Table 1. Distribution of innovative SMEs by Country

			SIZE (employees)			AGE (years)		
	Sample (firms)	%	1 - 9	10 - 49	50 - 249	< 5	5 - 10	> 10
Austria	127	3.7	46	47	34	7	6	114
Belgium	80	2.3	25	31	24	4	2	73
Bulgaria	107	3.1	30	37	40	11	11	85
Croatia	69	2.0	29	21	19	2	9	58
Cyprus	27	0.8	8	7	12	1	0	26
Czech Republic	135	3.9	42	52	41	4	5	126
Denmark	99	2.8	31	42	26	10	13	76
Estonia	15	0.4	4	4	7	0	0	15
Finland	174	5.0	43	66	65	10	16	148
France	183	5.3	74	51	58	14	17	152
Germany	223	6.4	59	75	89	10	11	202
Greece	142	4.1	82	41	19	9	12	121
Hungary	95	2.7	37	27	31	2	7	86
Iceland	33	0.9	15	7	11	3	1	29
Ireland	82	2.4	27	27	28	2	8	72
Italy	438	12.6	227	128	83	48	29	361
Latvia	53	1.5	11	14	28	1	4	48
Liechtenstein	12	0.3	5	3	4	0	2	10
Lithuania	81	2.3	17	32	32	6	10	65
Luxembourg	18	0.5	5	8	5	0	2	16
Malta	34	1.0	12	11	11	0	2	32
Netherlands	135	3.9	43	40	52	8	10	117
Norway	51	1.5	15	15	21	7	11	33
Poland	215	6.2	88	64	63	13	34	167
Portugal	128	3.7	53	45	30	7	9	112
Romania	154	4.4	37	62	55	24	16	114
Slovakia	120	3.5	52	35	33	2	6	112
Slovenia	47	1.4	19	13	15	2	4	41
Spain	296	8.5	122	95	79	8	21	267
Sweden	101	2.9	31	35	35	4	9	88
Total	3,474	100.0	1,289	1,135	1,050	219	287	2,966

3.2 Identification of Innovative Companies

An innovative company is defined as one that has introduced a new or significantly improved product or service in the past 12 months. This variable is a dummy variable, coded as 1 if the company has introduced a new or significantly improved product or service, and 0 otherwise. Table 2 shows the distribution of innovative and non-innovative SMEs based on company size.

This initial distribution of companies, based on their innovation and size, provides an overview of the situation within the innovative business sector for larger SMEs. These results are consistent with those found in previous studies. Thus,

there is a higher likelihood that larger companies will develop new product or service innovations compared to smaller ones (Ayyagari et al., 2007; Kaur & Kaur, 2021), which is related to the greater financing possibilities correlated with company size.

Table 2. Distribution of innovative SMEs by company size

	Total		Non-innovative		Innovative	
	No. of companies	Percentage	No. of companies	Percentage	No. of companies	Percentage
From 1 to 9 employees	5,503	39.79%	4,214	40.70%	1,289	37.10%
From 10 to 49 employees	4,334	31.34%	3,199	30.89%	1,135	32.67%
From 50 to 249 employees	3,992	28.87%	2,942	28.41%	1,050	30.22%
Total	13,829	100.00%	10,355	100.00%	3,474	100.00%

3.3 Statistical models

To detect variables that may affect the acquisition of financing, a series of binary logit regressions have been estimated, where the dependent dichotomous variable is the choice of the financing source selected by the innovative company.

In the logit analysis, all factors are jointly related to financing to eliminate potential masking effects between factors. Our analysis is based on a multilevel discrete choice model, accounting for possible correlations among firms within the same country while assuming independence across countries. Therefore, multilevel models provide the flexibility to model not only the mean of the response variable but also its covariance structure (Lafuente et al., 2021).

Tests for categorical variables use one category from each variable as a reference, with the presence or absence of other categories being compared to it.

The logistic model expresses the odds ratio as an exponential function of the independent variables:

$$\frac{p_{ij}}{1-p_{ij}} = e^{\beta_0} e^{\beta_1 x_{1ij}} e^{\beta_2 x_{2ij}} \dots e^{\beta_n x_{nij}} e^{u_j} e^{\varepsilon_{ij}} \qquad (1)$$

where p_{ij} is the probability of financing firm i in country j and $X_{k,ij}$ (k= 1, 2, ..., n) are the independent variables for firm i in country j. The β_k are the regression coefficients, to be estimated in the analysis. There are two types of errors: The error term is (what the independent variables do not explain) and the so-called country effect u_j (error due to differences between countries).

Thus, it is easy to see that the unit increase of a given factor X, multiplies the odds (p/1-p) by the value e^{β_i}. Therefore, the significant influence of a factor will be measured in terms of the change in the odds of funding.

The sources of financing studied include both traditional financing, provided by financial institutions, and non-traditional sources of financing such as crowdfunding. Thus, five logit regression models were formulated for the following financing sources: bank loans, credit lines or credit facilities, grants or subsidized loans, equity capital, and other alternative financing sources via crowdfunding. Within equity capital, the sale of shares issued by the company directly to external investors or through venture capital or business angels is included.

3.4 Variables

The business characteristics included in the statistical model are the following: company size, sector of activity, export degree, age, and expected future turnover. Many of these control variables have been included in previous studies (Armstrong et al., 2013; Bongini et al., 2021; Lee et al., 2015; Masiak et al., 2017; Moritz et al., 2016), in addition to other variables that are believed to correlate with business innovation. The selection of control variables is justified below and summary statistics are presented in Table 3.

The first independent variable studied is company size. This variable was categorized into 3 categories: micro (1-9 employees), small (10-49 employees), and medium (50-249 employees), with the medium category being the reference category in the logit model. The sector of activity variable was categorized into industry, construction, trade, and services, with services being the reference category. The export variable was defined in 4 categories: the company did not export in the last year, between 1 and 25 percent, between 25 and 50 percent, and more than 50 percent of turnover for export. The reference category was exports greater than 50 percent. For the age variable, 3 categories were included: less than 5 years, more than 5 but less than 10 years, and 10 years or more, with the latter being the reference category. Finally, for the future turnover variable, the categories were: will increase, will remain the same, or will decrease, with the latter being the reference category.

Table 3. List of variables and summary statistics

Variable name	No. of companies	Media	Standard deviation	Minimum	Maximum	Medium
Company size	3,474	1.93	0.818	1	3	2
Sector of activity	3,474	2.72	1.232	1	4	3
Exports	3,427	1.99	1.099	1	4	2
Age	3,472	2.79	0.540	1	3	3
Expected turnover	3,351	1.77	0.823	1	3	2

Table 4 shows the characteristics of the innovative companies included in the sample.

Table 4. Characteristics of the sampled businesses

Variable	Categories	Percentage (%)
Size	1-9	37.10
	10-49	32.68
	50-249	30.22
Sector of activity	Industry	28.38
	Construction	8.23
	Trade - retail	25.91
	Services	37.48
Export	0%	45.05
	< 25%	27.35
	25 - 50%	11.58
	> 50%	16.02
Age	< 5 years	6.31
	5 - 10 years	8.26
	> 10 years	85.43
Expected turnover	Increases	47.84
	Maintains	27.12
	Reduce	25.04

4. Results

This study uses responses from SMEs regarding the level of problems or obstacles they perceive in accessing financing over the past 6 months, in order to assess the degree of difficulty in obtaining funds. Table 5 shows the results grouped according to the companies' responses, both innovative and non-innovative, initially on a Likert scale where 1 indicates "not important" and 10 indicates "extremely important," with these responses grouped into three categories: low importance (1-3), medium (4-7), and high (8-10).

Table 5. Difficulty in accessing financing

	Total		Non-innovative		Innovative	
	No. of companies	Percentage	No. of companies	Percentage	No. of companies	Percentage
Low	6,686	50.46%	5,159	52.12%	1,527	45.57%
Medium	3,810	28.75%	2,831	28.60%	979	29.22%
High	2,754	20.78%	1,909	19.28%	845	25.22%
Total	13,250	100.00%	9,899	100.00%	3,351	100.00%

The first conclusion is that innovative companies face greater difficulty in obtaining financing. Thus, for the category of high difficulty, there is a six-percentage point difference higher in innovative companies, which is statistically significant ($p < 0.01$). Similarly, for those companies reporting low difficulty, the difference between innovative and non-innovative companies is also 6 percentage points, but in this case, it is higher for non-innovative companies, and this difference is statistically significant ($p < 0.01$), indicating that non-innovative companies perceive greater ease in accessing financing. These results align with those of other studies that point to the greater difficulty innovative companies face in obtaining financing sources (Andreassi, 2003; Brancati, 2015; Guercio et al., 2016; Lee et al., 2015). The reasons for this greater difficulty in accessing financing may be associated with a higher risk level and a longer time frame for investment recovery.

4.1 Preferences for financing sources

Innovation management requires access to financing sources because internal resources, such as retained earnings, are typically limited. Previous research results indicate that innovative SMEs are more likely to encounter financial constraints, with access to financing being a crucial factor for innovation. Thus, their innovation propensity is more sensitive to the company's economic conditions.

Traditional financing sources, primarily through banks, struggle to assess the growth prospects of innovative companies, which can lead to a lack of financing and credit rationing. Due to the uncertainties associated with innovative SMEs, they are considered a high-risk investment by banks and, therefore, are more likely to face greater restrictions in obtaining bank loans (Brancati, 2015), requiring them to turn to other sources to finance their innovative activities.

Table 6 presents the financing preferences reported by both innovative and non-innovative companies. The data confirm previous research findings, with a higher percentage of non-innovative SMEs opting for traditional financing through bank loans, by 7 percentage points, with this difference being statistically significant ($p < 0.01$). On the other hand, non-traditional financing options, such as crowdlending or the transfer of business ownership through new additions to the equity capital, are more significantly preferred by innovative SMEs ($p > 0.01$).

Table 6. Preferences for primary financing sources

	Total		Non-innovative		Innovative	
	No. of companies	Percentage	No. of companies	Percentage	No. of companies	Percentage
Bank loan	5,563	67.32%	3,988	69.45%	1,575	62.45%
Loans from other sources	1,337	16.18%	884	15.40%	453	17.96%
Social capital	639	7.73%	378	6.58%	261	10.35%
Crowdfunding and others	725	8.77%	492	8.57%	233	9.24%
Total	8,264	100.00%	5,742	100.00%	2,522	100.00%

4.2 Estimation of the logit regression model

The analysis of data derived from the SAFE survey reveals noteworthy patterns in the access to various sources of financing among the surveyed innovative firms. With respect to loan financing, a relatively balanced distribution is observed, with 53% of innovative firms reporting access to this source. This suggests that bank debt remains a relevant option for a significant segment of these enterprises. A similar trend is noted in the use of credit lines, with 56% of firms utilizing them, indicating their role as a flexible financing tool.

Grants also exhibit considerable uptake among innovative firms, with 52% reporting their use. This highlights the importance of public funding as a mechanism for supporting innovation. In contrast, access to equity capital shows a marked divergence. Only 15% of innovative firms reported having used this financing source. This finding may reflect the selectivity of venture capital investors, who typically target firms with high growth potential and more advanced development stages, or alternatively, the challenges many innovative firms face in meeting the investment criteria associated with this type of financing.

Finally, crowdfunding emerges as a financing source utilized by a significant proportion of innovative firms (30%), although a larger share (70%) has not yet turned to this option. This suggests that, while crowdfunding is gaining traction as an alternative financing mechanism, it is not yet a primary source for the majority of the surveyed innovative firms.

Before proceeding with the estimation of the binomial logit model, a multicollinearity analysis was conducted among the independent variables through the calculation of the Variance Inflation Factor (VIF). The results indicate that all VIF values are low, ranging from 1.02 to 1.28, which suggests that there are no significant multicollinearity issues within the set of variables included in the model. Specifically, the highest values are observed for the variables sector (1.28), export share (1.24), and firm size (1.24), all of which remain well below the commonly accepted threshold of 5 in the literature. Therefore, it can be concluded that the model estimates are not affected by multicollinearity among the predictors.

The results of the binomial logit regression model are shown in Table 7. For each of the five financing sources studied, their relationship with the independent variables, which refer to the characteristics of SMEs based on their size, sector, export activity, age, and revenue, is presented, eliminating any potential confounding effects between the factors. In this way, factors that increase the probability of using each financing source are detected jointly.

Table 7 presents the odds ratios for the various sources of financing as a function of the explanatory variables, along with the statistical significance of each value. For instance, in the case of microenterprises, the odds ratio of 1.242 for crowdfunding indicates that the odds of obtaining funding through this mechanism are 24.2% higher compared to larger firms (with 49 to 249 employees). This suggests that microenterprises exhibit a relatively greater propensity to secure financing via crowdfunding in comparison to medium-sized enterprises.

In comparison with other funding sources, crowdfunding is more accessible to young companies, particularly those up to 10 years old, which present high risks for lenders, primarily observed in bank loans. However, they may be more attractive to crowdfunding investors. Startups can use this mechanism to finance their projects without relying on traditional financial institutions. Similarly, crowdfunding is less associated with company size or sector and more closely related to the age of the company and its future outlook, penalizing firms with stable turnover growth expectations. Larger companies, do not show significant interest in crowdfunding, indicating a preference for more traditional sources of financing. Lastly, crowdfunding could be a viable option for smaller or higher-risk companies, particularly startups that may struggle to access bank loans, equity capital, or even grants.

Table 7. Logit regression results: Financing sources for innovative enterprises

	Bank loans	Grants	Credit line	Equity capital	Crowdfunding
Intercept	1.449 (0.012)	0.942 (0.660)	1.512 (0.000)	0.237 (0.000)	0.469 (0.000)
Microenterprises (1-9)	0.549 (0.000)***	0.775 (0.021)**	0.710 (0.019)**	0.928 (0.631)	1.242 (0.049)**
Small enterprises (10-49)	0.818 (0.024)**	1.011 (0.922)	0.956 (0.725)	0.871 (0.261)	0.951 (0.609)
Industry sector	1.355 (0.006)***	1.528 (0.000)***	1.312 (0.000)***	0.842 (0.240)	0.967 (0.731)
Construction sector	1.063 (0.694)	0.947 (0.701)	1.016 (0.909)	0.878 (0.527)	1.242 (0.208)
Trade Sector	1.197 (0.034)**	0.814 (0.038)**	1.222 (0.045)**	0.826 (0.035)**	0.965 (0.733)
0% export turnover	0.944 (0.684)	0.979 (0.846)	0.983 (0.880)	0.689 (0.025)**	0.856 (0.128)
Less than 25% export turnover	0.937 (0.607)	1.020 (0.868)	0.978 (0.846)	0.828 (0.322)	0.989 (0.931)
Between 25 and 50% export turnover	0.979 (0.857)	0.877 (0.403)	1.033 (0.791)	0.922 (0.670)	1.007 (0.943)
Age: less than 5 years	0.920 (0.599)	1.122 (0.397)	0.659 (0.004)***	1.027 (0.903)	1.711 (0.000)***
Age: between 5 and 10 years	1.000 (0.999)	1.278 (0.147)	0.924 (0.538)	1.111 (0.539)	1.724 (0.000)***
Expected turnover: will increase	0.993 (0.936)	1.077 (0.273)	0.971 (0.761)	1.251 (0.072)*	0.967 (0.645)
Expected turnover: will remain unchanged	0.825 (0.084)*	0.909 (0.255)	0.727 (0.008)***	0.769 (0.042)**	0.706 (0.005)***

*P-values are reported in parentheses. Significance level: *** p < 0.01; ** p < 0.05; * p < 0.1.*

The analysis of individual sources of financing is further extended through an additional examination in which the dependent variable represents multiple financing combinations. Specifically, a logit model is estimated for innovative firms that have accessed two or more sources of financing simultaneously, allowing the identification of composite financing patterns within the entrepreneurial ecosystem.

A total of seven distinct combinations of financial sources are considered, each representing the most common strategies among innovative firms:

- Bank loans, credit lines, and grants (Financing 1): This reflects a mixed approach combining traditional financial instruments with public support.
- Equity capital and crowdfunding (Financing 2): More representative of firms oriented toward private investors and digital platforms.
- Equity capital, crowdfunding, and grants (Financing 3): A combination that incorporates institutional support into alternative financing schemes.
- Bank loans and credit lines (Financing 4): A conventional option within the traditional financial system.

- Bank loans, credit lines, and equity capital (Financing 5): This configuration integrates bank lending with external investor contributions.
- Bank loans, credit lines, and crowdfunding (Financing 6): A hybrid pathway that merges traditional financing with participatory mechanisms.
- Crowdfunding and grants (Financing 7): Non-bank models that combine collective resources with public support.

Table 8 presents the results obtained from the estimation of the seven binomial logit models and allows for the identification of relevant patterns in the acquisition of financing by innovative firms, according to different combinations of financial sources, which enables the observation of how firm characteristics influence each of these scenarios.

Growth expectations constitute a cross-cutting factor. Firms anticipating stagnation are less likely to access multiple sources of financing. Microenterprises are not excluded from multiple financing; in fact, they dominate schemes involving crowdfunding and equity. The industrial sector stands out in models with public or bank financing. Intermediate firm age (5–10 years) appears as an advantage in mixed financing schemes, especially when equity is involved. Commerce and non-exporting status consistently reduce access to alternative financing combinations.

Table 8. Logit regression results: Combinations of sources of finance for innovative enterprises

	Financing 1	Financing 2	Financing 3	Financing 4	Financing 5	Financing 6	Financing 7
Intercept	0.442 (0.000)***	0.108 (0.000)***	0.058 (0.000)***	0.854 (0.232)	0.111 (0.000)***	0.239 (0.000)***	0.189 (0.000)***
Microenterprises (1-9)	0.678 (0.029)**	1.404 (0.077)*	1.589 (0.008)***	0.547 (0.000)***	0.804 (0.242)	0.854 (0.411)	1.190 (0.223)
Small enterprises (10-49)	0.924 (0.542)	0.955 (0.822)	1.045 (0.854)	0.849 (0.090)*	1.112 (0.526)	0.909 (0.363)	0.999 (0.990)
Industry sector	1.581 (0.000)***	0.819 (0.337)	1.178 (0.515)	1.398 (0.000)***	1.129 (0.506)	1.004 (0.975)	1.241 (0.080)*
Construction sector	1.124 (0.432)	0.985 (0.953)	0.982 (0.961)	1.082 (0.579)	0.829 (0.588)	1.166 (0.359)	1.137 (0.411)
Trade Sector	1.149 (0.178)	0.662 (0.003)***	0.619 (0.050)*	1.324 (0.001)***	0.986 (0.929)	1.073 (0.543)	0.819 (0.160)
0% export turnover	0.940 (0.628)	0.562 (0.001)***	0.549 (0.007)***	0.973 (0.835)	0.754 (0.188)	0.861 (0.366)	1.031 (0.843)
Less than 25% export turnover	0.996 (0.974)	0.766 (0.105)	0.823 (0.224)	0.968 (0.808)	0.842 (0.445)	0.925 (0.578)	1.058 (0.654)
Between 25 and 50% export turnover	0.916 (0.546)	0.831 (0.384)	0.740 (0.372)	1.061 (0.651)	0.781 (0.325)	1.030 (0.862)	1.006 (0.979)
Age: less than 5 years	0.741 (0.132)	1.441 (0.121)	1.241 (0.338)	0.741 (0.118)	0.481 (0.064)*	0.906 (0.640)	1.460 (0.030)**
Age: between 5 and 10 years	1.218 (0.332)	1.382 (0.175)	1.374 (0.309)	0.966 (0.812)	0.995 (0.984)	1.379 (0.041)**	1.701 (0.004)***
Expected turnover: will increase	0.945 (0.533)	1.161 (0.252)	1.190 (0.324)	0.941 (0.533)	1.082 (0.628)	0.901 (0.273)	0.961 (0.706)
Expected turnover: will remain unchanged	0.743 (0.010)***	0.708 (0.037)**	0.605 (0.009)***	0.726 (0.007)***	0.504 (0.004)***	0.626 (0.000)***	0.676 (0.004)***

*P-values are reported in parentheses. Significance level: *** p < 0.01; ** p < 0.05; * p < 0.1.*

5. Discussion

The results obtained show that innovative companies seek more external sources of funding than non-innovative companies, opting for non-traditional funding sources, such as crowdfunding, to finance their innovation needs. Similarly, innovative companies face greater restrictions in accessing funding, encountering more difficulties in obtaining funds due to uncertainty regarding the success of new product and/or service launches. This situation hinders the development of their innovative activity, impeding the future of some ventures.

The financing of entrepreneurship in innovative companies, through various alternatives, is influenced by different business variables. In the case of crowdfunding, variables such as the SME's age, size and expected turnover are statistically significant in the logit model. Regarding this type of financing, unlike other funding sources studied, the age variable shows high statistical significance, increasing the success rate for newly created companies, where ventures would be classified, compared to older ones. This result aligns with research on alternative financing conducted by Chavis et al. (2011), Cichy and Gradoń (2016), and Rahman et al. (2016). According to these authors, technological and/or innovative companies obtain the liquidity needs that these innovative projects require through these financial mechanisms, primarily in smaller companies with restrictions on obtaining funds from bank loans.

It is common for the size and age variables to behave similarly in obtaining the funds required by the company. However, unlike the age variable, an increase in company size does not facilitate obtaining crowdfunding financing, allowing smaller companies with restricted access to other funding sources to obtain funds. This finding contradicts existing literature, which often considers size an indicator of greater ease in obtaining financing, as concluded by Brancati (2015), Calabrese et al. (2021), Casey and O'Toole (2014), and Ferri and Murro (2015).

Peer-to-peer platforms and crowdfunding often provide funding to companies for which bank credit products are unavailable or too expensive. This applies to entrepreneurial companies seeking bank financing, facing obstacles due to high costs, the need for collateral, or a lack of available loans (Rahman et al., 2016).

The sector variable also does not show statistical significance in accessing crowdfunding business financing. In traditional financing, such as bank loans, credit lines, and grants, the industrial sector shows high significance for obtaining these funding sources. This is due to the possibility of securing repayment of the obtained funds through the fixed assets these companies hold on their balance sheets. However, for innovative companies seeking crowdfunding, the sector in which they operate does not affect their ability to obtain these funds, making the business activity irrelevant. These results contradict previous studies in which sector does affect funding access, as indicated by Guercio et al. (2016) and Martinez et al. (2022).

It is important to highlight that the motivations of funders play a crucial role in this type of financing. In many cases, emotional factors may carry more weight than the actual economic return on investment. Such motivations include personal identification with the project's objectives, contributing to a social or environmental mission, and the satisfaction derived from being part of a specific community whose members share common priorities, the satisfaction of contributing to the success of a project, or of supporting a highly innovative initiative (Hemer, 2011).

Similarly, the nature of innovative companies makes accessing traditional financing, such as bank loans, challenging. The uncertainty about their future and success in developing products or services to commercialize, along with information asymmetries, high interest rates, collateral requirements, and shorter debt repayment periods, limit access to these funding sources, forcing them to opt for alternatives like crowdfunding to achieve their goals. This situation is even more pronounced for startups, with even more restricted access to traditional financing. This creates a problem for entrepreneurship, as the European economy is heavily bank-based, with bank financing being the primary source of funding for companies, restricting the entry of new businesses into the business ecosystem.

In contrast, when considering combinations of financing sources, microenterprises (1–9 employees) exhibit a significantly higher probability of accessing non-traditional financing configurations, particularly those involving equity and crowdfunding (Models 2, 3, and 7). This suggests that, despite their smaller size, innovative microenterprises are able to position themselves as recipients of alternative capital, possibly due to their flexibility, innovation-oriented focus, or involvement in entrepreneurial ecosystems.

Regarding the sector of activity, firms in the industrial sector consistently show a greater propensity to obtain combinations that include bank loans/credit lines and public grants (Models 1, 4, and 5), in line with the findings of Cosh et al. (2009) and Martinez et al. (2022). In contrast, the commerce sector exhibits a negative association in several models (2 and 3), which may be explained by its lower innovation intensity or weaker engagement with non-conventional financing instruments.

Export orientation also proves to be a relevant factor. Firms that do not allocate part of their turnover to exports are significantly less likely to access combinations involving equity and crowdfunding (Models 2 and 3), which may be attributed to lower visibility, reduced scalability, or a higher perceived risk profile from the perspective of investors, as suggested by Kaur and Kaur (2021).

Firm age plays a particularly important role in models that combine traditional and alternative financing sources. Firms aged between 5 and 10 years are more likely to obtain combinations including crowdfunding alongside other forms of financing (Models 3, 6, and 7), suggesting that this stage of relative maturity—where the firm has surpassed its initial phase but still retains an innovative and growth-oriented profile—offers an opportunity to access diversified capital. This is consistent with the findings of Rahman et al. (2016).

Finally, growth expectations emerge as a cross-cutting determinant: firms that expect their turnover to remain stable show a lower probability of accessing multiple financing sources across all models, reinforcing the notion that both public and private funders prioritize projects with growth potential.

Taken together, these findings suggest that access to combined sources of financing is not solely a matter of resource availability, but is also shaped by structural (e.g., firm size, sector), strategic (e.g., internationalization, growth expectations), and temporal (e.g., firm age) factors. These insights have important implications for the design of public policies and for the development of business strategies aimed at securing diversified funding.

Enhancing access to capital for innovative SMEs through the development of non-bank alternative financing mechanisms—such as crowdfunding—can serve as a strategic solution to mitigate current financial constraints, by fostering appropriate channels that promote entrepreneurship and competitiveness.

6. Conclusions

This study analyzed the business factors that facilitate access to funding sources for innovative SMEs, evaluating their joint impact on the likelihood of obtaining financing. The data used were derived from the Survey on the Access to Finance of Enterprises (SAFE), conducted by the European Central Bank and the European Commission in September 2022. For statistical analysis, logit regression models were formulated, incorporating business variables as key determinants in obtaining each type of financing, with particular focus on crowdfunding, both as an individual source and within combinations of multiple financing sources.

The findings show that innovative companies face greater restrictions in traditional financing, limiting their liquidity and growth capacity. In contrast, crowdfunding emerges as a viable alternative, especially for startups and smaller companies. This research demonstrated that business size affects the degree of financing obtained, increasing access to these sources as the company grows, but not in the case of crowdfunding financing. Entrepreneurship faces greater difficulties in

obtaining funds from banking institutions, limiting liquidity and hindering the development of innovations, while reducing their economic growth capacity. As a result, alternative financing must fill the gap left by traditional financing. Similarly, the sector determines success in obtaining traditional financing, being more likely in the industrial sector and indifferent for crowdfunding financing. On the other hand, age is not a variable that determines the success of traditional financing, although it does in the case of alternative financing instruments, which favors entrepreneurship.

Startups and innovative SMEs should consider crowdfunding and other alternative financing sources from the early stages of their development, as access to bank financing is often more restricted. Companies with high growth potential and scalable business models are more likely to attract investment through crowdfunding platforms. Additionally, diversifying funding sources—combining alternatives such as crowdfunding with private capital or grants—can enhance their financial stability and reduce dependence on a single funding source.

Although innovative companies are often perceived as high-risk investments, the results suggest that this risk does not always translate into low financial returns. To improve access to credit and promote investment in innovation, it is crucial to design more flexible financial instruments tailored to the reality of these companies, such as loans with conditions adjusted to their life cycle or hybrid financing mechanisms combining debt and equity.

Moreover, crowdfunding investors can optimize their selection process by using new evaluation criteria, considering not only the business's viability but also factors such as the company's age, scalability capacity, and market track record. This way, investment opportunities with high growth potential and long-term sustainability can be identified.

Public policies play a crucial role in promoting entrepreneurship and innovation. To reduce the financing gap faced by innovative SMEs, it is essential to promote the development of alternative financing platforms such as crowdfunding and business angel networks, as well as create fiscal and regulatory incentives that encourage their use.

Likewise, designing credit guarantee programs specifically for startups can facilitate access to financial resources in high-risk and high-impact sectors, where traditional financing mechanisms are often insufficient. These programs may include public guarantees, co-investment funds with private capital, or loan schemes with favorable conditions.

Finally, financial education in entrepreneurship and innovation should be strengthened, providing entrepreneurs and business owners with tools to improve their financial decision-making. Training in risk management, financing diversification strategies, and access to alternative financial instruments can contribute to a more dynamic and sustainable business ecosystem.

This research provides evidence regarding the success potential in obtaining financing for innovative SMEs, contributing to the literature on the financing gap for innovation. Understanding the different financing alternatives related to the characteristics of innovative companies will enable more informed and sustainable strategic decisions.

To further explore alternative business financing, several lines of research are proposed that could expand understanding of this emerging phenomenon. One possible avenue would be a longitudinal study analyzing the evolution of alternative financing sources, particularly crowdfunding, in the context of innovative companies. Such research would explore how funding preferences and practices have changed over time, considering external factors such as economic crises, technological advancements, or changes in financial regulation. Similarly, another relevant approach would be to conduct a comparative analysis between different economies. This study could yield varied results depending on the maturity level of alternative financing markets in each country, as well as the public policies implemented that either facilitate or restrict access to these funding sources. Specifically, the role of government policies, such as tax incentives or adapted regulatory frameworks, that directly affect the accessibility and effectiveness of crowdfunding in various national contexts, could be investigated.

The main limitation of this study is the nature of the SAFE survey data. Survey data is subject to the risk of bias. In this case, the conclusions are ultimately based on self-reported and therefore subjective information from companies. However, since the SAFE survey is continuously repeated, the risk of bias appears limited. On the other hand, the data focuses exclusively on European countries, excluding information from regions such as the United Kingdom and the United States, which prevents an analysis of how alternative financing operates in more consolidated markets. Including these regions could reveal significant variations in international contexts.

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