
FINANCING PREFERENCES IN MICROENTERPRISES: EVIDENCE ON INTERNAL VS. EXTERNAL FUNDING AND BEHAVIORAL DETERMINANTS

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Abstract:

This study investigates financing preferences in microenterprises, focusing on the use of internal and external sources of capital and behavioral determinants in financial decision-making. Microenterprises constitute a fundamental component of modern economies; however, their capital structure remains underrepresented in the empirical literature, which predominantly concentrates on larger firms. Addressing this gap, the paper analyzes financing behavior of microenterprise owners within the context of constrained access to external capital. The results indicate a clear predominance of internal financing, primarily retained earnings and owners' personal savings, used to support operations and smaller investment activities. External financing is employed more selectively and is generally associated with projects requiring higher capital expenditures. This pattern suggests a hierarchical approach to financing consistent with the pecking order theory and reflects constraints faced by microenterprises. The findings also demonstrate that behavioral factors, particularly attitudes toward indebtedness, play a significant role in financing decisions. Lower debt aversion is associated with a higher propensity to use external funding, whereas financial knowledge does not exhibit a statistically significant effect. The study contributes to the literature by integrating structural and behavioral perspectives and provides implications for policymakers and financial institutions seeking to improve access to finance for microenterprises.

Key words: *microenterprises, capital structure, sources of financing, behavioral determinant of capital structure*

1. Introduction

Microenterprises, defined as entities employing up to nine workers – often based on a self-employment model – constitute a key component of the structure of every national economy. Their share in the total number of business entities is significant both in highly developed countries and in emerging economies. According to Eurostat data, in 2023 microenterprises in the European Union accounted for over 80% of all enterprises, generating employment for more than 30% of the workforce. These entities make a

substantial contribution to enhancing the competitiveness of economies, stimulate innovation, and foster the development of entrepreneurial attitudes (Ogrean, C., & Herciu, M., 2021; Pedraza, 2021; Civelek et al., 2019). In addition, microenterprises that manage to overcome the challenges associated with the initial stages of operation often evolve into small and medium-sized enterprises (Matejun, 2013; Young, 2013).

Polish micro-enterprises exhibit structural characteristics that are broadly consistent with the European Union average, supporting their use as a representative proxy in comparative analyses. In particular, the share of micro-enterprises (0–9 employees) in the total enterprise population in Poland remains close to the EU benchmark, accounting for approximately 96% of all firms, compared to around 93% across the EU-28. Similarly, the overall share of small and medium-sized enterprises (SMEs) is virtually identical, reaching 99.8% in both Poland and the EU. In terms of employment, SMEs in Poland contribute approximately 67% of total jobs, which closely mirrors the EU-wide figure of 66.6%. This alignment extends to structural patterns of value creation: as observed across the EU, micro-enterprises in Poland dominate in terms of number but generate a relatively smaller proportion of total value added. (EC, 2019)

Furthermore, the behavioral profile of Polish micro-enterprises corresponds with patterns identified in the broader EU literature. These firms are typically characterized by high flexibility, strong owner-oriented profit motivation, prudent financial management, and relatively low capital intensity. Such features are widely recognized as defining attributes of SMEs across the European Union, reinforcing the comparability of Polish micro-enterprises with their EU counterparts (Pach, 2008).

The condition for the development of microenterprises is access to capital, which can be allocated both to investments and to the financing of current operational activities. Despite the existence of a wide spectrum of modern financial instruments, their practical use by microenterprises remains limited. This applies most strongly to the smallest business entities, which face significant barriers to accessing financing (Ermawati, 2025; Banda-Nyirenda, 2024; Wehinger, 2014; Kaya & Schildbach, 2014; Duan et al., 2009). However, this does not eliminate the fact that microenterprises use relatively diverse sources of capital, which leads to the formation of specific financing structures, different from those observed in the case of larger entities. In this context, capital structure in microenterprises can be understood in a broader sense as the configuration and use of available financing sources, including the choice between internal and external funding.

Capital structure has been a key research area in corporate finance for several decades. Numerous theories have emerged as a result of these analyses, attempting to explain the mechanisms of capital structure and identifying the determinants of financing decisions (see, among others, Bajaj et al., 2021; Khan et al., 2021; Rajput & Chawla, 2017). Empirical research findings verify the validity of specific theoretical approaches and demonstrate their usefulness in interpreting financial decisions, particularly those related to the sequencing of capital instrument use. It should be emphasized, however, that the vast majority of analyses focus on large enterprises operating in developed financial markets, where access to diverse financing sources is relatively broad.

However, there is significantly less similar research on microenterprises, due to both their specific nature and different decision-making conditions. In such entities, financial decisions are often less about optimizing a target capital structure and more about selecting feasible sources of financing under constraints. Therefore, analyzing

capital structure in microenterprises requires particular attention to financing choices, especially the use of internal versus external funds. In the authors' opinion, this area represents a clear research gap, the filling of which has significant theoretical and applied significance. From a scientific perspective, an in-depth analysis of capital structure in microenterprises can contribute to the development of corporate finance theory by considering categories of entities previously marginalized in the literature. A detailed examination of the factors determining capital structure, not only of a macroeconomic or institutional nature but also behavioral, seems essential. This group includes, in particular, the financial knowledge and competencies of owners and their attitudes toward risk and debt, which in the case of microenterprises are crucial for financial decision-making. From a practical perspective, the presented research results can provide a basis for designing instruments and programs supporting the process of obtaining financing by the smallest economic entities. These solutions, which take into account both institutional constraints and deficits in financial knowledge, are particularly important in economies where microenterprises play a fundamental role in the processes of socioeconomic growth and development.

2. Literature review

Capital structure – theoretical background

Capital structure is defined as a combination of diverse sources of financing, including surpluses generated within the enterprise, equity capital, and debt, which serve to finance both operating and investment activities (Ilie, L., & Vasiliu, 2022; Kumar et al., 2020). Although the literature has repeatedly emphasized that none of the existing theories fully explains the mechanisms underlying the formation of capital structure in enterprises, this issue continues to remain a central field of research in contemporary corporate finance (Myers, 1984).

Previous empirical analyses have focused primarily on large business entities characterized by a complex functional structure (including specialized financial departments and managers responsible for capital management), as well as broad access to diverse sources of financing (Boateng et al., 2022; Van Hoang et al., 2018; Parsons & Titman, 2009). However, transferring the existing theories of capital structure to the context of microenterprises encounters significant difficulties. This results from the fact that traditional approaches overlook key determinants specific to the smallest entities, such as the individual objectives of owners, their preferences regarding the level of indebtedness, and the constrained access to external financing (Romano et al., 2001).

In microenterprises, capital structure is less frequently the outcome of deliberate optimization of debt–equity proportions and more often reflects the availability and selection of financing sources. Therefore, analyzing capital structure in this context requires focusing on financing decisions, particularly the use of internal versus external funds.

Some researchers point out that financial decisions in microenterprises are made in a manner different from that in large organizations, and that the process of shaping capital structure in their case is more strongly determined by behavioral factors and institutional constraints (Lopez-Gracia & Sogorb-Mira, 2008; Gallo et al., 2004). Nevertheless, there is still a lack of in-depth empirical studies devoted to the specificity of

microenterprises, which constitutes a significant cognitive gap in the corporate finance literature.

Capital structure theories originate from the classic work of Modigliani and Miller (1958), which attempted to link decisions regarding the financing structure of enterprises with their market value. Assuming perfect competition, full market efficiency, and the absence of taxes and information access costs, the authors concluded that the choice of financing sources—and thus the shape of the capital structure—is neutral with respect to firm value. The extension of this approach to include taxation and the positive effect of the tax shield led to the formulation of the so-called static trade-off theory, according to which there exists an optimal combination of debt and equity that maximizes firm value.

The literature, however, emphasizes significant limitations in applying this theory to the smallest business entities (Chittenden et al., 1996). These limitations arise primarily from the fact that the costs of obtaining external capital are relatively higher for micro and small enterprises than for large firms. Moreover, although it is important from the perspective of microenterprises to distinguish between short-term financing (e.g., trade credit), long-term financing (e.g., bank loans), and equity capital, the relevance of the trade-off theory in explaining the financial decisions of the smallest enterprises has been consistently questioned (Daskalakis & Thanou, 2010; Hoang et al., 2018; Ang, 1992). Researchers point out that the potential tax benefits associated with the use of debt in microenterprises are minor and do not offset the costs related to the risk of financial distress or problems of information asymmetry.

The classical capital structure theory of Modigliani and Miller gave rise to the agency theory formulated by Jensen and Meckling (1976). However, the literature emphasizes that agency theory has limited applicability in explaining the capital structure of microenterprises (Daskalakis & Thanou, 2010; Poza et al., 2004).. This is primarily due to the absence of a typical separation between ownership and control. As a result, agency conflicts between managers and owners are significantly reduced, while other constraints—such as limited access to external finance—become more important.

Another important framework is the pecking order theory, proposed by Myers (1984), which assumes that the choice of financing sources results from the firm's current internal situation and prevailing market conditions. Within this framework, managers follow a specific hierarchy of preferences: they first use internal funds generated through operating activities, then resort to debt financing (mainly bank loans), subsequently rely on capital market instruments, and only as a last resort issue new equity. Numerous studies indicate that this theory accurately describes the behavior of small and medium-sized enterprises in selecting sources of financing (Kapkiyai & Kimitei, 2016).

In the context of microenterprises, the pecking order theory appears to be a particularly relevant—though not exclusive—framework for explaining financing decisions. This is due to several premises. First, microenterprises rely primarily on internal financing—both in the form of operating surpluses and owners' personal funds—since access to external sources of capital is often significantly constrained by cost, institutional, and informational barriers. Second, due to their scale of operations and organizational characteristics, microenterprises rarely have the opportunity to obtain financing from capital markets, while the use of bank debt entails relatively high costs and formal requirements. Third, the financial decisions of owner-managers in microenterprises are strongly influenced by behavioral factors, including the level of financial knowledge, risk

propensity, and perceptions of independence, which further reinforce their preference for financing sources that remain under their direct control. Beyond the structural constraints captured by the pecking order theory, the financing decisions of microenterprise owners are also shaped by cognitive and psychological mechanisms identified within the broader field of behavioural finance. Three constructs appear particularly relevant in this context. First, overconfidence — a well-documented cognitive bias among entrepreneurs (Busenitz & Barney, 1997) — may lead owner-managers to systematically overestimate their ability to self-finance operations, thereby reducing their perceived need for external capital. Second, loss aversion, as theorised by Kahneman and Tversky (1979), suggests that the potential loss of control associated with debt financing is weighted more heavily than the corresponding financial benefits, reinforcing reluctance toward borrowing even when it would be economically rational. Third, mental accounting (Thaler, 1985) implies that owners treat internal and external funds as psychologically distinct categories, attributing lower subjective costs to own capital regardless of its actual opportunity cost. Taken together, these behavioural mechanisms provide a theoretical foundation for the construct of credit mentality — understood as a stable, affectively charged disposition toward avoiding debt — that operates independently of, and in addition to, the informational and institutional barriers emphasized by structural theories.

Overall, these arguments suggest that financing decisions in microenterprises are systematically biased toward internal sources of capital, leading to their predominance over external financing. Despite the relatively extensive research on small and medium-sized enterprises, there remains a research gap concerning the applicability of existing theoretical frameworks to microenterprises. In light of the arguments presented above, the authors formulate the following research hypothesis:

H1: Microenterprises are more likely to rely on internal sources of financing than on external sources when financing their activities.

Sources of financing in micro-enterprises

The importance of microenterprises to the economy is undeniable, and their role is multidimensional. These entities not only contribute to the growth of gross domestic product but also play a significant role in the labor market – both by creating new jobs and by influencing the development of human capital through improving the education and competencies of employees (Kumar et al., 2020). Microenterprises represent the smallest category of business entities, often based on self-employment, in which the organizational structure is informal, and managerial and ownership functions are concentrated in a single individual (Vojtovic et al., 2016). They frequently operate in niche market segments – industries or regions that are unattractive to larger firms. Their small scale of operations, which may appear to be a limitation, can simultaneously serve as a source of competitive advantage by enabling flexible adaptation to changes in demand and consumer preferences, as well as relatively smoother navigation through periods of crisis (Civelek et al., 2019). On the other hand, microenterprises are characterized by a high failure rate, and their limited scale of operations results in a modest demand for capital and a low level of financial surpluses that could be allocated to business development (Villanger, 2015).

The specific features that distinguish micro-enterprises include: (Wattanakomol & Silpcharu, 2023; Suhaimi et al., 2016; Larson & Shaw, 2001):

- family-run business, often involving the employment – often informal – of family members,
- sole management concentrated in the hands of the owner,
- location in smaller towns or rural areas,
- operating primarily in the trade, service, and traditional craft sectors,
- relatively short-term business horizon, often with the prospect of transformation into a larger entity or discontinuation,
- low level of generated income.

As in larger enterprises, microenterprises make financial decisions concerning three key areas: obtaining capital and selecting sources of financing; investing in development projects; and managing working capital, including maintaining liquidity and allocating surpluses. However, the conditions under which decisions in these areas are made are specific. As noted by, among others, Francisco (2024) and Prijad et al. (2020), the financial management of microenterprises is characterized by, among other features:

- a specific dynamics of financing sources—at successive stages of development, internal surpluses play a dominant role rather than the substitution of equity with external capital;
- relatively low use of external financing sources, particularly bank loans;
- limited demand for capital resulting from the small scale of operations, which simultaneously restricts access to financing;
- a strong dependence of financial decisions on the owner's knowledge, experience, and competencies, which often renders the management process inefficient.

This specificity directly determines the choice of financing sources. Although microenterprises can utilize both internal and external sources, in practice their options are limited. The literature indicates that external financing sources are poorly diversified and consist primarily of bank loans, while the firm's own funds constitute the main alternative (Martinez Cillero et al., 2019; Romano et al., 2001). A high level of information asymmetry between banks and microenterprises results in the latter being perceived as high-risk borrowers, which generates additional monitoring costs (Van Hoang et al., 2018). Consequently, banks require higher levels and quality of collateral from microenterprises and apply higher loan margins, which makes the cost of financing relatively higher for them than for larger entities.

Given these constraints, internal funds—particularly owners' savings and operating surpluses—constitute the primary source of financing for microenterprises, especially in the case of operating activities, which are recurrent and relatively predictable. In contrast, investment expenditures are typically larger in scale and less divisible, and may exceed the internal financial capacity of microenterprises, thereby increasing the likelihood of using external financing. Analysis of the literature and the specific nature of microenterprises allows us to formulate the following research hypothesis:

H2: Microenterprises are more likely to use external financing for investment activities than for operating activities.

Research on the determinants of capital structure in the small and medium-sized enterprise sector is widely conducted, especially in developing countries, where the role of the smallest businesses is particularly important (Kumar et al., 2017). Research findings

indicate that SME financing decisions are influenced by both internal factors—such as size, profitability, and the stage of enterprise development—and external factors, including market conditions and the institutional and regulatory environment (Ahyar et al., 2024).

In the case of micro and small enterprises, behavioral factors are particularly important. The literature emphasizes that owners' personal goals, preferences, and attitudes toward debt significantly determine capital structure choices (Vieira, 2020; Zunckel & Nyide, 2019). Against this background, financial knowledge appears to be a key factor shaping decision-making processes (Liu et al., 2022). However, the role of financial knowledge in entrepreneurial decisions is ambiguous. Some studies indicate its positive impact: Tran et al. (2023) found that financial knowledge strengthens entrepreneurial intentions and motivations in students, and Kautsar and Asandimitra (2019) emphasized its importance for the success of young entrepreneurs, alongside financial attitudes and social capital. González-Prida et al. (2025) showed a positive relationship between financial education and decision rationality among micro-entrepreneurs, suggesting that a higher level of knowledge promotes more effective financial management and supports the sustainable development of companies.

At the same time, other studies do not confirm a clear and direct impact of financial knowledge on entrepreneurial decision-making. Astiti et al. (2019) and Mokko et al. (2022) found no significant relationship between the level of financial knowledge and entrepreneurs' investment decisions, thereby suggesting the contextual nature of this relationship. Both studies emphasized that financial attitudes and behaviors have greater significance for decision-making processes than theoretical knowledge itself. These findings are supported by the research of Culebro-Martínez et al. (2024), who demonstrated that practical financial skills and habits have a significant impact on firm performance, whereas financial knowledge does not exhibit a direct effect.

These findings highlight the complex and context-dependent nature of the relationship between financial literacy and entrepreneurial decisions. They suggest that while financial knowledge may play a role in shaping decision-making processes, its impact on financing choices in microenterprises is not clear-cut. In contrast, attitudes toward debt—captured by the concept of credit mentality—may be more directly related to decisions involving the use of external financing.

In this study, the authors use entrepreneurs' self-assessment of financial knowledge as an explanatory variable rather than an objectively determined level of knowledge. This approach is justified by the argument that subjective confidence in one's financial competence, rather than its actual level, may influence behavior. Research in economic psychology indicates that perceived competence affects risk-taking propensity and willingness to engage in financial activities (Phelps & Metzler, 2025; Tang & Baker, 2016). In the context of micro and small enterprises, where financial decisions are often made intuitively, such subjective assessments may shape financing choices. In light of the above, the research hypothesis was formulated:

H3: The level of financial knowledge and the credit mentality of the owner are associated with the likelihood of using external financing in microenterprises; however, a lower level of debt aversion (i.e., a more positive credit mentality) has a stronger and more direct effect on the use of external financing.

3. Methodology

The research was carried out using the CAWI (Computer-Assisted Web Interview) approach, based on a questionnaire designed by the author and informed by existing literature (Singla & Malik, 2021). The survey instrument was evaluated by experts from a research institution as well as by microenterprise owners to ensure its content validity and clarity; however, a formal pilot study was not performed. Data collection was commissioned to a specialised survey research company, which was responsible for the standardised recruitment of respondents and the technical implementation of the survey. The questionnaire was distributed online through the company's internet panel, with participation being both voluntary and anonymous. Due to the open-access nature of the panel-based distribution, a precise response rate could not be calculated. Data collection took place between August 1 and August 15, 2023. The final sample included 235 microenterprise owners—defined as businesses employing up to nine people—and only fully completed responses were analyzed. When interpreting the findings, it is important to take into account the limitations of the CAWI method, such as self-selection bias and possible issues with sample representativeness. The decisive criterion for inclusion in this category of business entities was the level of employment (up to 9 people). The characteristics of the research sample are presented in Table 1.

Table 1. Descriptive statistics - research sample

Sample N		(%)
		235 (100%)
gender (G)	female	36.47
	male	63.53
age (A)	18 - 25	25.53
	26 - 35 years	34.89
	36 - 45 years	28.51
	46 - 55 years	7.23
	up 55 years	3.83
average age (years)		33.25
median age (years)		33.00
education (EL)	primary and vocational	3.75
	secondary	27.84
	higher	69.41

Source: authors' own research

The average respondent was a man aged 26-35 with a university degree. Therefore, consistent with previous research, he could potentially be considered one of the most frequent users of digital information sources.

The survey asked respondents about their self-assessment of financial knowledge. Table 2 presents the results. While this profile suggests an overrepresentation of younger, highly educated male owners, a precise assessment of sample representativeness is constrained by the limited availability of detailed demographic data on the population of Polish microenterprise owners. Official statistics typically describe firm-level characteristics rather than the personal profiles of their owners, making direct comparisons difficult. This limitation is acknowledged, and the findings should be interpreted accordingly.

Table 2. Self-assessment of the level of financial knowledge

Sample N		(%)				
		235				
self-assessment of financial knowledge (SA)		very high	high	average	low	very low
gender (G)	female	1.14	17.05	68.18	11.36	2.27
	male	3.40	29.25	61.90	5.44	0.00
age (A)	18 - 25	1.67	21.67	66.67	10.00	0.00
	26 - 35 years	2.44	28.05	60.98	8.54	0.00
	36 - 45 years	4.48	28.36	58.21	5.97	2.99

Source: authors' own research

The most frequently used sources of financing for operational and investment activities, indicated by entrepreneurs, were divided into external and internal. A summary of these two groups of sources, broken down by type of activity financed, is presented in Table 3.

Table 3. The use of external sources in financing operating and investment activities

Type of activities	External sources	Internal sources
Investment activities	46	185
Operating activities	10	220

Source: authors' own research

The following statistical methods were used to verify the research hypotheses:

- 1-sample test for equality of proportions with continuity correction,
- 2-sample test for equality of proportions with continuity correction,
- Logistic regression (including Firth's logistic regression).

In the 1-sample test, the null hypothesis is that the underlying probability of success is p , or 0.5 if p is not given. The alternative hypothesis is that the probability of success is less than, not equal to, or greater than p or 0.5. For two groups, the null hypothesis is that the proportions in each group are equal. The alternative hypothesis is that the probability of success in the first group is less than, not equal to, or greater than the probability of success in the second group.

To verify research hypothesis H1, a one-sample proportion test was applied, with the alternative hypothesis assuming that the probability of using internal sources of financing is greater than the probability of using external sources. The second research hypothesis (H2) was verified using a two-sample proportion test, with the alternative hypothesis assuming a higher share of external financing for the Investment activities group compared to the Operating activities group. In both tests, Yates's continuity correction was applied.

Logistic regression was employed to verify research hypothesis H3. The dependent variable in the logistic regression model was the use of external sources of financing. Operating and investment financing were analyzed separately. In addition to financial knowledge and credit mentality, the model also included demographic characteristics and professional experience, expressed as the number of years of business operation.

The general form of the logistic regression model is as follows:

$$Y = \text{logit}(p_i) = \beta_0 + \beta_1 A_i + \beta_2 G_i + \beta_3 EL_i + \beta_4 EX_i + \beta_5 SA_1 + \beta_6 CM_i \quad (1)$$

where:

Y – dependent variable

1) Using external sources of financing for operational activities: *OPER_EXT*: uses = 1, does not use = 0

2) Using external sources of financing for investment activities: *INV_EXT*: uses = 1, does not use = 0

G – gender: female = 2, male = 1

A – age: years

EL – level of education: number from 1 to 7

EX – experience: number of years of conducting a business

SA – self assessment of financial knowledge: number from 1 to 5

CM – credit mentality: positive attitude towards debt = 1, negative attitude towards debt = 0

β_0 – intercept

β_i – coefficients, $i = 1 \dots 6$

Self assessment of financial knowledge (SA) was measured using a single survey item in which respondents were asked to evaluate their own financial knowledge on a five-point ordinal scale, ranging from 1 (*very low*) to 5 (*very high*). This approach reflects a deliberate choice to capture subjective rather than objective financial literacy, consistent with research indicating that perceived financial knowledge plays a distinct and independent role in shaping financial decision-making behavior (Allgood & Walstad, 2016). The exact wording of the item was: "*How would you assess your knowledge of finance?*", with response categories ranging from *very low* to *very high*.

Credit mentality (CM) was operationalised as a binary variable derived from a single survey item in which respondents were asked to express their opinion on taking on debt. The item offered four response categories: (a) "*I have no problem with being in debt; I believe it can sometimes be helpful and profitable*"; (b) "*I have no problem with being in debt; I believe it is necessary for business development*"; (c) "*I do not like being in debt, but I believe it is sometimes necessary*"; (d) "*I do not like being in debt; I do not consider it necessary and I do not wish to use external capital*." Respondents selecting options (a) or (b) were coded as holding a positive attitude toward debt (CM = 1), while those selecting options (c) or (d) were coded as holding a negative attitude (CM = 0). This dichotomisation reflects a conceptually meaningful distinction between owners who are fundamentally open to debt financing and those who are averse to it, regardless of the specific reasoning behind their attitude. While reducing a nuanced construct to a binary variable entails a loss of granularity, this approach was considered appropriate given the exploratory nature of the study and is acknowledged as a limitation.

After examining the cross-tabulations for the dependent and independent variables, large differences in group sizes were revealed for some variables, as well as the occurrence of groups with zero counts. For example, there are no respondents who rated

their financial knowledge as high or very high and at the same time declared the use of external sources to finance operating activities. Consequently, the phenomenon of complete data separation occurs for certain variables. These issues pertain to the case where the dependent variable is the use of external financing for operating activities. Therefore, for this case, Firth's logistic regression, which is robust to such problems, was applied.

All calculations were performed using the RStudio software, version 2025.05.0

4. Results/findings

To examine whether internal sources of financing dominate in microenterprises (H1), an exact binomial test was applied. The null hypothesis assumes equal probabilities of using internal and external financing, while the alternative hypothesis assumes a higher probability of using internal sources. The results are presented in Table 4 .

Table 4. Results of exact binomial test

number of successes	405
number of trials	461
p-value	< 2.2e-16
95 percent confidence interval	
0.8505863	1.0000000
sample estimates: probability of success	0.8785249

Source: author' own calculation

The probability of success – that is, in this case, the use of internal sources of financing – is significantly higher than 0.5 (by nearly 38%).

Hypothesis H1: stating that microenterprises are more likely to rely on internal sources of financing than on external sources when financing their activities, is supported. The result of the binomial test ($p < 2.2e-16$) clearly indicates that microenterprises finance their activities significantly more often from internal sources—such as operating surpluses or owners' savings—than from external capital. The probability of using internal financing amounted to as much as 87.85%, implying that nearly nine out of ten firms in the examined sample rely primarily on their own funds. This finding is consistent with the predictions of the pecking order theory and reflects the constrained access to external financing faced by microenterprises. It suggests that internal financing constitutes the primary mechanism for maintaining liquidity and supporting business development, whereas external financing plays a supplementary role. e.

To examine whether external sources of financing are used more frequently for investment activities than for operating activities, a two-proportion test was applied. The null hypothesis assumes that the use of external financing is identical across both types of activities, whereas the alternative hypothesis assumes a higher frequency of external financing in the case of investment activities (right-tailed test). The test results are presented in Table 5.

Table 5. Results of proportions test

χ^2 (chi-squared):	24.727
p-value:	3.302e-07
95 percent confidence interval	
0.1027677	1.0000000
Proportion 1 (investment)	Proportion 2 (operating)
19.91%	4.35%

Source: author' own calculation

. It should be emphasized that both types of financing decisions (operating and investment) are reported by the same respondents, which implies a within-subject (paired) structure of the data. Consequently, the results should be interpreted as reflecting differences in financing choices within firms rather than independent group comparisons.

The result of the two-proportion test ($\chi^2 = 24.727$, $p = 3.302e-07$) allows for the rejection of the null hypothesis. The proportion of external financing is significantly higher for investment activities (19.91%) than for operating activities (4.35%). Accordingly, Hypothesis H2, stating that microenterprises are more likely to use external financing for investment activities than for operating activities, is supported.

The results indicate that entrepreneurs differentiate their financing choices depending on the nature of the activity. This means that microenterprises are more likely to seek external capital for investment purposes –especially those requiring larger expenditures while their current operations are largely financed from internal funds. This demonstrates a selective approach of entrepreneurs to the use of external financing – which is perceived as justified only in situations where the undertaking is developmental in nature and exceeds the firm's self-financing capacity. Overall, these findings suggest that microentrepreneurs follow a cautious debt strategy, using credit or loans mainly for investment rather than operational purposes.

The parameters of the Firth logistic regression model for the dependent variable external financing of operating activities are presented in Table 6.

Table 6. Model 1 fitted by Penalized ML

variable	coef	se(coef)	lower 0.95	upper 0.95	Chisq	p-value
(Intercept)	-5.63557731	3.79013511	-19.5867962	1.82846687	2.01847264	0.1553954
A	-0.03522788	0.04665256	-0.1659301	0.05826856	0.46708006	0.4943336
G	0.84187751	0.69345762	-0.5150745	2.55209871	1.40640877	0.2356535
EL	0.34767727	0.44078022	-0.3672405	2.34429920	0.52350149	0.4693519
EX	0.08102491	0.06298504	-0.0556064	0.23219616	1.38098525	0.2399334
SA	-0.07092161	0.46582348	-1.0867979	0.98021843	0.01778433	0.8939103
CM	-0.15723335	0.69063571	-1.8591997	1.19285956	0.04541288	0.8312466
Likelihood ratio test=3.390333 on 6 df, p=0.7584986, n=230						
Wald test = 92.81281 on 6 df, p = 0						

Source: author' own calculation

None of the explanatory variables proved to be statistically significant (high p-values for both the coefficients and the overall model). his outcome is primarily attributable to the substantial imbalance in the distribution of the dependent variable: out of 230

observations, only 10 cases involve the use of external financing. This results in limited statistical power and quasi-complete separation, which undermines the reliability of standard inference. Consequently, the results for operating activities should be interpreted with caution. For the dependent variable external financing of investment activities, the parameters of the Firth logistic regression model are presented in Table 7.

Table 7. Model 2 (fitted by Penalized ML)

Variable	coef	se(coef)	lower 0.95	upper 0.95	Chisq	p-value
(Intercept)	-1.94018197	1.74443623	-5.547900212	1.47418048	1.23213236	0.26699274
A	0.04053793	0.02237049	-0.004360245	0.08482494	3.14390401	0.07621118
G	0.04146635	0.35117640	-0.646853131	0.75029331	0.01369732	0.90683189
EL	-0.02355744	0.17211509	-0.346718996	0.36182056	0.01782337	0.89379466
EX	-0.03957033	0.03874424	-0.122235973	0.03496901	1.05404698	0.30457687
SA	-0.25069281	0.26153576	-0.774823597	0.26929175	0.89647972	0.34372738
CM	0.68816414	0.35041181	-0.013956274	1.37571161	3.69316789	0.05463575
Likelihood ratio test=8.451498 on 6 df, p=0.2068553, n=231						
Wald test = 70.16079 on 6 df, p = 3.790301e-13						

Source: author' own calculation

In this case, the p-values associated with all explanatory variables, as well as with the overall model, exceed conventional significance levels, indicating that the full model does not significantly improve upon a null specification. Therefore, the model does not provide meaningful explanatory power. However, the variables age (A) and credit mentality (CM) exhibit p-values close to the threshold of statistical significance.. Consequently, an additional model was estimated including only these independent variables. The parameters of this model are presented in Table 8.

Table 8. Model 3 fitted by Penalized ML

variable	coef	se(coef)	lower 0.95	upper 0.95	Chisq	p-value
(Intercept)	-2.38623899	0.61462132	-3.629638474	-1.19989315	15.883903	0.0000673491
A	0.02271608	0.01636725	-0.009886745	0.05492206	1.882746	0.1700223267
CM	0.77597818	0.34630216	0.087117304	1.45292159	4.851357	0.0276243937
Likelihood ratio test=6.467353 on 2 df, p=0.03941233, n=231						
Wald test = 70.70512 on 2 df, p = 4.440892e-16						

Source: author' own calculation

In the reduced model, age remains statistically insignificant, whereas credit mentality is statistically significant ($p = 0.0276$). The overall model is also statistically significant (likelihood ratio test, $p < 0.05$), indicating that the reduced specification provides a better fit to the data.

It was verified that for the variable CM, there are no zero counts across groups and that the group sizes are sufficiently large (Table 9) to construct a standard logistic regression model (Table 10).

Table 9. Group counts for the variable CM – cross-tabulation

INV_EXT	CM = 1	CM = 0
Uses external sources	18	28
Does not use external sources	43	142

Source: author' own calculation

Table 10. Model 4 (Logistic regression)

variable	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	-1.6236	0.2068	-7.852	4.09e-15 ***
CM	0.7528	0.3487	2.159	0.0308 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Null deviance: 230.63 on 230 degrees of freedom
Residual deviance: 226.12 on 229 degrees of freedom
AIC: 230.12

Source: author' own calculation

The variable CM is statistically significant ($p < 0.05$), although the model provides only a modest improvement in fit.. The difference between the null deviance and the residual deviance, that is χ^2 , amounts to 4.51; however, this difference is statistically significant, since for $\chi^2 = 4.51$ and $df = 1$, the p-value is 0.03369 ($p < 0.05$).

The predicted probability of using external financing is 16% for entrepreneurs with a negative attitude toward debt and 30% for those a more positive credit attitude (Table 11).

Table 11. Values predicted from Model 4

CM	Predicted	95% CI
	0.16	0.12, 0.23
1	0.30	0.19, 0.42

Source: author' own calculation

This indicates an almost twofold increase in the likelihood of using external sources of financing among entrepreneurs who are not afraid of incurring debt, compared to those who are averse to it. The direction of the effect is consistent with intuition — if an entrepreneur does not mind being in debt, they are more likely to take out a loan or credit.

For the obtained model, the odds ratio was calculated at 2.12, which means that the odds of using external sources of financing among individuals who do not have a problem with incurring debt are 2.12 times higher (i.e., 112% higher) than among those who are reluctant to borrow (Table 12). This effect is consistent with the predicted probabilities reported above.

Table 12. Odds Ratio

Characteristic	OR ¹	95% CI	p-value
CM	2.12 *	1.06, 4.19	0.031

¹* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Abbreviations: CI = Confidence Interval, OR = Odds Ratio

Source: author' own calculation

In the case of hypothesis H3 which assumes that the level of financial knowledge and credit mentality are associated with the likelihood of using external financing, with a stronger and more direct effect of credit mentality, the results provide partial support.

The initial logistic regression models (Models 1 and 2) did not yield statistically significant effects for any of the explanatory variables, which may be partly attributable to the substantial imbalance in the dependent variable and related estimation constraints. However, in the reduced model specifications, credit mentality emerges as a statistically significant predictor of external financing ($p = 0.0276$ in Model 3; $p = 0.0308$ in Model 4), with an estimated odds ratio of 2.12. This indicates that entrepreneurs with lower debt aversion have more than twice the odds of using external financing compared to those who are reluctant to borrow.

In contrast, self-assessed financial knowledge does not exhibit statistical significance in any model specification. These findings suggest that attitudes toward debt have a more direct and robust relationship with financing decisions than financial knowledge alone, which provides partial support for H3. At the same time, the absence of a significant effect for financial knowledge indicates that its influence may be indirect or context-dependent.

It should be emphasized that the estimated relationships are conditional on a limited set of control variables (demographic characteristics and experience) and do not account for firm-level or credit-market factors, such as profitability, collateral, or access to financial institutions. Consequently, the results should be interpreted as indicating associations rather than causal relationships.

5. Discussions

Although the issue of financing source selection among SMEs has been widely examined in the literature, research specifically addressing the capital structure of microenterprises remains relatively limited. While some studies do consider microenterprises or related financing behaviors in different contexts, there are few that are directly comparable in terms of research design, applied constructs, and country-specific setting. To the best of the authors' knowledge, no existing studies closely replicate the analytical framework adopted in this paper, which constrains the scope for direct comparison of results. The descriptive results indicate that internally generated operating income was the predominant source of financing for both current operations and investment expenditures among the surveyed microenterprises. This finding is consistent with the results reported by Backer et al. (2020) and Daskalakis et al. (2013), who, in independent studies, likewise demonstrated that SME entrepreneurs prefer internal funds (operating income and household savings). The descriptive analysis further shows that external financing for operating activities was used only by a small proportion of respondents. Such a financing pattern is consistent with the pecking order theory, according to which firms satisfy their short-term financing needs primarily through internally generated resources. In this context, the absence of statistically significant predictors in the regression model for operating financing should be interpreted with due caution and in light of the observed financing structure of the analysed microenterprises.

The main reason for this phenomenon lies in the difficulties associated with obtaining external financing (World Bank, 2023; Beck & Kessler, 2023; Muridan & Ibrahim, 2018). These difficulties stem from the fact that most small firms have a short operating history and possess limited asset and financial resources, and thus lack sufficient collateral required by financial institutions (Muridan & Ibrahim, 2018) as well as adequate credit capacity. Prijadi et al. (2020) further showed that financing challenges arise because managers of such firms are often unable to prepare credit applications or lack sufficient knowledge of financial matters. Nicolas (2022) also emphasizes that microenterprises face greater difficulties in financing their day-to-day operations.

These observations correspond closely with the findings of our study, which indicate that it is not financial knowledge per se but rather credit mentality that constitutes a significant variable influencing the choice of financing sources.

The results obtained by the authors, indicating the dominance of internal financing among microenterprises, are consistent with the findings of numerous studies conducted in various countries and economic contexts—although mainly concerning SMEs. As shown in analyses by the Bank of England (Bora et al., 2024), nearly half of British SMEs finance their investments exclusively from their own funds, preferring slower, organic growth over taking on external debt. Similar tendencies have been observed in studies conducted in euro area countries within the framework of the cyclical report Survey on the Access to Finance of Enterprises (SAFE, 2024), where entrepreneurs declared that they primarily rely on equity and retained earnings, while external financing is used only when internal resources prove insufficient.

These findings are further supported by comparative studies carried out across the European Union, which demonstrated that the share of internal capital in the financing structure of SMEs is significantly higher than that of capital obtained from external sources (Kosmala et al., 2020). Importantly, the Banka Slovenije (2024) report revealed that an increasing number of enterprises do not apply for loans at all, believing that their own funds are sufficient to finance ongoing operations.

The literature emphasizes that the reasons for this situation include both institutional factors—such as high credit costs, collateral requirements, and economic uncertainty—and behavioral factors, including entrepreneurs' aversion to debt and their preference for maintaining full decision-making independence (Beck & Kessler, 2023; World Bank, 2023). The convergence between these findings and the results of our study confirms that the dominance of internal financing among the smallest enterprises is a universal phenomenon, resulting from the combined effects of market constraints, institutional barriers, and business owners' attitudes toward indebtedness.

However, it should also be noted that there is substantial evidence indicating that enterprises tend to rely more heavily on external capital at specific stages of their development. Studies by Berger and Udell (2006) and Casey and O'Toole (2014) show that during periods of rapid growth or when undertaking investment projects, small and medium-sized enterprises are more inclined to use bank loans and debt financing. Similarly, Beck and Demirgüç-Kunt (2006) point out that access to external financing fosters firm expansion, increases productivity, and enables investment in technological innovation.

In the same vein, Hall et al. (2016) demonstrated that firms with high innovation potential are more likely to seek external capital—both debt and equity—since internal

financial resources are insufficient to cover the costs of research and development activities. Moreover, research by Brown, Martinsson, and Petersen (2017) shows that high-growth technology firms are more willing to use external financing, particularly venture capital and bank credit, which allow them to scale their operations more rapidly.

Nevertheless, even in such cases, decisions regarding the use of external capital are closely dependent on the perceived risk, cost of debt, and stability of the financial environment (OECD, 2023). This indicates that although internal financing remains the dominant source of funds in the micro and SME sectors, under certain developmental and strategic conditions the importance of external sources increases, serving as a key factor enabling growth and innovation.

Nyanamba et al. (2013) examined the determinants of the capital structure of microenterprises and found that the factors influencing decisions regarding the choice of financing sources include access to capital markets, firm size and profitability, and the lender's attitude toward the borrowing enterprise. Banks and financial institutions were identified as the most preferred sources of external financing for microenterprises. Similar findings were reported by Zunckel and Nyide (2019), who demonstrated that firm size, firm age, and the manager's personality traits all affect the capital structure of microenterprises.

The results of these studies are partially consistent with our analysis, which indicates that demographic characteristics do not significantly influence the choice of financing sources; instead, certain behavioral traits of entrepreneurs play a more important role.

Studies by Gompers et al. (2010) and Nofsinger and Wang (2011) suggest that entrepreneurs with greater experience encounter fewer obstacles in obtaining external financing and are more likely to use it. Additionally, Cole (1998) found that experience also increases entrepreneurs' access to credit, while Wu et al. (2008) emphasized the role of positive, long-term relationships with clients and lenders. However, our findings did not confirm the significance of business experience or the entrepreneur's age, which can to some extent be associated with life experience, in determining the choice of financing sources. These characteristics were not statistically significant in the models developed in our study.

The present study is subject to several limitations that should be carefully considered when interpreting the findings. First, the sampling procedure employed in the research was not fully random, which may introduce a degree of selection bias and limit the statistical generalizability of the results. Nevertheless, it should be emphasized that obtaining a strictly random sample in studies involving microenterprises is inherently difficult. This difficulty stems from the high fragmentation of this population, the lack of comprehensive and publicly available sampling frames, and the often limited accessibility of such firms, which together constrain the feasibility of implementing fully probabilistic sampling methods.

Second, the empirical analysis was conducted exclusively on Polish microenterprises. While, as discussed in this study, Polish microenterprises share many structural and behavioral characteristics with their counterparts across the European Union, which supports their use as a reasonable reference group, the findings should nonetheless be generalized with caution. Country-specific institutional, economic, and cultural factors may still influence financial behavior, which means that the results may not fully capture the diversity of microenterprise practices across different EU member states.

At the same time, this limitation provides a valuable direction for future research. In particular, extending the analysis to microenterprises operating in other national contexts would allow for more comprehensive cross-country comparisons and help to verify the extent to which the observed patterns are consistent across different institutional environments. Such comparative studies could further enhance the external validity of the findings and contribute to a more nuanced understanding of microenterprise financial behavior at the European level.

Third, the study did not include a formal pilot study, and consequently no psychometric data are available for the measurement instruments employed. It should be noted, however, that the two key behavioural variables — self-assessed financial literacy and credit mentality — were each measured using single items, for which classical scale reliability indicators, such as Cronbach's alpha, are not applicable. For such measures, measurement quality is assessed primarily through the lens of content validity, which was ensured through expert and practitioner consultations conducted prior to fieldwork. This limitation is nonetheless consciously acknowledged, and should be taken into account when interpreting the findings related to the behavioural constructs.

A further limitation concerns the timing of data collection, which took place exclusively in the first two weeks of August 2023. As August is traditionally a holiday period in Poland, the respondent profile may be skewed toward more actively engaged owners, while the financial attitudes reported may reflect seasonal rather than typical operating conditions. Although there is no strong reason to expect that this bias systematically distorts the core findings, the possibility cannot be excluded and should be taken into account when interpreting the results.

An additional limitation concerns the use of reduced model specifications. These models were estimated after the full model specifications in order to facilitate the interpretation of the observed relationships. Accordingly, the corresponding findings should be interpreted with appropriate caution and regarded as complementary to the results obtained from the full models. Future research using pre-specified model specifications would allow the robustness of these relationships to be assessed more comprehensively.

Another limitation relates to the low prevalence of external financing for operating activities in the analysed sample. Although Firth's penalized logistic regression was applied to reduce estimation bias associated with sparse data, the limited number of positive observations constrained the possibility of detecting statistically significant relationships for this outcome. Future studies including a larger number of firms using external financing for operating activities would provide an opportunity to further examine the determinants of these financing decisions.

Taken together, these results suggest that additional factors beyond those included in the present analysis may also contribute to financing decisions in microenterprises.

6. Conclusions

The analysis of the capital structure of microenterprises reveals identifiable patterns in financial behavior and decision-making among small business owners. One of the principal findings is the predominance of internal financing in the operations of these enterprises. Microentrepreneurs primarily rely on operating surpluses and owners'

personal savings to fund both day-to-day activities and investment projects. This financing pattern may be consistent with a cautious approach to risk, with an emphasis on maintaining a degree of autonomy and financial stability. The preference for self-financing also aligns with the pecking order theory, according to which internal funds are typically utilized first, while external financing is considered a supplementary source.

At the same time, the results indicate that microenterprises tend to use external financing selectively, mainly in the case of investment projects requiring larger capital outlays. This suggests that entrepreneurs distinguish between routine operational expenditures and larger strategic investments in their financial decision-making. Day-to-day operations are largely supported by internal resources, whereas external capital is used when internal funds are insufficient to support growth-oriented activities. Such an approach may indicate that microenterprise owners balance cautious financial management with the pursuit of development opportunities, although this interpretation should be treated with caution given the limits of the available data.

Behavioral factors also appear to be relevant to financial decision-making. Among the variables considered, the owner's attitude toward indebtedness (credit mentality) was the only variable that showed a statistically significant association with the use of external financing and this relationship was observed only for investment financing in the reduced model specification... Entrepreneurs who exhibit lower aversion to debt are more likely to engage in external financing, suggesting that attitudes and perceptions may influence capital structure decisions. This observation is consistent with previous studies indicating that behavioral factors may shape financial behavior independently of formal financial knowledge, which was not statistically significant in the present study. At the same time, the reduced model showed only modest overall fit, indicating that the explanatory contribution of credit mentality should be interpreted with appropriate caution.

No statistically significant predictors were identified for operating financing. This result should be interpreted in the context of the financing structure observed in the analysed sample, where external financing for operating activities was relatively uncommon. Consequently, the limited number of positive observations reduced the possibility of identifying statistically significant relationships for this outcome despite the application of Firth's penalized logistic regression...

An summary, microenterprises appear to follow a selective and context-dependent approach to financing. Internal funds constitute the primary basis for maintaining liquidity and supporting ongoing operations, while external financing is used in more specific circumstances, particularly to support investment activities. The findings suggest that attitudes toward debt may be associated with the use of external financing, particularly in the context of investment decisions. However, this relationship was identified only in the reduced model specification, which showed a modest overall fit. Accordingly, the observed association should be interpreted with appropriate caution and in light of the exploratory nature of the supplementary analyses and the study limitations. These findings may provide useful insights for policymakers and financial institutions seeking to design financial instruments and support mechanisms better suited to the needs of microenterprises.

The study has several limitations that should be considered when interpreting the findings. First, the reduced model specifications were estimated as supplementary exploratory analyses and therefore require confirmation in future studies based on pre-

specified model specifications. Second, the very low prevalence of external financing for operating activities limited the explanatory value of the corresponding regression model despite the application of Firth's penalized logistic regression. Finally, credit mentality was operationalised as a binary construct, and broader behavioural characteristics, such as risk attitudes or financial prudence, were not directly measured. Future research should examine these relationships using broader behavioural measures, larger samples, and more diverse financing patterns among microenterprises.

These findings may provide useful insights for policymakers and financial institutions seeking to design financial instruments and support mechanisms better suited to the needs of microenterprises. Future research should further examine the behavioral mechanisms underlying financing decisions using broader measures and samples including a greater diversity of financing patterns.

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