



# Advisors for micro-entrepreneurs: is one as good as another in accessing alternative finance?

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**Abstract** Using a novel large database of Italian micro-entrepreneurs, we investigate how different sources of external business advice affect access to alternative finance. We distinguish three categories of external business advice: professional financial, professional non-financial, and non-professional. We also test whether financial knowledge of micro-entrepreneurs enhances their advice seeking for financial decision-making. We find that the use of alternative financial instruments increases when external business advisors are used, but some are more useful than others. Only professional financial advice is shown to increase the probability of accessing alternative finance by micro-enterprises, while non-professional and professional non-financial advice does not have the same effect. We also find that being more financially literate increases the probability that micro-entrepreneurs seek advice from highly professional sources, i.e., objective financial knowledge helps shape the quality of financial advice requested.

**Plain English Summary** Do external business advisors help micro-entrepreneurs access alternative finance? Yes, they do. But only if they are professional financial advisors. Focusing on Italy, where 90–95% of all SMEs are micro-SME, as in the most

of EU-27 Member States, our paper demonstrates that the source of advice matters to access alternative finance. We distinguish three categories of external business advice: professional financial (financial intermediaries and external financial consultants), professional non-financial (external accountants and public institutions), and non-professional (relatives, friends, and business partners). Only professional financial advisors increase the probability of using alternative financial instruments by micro-enterprises, while non-professional and professional non-financial advisors do not. This implies that micro-entrepreneurs, to diversify their sources of funding, should overcome their concerns related to the value and expense of specialized financial advisory services and improve their use. Moreover, our paper shows that being more financially literate increases the probability that micro-entrepreneurs seek advice from highly professional sources. From a policy perspective, this implies that governments should encourage and support the use of business professional financial advisors among micro-entrepreneurs, both directly by giving tax advantages to financial advisory services, and indirectly by strengthening financial education programs targeting micro-entrepreneurs.

**Keywords** External business advice · alternative finance · micro-entrepreneurs · financial knowledge

**JEL Classification** L26 · G53 · G2

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## 1 Introduction

This study aims to investigate the effect of different external advisors on access to alternative finance of micro-entrepreneurs, and the role played by micro-entrepreneurs' financial knowledge in advice seeking.

The promotion of an efficient and dynamic operating environment for micro, small and medium enterprises (MSMEs),<sup>1</sup> essential for their contribution to economic growth, is one of the most important policy issues in both developed and developing countries, also suggested by Sustainable Development Goal (SDG) 9. In 2022, about 24.3 million MSMEs were active in the EU-27, accounting for 99.8% of all enterprises in the non-financial business sector (NFBS) and for about two-thirds of EU-27 NFBS employment (Di Bella et al., 2023). Among these firms, 90–95% were micro-enterprises, i.e., firms employing nine people or fewer and having a balance sheet or turnover less than 2 million euros, accounting for 36% of MSME value added, and 46% of MSME employment in the NFBS.

Although the diversification of funding sources is a key factor for the growth of MSMEs (Bongini et al., 2021; De Blick et al., 2024), their external financing in Europe is still primarily bank-based (Calabrese et al., 2021; Finnegan & Kapoor, 2023). Unfortunately, in recent years, micro, small and medium entrepreneurs have faced growing difficulties in accessing the traditional European banking channel, which is characterized today by increasing digitalization, reliance on quantitative data, and centralization of credit decisions (Finaldi Russo et al., 2024). These changes have amplified MSMEs' problems in accessing bank credit products due to informational opacity, lack of adequate external and internal collateral, volatile cash flows, and high leverage (Finnegan & Kapoor, 2023; Le et al., 2024). Many European governments, aware that bank financial constraints and overreliance on bank lending can hinder the economic growth of MSMEs, have recently proposed policies to facilitate MSME access to alternative external financial resources (Bongini et al., 2021; OECD, 2015). We define alternative external finance as including asset-based funding, alternative debt,

hybrid instruments, and equity-based instruments (OECD, 2015).

In spite of government efforts to facilitate access to alternative financial instruments, they are still little used by micro-entrepreneurs in Europe (De Blick et al., 2024). This is probably because alternative financing is a relatively new field compared to traditional bank lending, and micro-entrepreneurs have little knowledge or awareness of innovative/alternative financial instruments and their management (De Blick et al., 2024; Mol-Gómez-Vázquez et al., 2023). Therefore, micro-enterprises are less likely than other firms to establish relationships with providers of alternative sources of financing (De Blick et al., 2024). Micro-enterprises show, in fact, unique characteristics not only compared to large enterprises, but also to SMEs. Specifically, micro-entrepreneurs tend to centralize the decision-making power in the owner-manager, commonly exhibit low financial literacy, lack access to employees with specialized financial knowledge, and show behavioral biases (Finaldi Russo et al., 2022), which often make them unable to make informed financial decisions unless they are assisted by an external advisor.

The support of external advisors has been found to be essential for micro-entrepreneurs in order to overcome their information gap, increase strategic knowledge and business potential (Mole et al., 2017), and take advantage of new market opportunities (Fincham, 1999). Extant studies, so far mainly conducted on non-EU market-oriented countries, where micro-enterprises are not particularly representative of the national business context, show that external advisors help SMEs to grow (Robson & Bannet, 2000a; Cumming & Fisher, 2012), to access bank lending (Scott & Irwin, 2009; Rostamkalaei & Freel, 2017; Ogane, 2021) and acquire venture capital and business angel funding (Cumming & Fisher, 2012; Lahti, 2014; Ogane, 2021). However, nowadays, it remains unclear both whether business advisors for micro-entrepreneurs improve their access to alternative finance and how this relationship works in EU intermediary-oriented countries. Given the importance of external advice in solving fundraising problems and enhancing the growth of MSMEs, it is essential to understand the factors that encourage micro-enterprises to use external advisors. Surprisingly, although previous papers demonstrate that objective financial knowledge of households increases their demand for advice

<sup>1</sup> The definition of firm size (micro, small, medium, large) is based on the Commission Recommendation 2003/361/EC.

to support their financial decision-making (Stolper & Walter, 2017), for micro-entrepreneurs, who commonly exhibit low financial literacy (Finaldi Russo et al., 2022), the role played by objective financial knowledge in seeking advice seems to be almost completely unexplored.

This study tries to fill these gaps by investigating whether different external advisors affect the access to alternative finance of micro-enterprises, and to what extent objective financial knowledge of micro-entrepreneurs enhances their advice seeking for financial decisions.

Our paper is based on a novel large database of Italian micro-entrepreneurs. Various reasons make Italy a valuable investigation site for this study. First, 90–95% of all Italian MSMEs were micro-enterprises in 2022, as in most of the EU-27 Member States (Di Bella et al., 2023). Second, Italy is an intermediary-oriented market, like most markets in the EU (Rajan & Zingales, 2003). Third, the alternative finance market and the use of alternative financial instruments by MSMEs have progressively grown since 2008 in Italy, a trend that has been mirrored across most European countries (OECD, 2023).

Our findings show that the source of external business advice matters in accessing alternative finance. Specifically, professional financial advice increases the probability of micro-enterprises using alternative financial instruments, while non-professional and professional non-financial advice does not. Moreover, we find that objective financial knowledge helps to shape the quality of financial advice sought by micro-entrepreneurs.

The paper enhances existing academic literature from different points of view. First, the study is related to the growing literature on MSME access to alternative finance. Most existing studies concentrate on single instruments and market-oriented countries (Bongini et al., 2021; Mol-Gómez-Vázquez et al., 2023). To our knowledge, this is the first analysis in the field that focuses on micro-entrepreneurs and their access to various alternative financial products in an intermediary-oriented market. Second, the paper enriches previous research on the effect of external business advice on MSME financing. Most extant papers examine the effects of external advice on company fundraising focusing on new firms, in

market-oriented countries, and without distinguishing the source of advice (Cumming & Fisher, 2012; Lahti, 2014). We extend this literature by investigating how different external advisors for micro-entrepreneurs facilitate their use of alternative financial instruments both in early and subsequent firm stages. Finally, our analysis is related to the literature on the determinants of MSME use of external advisors. Although extant papers identify some firm and own-manager characteristics affecting advice seeking of MSMEs (Mole et al., 2017; Robson & Bennett, 2000b), only Alperovych et al. (2023) has so far considered among these factors the subjective financial knowledge of entrepreneurs, which is however a biased measure of financial literacy. To date, the role of objective financial knowledge (Lusardi & Mitchell, 2008) as a determinant of business advice seeking has not been explored, and to our knowledge, our paper is the first academic study investigating the impact of objective financial knowledge of micro-entrepreneurs on their use of external advisors supporting their financial decision-making.

Overall, our study provides a useful contribution to small business literature by focusing on micro-entrepreneurs and micro-businesses, which are nowadays under-researched categories. Furthermore, as MSMEs often need external funding to finance innovation projects, the paper significantly contributes to the emerging research stream on micro-firms and innovation.

The paper is organized as follows. Section 2 presents the literature review and research questions, while Sect. 3 describes the sample, the empirical methods, and the descriptive statistics. Our main results are shown in Sect. 4. Section 5 reports the robustness checks and Sect. 6 the discussion and conclusions.

## 2 Literature review and research questions

To examine the interconnections between access to alternative financial instruments, different sources of business external advice and financial knowledge in micro-enterprises, we first discuss extant literature on advice seeking and access to finance. We then review the papers on the determinants of advice seeking, specifically focusing on financial knowledge.

## 2.1 Advice seeking and access to finance

Resource-based theory suggests that seeking external advice can improve the financial decision-making of enterprises (Ramsden & Bennett, 2005), and especially of MSMEs (Mole et al., 2017).

External business advice seeking involves seeking recommendations from individuals outside the organization to aid entrepreneurs' decision-making in ordinary and/or extraordinary situations (Alexiev et al., 2020). This advice can be non-professional, typically freely offered, or professional, i.e., provided by paid external specialists (Mole et al., 2017). External sources of business assistance for MSME entrepreneurs include, for instance, non-professional advice from managers in the same and different industries, friends or acquaintances, and family members, and professional advice from management consultants, accountants, chambers of commerce and industry, startup support institutions, and financial companies (Ogane, 2021). External business advice takes various forms and can include assistance with government regulations, corporate taxation, business growth, operational support, and access to external finance (Mole et al., 2017).

The first strand of theoretical literature identifies the potential benefits of using external business assistance for MSMEs. In the framework of resource-based theory, some academics argue that external advisors increase company competitiveness, business growth (Bennett & Robson, 2003) and the ability to take advantage of new market opportunities (Fincham, 1999) by filling information and knowledge gaps, particularly in the smallest firms (Mole et al., 2017). Micro-enterprises show, in fact, particular features compared to other firms; they often have limited resources and decision-making tends to be centralized by owner-managers, often characterized by different information and skill deficiencies (Finaldi Russo et al., 2022). This makes external advice particularly important to overcome knowledge gaps (Mole et al., 2017).

Another strand of empirical studies examines the effects of external business assistance on entrepreneurs' business performance (Robson & Bannet, 2000a; Cumming & Fisher, 2012; Ogane, 2021). Specifically, Robson and Bannet (2000a), focusing on UK MSMEs, find that only the use of lawyers, compared to other external advisors, is significantly

and positively associated with firm growth. Moreover, Cumming and Fisher (2012) show that business advisory services, which help companies secure early rounds of financing and start generating revenues, contribute to increasing the sales growth of 228 early-stage Canadian firms. Furthermore, Ogane (2021) demonstrates that advice from both accountants and official startup support institutions helps to improve the performance of 3,011 Japanese startups.

Another strand of empirical literature studies the effects of external business advisors on entrepreneurs' access to finance (Scott & Irwin, 2009; Cumming & Fisher, 2012; Lahti, 2014; Rostamkalaei & Freel, 2017; Ogane, 2021). Specifically, Ogane (2021), focussing on 3,011 Japanese startups, shows that managers in the same industries, compared to other external advisors, are the only advisors who significantly contribute to solving entrepreneurs' fundraising problems. Moreover, the advice of managers in the same industry, management consultants, and startup support institutions positively affects the amount of external funding obtained by entrepreneurs. Other papers investigate the role played by external business advisors in influencing MSME access to specific external sources of funding. Specifically, Scott and Irwin (2009) and Rostamkalaei & Freel (2017) show that finance-related advice seeking improves the success of bank loan applications for UK MSMEs, and especially for the more innovative and smaller ones (Rostamkalaei & Freel, 2017). Cumming and Fischer (2012) find that external professional advisors aiming to help companies secure first rounds of financing and start generating revenues positively influence angel financing in Canada. Lahti (2014) focuses on 34 Finnish enterprises using venture capital and shows that the value-added contribution of advisors is crucial, especially for entrepreneurs with limited experience in dealing with venture capitalists.

Although some previous papers investigate the role played by external advisors in affecting MSME use of single alternative-financial instruments (Cumming & Fisher, 2012; Lahti, 2014), some open questions on the relationship between external business advice and access to alternative finance remain. Specifically, it is unclear whether and how different MSME business advisors improve their access to different alternative financial instruments. Moreover, to our knowledge, how this relationship works in micro-enterprises, in non-early firm stages, and in EU

intermediary-oriented markets, where micro-entrepreneurs are particularly concentrated, has not yet been investigated. This is surprising given that MSMEs, for which bank lending is the main source of external funding to finance growth and innovation projects (Audretsch et al., 2020; Farè, 2022; Farè et al., 2024), often experience difficulties in accessing traditional bank credit due to a lack of collateral, information asymmetries, and high leverage (Finnegan & Kapoor, 2023; Le et al., 2024). In this context, trade credit is an important source of non-bank finance for many MSMEs, which can substitute or supplement short-term bank lending (De Blick et al., 2024). Furthermore, also alternative financial instruments are a useful tool for MSMEs to overcome bank-financial constraints (OECD, 2015), especially for micro-entrepreneurs, often characterized by limited financial knowledge, resource deficiencies, the tendency to confuse personal and corporate assets, and absence of employees with specialized financial expertise (Finaldi Russo et al., 2022). These characteristics make it particularly difficult for micro-entrepreneurs to access external alternative finance autonomously, as they have often very little knowledge of innovative/alternative financial instruments and their management (De Blick et al., 2024; Mol-Gómez-Vázquez et al., 2023). The assistance of an external business advisor appears to be essential in order to overcome their information gap (Chrisman & McMullan, 2004) and diversify their funding sources. In this context, our first research question investigates whether and how different external advisors for micro-entrepreneurs affect their access to different alternative financial instruments.

## 2.2 The determinants of advice seeking and the role of financial knowledge

Examining the role played by external business advisors in micro-enterprise access to finance requires an in-depth analysis of the factors that encourage micro-entrepreneurs to seek external assistance for financial decision-making. This role is particularly interesting given that micro-entrepreneurs are not often the most intensive users of external advisors (Boter & Lundstrom, 2005), even though the resource-based view of the firm suggests that micro-enterprises have a weak resource base and, therefore, need external assistance. Various reasons have been suggested

for the suboptimal use of professional advisors by micro-entrepreneurs, such as their small information set, which limits their awareness of the provision of expert assistance, their concerns about the value, reliability, and expense of the advisory service, and their lack of trust in external advisors (Mole et al., 2017).

Extant literature on the use of professional advice for financial decisions among households has consistently identified certain socio-demographic and economic characteristics associated with advice seeking, i.e., age, gender, marital status, education level, income, life experience, risk tolerance, self-confidence, perceived complexity of financial products, and financial knowledge (Fan, 2021; Hackethal et al., 2012; Kramer, 2012; Robb et al., 2012). Financial knowledge<sup>2</sup> is a fundamental condition for making informed financial decisions, which requires people to manage the trade-offs between time-intensive individual choices and resource-intensive professional advice (Fan, 2021). As these decisions are generally complex, individuals can find it more efficient to use the assistance of a professional rather than investing scarce resources to acquire financial knowledge (Ananda et al., 2020).

Academic literature has recently paid increasing attention to the relationship between financial knowledge and the use of professional advisors supporting financial decision-making. This is particularly interesting given that not only the entrepreneur's financial knowledge, but also the country and/or regional financial knowledge, matters for the diffusion of alternative financing instruments (Meoli et al., 2022).

The first strand of studies investigates this relationship from a theoretical point of view. According to complementary theory, more financially literate individuals, aware of the relevant and additional information they can receive from advisors, are more likely to rely on professional assistance because of the higher opportunity cost of their time (Hacketal et al., 2012; Calcagno & Monticone, 2015). Other researchers follow the substitutability theory, which states that financial knowledge and professional advice seeking are negatively related, as financial advisors can ensure

<sup>2</sup> Financial knowledge can be defined as “*the understanding of financial concepts necessary to follow news about the economy and financial landscape, compare financial products and services and make appropriate, well-informed financial decisions*” (OECD, 2020a).

better returns and financial diversification for less literate people, compensating for their lower financial knowledge (Kramer, 2012).

Another strand of literature empirically investigates the relationship between financial knowledge and the use of professional advisors supporting financial decision-making by individuals. Even excluding studies based on subjective financial knowledge, which is often biased by overconfidence (Gutsche et al., 2021), extant papers using objective financial knowledge (Lusardi & Mitchell, 2008) display conflicting results (Stolper & Walter, 2017). Specifically, most empirical analyses indicate that objective financial knowledge increases the likelihood of seeking an expert to support individual financial choices, thus confirming the complementary theory (Hacketal et al., 2012; Calcagno & Monticone, 2015; Kim et al., 2021). Interestingly, Kim et al. (2021) suggest that objective financial knowledge primarily influences the quality, rather than the quantity, of advice sought by older Americans. Specifically, more financially literate individuals tend to seek advice from professional sources, while the more illiterate tend to rely on non-professional sources. However, other papers show either a negative (Disney et al., 2015) or an insignificant (Kramer, 2016) relationship between objective financial knowledge and the propensity to ask for professional financial advice.

Findings on the relationship between objective financial knowledge and the use of professional financial advice by individuals are thus conflicting, but the relationship between firms appears to be as yet completely unexplored. Although one strand of empirical studies investigates the determinants of business advice-seeking (Mole et al., 2017; Robson & Bennett, 2000b), none of them examine entrepreneurs' objective financial knowledge. Extant papers, mainly focussed on the UK, find that firm characteristics of size, sector, age, export activity, rate of growth and innovation, as well as own-manager characteristics of gender and education level, affect the propensity of MSMEs to seek external assistance (Mole et al., 2017; Robson & Bennett, 2000b). To our knowledge, so far, only Alperovych et al. (2023) have explored the relationship between the subjective financial knowledge of entrepreneurs and self-employed individuals and their demand for advice. They find that entrepreneurs reporting higher levels of subjective financial knowledge are less likely to seek advice or

delegate financial decisions. However, this study uses only entrepreneurs' subjective financial knowledge, which often shows relevant biases (Lusardi & Mitchell, 2014). Further research is required to bridge the gap in studies relating to the relationship between objective financial knowledge and the use of external advisors supporting entrepreneur financial decision-making, particularly for micro-entrepreneurs, who commonly exhibit low objective financial knowledge (Finaldi Russo et al., 2022).

From a theoretical point of view, this relationship is not straightforward. On the one hand, complementary theory (Calcagno & Monticone, 2015) suggests that more financially literate micro-entrepreneurs might rely more on professional external advice in order to make informed choices without spending time in seeking additional financial information. On the other hand, substitutability theory (Kramer, 2012) suggests that more financially literate micro-entrepreneurs might exhibit lower levels of professional advice seeking, as they consider themselves capable of making informed financial decisions on their own. In this context, our second research question investigates whether and how the objective financial knowledge of micro-entrepreneurs affects their use of external business advisors supporting financial decision-making.

### 3 Sample and empirical methods

#### 3.1 Sample description

The Bank of Italy, the Italian bank supervisory authority, provided data for our analysis. In 2021, the authority surveyed 1,998 Italian micro-entrepreneurs.<sup>3</sup> The firms were chosen according to a stratified sampling design with a random selection of units within the strata and proportional allocation.

<sup>3</sup> The survey was conducted in 2021. We think that the use of advisors by Italian micro-entrepreneurs to support their financing decisions was not higher than normal in 2021, i.e., during a Covid-19 pandemic year. This is why MSMEs, in 2021, had no need to resort to alternative finance, as, since 2020, and during the entire pandemic, access to traditional finance by MSMEs in Italy has been highly facilitated by a combination of monetary policy measures and government initiatives (OECD, 2021). They led to increased credit for Italian SMEs, unlike previous recessions.

The sample is highly representative of Italian micro-enterprises by economic sector and geographical area (D'Ignazio et al., 2022). The survey conducted by the Bank of Italy (OECD, 2020b) is part of a larger project promoted by G20 for the Global Partnership for Financial Inclusion, aiming to collect data on financial competencies and digitalization of small and medium enterprises at the international level.<sup>4</sup> Among the 1,998 Italian firms surveyed by the Bank of Italy, we exclude those not completing the questionnaire or answering “do not know” to some relevant questions. Therefore, our final sample consists of 1,843 Italian micro-entrepreneurs.

Table 1 shows that most entrepreneurs in the sample are male (71.95%). Most respondents are between 40 and 59 years old (60%), and only a small percentage of them are younger than 30 (3.09%) and older than 69. (5%). In terms of educational level, more than 88% of micro-entrepreneurs hold at least a high school diploma, and a percentage higher than 30% have at least a Master's degree. The percentage of very low-educated respondents is therefore limited: 1.14% of the sample have only elementary schooling or lower. Less than half of the participants state that they have an economic background (47%).<sup>5</sup> More than half the respondents have more than 10 years of entrepreneurial experience (61%), and more than 35% between 2 and 10 years (34%). Looking at entrepreneur families, 43.7% of entrepreneurs come from a business family, i.e., at least one parent was an entrepreneur in the past.

Looking at firm characteristics, Table 1 shows that 9.22% of micro-enterprises have only one employee. Moreover, 44.38% of firms participating in the survey have between 2 and 4 employees and 46.39% between 5 and 9 employees. Looking at turnover, most of our sample is concentrated in

**Table 1** Respondent characteristics

| Micro-entrepreneur characteristics (1,843 respondents) | %      |
|--|--------|
| <i>Gender</i>  |        |
| Female   | 28.05% |
| Male   | 71.95% |
| <i>Age</i>   |        |
| 20–29  | 3.09%  |
| 30–39  | 15.03% |
| 40–49  | 29.68% |
| 50–59  | 30.33% |
| 60–69  | 16.93% |
| 70–79  | 4.23%  |
| 80 and more  | 0.71%  |
| <i>Education</i>                                       |        |
| Post-university degree                                 | 6.13%  |
| University degree                                      | 24.96% |
| High school diploma                                    | 56.92% |
| Secondary school diploma                               | 10.85% |
| Primary school   | 1.09%  |
| No education   | 0.05%  |
| <i>Economic background</i>                             |        |
| No economic background                                 | 52.69% |
| Economic background                                    | 47.31% |
| <i>Entrepreneur experience</i>                         |        |
| Less than 1 year                                       | 0.76%  |
| Between 1–2 years                                      | 2.33%  |
| Between 2–5 years                                      | 13.62% |
| Between 5–10 year                                      | 22.08% |
| More than 10 years                                     | 61.20% |
| <i>Parents engaged in business</i>                     |        |
| No family business                                     | 56.32% |
| Family business  | 43.68% |
| <b>Firm characteristics (1,843 respondents)</b>        |        |
| <i>Number of employees</i>                             |        |
| 1  | 9.22%  |
| 2–4  | 44.38% |
| 5–9  | 46.39% |
| <i>Turnover</i>  |        |
| Up to 10.000 euro                                      | 1.68%  |
| More than 10.000 euro and up to 50.000 euro            | 5.70%  |
| More than 50.000 euro and up to 100.000 euro           | 11.77% |
| More than 100.000 euro and up to 500.000 euro          | 51.49% |
| More than 500.000 euro and up to 1 million euro        | 17.47% |
| More than 1 million euro and up to 2 million euro      | 7.87%  |
| More than 2 million euro and up to 50 million euro     | 3.91%  |
| More than 50 million euro                              | 0.11%  |
| <i>Sectors</i>   |        |

<sup>4</sup> The questionnaire used in the survey was developed by OECD/INFE and based on the financial literacy core competency framework for MSMEs (OECD, 2018). The full version of the questionnaire is available at: <https://www.oecd.org/financial/education/2020-survey-to-measure-msme-financial-literacy.pdf>. The dataset used in the analysis is publicly available on the Bank of Italy's website at: <https://www.bancaditalia.it/statistiche/tematiche/indagini-famiglie-imprese/alfabetizzazi-one-imprese/index.html?com.dotmarketing.htmlpage.language=1&dotcache=refresh>

<sup>5</sup> The respondent has an economic background if he/she studied economic subjects during his/her educational path.

**Table 1** (continued)

| Micro-entrepreneur characteristics (1,843 respondents)               | %      |
|--|--------|
| Agriculture, forestry and fishing                                    | 7.38%  |
| Manufacturing activities   | 6.57%  |
| Construction   | 7.92%  |
| Wholesale and retail trade, repair of motor vehicles and motorcycles | 20.35% |
| Transport and Warehousing  | 2.71%  |
| Accommodation and catering services                                  | 6.57%  |
| Other personal services  | 12.81% |
| Information and communication services                               | 2.60%  |
| Professional, scientific and technical activities                    | 24.58% |
| Other services for businesses and households                         | 8.52%  |

Note: The table reports the distribution of respondents considering both entrepreneur and firm characteristics

the range between 50,000 euros and 1 million euros (80%). Only a few firms show a turnover higher than 1 million euros (11%) and lower than 50,000 euros (7%). Finally, micro-enterprises operate in several industries, covering the most important economic sectors in Italy. Table 2, 3, 4, 5, 6, 7, 8, 9.

Micro-entrepreneurs could select the following alternative financial instruments in the questionnaire: corporate bonds, micro-credit, venture capital, business angels, listed shares, crowdfunding, initial coin offering, mezzanine financing, leasing, factoring, and sustainable bonds or loans. By adopting the ‘alternative finance’ definition adopted by the OECD (2015), we classified the previous alternative financial instruments into the following four categories: (i) asset-based funding, i.e., leasing and factoring; (ii) alternative debt, i.e., corporate bonds, sustainable bonds or loans, and crowdfunding; (iii) hybrid instrument, i.e., micro-credit and mezzanine finance; (iv) equity-based instruments, venture capital, business angels, listed shares, and Initial Coin Offering. Figure 1 reports these instruments based on their subscription. The average subscription level among the 1,843 respondents is 0.583, ranging from a minimum of 0 and a maximum of 6 alternative financial instruments. Leasing results as the most used instrument in 2021, thus confirming the European trend (OECD, 2023).

## 3.2 Empirical Methods

### 3.2.1 Advice seeking and access to alternative finance

To answer our first research question, we run the following probit regression (1):

$$ALT\_FIN_i = \alpha_i + \rho_f ADVISOR_i + \sum_i^n \beta_i X_i + \sum_i^n \gamma_i Z_i + sector\_fe + \varepsilon_i \quad (1)$$

where  $ALT\_FIN$  is a dummy variable that equals 1 if the respondent claims to use at least one alternative financial instrument, 0 otherwise.  $ADVISOR$  is a variable measuring the use by micro-entrepreneurs of business advice for making financial decisions. The survey considers the following seven sources of advice: relatives and friends, business partners, other non-professional advisors, external accountants, public institutions, financial intermediaries, and external financial consultants.  $ADVISOR$  is used in Eq. (1) at different levels. At the first stage of analysis, we consider only recourse to business advice in order to make financial decisions, so  $ADVISOR$  is a dummy variable that equals 1 if the entrepreneur uses at least one external advisor, 0 otherwise. At the second stage of analysis, we distinguish between three different sources of external advisors, proxied by the following variables: (i) professional financial advice ( $PROF\_FIN\_ADV$ ), i.e., a dummy variable that equals 1 if the entrepreneur requests advice from financial intermediaries and external financial consultants, 0 otherwise; (ii) non-professional advice ( $NON\_PROF\_ADV$ ), i.e., a dummy variable that equals 1 if the entrepreneur requests advice from relatives and friends, business partners and other non-professional advisors, 0 otherwise; and (iii) professional non-financial advice ( $PROF\_NOFIN\_ADV$ ), i.e., a dummy variable that equals 1 if the entrepreneur requests advice from external accountants and public institutions, 0 otherwise.

In the first stage, we run Eq. (1) on the total sample of 1,843 micro-entrepreneurs, while in the second stage, we run the equation on the subsample of 1,619 entrepreneurs using at least one source of advice.



**Table 2** Descriptive statistics

| Category                     | Variable           | Obs   | Mean   | Std. dev | Min    | Max |     |  |
|------------------------------|--------------------|---|--------|----------|--------|-----|-----|--|
| ALTERNATIVE FINANCE          | ALT_FIN            | 1,843   | 0.427  | 0.494    | 0      | 1   |     |  |
|                              | ASSET_BASED        | 1,843   | 0.313  | 0.463    | 0      | 1   |     |  |
|                              | HYBRID             | 1,843   | 0.154  | 0.361    | 0      | 1   |     |  |
|                              | ALTERNATIVE        | 1,843   | 0.035  | 0.185    | 0      | 1   |     |  |
|                              | EQUITY_BASED       | 1,843   | 0.022  | 0.147    | 0      | 1   |     |  |
| ADVISOR                      | ADVISOR            | 1,843   | 0.878  | 0.326    | 0      | 1   |     |  |
|                              | PROF_FIN_ADV       | 1,843   | 0.437  | 0.496    | 0      | 1   |     |  |
|                              | NON_PROF_ADV       | 1,843   | 0.637  | 0.480    | 0      | 1   |     |  |
|                              | PROF_NOFIN_ADV     | 1,843   | 0.643  | 0.479    | 0      | 1   |     |  |
| FINANCIAL KNOWLEDGE          | FK                 | 1,843   | 3.727  | 1.322    | 0      | 5   |     |  |
| ENTREPRENEUR CHARACTERISTICS | MALE               | 1,843   | 0.719  | 0.449    | 0      | 1   |     |  |
|                              | AGE                | 1,843   | 50.464 | 11.424   | 21     | 95  |     |  |
|                              | <i>Education</i>   |   |        |          |        |     |     |  |
|                              |                    | Post-university degree                            | 1,843  | 0.061    | 0.239  | 0   | 1   |  |
|                              |                    | University degree                                 | 1,843  | 0.249    | 0.432  | 0   | 1   |  |
|                              |                    | High school diploma                               | 1,843  | 0.569    | 0.495  | 0   | 1   |  |
|                              |                    | Secondary school diploma                          | 1,843  | 0.108    | 0.311  | 0   | 1   |  |
|                              |                    | Primary school                                    | 1,843  | 0.010    | 0.103  | 0   | 1   |  |
|                              |                    | No education                                      | 1,843  | 0.000    | 0.023  | 0   | 1   |  |
|                              |                    | TRUST   | 1,843  | 0.612    | 0.487  | 0   | 1   |  |
|                              |                    | FAMILY_BUSINESS                                   | 1,843  | 0.473    | 0.499  | 0   | 1   |  |
|                              |                    | ECONOMIC_BACKGROUND                               | 1,843  | 0.436    | 0.496  | 0   | 1   |  |
|                              |                    | OVERC   | 1,843  | 0.064    | 0.245  | 0   | 1   |  |
|                              |                    | <i>Entrepreneur experience</i>                    |        |          |        |     |     |  |
|                              |                    | Less than 1 year                                  | 1,843  | 0.007    | 0.086  | 0   | 1   |  |
|                              | between 1–2 years  | 1,843   | 0.023  | 0.150    | 0      | 1   |     |  |
|                              | between 2–5 years  | 1,843   | 0.136  | 0.343    | 0      | 1   |     |  |
|                              | between 5–10 year  | 1,843   | 0.220  | 0.414    | 0      | 1   |     |  |
|                              | more than 10 years | 1,843   | 0.612  | 0.487    | 0      | 1   |     |  |
| FIRM CHARACTERISTICS         | <i>Turnover</i>    |   |        |          |        |     |     |  |
|                              |                    | Up to 10.000 euro                                 | 1,843  | 0.016    | 0.128  | 0   | 1   |  |
|                              |                    | More than 10.000 euro and up to 50.000 euro       | 1,843  | 0.056    | 0.231  | 0   | 1   |  |
|                              |                    | More than 50.000 euro and up to 100.000 euro      | 1,843  | 0.117    | 0.322  | 0   | 1   |  |
|                              |                    | More than 100.000 euro and up to 500.000 euro     | 1,843  | 0.514    | 0.499  | 0   | 1   |  |
|                              |                    | More than 500.000 euro and up to 1 milion euro    | 1,843  | 0.174    | 0.379  | 0   | 1   |  |
|                              |                    | More than 1 milion euro and up to 2 milion euro   | 1,843  | 0.078    | 0.269  | 0   | 1   |  |
|                              |                    | More than 2 milion euro and up to 10 milion euro  | 1,843  | 0.039    | 0.193  | 0   | 1   |  |
|                              |                    | More than 10 milion euro and up to 50 milion euro | 1,843  | 0.001    | 0.032  | 0   | 1   |  |
|                              |                    | INTEREST_EXPENCE                                  | 1,843  | 2.437    | 1.460  | 0   | 5   |  |
|                              |                    | LONG_DEBT   | 1,843  | 2.483    | 1.171  | 0   | 5   |  |
|                              |                    | SHORT_DEBT  | 1,843  | 2.516    | 1.067  | 0   | 5   |  |
|                              |                    | FIRM_AGE  | 1,843  | 14.510   | 15.472 | 0   | 151 |  |
|                              |                    | N_EMPLOYEES                                       | 1,843  | 4.387    | 2.342  | 0   | 9   |  |
|                              |                    | DIGITALIZATION                                    | 1,843  | 2.528    | 1.612  | 0   | 6   |  |

Note: This table reports the descriptive statistics of all the variables included in the regression analyses

**Table 3** Access to alternative finance and advice seeking (margins)-probit analysis

| Variables           | ALTERNATIVE FINANCE ( <i>Dependent variable</i> ) |                     |                     |                     |
|---------------------|---|---------------------|---------------------|---------------------|
|                     | (a)   | (b)                 | (c)                 | (d)                 |
| ADVISOR             | 0.081**<br>(0.035)                                | -                   | -                   | -                   |
| PROF_FIN_ADV        | -   | 0.129***<br>(0.023) | -                   | -                   |
| NON_PROF_ADV        | -   | -                   | -0.056**<br>(0.026) | -                   |
| PROF_NOFIN_ADV      | -   | -                   | -                   | 0.022<br>(0.027)    |
| MALE                | 0.016<br>(0.024)                                  | 0.014<br>(0.026)    | 0.015<br>(0.026)    | 0.0153<br>(0.026)   |
| AGE                 | 0.931<br>(1.110)                                  | 1.022<br>(1.207)    | 1.253<br>(1.215)    | 1.167<br>(1.220)    |
| AGE2                | -0.128<br>(0.145)                                 | -0.140<br>(0.158)   | -0.172<br>(0.159)   | -0.159<br>(0.159)   |
| PHD                 | 0.124<br>(0.112)                                  | 0.181<br>(0.129)    | 0.227*<br>(0.131)   | 0.223*<br>(0.131)   |
| UNIVERSITY_DEGREE   | 0.048<br>(0.105)                                  | 0.139<br>(0.123)    | 0.180<br>(0.125)    | 0.174<br>(0.125)    |
| HIGH_SCHOOL_DIPLOMA | 0.087<br>(0.103)                                  | 0.152<br>(0.121)    | 0.194<br>(0.123)    | 0.188<br>(0.123)    |
| SECONDARY_SCHOOL    | 0.099<br>(0.105)                                  | 0.189<br>(0.122)    | 0.226*<br>(0.125)   | 0.222*<br>(0.125)   |
| ECONOMIC_BACKGROUND | -0.041*<br>(0.024)                                | -0.044*<br>(0.025)  | -0.039<br>(0.025)   | -0.041<br>(0.025)   |
| EXPERIENCE < 1Y     | 0.019<br>(0.139)                                  | 0.027<br>(0.134)    | 0.014<br>(0.140)    | -0.001<br>(0.140)   |
| EXPERIENCE 1-2Y     | -0.083<br>(0.084)                                 | -0.064<br>(0.087)   | -0.064<br>(0.088)   | -0.068<br>(0.088)   |
| EXPERIENCE 2-5Y     | 0.008<br>(0.039)                                  | 0.010<br>(0.041)    | 0.006<br>(0.042)    | 0.003<br>(0.042)    |
| EXPERIENSE 5-10Y    | 0.016<br>(0.030)                                  | -0.024<br>(0.032)   | -0.018<br>(0.032)   | -0.021<br>(0.033)   |
| FAMILY_BUSINESS     | 0.041*<br>(0.023)                                 | 0.030<br>(0.025)    | 0.040<br>(0.025)    | 0.039<br>(0.025)    |
| TURNOVER < 10 K     | -0.222**<br>(0.103)                               | -0.169<br>(0.111)   | -0.161<br>(0.110)   | -0.168<br>(0.111)   |
| TURNOVER 10-50 K    | -0.107*<br>(0.064)                                | -0.166**<br>(0.071) | -0.161**<br>(0.072) | -0.163**<br>(0.072) |
| TURNOVER 50-100 K   | -0.133**<br>(0.053)                               | -0.134**<br>(0.057) | -0.131**<br>(0.058) | -0.132**<br>(0.058) |
| TURNOVER 100-500 K  | -0.043<br>(0.044)                                 | -0.046<br>(0.046)   | -0.036<br>(0.047)   | -0.043<br>(0.047)   |
| TURNOVER 500 K-1MLN | 0.034<br>(0.049)                                  | 0.025<br>(0.051)    | 0.0444<br>(0.052)   | 0.035<br>(0.052)    |
| TURNOVER 1-2MLN     | 0.057   | 0.033               | 0.061               | 0.048               |

**Table 3** (continued)

| Variables        | ALTERNATIVE FINANCE ( <i>Dependent variable</i> ) |                     |                     |                     |
|------------------|---|---------------------|---------------------|---------------------|
|                  | (a)   | (b)                 | (c)                 | (d)                 |
|                  | (0.057)   | (0.060)             | (0.061)             | (0.061)             |
| DIGITALIZATION   | 0.025***<br>(0.006)                               | 0.018**<br>(0.007)  | 0.021***<br>(0.007) | 0.021***<br>(0.007) |
| FIRM_AGE         | 0.165***<br>(0.059)                               | 0.177***<br>(0.063) | 0.184***<br>(0.063) | 0.184***<br>(0.063) |
| FIRM_AGE2        | -0.028**<br>(0.012)                               | -0.030**<br>(0.013) | -0.030**<br>(0.013) | -0.031**<br>(0.013) |
| INTEREST_EXPENSE | 0.008<br>(0.008)                                  | 0.007<br>(0.009)    | 0.008<br>(0.009)    | 0.008<br>(0.009)    |
| LONG-TERM DEBT   | 0.024<br>(0.015)                                  | 0.021<br>(0.016)    | 0.020<br>(0.016)    | 0.021<br>(0.016)    |
| SHORT-TERM DEBT  | 0.030*<br>(0.016)                                 | 0.034*<br>(0.017)   | 0.039**<br>(0.018)  | 0.039**<br>(0.018)  |
| SECTOR FE        | YES   | YES                 | YES                 | YES                 |
| Observations     | 1,882   | 1,619               | 1,619               | 1,619               |
| Pseudo R-squared | 0.087   | 0.103               | 0.085               | 0.086               |

Note: The table reports the results of the probit regression, where the dependent variable is access to alternative finance, and the independent variable is advice seeking in the following forms: in column (a) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise; in column (b) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; in column (c) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, in column (d) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

X represents a vector of socio-demographic characteristics of micro-entrepreneurs. On the basis of previous literature (Mole et al., 2017), we include the following variables: (i) gender (MALE), i.e., a dummy variable that equals 1 if the respondent is male, 0 otherwise; (ii) age (AGE) and age squared (AGE2), which are the natural logarithm of the number of years old of each respondent and its square, respectively; (iii) the education level estimated using a set of dummy variables that equals 1 when the respondent states he/she has a specific education level (i.e., university or higher, high school, secondary school), and 0 otherwise (the reference category is primary school or lower); (iv) economic background (ECONOMIC\_BACKGROUND), i.e., a dummy variable that equals 1 if the respondent has an economic background, 0 otherwise; (v) family business (FAMILY\_BUSINESS),

i.e., a dummy variable that equals 1 if the entrepreneur has at least one parent that was him/herself an entrepreneur, 0 otherwise.

Z is another vector that includes the following firm-specific characteristics (Aristei & Angori, 2022; Bongini et al., 2021): (i) turnover (TURNOVER), measured by a set of dummy variables that equal 1 if the firm falls into a specific category (i.e., Up to 10.000 euros, More than 10.000 euros and up to 50.000 euros, More than 50.000 euros and up to 100.000 euros, More than 100.000 euros and up to 500.000 euros, More than 500.000 euros and up to 1 million euros, More than 1 million euros and up to 2 million euros), and 0 otherwise. The reference category is More than 2 million euros and up to 50 million euros; (ii) firm age (FIRM\_AGE) and firm age squared (FIRM\_AGE2), estimated by the natural logarithm of the number of years of the firm (obtained

**Table 4** Access to different alternative financial instruments and advice seeking (margins)- probit analysis

| VARIABLES           | Panel A             |                   |                   |                    |                     |                     |                     |                     |
|---------------------|---------------------|-------------------|-------------------|--------------------|---------------------|---------------------|---------------------|---------------------|
|                     | ASSET_BASED<br>(a)  | (b)               | (c)               | (d)                | ALTERNATIVE<br>(e)  | (f)                 | (g)                 | (h)                 |
| ADVISOR             | 0.083**<br>(0.034)  | -                 | -                 | -                  | -0.010<br>(0.012)   | -                   | -                   | -                   |
| PROF_FIN_ADV        | 0.075***<br>(0.022) | -                 | -                 | -                  | -                   | 0.0153*<br>(0.008)  | -                   | -                   |
| NON_PROF_ADV        | -                   | -                 | -0.038<br>(0.024) | -                  | -                   | -                   | -0.004<br>(0.008)   | -                   |
| PROF_NOFIN_ADV      | -                   | -                 | -                 | 0.0499*<br>(0.025) | -                   | -                   | -                   | -0.013<br>(0.009)   |
| MALE                | -0.002<br>(0.023)   | -0.000<br>(0.024) | 0.000<br>(0.024)  | 0.000<br>(0.024)   | 0.005<br>(0.009)    | 0.009<br>(0.009)    | 0.009<br>(0.009)    | 0.008<br>(0.009)    |
| AGE                 | 0.045<br>(1.035)    | -0.017<br>(1.131) | 0.122<br>(1.127)  | 0.037<br>(1.135)   | -0.399<br>(0.372)   | -0.478<br>(0.409)   | -0.475<br>(0.412)   | -0.452<br>(0.410)   |
| AGE2                | -0.006<br>(0.135)   | 0.003<br>(0.148)  | -0.016<br>(0.147) | -0.003<br>(0.148)  | 0.049<br>(0.049)    | 0.057<br>(0.054)    | 0.057<br>(0.054)    | 0.054<br>(0.054)    |
| PHD                 | 0.106<br>(0.111)    | 0.134<br>(0.129)  | 0.159<br>(0.131)  | 0.150<br>(0.131)   | 0.230***<br>(0.041) | 0.226***<br>(0.048) | 0.238***<br>(0.048) | 0.234***<br>(0.045) |
| UNIVERSITY_DEGREE   | 0.071<br>(0.104)    | 0.132<br>(0.124)  | 0.154<br>(0.125)  | 0.146<br>(0.126)   | 0.239***<br>(0.039) | 0.235***<br>(0.046) | 0.245***<br>(0.047) | 0.239***<br>(0.043) |
| HIGH_SCHOOL_DIPLOMA | 0.076<br>(0.103)    | 0.128<br>(0.122)  | 0.151<br>(0.124)  | 0.141<br>(0.124)   | 0.241***<br>(0.037) | 0.233***<br>(0.044) | 0.244***<br>(0.044) | 0.239***<br>(0.041) |
| SECONDARY_SCHOOL    | 0.073<br>(0.104)    | 0.139<br>(0.124)  | 0.158<br>(0.125)  | 0.152<br>(0.126)   | 0.234***<br>(0.038) | 0.231***<br>(0.045) | 0.241***<br>(0.045) | 0.235***<br>(0.041) |
| ECONOMIC_BACKGROUND | -0.031<br>(0.022)   | -0.034<br>(0.024) | -0.030<br>(0.024) | -0.029<br>(0.024)  | -0.001<br>(0.008)   | -0.002<br>(0.009)   | -0.001<br>(0.009)   | -0.002<br>(0.009)   |
| EXPERIENCE<1Y       | -0.123<br>(0.146)   | -0.112<br>(0.149) | -0.126<br>(0.150) | -0.137<br>(0.150)  | 0.012<br>(0.026)    | 0.026<br>(0.027)    | 0.028<br>(0.027)    | 0.021<br>(0.027)    |
| EXPERIENCE 1-2Y     | -0.087<br>(0.078)   | -0.064<br>(0.081) | -0.064<br>(0.082) | -0.064<br>(0.081)  | 0.027<br>(0.026)    | 0.030<br>(0.025)    | 0.030<br>(0.026)    | 0.029<br>(0.025)    |

**Table 4** (continued)

|                        |                      |                      |                      |                      |                     |                     |                     |                     |
|------------------------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|
| EXPERIENCE<br>2-5Y     | -0.037<br>(0.037)    | -0.021<br>(0.039)    | -0.023<br>(0.039)    | -0.026<br>(0.039)    | -0.006<br>(0.01)    | -0.016<br>(0.015)   | -0.018<br>(0.015)   | -0.017<br>(0.015)   |
| EXPERIENCE<br>5-10Y    | 0.000<br>(0.028)     | -0.017<br>(0.030)    | -0.014<br>(0.030)    | -0.016<br>(0.030)    | 0.003<br>(0.010)    | 0.002<br>(0.010)    | 0.003<br>(0.010)    | 0.003<br>(0.010)    |
| FAMILY_BUSI-<br>NESS   | 0.041*<br>(0.035)    | 0.035<br>(0.041)     | 0.041*<br>(0.030)    | 0.039*<br>(0.039)    | 0.006<br>(0.006)    | 0.003<br>(0.003)    | 0.004<br>(0.004)    | 0.004<br>(0.004)    |
| TURNO-<br>VER < 10 K   | (0.022)<br>-0.325*** | (0.023)<br>-0.297**  | (0.023)<br>-0.297**  | (0.023)<br>-0.303**  | (0.008)<br>0.001    | (0.008)<br>0.016    | (0.008)<br>0.017    | (0.008)<br>0.015    |
| TURNOVER<br>10-50 K    | (0.122)<br>-0.127**  | (0.131)<br>-0.194*** | (0.128)<br>-0.191*** | (0.129)<br>-0.190*** | (0.029)<br>-0.046*  | (0.030)<br>-0.083** | (0.030)<br>-0.085** | (0.029)<br>-0.086** |
| TURNOVER<br>50-100 K   | (0.060)<br>-0.183*** | (0.068)<br>-0.197*** | (0.068)<br>-0.194*** | (0.068)<br>-0.197*** | (0.024)<br>-0.037** | (0.036)<br>-0.045** | (0.037)<br>-0.045** | (0.037)<br>-0.045** |
| TURNOVER<br>100-500 K  | (0.050)<br>-0.077*   | (0.054)<br>-0.080*   | (0.054)<br>-0.075*   | (0.054)<br>-0.080*   | (0.018)<br>-0.026** | (0.020)<br>-0.026** | (0.021)<br>-0.026*  | (0.021)<br>-0.026*  |
| TURNOVER<br>500 K-1MLN | (0.040)<br>0.031     | (0.043)<br>0.022     | (0.043)<br>0.033     | (0.043)<br>0.024     | (0.013)<br>-0.031** | (0.013)<br>-0.036** | (0.013)<br>-0.034** | (0.013)<br>-0.034** |
| TURNOVER<br>1-2MLN     | (0.044)<br>0.039     | (0.047)<br>0.018     | (0.047)<br>0.035     | (0.047)<br>0.023     | (0.015)<br>-0.023   | (0.017)<br>-0.028   | (0.017)<br>-0.027   | (0.017)<br>-0.027   |
| DIGITALIZA-<br>TION    | (0.051)<br>0.020***  | (0.055)<br>0.016**   | (0.055)<br>0.018**   | (0.055)<br>0.017**   | (0.018)<br>0.002    | (0.019)<br>0.003    | (0.019)<br>0.004    | (0.019)<br>0.004    |
| FIRM_AGE               | (0.006)<br>0.196***  | (0.007)<br>0.217***  | (0.007)<br>0.221***  | (0.007)<br>0.218***  | (0.002)<br>0.016    | (0.002)<br>-0.001   | (0.002)<br>-0.000   | (0.002)<br>0.000    |
| FIRM_AGE2              | (0.057)<br>-0.035*** | (0.062)<br>-0.038*** | (0.062)<br>-0.039*** | (0.062)<br>-0.038*** | (0.020)<br>-0.005   | (0.019)<br>-0.001   | (0.019)<br>-0.001   | (0.019)<br>-0.001   |
| INTEREST_<br>EXPENSE   | (0.011)<br>0.000     | (0.012)<br>0.002     | (0.012)<br>0.003     | (0.012)<br>0.003     | (0.004)<br>0.011*** | (0.004)<br>0.010*** | (0.004)<br>0.011*** | (0.004)<br>0.011*** |
| LONG-TERM<br>DEBT      | (0.007)<br>0.0108    | (0.008)<br>0.006     | (0.008)<br>0.004     | (0.008)<br>0.005     | (0.003)<br>0.000    | (0.003)<br>-0.001   | (0.003)<br>-0.001   | (0.003)<br>-0.000   |
|                        | (0.014)<br>(0.015)   | (0.015)<br>(0.015)   | (0.015)<br>(0.015)   | (0.015)<br>(0.015)   | (0.005)<br>(0.005)  | (0.005)<br>(0.005)  | (0.005)<br>(0.005)  | (0.005)<br>(0.005)  |

Table 4 (continued)

| SHORT-TERM DEBT     | 0.031** | 0.036**  | 0.039**  | 0.039**  | 0.039**  | 0.002    | 0.001    | 0.001    | 0.001    |          |          |          |          |
|---------------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| SECTOR_FE YES       | (0.015) | (0.017)  | (0.017)  | (0.017)  | (0.017)  | (0.006)  | (0.006)  | (0.006)  | (0.006)  |          |          |          |          |
| Pseudo R-squared    | 0.125   | 0.175    | 0.134    | 0.152    | 0.152    | 0.193    | 0.145    | 0.146    | 0.174    |          |          |          |          |
| Observations        | 1,843   | 1,619    | 1,619    | 1,619    | 1,619    | 1,843    | 1,619    | 1,619    | 1,619    |          |          |          |          |
| Panel B             |         |          |          |          |          |          |          |          |          |          |          |          |          |
| EQUITY BASED        |         |          |          |          |          |          |          |          |          |          |          |          |          |
| VARIABLES           |         |          |          |          |          | (a)      | (b)      | (c)      | (d)      | (e)      | (f)      | (g)      | (h)      |
| ADVISOR             | 0.045   | -        | -        | -        | -        | 0.009    | 0.009    | -        | -        | -        | -        | -        | -        |
|                     | (0.028) |          |          |          |          | (0.013)  |          |          |          |          |          |          |          |
| PROF_FIN_ADV        | -       | 0.081*** | -        | -        | -        | -        | 0.035*** | -        | -        | -        | -        | -        | -        |
|                     |         | (0.018)  |          |          |          |          | (0.009)  |          |          |          |          |          |          |
| NON_PROF_ADV        | -       | -        | -0.021   | -        | -        | -        | -        | -0.002   | -        | -        | -        | -        | -        |
|                     |         |          | (0.020)  |          |          |          |          | (0.007)  |          |          |          |          |          |
| PROF_NOFIN_ADV      | -       | -        | -        | 0.011    | -        | -        | -        | -        | -        | -        | -        | -        | -0.000   |
|                     |         |          |          | (0.020)  |          |          |          |          |          |          |          |          | (0.008)  |
| MALE                | 0.004   | 0.005    | 0.004    | 0.004    | 0.004    | 0.010    | 0.008    | 0.009    | 0.009    | 0.008    | 0.010    | 0.010    | 0.010    |
|                     | (0.018) | (0.0202) | (0.020)  | (0.020)  | (0.020)  | (0.007)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  |
| AGE                 | 1.551*  | 1.863*   | 1.941*   | 1.907*   | 1.907*   | -0.321   | -0.454   | -0.444   | -0.444   | -0.454   | -0.454   | -0.454   | -0.454   |
|                     | (0.880) | (0.968)  | (0.996)  | (0.997)  | (0.997)  | (0.420)  | (0.398)  | (0.445)  | (0.445)  | (0.440)  | (0.440)  | (0.440)  | (0.440)  |
| AGE2                | -0.213* | -0.257** | -0.268** | -0.263** | -0.263** | 0.043    | 0.060    | 0.059    | 0.059    | 0.061    | 0.061    | 0.061    | 0.061    |
|                     | (0.115) | (0.127)  | (0.130)  | (0.131)  | (0.131)  | (0.054)  | (0.051)  | (0.057)  | (0.057)  | (0.057)  | (0.057)  | (0.057)  | (0.057)  |
| PHD                 | 0.030   | 0.083    | 0.118    | 0.115    | 0.115    | 0.208*** | 0.203*** | 0.225*** | 0.225*** | 0.225*** | 0.225*** | 0.225*** | 0.225*** |
|                     | (0.090) | (0.115)  | (0.114)  | (0.115)  | (0.115)  | (0.035)  | (0.036)  | (0.039)  | (0.039)  | (0.039)  | (0.039)  | (0.039)  | (0.039)  |
| UNIVERSITY_DEGREE   | -0.002  | 0.062    | 0.091    | 0.088    | 0.088    | 0.187*** | 0.180*** | 0.199*** | 0.199*** | 0.199*** | 0.199*** | 0.199*** | 0.199*** |
|                     | (0.086) | (0.112)  | (0.110)  | (0.111)  | (0.111)  | (0.033)  | (0.033)  | (0.036)  | (0.036)  | (0.036)  | (0.036)  | (0.036)  | (0.036)  |
| HIGH_SCHOOL_DIPLOMA | 0.038   | 0.082    | 0.112    | 0.108    | 0.108    | 0.176*** | 0.170*** | 0.189*** | 0.189*** | 0.189*** | 0.190*** | 0.190*** | 0.190*** |
|                     | (0.084) | (0.110)  | (0.109)  | (0.109)  | (0.109)  | (0.031)  | (0.031)  | (0.034)  | (0.034)  | (0.034)  | (0.034)  | (0.034)  | (0.034)  |
| SECONDARY_SCHOOL    | 0.049   | 0.109    | 0.135    | 0.132    | 0.132    | 0.166*** | 0.160*** | 0.180*** | 0.180*** | 0.180*** | 0.180*** | 0.180*** | 0.180*** |
|                     | (0.085) | (0.111)  | (0.110)  | (0.110)  | (0.110)  | (0.030)  | (0.030)  | (0.033)  | (0.033)  | (0.033)  | (0.033)  | (0.033)  | (0.033)  |
| ECONOMIC_BACKGROUND | -0.011  | -0.011   | -0.009   | -0.009   | -0.009   | -0.013** | -0.019** | -0.017** | -0.017** | -0.017** | -0.017** | -0.017** | -0.017** |
|                     | (0.018) | (0.019)  | (0.019)  | (0.019)  | (0.019)  | (0.007)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  | (0.008)  |
| EXPERIENCE<1Y       | 0.055   | 0.062    | 0.052    | 0.046    | 0.046    | 0.015    | 0.021    | 0.024    | 0.024    | 0.024    | 0.024    | 0.024    | 0.024    |
|                     | (0.097) | (0.096)  | (0.101)  | (0.101)  | (0.101)  | (0.026)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  |
| EXPERIENCE1-2Y      | 0.044   | 0.051    | 0.050    | 0.048    | 0.048    | 0.015    | 0.021    | 0.024    | 0.024    | 0.024    | 0.024    | 0.024    | 0.024    |
|                     | (0.058) | (0.060)  | (0.061)  | (0.061)  | (0.061)  | (0.026)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  | (0.027)  |

**Table 4** (continued)

|                     |                     |                    |                    |                    |                      |                      |                      |                      |
|---------------------|---------------------|--------------------|--------------------|--------------------|----------------------|----------------------|----------------------|----------------------|
| EXPERIENCE 2-5Y     | 0.025<br>(0.028)    | 0.027<br>(0.030)   | 0.023<br>(0.031)   | 0.022<br>(0.030)   | 0.004<br>(0.010)     | 0.008<br>(0.011)     | 0.008<br>(0.011)     | 0.008<br>(0.011)     |
| EXPERIENCE 5-10Y    | 0.000               | -0.017<br>(0.024)  | -0.015<br>(0.024)  | -0.016<br>(0.024)  | 0.001<br>(0.009)     | -0.001<br>(0.010)    | -0.000<br>(0.010)    | -0.000<br>(0.011)    |
| FAMILY_BUSINESS     | 0.003<br>(0.017)    | -0.010<br>(0.019)  | -0.004<br>(0.019)  | -0.005<br>(0.019)  | 0.007<br>(0.007)     | 0.006<br>(0.008)     | 0.008<br>(0.008)     | 0.008<br>(0.008)     |
| TURNOVER < 10 K     | -0.111<br>(0.086)   | -0.088<br>(0.094)  | -0.086<br>(0.094)  | -0.089<br>(0.094)  | 0.032<br>(0.026)     | 0.045<br>(0.028)     | 0.034<br>(0.029)     | 0.034<br>(0.029)     |
| TURNOVER 10-50 K    | -0.011<br>(0.048)   | -0.006<br>(0.053)  | -0.004<br>(0.054)  | -0.005<br>(0.054)  | -0.045***<br>(0.024) | -0.073***<br>(0.036) | -0.055***<br>(0.037) | -0.083***<br>(0.037) |
| TURNOVER 50-100 K   | 0.006<br>(0.040)    | 0.014<br>(0.043)   | 0.014<br>(0.044)   | 0.013<br>(0.044)   | -0.012<br>(0.023)    | -0.008<br>(0.025)    | -0.011<br>(0.025)    | -0.011<br>(0.025)    |
| TURNOVER 100-500 K  | -0.011<br>(0.034)   | -0.016<br>(0.036)  | -0.014<br>(0.037)  | -0.017<br>(0.037)  | 0.024<br>(0.019)     | 0.026<br>(0.021)     | 0.025<br>(0.020)     | 0.025<br>(0.021)     |
| TURNOVER 500 K-1MLN | 0.004<br>(0.037)    | 0.003<br>(0.039)   | 0.011<br>(0.040)   | 0.007<br>(0.040)   | 0.026<br>(0.020)     | 0.024<br>(0.022)     | 0.023<br>(0.021)     | 0.023<br>(0.021)     |
| TURNOVER 1-2MLN     | -0.033<br>(0.045)   | -0.033<br>(0.048)  | -0.021<br>(0.048)  | -0.027<br>(0.048)  | 0.036*<br>(0.020)    | 0.035<br>(0.022)     | 0.038*<br>(0.022)    | 0.038*<br>(0.022)    |
| DIGITALIZATION      | 0.015***<br>(0.005) | 0.012**<br>(0.005) | 0.014**<br>(0.005) | 0.014**<br>(0.005) | 0.0034*<br>(0.001)   | 0.003*<br>(0.002)    | 0.004**<br>(0.002)   | 0.004**<br>(0.002)   |
| FIRM_AGE            | 0.036<br>(0.045)    | 0.045<br>(0.049)   | 0.053<br>(0.049)   | 0.052<br>(0.049)   | -0.001<br>(0.018)    | 0.008<br>(0.021)     | 0.011<br>(0.022)     | 0.012<br>(0.021)     |
| FIRM_AGE2           | -0.003<br>(0.009)   | -0.005<br>(0.010)  | -0.006<br>(0.010)  | -0.006<br>(0.010)  | 0.001<br>(0.003)     | -0.001<br>(0.004)    | -0.001<br>(0.004)    | -0.001<br>(0.004)    |
| INTEREST_EXPENSE    | 0.004<br>(0.006)    | 0.000<br>(0.007)   | 0.001<br>(0.007)   | 0.001<br>(0.007)   | -0.000<br>(0.002)    | -0.002<br>(0.002)    | -0.000<br>(0.002)    | -0.001<br>(0.002)    |
| LONG-TERM DEBT      | 0.019*<br>(0.011)   | 0.023*<br>(0.012)  | 0.022*<br>(0.012)  | 0.023*<br>(0.013)  | 0.002<br>(0.003)     | 0.003<br>(0.004)     | 0.003<br>(0.004)     | 0.003<br>(0.004)     |
| SHORT-TERM DEBT     | 0.014<br>(0.012)    | 0.016<br>(0.013)   | 0.018<br>(0.014)   | 0.018<br>(0.014)   | -0.002<br>(0.004)    | -0.005<br>(0.004)    | -0.005<br>(0.004)    | -0.005<br>(0.004)    |
| SECTOR_FE           | YES                 | YES                | YES                | YES                | YES                  | YES                  | YES                  | YES                  |
| Pseudo R-squared    | 0.128               | 0.132              | 0.142              | 0.148              | 0.152                | 0.173                | 0.134                | 0.154                |
| Observations        | 1,843               | 1,619              | 1,619              | 1,619              | 1,843                | 1,619                | 1,619                | 1,619                |

**Table 4** (continued)

Note: The table reports the results of the probit regression, where the dependent variable is access to alternative finance. In Panel A, the dependent variable can take two different forms: (i) ASSET\_BASED, i.e., a dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise; (ii) alternative debt (ALTERNATIVE), i.e., a dummy that equals 1 if the entrepreneur uses at least one of the following instruments: corporate bonds, sustainable bonds or loans, and crowdfunding, 0 otherwise. In Panel B, the dependent variable can take two other different forms: (i) hybrid instrument (HYBRID), i.e., a dummy that equals 1 if the entrepreneur uses micro-credits, mezzanine finance or both, 0 otherwise; (ii) equity-based instruments (EQUITY\_BASED), i.e., a dummy that equals 1 if the entrepreneur uses at least one of the following instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise. The independent variable can take the following forms: (i) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise. (ii) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (iii) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iv) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

as 2021 minus the year of foundation) and its square; (iii) interest expense (INTEREST\_EXPENCE), that measures the level of interest expense declared by the respondent on a Likert-scale from 1 to 5, where 1 is “too low” and 5 “too high”; (iv) long debt (LONG\_DEBT), i.e., a measure of the level of long debt declared by the respondent using a Likert scale from 1 (too low) to 5 (too high); (v) short debt (SHORT\_DEBT), a proxy of the level of short debt declared by respondent using a Likert scale from 1 (too low) to 5 (too high); (vi) firm digitalization (DIGITALIZATION), i.e., a measure of the level of firm digitalization in 2021, estimated following indications from the Bank of Italy. All the variables are included at time  $t$ . Table 10 in the Appendix reports the details on the measurement of these variables.  $Sector\_fe$  is a vector of dummies related to the sector in which each firm operates. Finally,  $\varepsilon_i$  is the error term.

As a further analysis, we cluster the different alternative financial instruments into four categories, following the OECD definition (2015) to include asset-based funding, alternative debt, hybrid instruments and equity-based instruments. We therefore identify the following dummy variables: (i) asset-based funding (ASSET\_BASED), i.e., a dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise; (ii) alternative debt (ALTERNATIVE), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: corporate bonds, sustainable bonds or loans, and crowdfunding, 0 otherwise; (iii) hybrid instrument (HYBRID), i.e., a dummy that equals 1 if the entrepreneur uses micro-credit, mezzanine finance or both, 0 otherwise; (iv) equity-based instruments (EQUITY\_BASED), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise.

### 3.2.2 Advice seeking and financial knowledge

To answer our second research question, we run the following probit regression (2):

$$ADVISOR_i = \alpha_i + \rho_i FK_i + \sum_i^n \beta_i X_i + \delta_i OVERC_i + \gamma_i TRUST_i + \sum_i^n \beta_i M_i + \varepsilon_i \quad (2)$$



**Table 5** Advice seeking and financial knowledge

| VARIABLES               | (a) PROBIT          |                     |                           | (b) IV PROBIT REGRESSION |                     |                           |
|-------------------------|---------------------|---------------------|---------------------------|--------------------------|---------------------|---------------------------|
|                         | PROF_FIN_<br>ADVICE | NON_PROF_<br>ADVICE | PROF_<br>NOFIN_<br>ADVICE | PROF_FIN_<br>ADVICE      | NON_PROF_<br>ADVICE | PROF_<br>NOFIN_<br>ADVICE |
|                         | (1)                 | (2)                 | (3)                       | (1)                      | (2)                 | (3)                       |
| FK/FK instrumented      | 0.026***<br>(0.009) | 0.035***<br>(0.009) | 0.014<br>(0.009)          | 0.621***<br>(0.227)      | 0.266<br>(0.468)    | 0.076<br>(0.515)          |
| MALE                    | -0.026<br>(0.025)   | -0.040<br>(0.025)   | -0.022<br>(0.025)         | -0.209***<br>(0.079)     | -0.156<br>(0.137)   | -0.074<br>(0.157)         |
| AGE                     | 2.697**<br>(1.187)  | 0.860<br>(1.160)    | 1.128<br>(1.133)          | 7.775**<br>(3.098)       | 3.071<br>(3.664)    | 3.351<br>(3.802)          |
| AGE2                    | -0.358**<br>(0.155) | -0.134<br>(0.151)   | -0.165<br>(0.147)         | -1.081***<br>(0.398)     | -0.475<br>(0.495)   | -0.492<br>(0.522)         |
| FAMILY_<br>BUSINESS     | 0.077***<br>(0.024) | 0.051**<br>(0.023)  | 0.049**<br>(0.023)        | -0.002<br>(0.141)        | 0.095<br>(0.165)    | 0.133<br>(0.162)          |
| ECONOMIC_<br>BACKGROUND | 0.001<br>(0.024)    | 0.031<br>(0.024)    | -0.090***<br>(0.024)      | -0.155*<br>(0.092)       | 0.038<br>(0.159)    | -0.268*<br>(0.154)        |
| EXPERIENCE < 1Y         | -0.077<br>(0.137)   | 0.055<br>(0.048)    | 0.251*<br>(0.150)         | -0.151<br>(0.339)        | 0.078<br>(0.564)    | 0.716*<br>(0.428)         |
| EXPERIENCE 1-2Y         | -0.001<br>(0.083)   | 0.189**<br>(0.089)  | 0.009<br>(0.079)          | -0.031<br>(0.206)        | 0.512*<br>(0.261)   | 0.024<br>(0.229)          |
| EXPERIENCE 2-5Y         | -0.029<br>(0.039)   | 0.057<br>(0.039)    | 0.079**<br>(0.039)        | -0.097<br>(0.098)        | 0.146<br>(0.122)    | 0.225*<br>(0.120)         |
| EXPERIENCE 5-10Y        | 0.027<br>(0.031)    | 0.028<br>(0.031)    | 0.016<br>(0.031)          | 0.012<br>(0.087)         | 0.066<br>(0.098)    | 0.045<br>(0.097)          |
| OVERC                   | 0.010<br>(0.047)    | 0.055<br>(0.048)    | 0.015<br>(0.047)          | 0.624**<br>(0.279)       | 0.331<br>(0.508)    | 0.078<br>(0.564)          |
| PHD                     | 0.512***<br>(0.193) | 0.027<br>(0.112)    | 0.181<br>(0.112)          | 0.422<br>(0.775)         | -0.104<br>(0.606)   | 0.480<br>(0.649)          |
| UNIVERSITY_<br>DEGREE   | 0.425**<br>(0.189)  | 0.007<br>(0.104)    | 0.087<br>(0.105)          | 0.298<br>(0.696)         | -0.143<br>(0.549)   | 0.216<br>(0.589)          |
| HIGH_SCHOOL_<br>DIPLOMA | 0.47**<br>(0.188)   | 0.006<br>(0.102)    | 0.142<br>(0.102)          | 0.536<br>(0.680)         | -0.108<br>(0.457)   | 0.380<br>(0.488)          |
| SECONDARY_<br>SCHOOL    | 0.427**<br>(0.190)  | -0.008<br>(0.105)   | 0.059<br>(0.105)          | 0.553<br>(0.615)         | -0.114<br>(0.386)   | 0.151<br>(0.409)          |
| TRUST                   | 0.203***<br>(0.022) | -0.026<br>(0.023)   | 0.063***<br>(0.022)       | 0.267<br>(0.222)         | -0.115<br>(0.133)   | 0.171<br>(0.150)          |
| TURNOVER<br>< 10 K      | 0.038<br>(0.111)    | 0.181<br>(0.337)    | 0.031<br>(0.317)          | 0.168<br>(0.272)         | 0.548<br>(0.942)    | 0.103<br>(0.922)          |
| TURNOVER<br>10-50 K     | 0.033<br>(0.079)    | 0.066<br>(0.329)    | -0.070<br>(0.310)         | 0.374*<br>(0.224)        | 0.306<br>(0.972)    | -0.176<br>(0.963)         |
| TURNOVER<br>50-100 K    | 0.019<br>(0.069)    | 0.125<br>(0.327)    | 0.059<br>(0.308)          | 0.018<br>(0.174)         | 0.370<br>(0.910)    | 0.174<br>(0.882)          |
| TURNOVER 100-500 K      | 0.058               | 0.203               | 0.110                     | 0.137                    | 0.595               | 0.321                     |

**Table 5** (continued)

| VARIABLES  | (a) PROBIT          |                     |                           | (b) IV PROBIT REGRESSION |                     |                           |
|--|---------------------|---------------------|---------------------------|--------------------------|---------------------|---------------------------|
|  | PROF_FIN_<br>ADVICE | NON_PROF_<br>ADVICE | PROF_<br>NOFIN_<br>ADVICE | PROF_FIN_<br>ADVICE      | NON_PROF_<br>ADVICE | PROF_<br>NOFIN_<br>ADVICE |
|  | (0.060)             | (0.325)             | (0.306)                   | (0.155)                  | (0.906)             | (0.880)                   |
| TURNOVER 500 K-1MLN  | 0.084               | 0.210               | 0.183                     | 0.163                    | 0.607               | 0.529                     |
|  | (0.062)             | (0.325)             | (0.306)                   | (0.170)                  | (0.906)             | (0.878)                   |
| TURNOVER 1-2MLN  | 0.117*              | 0.271               | 0.200                     | 0.188                    | 0.763               | 0.575                     |
|  | (0.068)             | (0.327)             | (0.308)                   | (0.202)                  | (0.910)             | (0.880)                   |
| N_EMPLOYEES  | 0.012**             | 0.013**             | -0.008                    | 0.022                    | 0.036**             | -0.023                    |
|  | (0.005)             | (0.005)             | (0.005)                   | (0.017)                  | (0.016)             | (0.015)                   |
| SECTOR FE  | YES                 | YES                 | YES                       | YES                      | YES                 | YES                       |
| log-likelihood   | -                   | -                   | -                         | -3766.9                  | -4655.83            | -3549.9                   |
| Durbin test  |                     |                     |                           | 0.002                    | 0.001               | 0.001                     |
| Under-identification test (Anderson canon. corr. LM statistic) | -                   | -                   | -                         | 0.313                    | 0.368               | 0.343                     |
| Weak identification test (Cragg-Donald Wald F statistic)       | -                   | -                   | -                         | 28.06                    | 25.264              | 24.02                     |
| Sargan Test  |                     |                     |                           | 0.000                    | 0.000               | 0.000                     |
| Pseudo R-squared   | 0.152               | 0.149               | 0.143                     | -                        | -                   | -                         |
| Observations   | 1,843               | 1,843               | 1,843                     | 1,843                    | 1,843               | 1,843                     |

Note: The table reports the results of the probit regression (a) and the IV probit regression (b), where the dependent variable is advice seeking in three different forms: in column (1) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; in column (2) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, in column (3) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. The independent variable is the individuals' financial knowledge and financial knowledge instrumented in (a) and (b), respectively. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

where ADVISOR is a dummy variable that takes value 1 when the entrepreneur uses a non-professional advisor, a professional financial advisor, or a professional non-financial advisor, 0 otherwise. FK is the entrepreneur's objective financial knowledge, measured using the big five questions in the Bank of Italy questionnaire.<sup>6</sup> FK can take values from 0 to 5, i.e., one point for each correct answer, 0 for both incorrect and "do not know" answers. Following previous literature (Vestal & Giudice, 2019), X is a vector of socio-demographic characteristics which includes gender (MALE), age (AGE), age squared (AGE<sup>2</sup>), educational level, economic background (ECONOMIC\_BACKGROUND), entrepreneur's experience (EXPERIENCE) and business family

(FAMILY\_BUSINESS). We also include in Eq. (2) a measure of overconfidence (OVERC), i.e., a dummy variable that equals 1 when the respondent has a level of objective financial knowledge lower than sample median, but he/she believes that he/she is more financially literate than the sample average (Porto & Xiao, 2016). We control for trust in financial intermediaries (TRUST) (Burke & Hung, 2021), measured by a dummy variable that equals 1 when the respondent answers "agree" or "completely agree" to the following question "*I feel confident in approaching banks and external investors to obtain financing for the enterprise*", 0 otherwise. We also control for some firm characteristics (vector M), and specifically for turnover (TURNOVER) and number of employees (N\_EMPLOYEES). All the variables are included at time  $t$ . Finally,  $\varepsilon_t$  is the error term.

<sup>6</sup> The questionnaire is reported in the Appendix.

**Table 6** Access to alternative finance and advice seeking—linear probability model

| VARIABLES                    | ALTERNATIVE FINANCE<br>(Dependent variable) |                     |                     |                   |
|------------------------------|---|---------------------|---------------------|-------------------|
|                              | (a)   | (b)                 | (c)                 | (d)               |
| ADVISOR                      | 0.077**<br>(0.033)                          | -                   | -                   | -                 |
| PROF_FIN_ADV                 | -   | 0.131***<br>(0.024) | -                   | -                 |
| NON_PROF_ADV                 | -   | -                   | -0.056**<br>(0.027) | -                 |
| PROF_NOFIN_ADV               | -   | -                   | -                   | 0.023<br>(0.027)  |
| Constant                     | -1.472<br>(2.045)                           | -1.497<br>(2.223)   | -1.879<br>(2.236)   | -1.811<br>(2.246) |
| SECTOR_FE                    | YES   | YES                 | YES                 | YES               |
| ENTREPRENEUR CHARACTERISTICS | YES   | YES                 | YES                 | YES               |
| FIRM CHARACTERISTICS         | YES   | YES                 | YES                 | YES               |
| Observations                 | 1,843                                       | 1,619               | 1,619               | 1,619             |
| R-squared                    | 0.079                                       | 0.094               | 0.080               | 0.078             |

Note: The table reports the results of the linear probability regression, where the dependent variable is access to alternative finance, and the independent variable is seeking advice that can take the following forms: in column (a) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise. In column (b) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; in column (c) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, in column (d) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

Following Kim et al. (2021), we run another regression model, and specifically an instrumental variable (IV) probit regression. We are, in fact, aware of possible endogeneity problems related to financial knowledge (FK) because of the probable linkage between the independent variables and the error term. The IV regression also allows us to consider the possible reverse causality related to FK (Cupák et al., 2019; Stolper & Walter, 2017; Brenner & Meyll, 2020). On the one hand, micro-entrepreneurs' FK could, in fact, encourage advice seeking. However, on the other hand, the use of an external advisor could improve micro-entrepreneurs' FK. Previous studies on financial literacy (Lusardi & Mitchell, 2014) show that the outputs obtained from the IV regression are proved to be larger than the OLS estimates. For this reason, Lusardi and Mitchell (2014) conclude that non-instrumented estimates of FK underestimate the true effect. Therefore, IV regressions are a useful

tool to overcome reverse causality problems related to FK. The first step of IV regression investigates the determinants of entrepreneur financial knowledge. The regression model is the following:

$$FK_i = \alpha_i + \sum_i^n \beta_i X_i + \sigma_i EDU\_FIN_i + \varepsilon_i \quad (3)$$

where X is a vector of control variables referring to the entrepreneurs' socio-demographic characteristics included in Eq. (1). EDU\_FIN is the instrumental variable included in the first step of our IV regression. As Kaiser et al. (2022) demonstrate that financial education programs are crucial in improving individual financial knowledge, following an economic/finance course at school can be considered a good instrument to proxy financial knowledge (Kim et al., 2021).  $\varepsilon_i$  is the error term. From the first step we obtain the instrumented financial knowledge ( $\widehat{FK}$ ), that is included in the second step of the regression (4):

**Table 7** Access to alternative finance and advice seeking (margins)—Heckman second step

| VARIABLES                    | ALTERNATIVE FINANCE ( <i>Dependent variable</i> ) |                     |                     |                      |
|------------------------------|---|---------------------|---------------------|----------------------|
|                              | (a)   | (b)                 | (c)                 | (d)                  |
| ADVISOR                      | 0.065*<br>(0.035)                                 | -                   | -                   | -                    |
| PROF_FIN_ADV                 | -   | 0.116***<br>(0.023) | -                   | -                    |
| NON_PROF_ADV                 | -   | -                   | -0.057**<br>(0.026) | -                    |
| PROF_NOFIN_ADV               | -   | -                   | -                   | 0.020<br>(0.027)     |
| IMR                          | -2.065***<br>(0.574)                              | -0.491**<br>(0.194) | -0.263<br>(0.536)   | -1.721***<br>(0.524) |
| SECTOR_FE                    | YES   | YES                 | YES                 | YES                  |
| ENTREPRENEUR CHARACTERISTICS | YES   | YES                 | YES                 | YES                  |
| FIRM CHARACTERISTICS         | YES   | YES                 | YES                 | YES                  |
| Pseudo R-squared             | 0.124   | 0.153               | 0.126               | 0.142                |
| Observations                 | 1,843   | 1,619               | 1,619               | 1,619                |

Note: The table reports the results of the second step of the Heckman-two step model, where the dependent variable is access to alternative finance and the independent variable is seeking advice, that can take the following forms: in column (a) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise. In column (b) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; in column (c) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, in column (d) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. IMR is the Inverse Mills Ratio obtained from the first step regression. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

$$\begin{aligned}
 ADVISOR_i = & \alpha_i + \rho_i \widehat{FK}_i + \sum_i^n \beta_i X_i + \delta_i OVERC_i \\
 & + \gamma_i TRUST_i + \sum_i^n \beta_i M_i + \varepsilon_i
 \end{aligned}
 \quad (4)$$

To check the validity of the instrumental variables and the consistency of our regression model, we run: (i) the Durbin test, to determine whether endogenous regressors in the model are exogenous; (ii) the Sargan test, to verify the overidentifying restrictions; (iii) the Anderson canonical correlation LM statistic, to test the under-identification; (iv) the Cragg-Donald Wald F statistic, to verify the identification power of the instrument inserted in the first step regression.

### 3.3 Descriptive statistics

Table 2 reports the descriptive statistics. The Table shows that about 44.5% of micro-entrepreneurs use at

least one alternative financial instrument. Asset-based funding, characterized by lower risk (OECD, 2015), is the most widely used, while alternative and equity-based instruments are the least used. Table 2 also shows that most micro-entrepreneurs seek external advice supporting their financial decisions (87.6%). However, professional financial advice is less used (43.8%) than the non-professional advice of friends, relatives and business partners (63.3%) and the non-financial advice given by professional external accountants and public institutions (64.1%). In terms of objective financial knowledge, micro-entrepreneurs provide correct answers to 3.6 questions out of 5. Moreover, most micro-entrepreneurs trust financial institutions (on average more than 50%) and are not affected by overconfidence (its mean value is, in fact, 0.064).

Looking at firm characteristics, micro-entrepreneurs believe, on average, they have neither high interest expenses nor high debts: their average value

**Table 8** Access to alternative finance and advice seeking—propensity score matching

| ATET           | ALTERNATIVE FINANCE |           |         |      |
|----------------|---------------------|-----------|---------|------|
|                | COEFF               | ST. ERROR | P-VALUE | Sign |
| PROF_FIN_ADV   | 0.149               | 0.026     | 0.000   | ***  |
| NON-PROF_ADV   | -0.098              | 0.031     | 0.002   | ***  |
| PROF_NOFIN_ADV | 0.019               | 0.032     | 0.526   |      |

Note: The table reports the results of the propensity score matching, where the dependent variable is access to alternative finance, while the independent variable can take the following forms: (i) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (ii) non-professional advice (NON-PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iii) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively. Number of observations 1,619

is, in fact, lower than 2.5, or close to this. The mean level of firm digitalization is low. Finally, the average firm age is around 14 years old, while the average number of employees is 4.38.

#### 4 Empirical Results

Table 3 reports the results of Eq. (1), where the dependent variable is ALT\_FIN, which equals 1 if the respondent claims to use at least one alternative financial instrument, and 0 otherwise. In order to make the results more readable, we report only the margins.

Our results show a positive and statistically significant relationship between external business advice and the probability of accessing alternative financial instruments (Table 3a). This means that when a micro-entrepreneur relies on external advisors to make financial decisions, the probability of widening his/her funding sources increases.

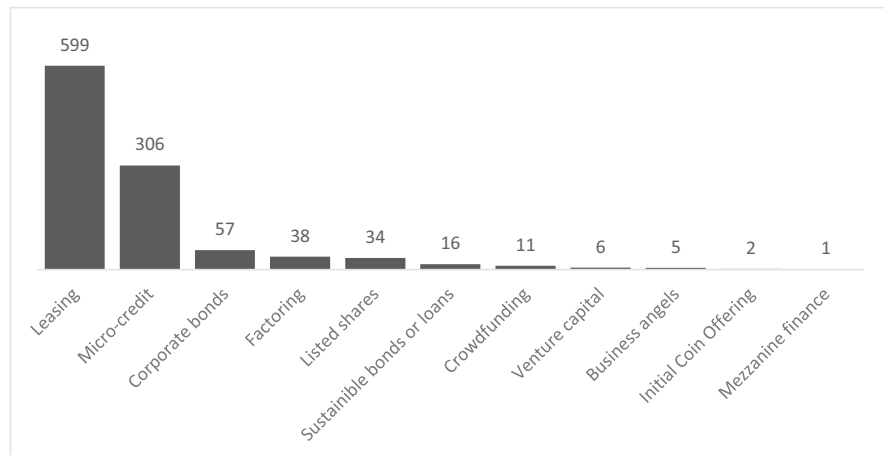
The different sources of advice, i.e., professional financial (Table 3b), non-professional (Table 3c)

**Table 9** Professional financial advice seeking and alternative financial knowledge – linear probability model, probit and IV probit regression

Note: The Table reports the results of the linear probability model (a), probit regression (b and d) and the IV probit regression (c and e), where the dependent variable is financial advice seeking. The independent variable is individual financial knowledge (a), the enterprise financial knowledge (a and c) and overall financial knowledge (d and e). In the IV probit regression model the instrumented knowledge is used. Standard errors are reported in parentheses. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

|   | (a)<br>LPM         | (b)<br>Probit     | (c)<br>IVprobit   | (d)<br>Probit      | (e)<br>IVprobit   |
|---|--------------------|-------------------|-------------------|--------------------|-------------------|
| FK  | 0.022**<br>(0.008) | -                 | -                 | -                  | -                 |
| ENTERPRISE_FK   | -                  | 0.013*<br>(0.007) | 0.257*<br>(0.153) | -                  | -                 |
| OVERALL_FK  | -                  | -                 | -                 | 0.011**<br>(0.004) | 0.187*<br>(0.107) |
| Constant  | -3.555*<br>(2.088) | -                 | -                 | -                  | -                 |
| SECTOR_FE   | YES                | YES               | YES               | YES                | YES               |
| ENTREPRENEUR CHARACTERISTICS                                  | YES                | YES               | YES               | YES                | YES               |
| FIRM CHARACTERISTICS  | YES                | YES               | YES               | YES                | YES               |
| log-likelihood  | -                  | -                 | -5655.8258        | -                  | -4433.385         |
| Durbin test   | -                  | -                 | 0.001             | -                  | 0.001             |
| Underidentification test (Anderson canon. corr. LM statistic) | -                  | -                 | 0.278             | -                  | 0.321             |
| Weak identification test (Cragg-Donald Wald F statistic)      | -                  | -                 | 15.264            | -                  | 27.753            |
| Sargan Test   | -                  | -                 | 0.000             | -                  | 0.000             |
| R2/Pseudo R-squared   | 0.097              | 0.142             | -                 | 0.143              | -                 |
| Observations  | 1,843              | 1,843             | 1,843             | 1,843              | 1,843             |

**Fig. 1** The subscription of alternative financial instruments by micro-entrepreneurs. Note: The Figure reports the distribution of the alternative financial instruments among the 1,843 micro-entrepreneurs



and professional non-financial (Table 3d), show different relationships with the dependent variable. Specifically, when micro-entrepreneurs seek professional financial advice, the probability of accessing alternative finance increases, but when they seek non-professional advice, the probability of using alternative financial instruments decreases. No statistically significant relationship emerges between professional non-financial advice and access to alternative finance. These findings demonstrate that the source of external business advice matters for accessing alternative finance: only professional financial advice, in fact, effectively increases the probability of using alternative financial instruments. This underlines the great importance of these professionals in supporting micro-entrepreneurs' funding decisions. On the other hand, the assistance of friends, relatives, and business partners not specifically qualified to support financial decisions decreases the probability of accessing alternative finance. These results extend previous evidence by Cumming and Fischer (2012) and Lahti (2014), showing that professional business advisory services positively influence the access of small firms to angel financing and venture capital.

Looking at the control variables, micro-entrepreneur characteristics are not particularly significant in explaining the use of alternative financial instruments, but firm characteristics show statistically significant relationships with the dependent variable. Specifically, more digitalized firms with higher turnover and higher short-term debt are more likely to use alternative financial instruments. The positive effect of high short-term debt is consistent with MSMEs

reaching their conventional borrowing limits with traditional providers. In fact, when firms achieve their maximum borrowing capacity with the banking channel, they then seek advice to find alternative finance, and the type of advice they seek at this point determines whether they use various sources of alternative finance.

Firm age shows, however, an inverse U-shape relationship with the dependent variable, i.e., an early positive link and a negative link after a certain age. This suggests a higher probability of accessing alternative finance in the middle age of the firm. This result is consistent with the theory of the business life cycle. It is, in fact, reasonable that MSMEs, in the startup and growth phases, see their alternative finance needs increase, and that these financial needs then tend to decrease in the maturity and decline phases. In general, it emerges that access to alternative finance depends more on firm than on entrepreneur characteristics.

In the next step of our analysis, we consider the different alternative financial instruments. For general external business advice, without distinguishing its different sources, no relationship emerges between advice seeking and the use of alternative debt, hybrid instruments, and equity-based instruments (Table 4, Panel A,e and Panel B,a,e). A positive and statistically significant linkage is found only between external business assistance and asset-based funding (Table 4, Panel A,a). On the other hand, the relationship between professional financial advice and the dependent variable is positive and statistically significant for all the categories of alternative financial instruments (Table 4, Panel A,b,f and Panel B,b,f). These findings underline the key role of the

professional financial advisor in accessing alternative finance. Our results also suggest that professional non-financial advisors increase the probability of accessing asset-based funding (Table 4, Panel A,d), but they do not increase the probability of accessing other alternative financial instruments (Table 4, Panel A,h and Panel B,d,h). Non-professional advice, on the other hand, always shows a non-statistically significant relationship with the dependent variables (Table 4, Panel A,c,g and Panel B,c,g).

Looking at the control variables, firm characteristics generally confirm the statistical significance observed in Table 3, while entrepreneur characteristics shown in Table 4 display additional information compared to those reported in Table 3. Specifically, a positive and significant relationship emerges between education level and alternative debt and equity-based instruments. This suggests that the higher the level of entrepreneur education, the higher the probability of accessing these risky alternative financial instruments.

Table 5 reports the results on the determinants of advice seeking, and specifically the findings of Eq. (2) (probit model, Table 5a) and Eq. (4) (IV probit model, Table 5b). The Durbin test (p-value lower than 0.005) confirms that financial knowledge can be affected by endogeneity problems. As the coefficients of the probit model may, therefore, be biased, we comment below only the findings obtained by the IV probit regression, which proved to be more robust.

The results show that no statistically significant relationship exists between financial knowledge and non-professional advice (Table 5b(2)) or professional non-financial advice (Table 5b(3)). However, a positive and statistically significant linkage emerges between objective financial knowledge and professional financial advice seeking (Table 5b(1)). On the one hand, this finding, although provided for the first time in relation to micro-entrepreneurs, confirms previous results on the positive impact of individual financial knowledge on the use of professional financial advisors (Hacketal et al., 2012; Calcagno & Monticone, 2015). On the other hand, our findings extend previous evidence by Kim et al. (2021) on households to micro-entrepreneurs, showing that financial knowledge affects the quality of the financial advice sought.

We show that professional financial advice seeking (Table 5b(1)) depends on the gender and age of micro-entrepreneurs in addition to their objective financial knowledge. Specifically, males are

less likely to ask for professional financial advice than females. This result, related for the first time to micro-entrepreneurs, confirms and extends previous evidence found among households (Hackethal et al., 2012). Our findings regarding females are also consistent with risk aversion and caution that leads women to seek advice more (Cowling et al., 2020; Galli et al., 2020; Liu & Cowling, 2023). Extending previous evidence on households by Robb et al., (2012), micro-entrepreneur age shows a non-linear relationship with the dependent variable, i.e., an increase in demand for professional financial advice up to 37 years of age and a decrease in demand after this age. Professional financial advice seeking displays a negative and slightly statistically significant relationship with economic background and a positive relationship with overconfidence. Specifically, micro-entrepreneurs with an economic background are less likely to rely on professional financial advice. This result, related for the first time to micro-entrepreneurs, conflicts with previous evidence about households showing that economic education is positively associated with the likelihood of seeking financial advice from professionals (Xiao & Porto, 2019). Our findings suggest that micro-entrepreneurs with an economic background probably consider their studies sufficient to make financial decisions, and therefore they perceive the need for a specialized financial advisor less strongly than micro-entrepreneurs without a business education. Moreover, the higher the level of overconfidence, the higher the probability of seeking professional financial advice. These findings on micro-entrepreneurs, on the one hand, conflict with the majority of previous results on individuals, which demonstrate that overconfident people are less likely to rely on financial advisors (Kramer, 2016; Broekema & Kramer, 2021). On the other hand, they support the extant personal finance literature showing a positive relationship between self-confidence in money management skills and the probability of seeking financial advice (Porto & Xiao, 2016; Robb et al., 2012). As suggested by Vörös et al. (2021), seemingly conflicting results are quite common in the literature on overconfidence considering the multifaceted nature of the construct and the wide range of definitions and measurement methods used across different studies. Furthermore, trust in financial intermediaries does not show any statistically significant relationship with advice seeking in the IV probit regression model

(Table 5b(1–3)). This evidence, related for the first time to micro-entrepreneurs, only apparently conflicts with previous literature about households documenting that both trust and consumer financial sophistication are critically important in seeking financial advice (Gennaioli et al., 2015). These studies relate, in fact, to narrow-scope trust, which includes interpersonal trust (trust in a person) and firm-specific trust (trust in a specific organization). On the contrary, our paper focuses on broad-scope trust, which encapsulates peoples' disposition to trust (trust in people in general) and system trust (trust in institutions in general). Hence, our result confirms previous evidence on households by Kramer (2016), showing that, although trust in the specific adviser is a significant determinant of financial advice seeking, generalized trust is not.

Finally, firm characteristics seem not to affect the use of specialized financial advisors, thus confirming previous findings on general business advisors (Mole et al., 2017).

The results of the tests reported in Table 5 show that neither strong evidence of under-identification (Anderson canonical correlation LM statistic) nor overidentification (Sargan statistic) emerge and suggest a reasonably strong identification power of the instruments (Cragg-Donald Wald F statistic).

## 5 Robustness checks

We run some robustness checks to test our main results. First, following Oggero et al. (2020), we run a linear probability regression model<sup>7</sup> to test the relationship between advice seeking and access to alternative finance. The results, reported in Table 6, confirm the findings above. We also run the linear probability model on the four categories of alternative financial instruments (Table 11 in the Appendix), which confirms previous evidence.

Second, as the endogeneity issue may be related to the use of external business advice, we run a further robustness check related to Eq. (1) using a Heckman two-step regression model, supposed to overcome the possible selection bias problem. To run the first step of the Heckman model and calculate the Inverse Mills Ratio (IMR), we use Eq. (2). In the second step, we run the probit regression (5) including the IMR:

$$ALT\_FIN_i = \alpha_i + \rho_i ADVISOR_i + \sum_i^n \beta_i X_i + \sum_i^n \gamma_i Z_i + \sigma_i IMR_i + sector\_fe + \varepsilon_i \quad (5)$$

All the variables included in Eq. (5) are the same used in Eq. (1), except for the IMR obtained in the first step regression using the following formula:

$$\lambda_{ij}^d = \frac{\phi(Z_{ij}\hat{Y})}{1 - \phi(Z_{ij}\hat{Y})} \quad (6)$$

The results of the Heckman model, reported in Table 7 (main analyses) and in Table 12 in the Appendix (analyses on the four categories of alternative financial instruments), highly confirm our previous findings.

In order to manage further possible endogeneity problems, we also run the propensity score matching (PSM), which allows us to estimate the causal effects of treatment. As suggested by previous literature (Ye & Kaskutas, 2009; Li, 2013; Ogane, 2021), the PSM is a useful method to manage the reverse causality issue that occurs when the treatment is selected as the result of the outcome usually caused by the temporality problem (in that the outcome occurs before the treatment), rather than the outcome being due to the treatment (Ye & Kaskutas, 2009). For this reason, Ogane (2021), in investigating the effect of external advisors on entrepreneurs' fundraising capability, runs the PSM to obtain unbiased estimates of the treatment effects, thus overcoming the possible reverse causality problem. Following Ogane (2021), we identify two groups of individuals in our model: the treated group, i.e., micro-entrepreneurs seeking specific external advice, and the control group, i.e., micro-entrepreneurs seeking other external advice. Using the near-neighbor matching technique, we first identify the comparable groups of individuals with the closest propensity score. The propensity score is the estimated probability of receiving the treatment based on observed covariates, i.e., the same variables used in Eq. (2). Next, we estimate the treatment effects on the treated (ATET). Our results, reported in Table 8 (main analyses) and in Table 13 in the Appendix (analyses on the four categories of alternative financial instruments), confirm the importance of professional financial advisors in increasing the probability of accessing alternative financial instruments.

<sup>7</sup> The linear probability model is increasingly seen as a suitable alternative to the probit or logit model (Wooldridge, 2002).



As an additional robustness test, we bootstrap the standard error of Eq. (1). The bootstrap method entails estimating population characteristics by repeatedly sampling from a provided dataset. The bootstrap method offers numerous advantages compared to traditional methods for estimating standard errors. First, it operates without necessitating assumptions about the distribution of the sample statistic. Second, it remains applicable even with a small sample size. Third, it can accommodate complex sample statistics that are challenging to estimate through conventional means. This method allows us to re-sampling our sample, re-estimate our results, and correct for the generated regressor problem (1,000 replications) (Atanasova, 2007; Moro et al., 2015). The results obtained with bootstrapped standard errors, shown in Table 16 in the Appendix, strongly confirm our main findings.

We run further robustness checks related to Eq. (1) considering firm age, indebtedness and industry. First, as suggested by Criscuolo et al. (2014), we split our sample between young micro-enterprises, i.e., firms of less than 5 years, and old micro-enterprises, i.e., firms of 5 years or more. Second, we consider firm indebtedness, measured by a Likert scale from 1 (too low) to 5 (too high), and distinguish high-indebted (debt equal or greater than 3) and low-indebted (debt lower than 3) microenterprises. Third, we exclude the two industries (Wholesale and retail trade, repair of motor vehicles and motorcycles and Professional, scientific and technical activities) representing together the 45% of the sample. The findings of these three further robustness checks, available upon request, remain consistent with our baseline analyses.

We also run some additional robustness controls to test the relationship between objective financial knowledge and external advice seeking. First, we run the linear probability model using the measure of objective financial knowledge estimated by the “big five” questions (FK). We next run the probit and the IV probit regression using two alternative measures of objective financial knowledge: (i) enterprise financial knowledge (ENTERPRISE\_FK), taking value from 0 to 6, as 1 point is assigned to each correct answer to 6 questions on specific business topics (return on asset, credit rating, balance sheet, dividends, mortgage and its reimbursement), and 0 to incorrect and “do not know” answers; (ii) and overall financial knowledge (OVERALL\_FK), taking value from 0 to 11, as it is the sum of FK) and enterprise financial knowledge

(ENTERPRISE\_FK). Our results, reported in Table 9 (related to professional financial advisors) and in Tables 14 and 15 in the Appendix (analyses related to the other sources of advice), confirm that objective financial knowledge has a statistically significant relationship only with professional financial advice seeking. Table 16.

## 6 Discussion and conclusions

The paper studies the role of different sources of external business advice in accessing alternative finance for micro-entrepreneurs, and whether their objective financial knowledge stimulates the advice seeking for financial decision-making. So far, to our knowledge, no previous research has investigated the effect of different types of external advisors on micro-entrepreneurs’ use of alternative financial instruments. This is surprising given that smaller firms, with constrained access to bank lending, are often unable to seek alternative financing and are thus financially excluded from banks and alternative finance providers (De Blick et al., 2024). Moreover, as far as we know, extant literature has not paid much attention to how objective financial knowledge drives micro-entrepreneurs to search for external advisors. This paper tries to fill these gaps by focusing on the Italian market, where 90–95% of all SMEs were micro-SMEs in 2022, as in the majority of EU-27 Member States (Di Bella et al., 2023).

Two main findings emerge. First, micro-entrepreneurs’ use of external advice for financial decisions allows them to access alternative financial instruments. However, different types of consultants are not equally useful; the source of external business advice matters to access to alternative finance. Only professional financial advice is shown to increase the probability of using alternative financial instruments by micro-enterprises, while professional non-financial advice does not. Non-professional advisors, instead, even discourage the use of alternative finance for micro-entrepreneurs. Therefore, financial companies and external financial consultants appear to be the most effective advisors for micro-enterprises seeking to diversify their funding sources. This has some important implications. On the one hand, micro-entrepreneurs should avoid seeking funding advice from individuals and institutions not specifically qualified to support financial choices,

be they non-professionals, such as relatives and friends, or non-financial professionals, such as external accountants. Such roles nowadays represent the main source of advice for micro-entrepreneurs making financial decisions in Italy today, but this advice often leads them to miss out on the opportunity to diversify their funding with alternative financial instruments. On the other hand, micro-entrepreneurs should increase their use of professional financial advisors. Given the important role of professionals in supporting access to alternative finance, micro-entrepreneurs should overcome their concerns related to the value, reliability and expense of specialized-financial advisory services (Mole et al., 2017) and increase their trust in financial intermediaries and external financial consultants. Greater use of professional financial advisors would increase the opportunities for micro-enterprises to diversify their sources of funding.

Second, our results show that objective financial knowledge helps shape the quality of financial advice sought by micro-entrepreneurs. Specifically, being more financially literate increases the probability that micro-entrepreneurs seek advice from highly professional sources, i.e., financial intermediaries and external financial consultants, rather than from less professional sources such as relatives, friends, and business partners, or from non-professional advisors like external consultants and public institutions. This implies that micro-entrepreneurs' poor financial knowledge represents a barrier to receiving high-quality financial assistance. Our findings also suggest that more financially literate micro-entrepreneurs are more likely to rely on professional financial advisors, recognizing the value of the additional information provided for making informed financial choices. Professional financial advisors are shown to be a complement rather than a substitute for financial capabilities. This finding supports the complementary theory on financial literacy and financial advice in the context of micro-entrepreneurs for the first time rather than households.

Our study has interesting implications from both policy and managerial points of view.

In order to improve micro-enterprise access to alternative finance, governments should encourage and support the use of business professional financial advisors among micro-entrepreneurs. This support could be direct, for example, by giving tax advantages to financial advisory services, or indirect, i.e., strengthening financial education programs targeting micro-entrepreneurs. Our findings suggest in fact that these programs could be useful not only in raising levels of financial knowledge

among micro-entrepreneurs, but also in stimulating their use of professional financial advisors. Education programs specifically targeted at micro-entrepreneurs could therefore focus on the funding decision process, relationships between subjects, the different funding instruments, including alternative finance instruments available, and the professional financial advisors useful to support financing decisions.

From a managerial point of view, micro-entrepreneurs should increase their reliance on specialized financial advice. This would help them to overcome the financial constraints related to bank lending by diversifying their funding sources by means of alternative financial instruments.

Our study represents a first attempt to investigate whether and how different external advisors encourage MSMEs to use alternative financial instruments and to test the role played by objective financial knowledge of micro-entrepreneurs in stimulating their external advice seeking. However, our research shows some limitations. First, our sample shows some geographical weaknesses, as it consists of Italian MSMEs, and regional data are not available. Second, the survey was conducted in 2021, and this does not allow a panel data analysis, but only a cross-sectional study. Further research could expand on our sample by focusing on other countries and by using regional data. Moreover, future studies might collect information over historical series, in order to implement panel-data analyses. Finally, further research could investigate the access to alternative finance not only by micro-entrepreneurs using different sources of external advice, but also by those that do not use any external advisors at all.

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#### **Declarations**

**Competing interests** The authors have no competing interests to declare that are relevant to the content of this article.

**Ethics approval and consent** The work has not been published before and is not under consideration for publication anywhere else. The publication has been approved by all co-authors, who all gave explicit consent to submit the paper to the journal.

## Appendix

**Table 10** Variable description

| Category                   | Variable       | Definition   |
|----------------------------|----------------|--|
| <b>ALTERNATIVE FINANCE</b> | ALT_FIN        | A dummy variable that equals 1 if the respondent claims to use at least one alternative financial instrument, 0 otherwise  |
|                            | ASSET_BASED    | A dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise  |
|                            | HYBRID         | A dummy that equals 1 if the entrepreneur uses micro-credits, mezzanine finance or both, 0 otherwise   |
|                            | ALTERNATIVE    | A dummy that equals 1 if the entrepreneur uses at least one of these instruments: corporate bonds, sustainable bonds or loans, or crowdfunding, 0 otherwise  |
|                            | EQUITY_BASED   | A dummy that equals 1 if the entrepreneur uses at least one of these instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise  |
| <b>ADVISOR</b>             | ADVISOR        | A variable measuring the use by micro-entrepreneurs of business advice for making financial decisions. The survey considers the following seven sources of advice: relatives and friends, business partners, other non-professional advisors, external accountants, public institutions, financial intermediaries and external financial consultants |
|                            | PROF_FIN_ADV   | A dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise  |
|                            | NON_PROF_ADV   | A dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise   |
|                            | PROF_NOFIN_ADV | A dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise   |
| <b>FINANCIAL KNOWLEDGE</b> | FK             | A measure using the big five questions appearing in the Bank of Italy questionnaire. These questions refer to five different topics, i.e., risk-return relationship, diversification, inflation, simple interest rate, and compound interest rate. Values range from 0 to 5  |
|                            | ENTERPRISE FK  | Based on 6 questions on specific business topics; the definition of return on asset, credit rating, balance-sheet, dividends, mortgage and its reimbursement. This measure can take values from 0 to 6, as 1 point is assigned to each correct answer, and 0 to incorrect and “do not know” answers  |
|                            | OVERALL FK     | The sum of FK and ENTERPRISE FK ranging from 0 to 11   |

**Table 10** (continued)

| Category                            | Variable   | Definition   |  |
|-------------------------------------|--|--|--|
| <b>ENTREPRENEUR CHARACTERISTICS</b> | MALE   | A dummy variable that equals 1 if the respondent is a male, 0 otherwise  |  |
|                                     | AGE  | The natural logarithm of the number of years old of each respondent and its square   |  |
|                                     | <i>Education</i>   |  |  |
|                                     | Post-graduate degree   | A dummy variable that equals 1 if entrepreneur has a post-graduate degree, 0 otherwise   |  |
|                                     | University degree  | A dummy variable that equals 1 if entrepreneur has a university degree, 0 otherwise  |  |
|                                     | High school diploma  | A dummy variable that equals 1 if entrepreneur has a high school diploma, 0 otherwise  |  |
|                                     | Secondary school diploma   | A dummy variable that equals 1 if entrepreneur has a secondary school diploma, 0 otherwise   |  |
|                                     | Primary school   | A dummy variable that equals 1 if entrepreneur has a primary school diploma, 0 otherwise. It is the reference category in the regressions  |  |
|                                     | No education   | A dummy variable that equals 1 if entrepreneur has no school education, 0 otherwise. It is the reference category in the regressions   |  |
|                                     | TRUST  | A dummy variable that equals 1 when the respondent responds “agree” or “completely agree” to the following statement “ <i>I feel confident in approaching banks and external investors to obtain financing for the enterprise</i> ”, 0 otherwise |  |
|                                     | FAMILY_BUSINESS  | A dummy variable that equals 1 if the entrepreneur has at least one parent who was him/herself an entrepreneur, 0 otherwise  |  |
|                                     | ECONOMIC_BACKGROUND  | A dummy variable that equals 1 if the respondent has an economic background  |  |
|                                     | OVERC  | A dummy variable that equals 1 when the respondent has a level of objective financial knowledge lower than sample median, but he/she believes him/herself to be more financially literate than the sample average                                |  |
|                                     | <i>Entrepreneur experience</i>   |  |  |
| EXPERIENCE < 1Y                     | A dummy variable that equals 1 if the entrepreneur has less than 1 year of experiences, 0 otherwise  |  |  |
| EXPERIENCE 1-2Y                     | A dummy variable that equals 1 if the entrepreneur has more than 1 year but less than 2 years of experiences, 0 otherwise                              |  |  |
| EXPERIENCE 2-5Y                     | A dummy variable that equals 1 if the entrepreneur has more than 2 years but less than 5 years of experiences, 0 otherwise                             |  |  |
| EXPERIENSE 5-10Y                    | A dummy variable that equals 1 if the entrepreneur has more than 5 years but less than 10 years of experiences, 0 otherwise                            |  |  |
| more than 10 years                  | A dummy variable that equals 1 if the entrepreneur has more than 10 years of experiences, 0 otherwise. It is the reference category in the regressions |  |  |

**Table 10** (continued)

| Category                    | Variable  | Definition  |
|-----------------------------|---|---|
| <b>FIRM CHARACTERISTICS</b> | <i>Turnover</i>                                     |   |
|                             | TURNOVER < 10 K                                     | A dummy variable that equals 1 if firm has a turnover less than 10 thousand, 0 otherwise  |
|                             | TURNOVER 10-50 K                                    | A dummy variable that equals 1 if firm has a turnover more than 10 thousand but less than 50 thousand euro, 0 otherwise   |
|                             | TURNOVER 50-100 K                                   | A dummy variable that equals 1 if firm has a turnover more than 50 thousand but less than 100 thousand euro, 0 otherwise  |
|                             | TURNOVER 100-500 K                                  | A dummy variable that equals 1 if firm has a turnover more than 100 thousand but less than 500 thousand euro, 0 otherwise   |
|                             | TURNOVER 500 K-1MLN                                 | A dummy variable that equals 1 if firm has a turnover more than 500 thousand but less than 1 million euro, 0 otherwise  |
|                             | TURNOVER 1-2MLN                                     | A dummy variable that equals 1 if firm has a turnover more than 1 million but less than 2 million euro, 0 otherwise   |
|                             | More than 2 million euro and up to 10 million euro  | A dummy variable that equals 1 if firm has a turnover more than 2 million but less than 10 million euro, 0 otherwise. It is the reference category in the regressions                                     |
|                             | More than 10 million euro and up to 50 million euro | A dummy variable that equals 1 if firm has a turnover more than 10 million but less than 50 million euro, 0 otherwise. It is the reference category in the regressions                                    |
|                             | INTEREST_EXPENCE                                    | Measures the level of interest expense declared by respondents on a Likert-scale from 1 to 5, where 1 is "too low" and 5 "too high"   |
|                             | LONG_DEBT   | A measure of the level of long debt declared by respondent using a Likert scale from 1 (too low) to 5 (too high)  |
|                             | SHORT_DEBT  | A proxy of the level of short debt declared by respondent using a Likert scale from 1 (too low) to 5 (too high)   |
|                             | FIRM_AGE  | The age of the firm, since its foundation   |
|                             | N_EMPLOYEES   | The number of employees indicated by entrepreneurs  |
|                             | DIGITALIZATION                                      | A measure of the level of firm digitalization in 2021, estimated following indications from the Bank of Italy. It is the sum of "YES" answers given by the entrepreneur to the "digitalization" questions |

Note: The Table reports the definition of the variables used in the regression models

**Table 11** Access to different alternative financial instruments and advice seeking –linear probability model

| VARIABLES                    | Panel A             |                     |                   |                    |                   |                     |                   |                   |
|------------------------------|---------------------|---------------------|-------------------|--------------------|-------------------|---------------------|-------------------|-------------------|
|                              | ASSET BASED         |                     |                   |                    | ALTERNATIVE       |                     |                   |                   |
|                              | (a)                 | (b)                 | (c)               | (d)                | (e)               | (f)                 | (g)               | (h)               |
| ADVISOR                      | 0.081***<br>(0.030) |                     |                   |                    | -0.010<br>(0.013) |                     |                   |                   |
| PROF_FIN_ADV                 |                     | 0.076***<br>(0.023) |                   |                    |                   | 0.017*<br>(0.009)   |                   |                   |
| NON_PROF_ADV                 |                     |                     | -0.040<br>(0.025) |                    |                   |                     | -0.004<br>(0.009) |                   |
| PROF_NOFIN_ADV               |                     |                     |                   | 0.051**<br>(0.025) |                   |                     |                   | -0.015<br>(0.011) |
| Constant                     | 0.103<br>(1.889)    | 0.398<br>(2.075)    | 0.169<br>(2.062)  | 0.242<br>(2.077)   | 1.184<br>(0.972)  | 1.450<br>(1.076)    | 1.401<br>(1.070)  | 1.395<br>(1.068)  |
| SECTOR_FE                    | YES                 | YES                 | YES               | YES                | YES               | YES                 | YES               | YES               |
| ENTREPRENEUR CHARACTERISTICS | YES                 | YES                 | YES               | YES                | YES               | YES                 | YES               | YES               |
| FIRM CHARACTERISTICS         | YES                 | YES                 | YES               | YES                | YES               | YES                 | YES               | YES               |
| Observations                 | 1,843               | 1,619               | 1,619             | 1,619              | 1,843             | 1,619               | 1,619             | 1,619             |
| R-squared                    | 0.084               | 0.094               | 0.090             | 0.091              | 0.050             | 0.059               | 0.057             | 0.058             |
| VARIABLES                    | Panel B             |                     |                   |                    |                   |                     |                   |                   |
|                              | HYBRID              |                     |                   |                    | EQUITY BASED      |                     |                   |                   |
|                              | (a)                 | (b)                 | (c)               | (d)                | (e)               | (f)                 | (g)               | (h)               |
| ADVISOR                      | 0.036<br>(0.022)    |                     |                   |                    | 0.007<br>(0.007)  |                     |                   |                   |
| PROF_FIN_ADV                 |                     | 0.080***<br>(0.018) |                   |                    |                   | 0.028***<br>(0.007) |                   |                   |
| NON_PROF_ADV                 |                     |                     | -0.017<br>(0.021) |                    |                   |                     | -0.002<br>(0.008) |                   |
| PROF_NOFIN_ADV               |                     |                     |                   | 0.010<br>(0.020)   |                   |                     |                   | 0.000<br>(0.008)  |
| Constant                     | -2.775*             | -3.036*             | -3.255*           | -3.232*            | 0.516             | 0.955               | 0.882             | 0.885             |

**Table 11** (continued)

|                              | (1.537) | (1.715) | (1.739) | (1.740) | (0.883) | (1.008) | (1.019) | (1.020) |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| SECTOR_FE                    | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| ENTREPRENEUR CHARACTERISTICS | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| FIRM CHARACTERISTICS         | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| Observations                 | 1,843   | 1,619   | 1,619   | 1,619   | 1,843   | 1,619   | 1,619   | 1,619   |
| R-squared                    | 0.036   | 0.046   | 0.035   | 0.035   | 0.027   | 0.040   | 0.032   | 0.032   |

Note: The table reports the results of the linear probability regression, where the dependent variable is access to alternative finance. In Panel A, the dependent variable can take two different forms: (i) ASSET\_BASED, i.e., a dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise; (ii) alternative debt (ALTERNATIVE), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: corporate bonds, sustainable bonds or loans, and crowdfunding, 0 otherwise. In Panel B, the dependent variable can take two other different meanings: (i) hybrid instrument (HYBRID), i.e., a dummy that equals 1 if the entrepreneur uses micro-credits, mezzanine finance or both, 0 otherwise; (ii) equity-based instruments (EQUITY\_BASED), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise. The independent variable can take the following forms: (i) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise; (ii) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (iii) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iv) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parentheses. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively.

**Table 12** Access to different alternative financial instruments and advice seeking – Heckman two step model

| Panel A                      |                      | ASSET BASED         |                   | ALTERNATIVE          |                   |                     |                   |                   |  |
|------------------------------|----------------------|---------------------|-------------------|----------------------|-------------------|---------------------|-------------------|-------------------|--|
| VARIABLES                    | (a)                  | (b)                 | (c)               | (d)                  | (e)               | (f)                 | (g)               | (h)               |  |
| ADVISOR                      | 0.070**<br>(0.034)   |                     |                   |                      | -0.010<br>(0.012) |                     |                   |                   |  |
| PROF_FIN_ADV                 |                      | 0.064***<br>(0.022) |                   |                      |                   | 0.016*<br>(0.008)   |                   |                   |  |
| NON_PROF_ADV                 |                      |                     | -0.039<br>(0.024) |                      |                   |                     | -0.003<br>(0.009) |                   |  |
| PROF_NOFIN_ADV               |                      |                     |                   | 0.049*<br>(0.025)    |                   |                     |                   | -0.013<br>(0.009) |  |
| ADVICE                       |                      |                     |                   |                      | 0.064<br>(0.209)  | 0.044<br>(0.072)    | 0.045<br>(0.202)  | 0.0522<br>(0.194) |  |
| IMR                          | -1.677***<br>(0.543) | -0.434**<br>(0.185) | -0.199<br>(0.507) | -1.348***<br>(0.496) | YES<br>YES<br>YES | YES<br>YES<br>YES   | YES<br>YES<br>YES | YES<br>YES<br>YES |  |
| ENTREPRENEUR CHARACTERISTICS |                      |                     |                   |                      |                   |                     |                   |                   |  |
| FIRM CHARACTERISTICS         |                      |                     |                   |                      |                   |                     |                   |                   |  |
| SECTOR_FE                    | YES                  | YES                 | YES               | YES                  | YES               | YES                 | YES               | YES               |  |
| Pseudo R-squared             | 0.125                | 0.152               | 0.127             | 0.163                | 0.122             | 0.143               | 0.121             | 0.132             |  |
| Observations                 | 1,843                | 1,619               | 1,619             | 1,619                | 1,843             | 1,619               | 1,619             | 1,619             |  |
| Panel B                      |                      | HYBRID              |                   | EQUITY BASED         |                   |                     |                   |                   |  |
| VARIABLES                    | (a)                  | (b)                 | (c)               | (d)                  | (e)               | (f)                 | (g)               | (h)               |  |
| ADVISOR                      | 0.036<br>(0.028)     |                     |                   |                      | 0.007<br>(0.013)  |                     |                   |                   |  |
| PROF_FIN_ADV                 |                      | 0.072***<br>(0.018) |                   |                      |                   | 0.035***<br>(0.009) |                   |                   |  |
| NON_PROF_ADV                 |                      |                     | -0.021<br>(0.020) |                      |                   |                     | -0.002<br>(0.007) |                   |  |
| PROF_NOFIN_ADV               |                      |                     |                   | 0.011<br>(0.020)     |                   |                     |                   | -0.001<br>(0.008) |  |
| IMR                          | -1.078**             | -0.351**            | -0.186            | -1.255***            | -0.246            | -0.010              | -0.202            | -0.217            |  |



**Table 12** (continued)

|                              | (0.453) | (0.156) | (0.396) | (0.422) | (0.165) | (0.059) | (0.126) | (0.157) |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| ENTREPRENEUR CHARACTERISTICS | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| FIRM CHARACTERISTICS         | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| SECTOR_FE                    | YES     | YES     | YES     | YES     | YES     | YES     | YES     | YES     |
| Pseudo R-squared             | 0.142   | 0.131   | 0.128   | 0.163   | 0.125   | 0.12    | 0.122   | 0.153   |
| Observations                 | 1,843   | 1,619   | 1,619   | 1,619   | 1,843   | 1,619   | 1,619   | 1,619   |

Note: The table reports the results of the second step of the two-step Heckman model, where the dependent variable is the access to alternative finance. In Panel A, the dependent variable can take two different forms: (i) ASSET\_BASED, i.e., a dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise; (ii) alternative debt (ALTERNATIVE), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: corporate bonds, sustainable bonds or loans, and crowdfunding, 0 otherwise. In Panel B, the dependent variable can take two other different forms: (i) hybrid instrument (HYBRID), i.e., a dummy that equals 1 if the entrepreneur uses micro-credits, mezzanine finance or both, 0 otherwise; (ii) equity-based instruments (EQUITY\_BASED), i.e., a dummy that equals 1 if the entrepreneur uses at least one of these instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise. The independent variable can take the following forms: (i) ADVISOR is a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor, 0 otherwise; (ii) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (iii) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iv) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. IMR is the Inverse Mills Ratio obtained from the first step regression. Standard errors are reported in parenthesis. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively.

**Table 13** Access to different alternative financial instruments and advice seeking—propensity score matching

| ATET         | PROF_FIN_ADV |           |         |      | NON_PROF_ADV |           |         |      | PROF_NOFIN_ADV |           |         |      |
|--------------|--------------|-----------|---------|------|--------------|-----------|---------|------|----------------|-----------|---------|------|
|              | COEFF        | ST. ERROR | P-VALUE | Sign | COEFF        | ST. ERROR | P-VALUE | Sign | COEFF          | ST. ERROR | P-VALUE | Sign |
| ASSET_BASED  | 0.092        | 0.025     | 0.000   | ***  | -0.056       | 0.028     | 0.052   | *    | 0.049          | 0.028     | 0.085   | *    |
| ALTERNATIVE  | 0.025        | 0.011     | 0.008   | **   | -0.014       | 0.014     | 0.323   |      | -0.025         | 0.015     | 0.083   | *    |
| HYBRID       | 0.083        | 0.021     | 0.000   | ***  | -0.050       | 0.025     | 0.052   | *    | 0.012          | 0.024     | 0.597   |      |
| EQUITY_BASED | 0.029        | 0.007     | 0.003   | ***  | 0.004        | 0.007     | 0.521   |      | 0.004          | 0.008     | 0.595   |      |

Note: The table reports the results of the propensity score matching, where the dependent variable is the different type of alternative finance (ASSET BASED, ALTERNATIVE, HYBRID and EQUITY BASED), and the independent variable can take the following forms: (i) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (ii) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iii) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

**Table 14** Advice seeking and financial knowledge—linear probability model

| VARIABLES                    | NON_PROF_ADV<br>(1) | PROF_NOFIN_ADV<br>(2) |
|------------------------------|---------------------|-----------------------|
| FK                           | 0.036***<br>(0.009) | 0.015<br>(0.009)      |
| Constant                     | -0.968<br>(2.197)   | -1.653<br>(2.180)     |
| SECTOR_FE                    | YES                 | YES                   |
| ENTREPRENEUR CHARACTERISTICS | YES                 | YES                   |
| FIRM CHARACTERISTICS         | YES                 | YES                   |
| Observations                 | 1,843               | 1,843                 |
| R-squared                    | 0.064               | 0.071                 |

Note: The table reports the results of the linear probability model, where the dependent variable is advice seeking and can take two different forms: in column (1) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, in column (2) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. The independent variable is the individuals' financial knowledge. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

**Table 15** Non-professional and professional non-financial advice seeking and alternative financial knowledge—probit and IV probit regression

|  | PROBIT<br>NON_PROF_<br>ADV<br>(a) | PROBIT<br>PROF_<br>NOFIN_ADV<br>(b) | IV PROBIT<br>NON_PROF_<br>ADV<br>(c) | IV PROBIT<br>PROF_<br>NOFIN_ADV<br>(d) | PROBIT<br>NO_PROF_<br>ADV<br>(e) | PROBIT<br>PROF_<br>NOFIN_ADV<br>(f) | IV PROBIT<br>NO_PROF_<br>ADV<br>(g) | IV PROBIT<br>PROF_<br>NOFIN_<br>ADV<br>(h) |
|--|-----------------------------------|-------------------------------------|--------------------------------------|--|----------------------------------|-------------------------------------|-------------------------------------|--|
| ENTERPRISE_FK  | 0.007<br>(0.007)                  | 0.006<br>(0.007)                    | 0.094<br>(0.173)                     | 0.026<br>(0.177)                       |                                  |                                     |                                     |  |
| OVERALL_FK   |                                   |                                     |                                      |  | 0.012***<br>(0.004)              | 0.006<br>(0.004)                    | 0.070<br>(0.129)                    | 0.019<br>(0.132)                           |
| SECTOR FE  | YES                               | YES                                 | YES                                  | YES                                    | YES                              | YES                                 | YES                                 | YES  |
| ENTREPRE-<br>NEUR CHAR-<br>ACTERISTICS                                     | YES                               | YES                                 | YES                                  | YES                                    | YES                              | YES                                 | YES                                 | YES  |
| FIRM CHARAC-<br>TERISTICS  | YES                               | YES                                 | YES                                  | YES                                    | YES                              | YES                                 | YES                                 | YES  |
| log-likelihood   | -                                 | -                                   | -3415.8258                           | -3453.375                              | -                                | -                                   | -3615.325                           | -3423.365                                  |
| Durbin test  | -                                 | -                                   | 0.002                                | 0.002                                  | -                                | -                                   | 0.001                               | 0.001                                      |
| Underidentifica-<br>tion test (Ander-<br>son canon. corr.<br>LM statistic) | -                                 | -                                   | 0.178                                | 0.121                                  | -                                | -                                   | 0.178                               | 0.131                                      |
| Weak identifica-<br>tion test (Cragg-<br>Donald Wald F<br>statistic)       | -                                 | -                                   | 16.264                               | 17.853                                 | -                                | -                                   | 18.234                              | 17.153                                     |
| Sargan Test  | -                                 | -                                   | 0.000                                | 0.000                                  | -                                | -                                   | 0.000                               | 0.000                                      |
| R2/Pseudo<br>R-squared   | 0.127                             | 0.128                               | -                                    | -                                      | 0.120                            | 0.153                               | -                                   | -  |
| Observations   | 1,843                             | 1,843                               | 1,843                                | 1,843                                  | 1,843                            | 1,843                               | 1,843                               | 1,843                                      |

Note: The table reports the results of the probit regression (a-b, e-f) and the IV probit regression (c-d, g-h), where the dependent variable is financial advice seeking. NON\_PROF\_ADV is non-professional advice seeking (a, c, e, g); PROF\_NOFIN\_ADV is professional non-financial advice seeking (b, d, f, h). The independent variable is enterprise financial knowledge (a to d) and overall financial knowledge (e to h). In the IV probit regression model, instrumented knowledge is used. Standard errors are reported in parentheses. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively

**Table 16** Access to different alternative financial instruments and advice seeking (margins)- probit analysis with bootstrapped standard errors

| Panel A                      |                    | ALTERNATIVE FINANCE |                     |
|------------------------------|--------------------|---------------------|---------------------|
| VARIABLES                    | (a)                | (b)                 | (c)                 |
| ADVISOR                      | 0.092**<br>(0.039) |                     | (d)                 |
| PROF_FIN_ADV                 |                    | 0.141***<br>(0.025) |                     |
| NON_PROF_ADV                 |                    |                     | -0.057**<br>(0.028) |
| PROF_NOFIN_ADV               |                    |                     | 0.016<br>(0.028)    |
| ENTREPRENEUR CHARACTERISTICS | YES                | YES                 | YES                 |
| FIRM CHARACTERISTICS         | YES                | YES                 | YES                 |
| SECTOR_FE                    | YES                | YES                 | YES                 |
| Pseudo R-square              | 0.063              | 0.074               | 0.061               |
| Observations                 | 1,843              | 1,619               | 1,619               |
| Panel B                      |                    | ALTERNATIVE         |                     |
| VARIABLES                    | (a)                | (c)                 | (d)                 |
| ADVISOR                      | 0.069*<br>(0.036)  |                     | (e)                 |
| PROF_FIN_ADV                 |                    | 0.095***<br>(0.024) | 0.048<br>(0.029)    |
| NON_PROF_ADV                 |                    |                     | 0.076***<br>(0.020) |
| PROF_NOFIN_ADV               |                    | -0.051*<br>(0.027)  | -0.021<br>(0.021)   |
| ENTREPRENEUR CHARACTERISTICS | YES                | YES                 | YES                 |
| FIRM CHARACTERISTICS         | YES                | YES                 | YES                 |
| SECTOR_FE                    | YES                | YES                 | YES                 |
| Pseudo R-square              | 0.073              | 0.078               | 0.051               |
| Observations                 | 1,843              | 1,619               | 1,619               |
| Panel C                      |                    | EQUITY BASED        |                     |
| VARIABLES                    | (a)                | (b)                 | (c)                 |
| ADVISOR                      | -0.014<br>(0.016)  |                     | (d)                 |
| PROF_FIN_ADV                 |                    |                     | 0.010<br>(0.022)    |
| NON_PROF_ADV                 |                    |                     | 0.040<br>(0.040)    |
| PROF_NOFIN_ADV               |                    |                     | 1.619<br>(0.013)    |
| ENTREPRENEUR CHARACTERISTICS | YES                | YES                 | YES                 |
| FIRM CHARACTERISTICS         | YES                | YES                 | YES                 |
| SECTOR_FE                    | YES                | YES                 | YES                 |
| Pseudo R-square              | 0.073              | 0.084               | 0.051               |
| Observations                 | 1,843              | 1,619               | 1,619               |

**Table 16** (continued)

|                              |       |         |         |         |          |
|------------------------------|-------|---------|---------|---------|----------|
| PROF_FIN_ADV                 |       | 0.016*  |         |         | 0.039*** |
|                              |       | (0.010) |         |         | (0.013)  |
| NON_PROF_ADV                 |       |         | -0.004  |         | -0.001   |
|                              |       |         | (0.009) |         | (0.008)  |
| PROF_NOFIN_ADV               |       |         |         | -0.017* | -0.003   |
|                              |       |         |         | (0.010) | (0.009)  |
| ENTREPRENEUR CHARACTERISTICS | YES   | YES     | YES     | YES     | YES      |
| FIRM CHARACTERISTICS         | YES   | YES     | YES     | YES     | YES      |
| SECTOR_FE                    | YES   | YES     | YES     | YES     | YES      |
| Pseudo R-square              | 0.137 | 0.169   | 0.164   | 0.108   | 0.167    |
| Observations                 | 1,843 | 1,619   | 1,619   | 1,843   | 1,619    |

Note: The table reports the results of the probit regression with bootstrapped standard errors, where the dependent variable is access to alternative finance. In Panel A, the dependent variable is the access to alternative financial instruments in general. In panel B, the dependent variable can take two different forms: (i) ASSET\_BASED, i.e., a dummy that equals 1 if the entrepreneur claims to use leasing, factoring or both, 0 otherwise; (ii) alternative debt (ALTERNATIVE), i.e., a dummy that equals 1 if the entrepreneur uses at least one of the following instruments: corporate bonds, sustainable bonds or loans, and crowdfunding, 0 otherwise. In Panel C, the dependent variable can take two other different forms: (i) hybrid instruments (HYBRID), i.e., a dummy that equals 1 if the entrepreneur uses micro-credits, mezzanine finance or both, 0 otherwise; (ii) equity-based instruments (EQUITY\_BASED), i.e., a dummy that equals 1 if the entrepreneur uses at least one of the following instruments: venture capital, business angels, listed shares, Initial Coin Offering, 0 otherwise. The independent variable can take the following forms: (i) ADVISOR, i.e., a dummy variable that equals 1 if the entrepreneur relies on at least one external advisor; 0 otherwise. (ii) professional financial advice (PROF\_FIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks financial intermediaries and external financial consultants for advice, 0 otherwise; (iii) non-professional advice (NON\_PROF\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks relatives and friends, business partners and other non-professional advisors for advice, 0 otherwise; and, (iv) professional non-financial advice (PROF\_NOFIN\_ADV), i.e., a dummy variable that equals 1 if the entrepreneur asks external accountants and public institutions for advice, 0 otherwise. Standard errors are reported in parenthesis. \*, \*\*, \*\*\* are the statistical significance at 10%, 5% and 1%, respectively.

## Questionnaire

### Dependent variable Alternative Finance Questions

Measured variable: Alternative Finance (instruments).

Questions used

---

|  |                    |
|--|--------------------|
| ...and can you tell me whether you currently use or have used it for your business in the last 24 months [or since business creation if the business has existed for less than 24 months]? | Possible responses |
| Corporate bonds or commercial papers   | 1 = Yes            |
| Micro-credit (for the business)  | 0 = No             |
| Venture capital  | Don't know         |
| Angel investment/ Business angels  | Refused            |
| Public equity  |                    |
| Crowdfunding   |                    |
| Initial Coin Offering (ICO)  |                    |
| Mezzanine finance  |                    |
| Leasing or hire purchase   |                    |
| Factoring  |                    |
| Sustainable (social or green) bonds or loans   |                    |

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### Independent variable Advice Seeking Questions

Measured variable: Advice Seeking—sources of advice and support.

Questions used.

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|  |                    |
|--|--------------------|
| In the past 24 months [or since business creation if the business has existed for less than 24 months], has any of these people helped you in taking financial decisions for the business? | Possible responses |
| A business partner   | 1 = Yes            |
| A book-keeper or accountant external to the business   | 0 = No             |
| A business financial advisor external to the business  | Don't know         |
| A financial intermediary (e.g. bank)   | Not applicable     |
| A public agency or institution   | Refused            |
| Family or friends  |                    |
| Someone else   |                    |

---

### Financial Knowledge Questions

Measured variable: Basic Financial Knowledge.

Questions used: Big five.

---

|  |   |
|--|---|
| Question   | Possible responses  |
| Imagine that someone puts €100 into a <no fee, tax free> savings account with a guaranteed interest rate of 2% per year. They don't make any further payments into this account and they don't withdraw any money. How much would be in the account at the end of the first year, once the interest payment is made? | Record Response [Minimum value = 0]<br>Don't know<br>Refused<br>Irrelevant answer<br>1 if answer is 102 |

Advisors for micro-entrepreneurs: is one as good as another in accessing alternative finance?

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...and how much would be in the account at the end of five years [add if necessary: remembering there are no fees or tax deductions]? Would it be:

1 = More than €110  
Exactly €110  
Less than €110  
Impossible to tell from the information given  
Don't know  
Refused  
Irrelevant answer

---

If a financial investment offers the chance to make a lot of money it is likely that there is also the chance to lose a lot of money

1 = True  
0 = False  
Don't know  
Refused

High inflation means that the cost of living is increasing rapidly

1 = True  
0 = False  
Don't know  
Refused

If a farmer grows several types of fruit and vegetables each year, she has a lower risk of losing all her crops to disease

1 = True  
0 = False  
Don't know  
Refused

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Measured variable: Enterprise FK.

Questions used: Enterprise FK questions.

---

| Question   | Answer options/Possible responses   |
|--|---|
| Could you tell me which of these best describes a balance sheet?   | 1 = A financial snapshot, taken at a point in time, of the firm's assets and liabilities<br>A record of profits and losses of the firm in a certain period of time<br>A record of the flow of financial resources over time<br>None of those<br>Don't know<br>Refused |
| Could you tell me which of these best describes the Return-on-Assets ratio (ROA)?  | An indicator of the firm's capital structure<br>An indicator of the firm's liquidity<br>1 = An indicator of the firm's performance<br>None of those<br>Don't know<br>Refused  |
| Dividends are part of what a business pays to a bank to repay a loan   | 1 = True<br>0 = False<br>Don't know<br>Refused  |
| When a company obtains equity from an investor it gives the investor part of the ownership of the company  | 1 = True<br>0 = False<br>Don't know<br>Refused  |
| A 15-year loan typically requires higher monthly payments than a 30-year loan of the same amount, but the total interest paid over the life of the loan will be less | 1 = True<br>0 = False<br>Don't know<br>Refused  |
| Credit rating is an evaluation of the ability of a prospective borrower to pay back their debt   | 1 = True<br>0 = False<br>Don't know<br>Refused  |

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### Trust Questions

Measured variable: Trust.

Question used.

| Still thinking about your business... would you agree or disagree with the following statement? | Possible responses   |
|---|--|
| I am confident to approach banks and external investors to obtain business finance              | 1 = strongly disagree<br>2 = disagree<br>3 = agree<br>4 = strongly agree |

### Short-term financial debt, Long-term financial debt and Interest expenses Questions

Question used.

| Thinking about your business, how would you evaluate the level of the following items at the end of 2019? | Possible responses |
|---|--------------------|
| Short-term financial debt   | 1 = too low        |
| Long-term financial debt  | 2 = quite low      |
| Interest expenses   | 3 = adequate       |
|   | 4 = quite high     |
|   | 5 = too high       |
|   | Don't know         |
|   | Refused            |

### Digital activities Questions

Measured variable: DIGITALIZATION.

Questions used.

| ...and thinking about now, do you have, or have recently done, any of the following things? | Possible responses |
|---|--------------------|
| Have a dedicated website to showcase the products or services of the business               | 1 = Yes            |
| Have a dedicated website to sell the products or services of the business                   | 0 = No             |
| Have signed a financing contract (e.g. a bank loan) completely online                       | Don't know         |
| Have opened a bank account completely online  | Not applicable     |
| Have signed an insurance contract completely online   | Refused            |
| Use open banking services or applications to manage business finances and payments          |                    |

### Instrumental variable

Measured variable: Training on personal money management.

Question used.

| Question  | Possible responses                         |
|---|--|
| Have you ever received training on personal money management? | 1 = Yes<br>0 = No<br>Don't know<br>Refused |



### Entrepreneurs' Socio-Demographics Questions

---

|                            |   |
|----------------------------|---|
| Gender                     | 1 = Male<br>2 = Female  |
| Age                        | ...<br>Refused  |
| Age bands                  | 1 = Younger than 18<br>2 = 18–19<br>3 = 20–29<br>4 = 30–39<br>5 = 40–49<br>6 = 50–59<br>7 = 60–69<br>8 = 70–79<br>9 = 80 or older<br>Refused<br>Not applicable  |
| Educational level          | 1 = Post-graduate education or equivalent<br>2 = University-level education<br>3 = Upper secondary school or high school<br>4 = Lower secondary school or middle school<br>5 = Primary school<br>6 = No formal education<br>Refused |
| Economic Background        | 1 = Yes<br>2 = No<br>Don't know<br>Refused  |
| Entrepreneurial experience | 1 = Less than one year<br>2 = Between 1 and up to 2 years<br>3 = Between 2 and up to 5 years<br>4 = Between 5 and up to 10 years<br>5 = More than 10 years<br>Don't know<br>Refused   |
| Family Business            | 1 = Yes – at least one of my parents is or was a business owner<br>2 = No<br>Don't know<br>Refused  |

---

## Firm characteristics

|  |   |
|--|---|
| Turnover   | Up to €10,000   |
| What was the approximate annual turnover of this business in the previous fiscal year?   | More than €10,000 and up to €50,000                                 |
|  | More than €50,000 and up to €100,000                                |
|  | More than €100,000 and up to €500,000                               |
|  | More than €500,000 and up to €1 million                             |
|  | More than €1 million and up to €2 million                           |
|  | More than €2 million and up to €10 million                          |
|  | More than €10 million and up to €50 million                         |
|  | More than €50 million   |
|  | Don't know  |
|  | Refused   |
| Sector   | Agriculture, forestry and fishing                                   |
| What is the main activity of your business?  | Manufacturing   |
|  | Construction and real estate  |
|  | Wholesale and retail trade  |
|  | Transportation, shipping, storage                                   |
|  | Accommodation, food and beverage services                           |
|  | Other personal services such as education, beauty, repairs, laundry |
|  | Information and communication                                       |
|  | Business services such as legal, accounting, advertising, cleaning  |
|  | Other   |
|  | Don't know  |
| Refuse   | 1 person (self-employed respondent)                                 |
| Number of employees  | From 2 to 4 people  |
| In which of these categories does the number of full-time equivalent people working in this business (including yourself) fit? | From 5 to 9 people  |
| Could you tell me how many full-time equivalent people are working in this business, including yourself?                       | Number (including yourself) _____                                   |
| Firm's age   | Year business began operations ____ (Four digits)                   |
| In which year did your business begin operations?  |   |

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