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ORIGINAL ARTICLE

# Insurance as a stabilizer: SME credit access during the COVID-19 crisis

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## Abstract

This paper investigates the role of insurance coverage in promoting access to credit for micro, small, and medium-sized enterprises (MSMEs) in the aftermath of the COVID-19 pandemic. The relationship between risk management strategies, credit availability, and small firm dynamics is sparsely analyzed in the literature, particularly given the characteristic data limitations of small businesses. Using a comprehensive sample of 1,998 Italian MSMEs, drawn from a 2021 Bank of Italy survey, we estimate the effect of insurance coverage on the probability of obtaining credit. We find that higher insurance coverage positively and robustly affects access to credit. These results remain persistent after controlling for potential endogeneity and undergoing multiple robustness checks. Our findings provide novel evidence by demonstrating that insurance functions as a stabilizing mechanism for MSMEs, safeguarding them against risks during macroeconomic shocks and thus increasing their creditworthiness. This study enriches the literature on the credit channel of risk transfer and provides timely insights into the relationship between firms and financial intermediaries during periods of high economic uncertainty.

**Keywords** Insurance · Access to credit · Bank loan · Enterprises · Discouragement

**JEL Classification** G01 · G21 · G22 · G52 · E51 · M21

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## Introduction

Access to credit for small enterprises is a widely debated topic. Evidence from the literature, usually based on survey data, generally highlights the overall difficulties small businesses face in accessing credit compared to larger firms.

A company's creditworthiness can depend on several factors. The borrowing capacity of a firm, especially a small or medium-sized one, may be influenced, for example, by its financial performance and the feasibility of strategic plans, its reliability and market position, its past experience, and also by the level of insurance coverage it possesses. Indeed, having insurance coverage makes the business safer and protects it from unexpected events that may cause various types of damage (The Geneva Association 2012). This protection is clearly a factor appreciated by banks during the assessment of creditworthiness.

The relationship between insurance and access to credit becomes particularly relevant during periods of economic shocks, such as the COVID-19 pandemic. In such times, insurance coverage represents a crucial instrument for enhancing firms' financial resilience by mitigating exposure to unexpected losses or disruptions in business operations (The Geneva Association 2022). It helps preserve liquidity and maintain solvency when revenues decline. This resultant financial stability is particularly valuable for supporting access to credit, as insured firms are often perceived by credit providers as less risky and more capable of repaying their liabilities. Consequently, adequate insurance coverage can improve creditworthiness and facilitate access to credit, enabling firms to cover financial needs and sustain investments even during critical periods.

The topic of the relationship between insurance coverage and enterprise access to credit is relatively under-investigated, primarily due to the lack of data on the insurance behavior of small enterprises, as well as on loan applications and their outcomes. Although some evidence is available (Zou and Adams 2008; Guiso and Schivardi 2010; Santoboni et al. 2012; Ricci and Santilli 2024), it remains limited and not fully updated to recent economic conditions. The current context has changed significantly, particularly due to major exogenous shocks like the COVID-19 pandemic and the increased risks of natural disasters linked to climate change, making the topic of insurance coverage and the availability of funding even more relevant today. Additionally, the propensity of firms to purchase insurance coverage is strongly shaped by both national and international contextual factors, such as the structure of the insurance market, the regulatory environment, the frequency of adverse events, and the presence of public support schemes. These elements influence firms' risk perception and their incentives to adopt risk-mitigation tools.

This paper aims to verify the effect of owning specific types of insurance coverage (property insurance, third-party liability insurance, business interruption insurance, and life insurance for the owner) on enterprises' access to credit. We utilize data from the recent Bank of Italy survey (2021) on the level of financial literacy and digital skills in micro, small, and medium-sized enterprises (MSMEs), which allows us to investigate this relationship in a more contemporary scenario. By setting up regression models to estimate the relationships between our main variables of interest, we find that insurance coverage is positively and highly significantly related to access



to credit. Our results are consistent across multiple robustness tests. Endogeneity is addressed by employing an instrumental variable approach. This evidence demonstrates how owning adequate insurance coverage is important for businesses not only for protection against damages and risky situations but also for improving borrower evaluation and increasing the probability of obtaining credit. These results are particularly important when considering the pandemic crisis period during which the data was collected, a time when issues such as risk protection, insurance, and financing needs assumed a crucial significance. Italy represents a particularly interesting case in this scenario, considering that its productive system is largely based on small enterprises (MSMEs account for 99.9% of the total number of enterprises, with over 3.9 million units) (European Commission 2024). Furthermore, the COVID-19 pandemic had a severe impact on the Italian economy and business health, further increasing the relevance of issues related to insurance and credit availability. Moreover, the Italian financial system is strongly bank-oriented, with limited alternative sources of finance, making access to bank credit crucial for firms' survival and growth.

This study aims to provide novel evidence on this relationship, which remains overall poorly investigated, and thus enriches the existing related literature. The paper proceeds as follows: Section 2 provides a review of the literature, Section 3 explains the data and methodology, Section 4 describes the results, Section 5 reports robustness checks, and finally, Section 6 provides some discussion and conclusions.

## Literature review

The literature widely addresses the issue of access to credit for small and medium enterprises (SMEs), often highlighting the difficulties they face in obtaining financing (Muske et al. 2007; Van Hoang et al. 2018). The general consensus is that small firms face greater constraints in accessing credit compared to larger counterparts (Berger and Udell 1998; Galindo and Schiantarelli 2003; Beck and Demirguc-Kunt 2006; Muske et al. 2007; Van Hoang et al. 2018). These difficulties are primarily rooted in two factors. First, informational asymmetry between the firm and the financial intermediary is more severe for smaller companies. Banks possess less information on the risk associated with small firms, leading to adverse selection and moral hazard (Berger and Udell 1998; Santoboni et al. 2012). This information deficit often causes banks to restrict credit or demand higher collateral from SMEs. Second, SMEs are generally perceived as more vulnerable and prone to failure due to a lack of diversification, resulting in greater risk of default (Beck and Demirguc-Kunt 2006). The creditworthiness of an enterprise is a multi-dimensional concept, influenced by various factors, including the firm's financial performance (e.g., profitability, liquidity, financial structure), the solidity of its strategic plans, its market position and reliability, and its past credit history (Beck and Demirguc-Kunt 2006).

A factor less commonly investigated in the assessment of creditworthiness is the firm's insurance coverage. Insurance serves a crucial function in the management of business risk, protecting firms from various damages caused by unforeseen events (Guiso and Schivardi 2010; Santoboni et al. 2012). Insurance coverage significantly impacts a firm's financial resilience and stability. This stability is directly relevant



to credit access (Eling and Schmeiser 2010). When assessing credit applications, banks aim to minimize the risk of default. An insured firm is inherently less risky because the probability of default due to unforeseen events (e.g., natural disasters, major equipment failure, or third-party claims) is transferred, at least partially, to the insurer (Santoboni et al. 2012). Consequently, banks may perceive insurance as a substitute for collateral or, more generally, as a factor that improves the firm's credit rating. Additionally, the level of insurance coverage may be perceived as a signal of managerial quality, by representing a sophisticated risk management strategy (Smith and Stulz 1985; Ono and Uesugi 2009). This improved perception can lead to better access to credit in terms of both availability and cost.

Despite its theoretical relevance, the empirical evidence on the relationship between insurance coverage and access to credit in enterprises is scarce, mainly constrained by the aforementioned lack of comprehensive data. At the international level, a few studies have explored this nexus. For example, Zou and Adams (2008), using data from China, found that insurance positively affects the probability of small firms obtaining bank loans. Within the Italian context, the existing literature is also limited. Guiso and Schivardi (2010) found that Italian firms with higher insurance coverage are less likely to be credit rationed and face lower interest rates. Similarly, Santoboni et al. (2012) showed that a higher level of insurance is associated with better financing conditions and greater availability of credit lines for firms.

More recently, especially following the COVID-19 pandemic, which has severely tested the financial stability of businesses and caused severe damage to the economy, the topic of insurance for businesses has certainly acquired greater significance. These mentioned aspects have emerged from a few contributions in recent years. Ricci and Santilli (2024) and Nebolsina (2021) highlight how insurance preserves the firm's liquidity and solvency by covering potential unexpected losses or business interruptions. This protective function ensures that the firm's cash flows remain stable and its assets are protected, even in the face of adverse events, thereby enhancing its overall financial stability. In the following years (Bank of Italy 2024) has confirmed this evidence, suggesting that insurance is a relevant element in credit assessment. Generally, the existing, albeit limited, literature converges on the finding that firms with more extensive insurance coverage enjoy better access to credit, both in terms of cost/conditions and availability of financing.

The existing literature presents two main gaps that this study aims to address. First, the available evidence, particularly in the Italian context, is somewhat dated. The current economic landscape has been profoundly altered by major exogenous shocks, such as the COVID-19 pandemic and the increased frequency of climate-related natural disasters. These events have amplified business risk, making the role of insurance in financial stability and credit access even more critical today. Therefore, a more recent analysis is necessary to understand the relevance of this relationship in the post-shock scenario. In this terms, this paper provides new evidence on the role of insurance coverage for risk mitigation and in enhancing firms' access to credit under uncertainty and crisis conditions. Additionally, this paper provides evidence on insurance coverages not only as an instrument for reducing probability of default, but also as an observable signal of managerial quality. By voluntarily opting for a comprehensive suite of insurance policies, a firm signals a sophisticated approach to



risk management and a commitment to financial stability (Smith and Stulz 1985). In fact, the number of insurance coverages held can provide a tangible metric for banks to screen for higher-quality borrowers who are actively protecting their operational continuity. This signaling power is particularly relevant for small firms, which are typically characterized by significant information opacity (Ono and Uesugi 2009). Second, many existing studies use aggregate or limited measures of insurance. This paper contributes to the literature by analyzing the effect of specific types of insurance coverage (property, third-party liability, business interruption, and owner's life insurance) on credit access, leveraging detailed data from the Bank of Italy's 2021 survey on MSMEs. Furthermore, this survey provides a relatively recent dataset that gathers specific information on target groups such as micro and small businesses, which are generally underrepresented in the broader literature, in a post-COVID scenario, thereby capturing more recent trends regarding these businesses and their decisions. By providing novel and updated empirical evidence on the positive link between specific insurance types and credit access for Italian MSMEs, this study seeks to enrich the existing literature and offer policy-relevant insights, especially given Italy's bank-oriented financial system and the critical role of small enterprises.

## Data and methodology

In order to study this relationship we used data from Bank of Italy, specifically from the 2021 survey on entrepreneurs' financial competences and use of digital tools in their business, focused on enterprises of micro, small and medium dimension (MSMEs). The survey was conducted by interviewing the business owner (or one of them in case of multiple owners) (Oecd 2020), and was delivered from March to May 2021. From this survey, we have a sample of 1,998 Italian non-financial firms. We provide some information on the sample composition in Table 1. Among the 1,998 companies available in the sample, 1,851 are micro-enterprises (92.64%), 76 are small enterprises, 3 are medium-sized enterprises, and 68 are unknown. All survey respondents claim to be business owners and to make financial decisions relating to the business. We therefore assume that the businesses are founder-run.

For the purpose of conducting the analysis, we generated a proxy for insurance coverage as the main independent variable of interest, and a proxy for access to credit as the dependent variable. All variables utilized in this investigation were constructed using survey questions. For the measure of insurance coverage, we considered the number of insurance policies owned by the entrepreneur. The survey included four questions asking entrepreneurs whether they currently owned, or had owned in the last 24 months, the following specific insurance policies: property insurance (insuring buildings, equipment, inventory, furniture, etc., against damage or theft), third-party liability insurance (insuring against damages caused by the owner, employees, or products to a third party), business interruption insurance (or business income/profit losses insurance, which compensates a business for its lost income during events causing a disruption to normal operations), and finally, life insurance for the owner (insuring against the death of the owner). We treated each of these questions as a dummy variable, where 1 represents an affirmative answer and 0 otherwise. We



**Table 1** Sample composition

| | Freq | Percent | Cum |
|---|---|---|---|
| **Gender** | | | |
| Men | 1,427 | 71.42 | 71.42 |
| Women | 571 | 28.58 | 100.00 |
| Total | 1,998 | 100.00 | |
| **Age** | | | |
| 18-44 | 639 | 31.98 | 31.98 |
| 45-64 | 1,147 | 57.41 | 89.39 |
| 65+ | 212 | 10.61 | 100.00 |
| Total | 1.998 | 100.00 | |
| **Geographical location** | | | |
| North | 956 | 47.85 | 47.85 |
| Centre | 436 | 21.82 | 69.67 |
| South and islands | 606 | 30.33 | 100.00 |
| Total | 1,998 | 100.00 | |
| **Firm Age** | | | |
| 0–5 | 607 | 30.38 | 30.38 |
| 5–10 | 651 | 32.58 | 62.96 |
| 10–20 | 253 | 12.66 | 75.62 |
| 20+ | 487 | 24.38 | 100.00 |
| Total | 1,998 | 100.00 | |

This table reports some descriptive statistics on sample composition

thus derived an insurance coverage score (*Insurance*) with values ranging between 0 and 4. The dependent variable, *Access to credit*, is a proxy constructed by combining two survey questions. Respondents were first asked whether they had applied for a new business loan since the start of the COVID-19 pandemic, and then whether they had obtained the loan, at least partially. Both of these questions are treated as dummy variables, thus the combined proxy is also considered as a dummy where 1 represents both the conditions satisfied (credit application made and at least partial obtaining).This combined proxy therefore allows us to verify both whether an entrepreneur sought financing following the onset of the pandemic shock and whether the application was successful.

Among the independent variables, we also included a set of control variables that may affect our main relationship of interest. A portion of these variables pertains to individual characteristics of the entrepreneur, such as gender, age, education (graduated, high school, lower education), and the level of financial literacy. Financial literacy is generally considered a relevant positive driver for both insurance demand (Ricci and Santilli 2024; Bongini et al. 2023) and access to credit (Calcagno et al. 2024; Lusardi and Mitchell 2014).[1] Other control variables are related to business characteristics, such as turnover (turnover level within a specific range, from "up to 10,000 euros" to "up to 50 million euros"), number of employees, the age of the

[1] The measure of financial literacy is composed by the three dimensions of knowledge, behaviour and attitudes, according to the OECD/INFE toolkit for measuring financial literacy in MSMEs (OECD (2020)). More details on the set questions used for building the measure of financial literacy are available on the OECD/INFE survey instrument to measure the financial literacy of MSMEs (OECD (2020)) or upon request.



firm, the geographical location of the firm (north, centre, south and islands) and the industry (primary, secondary, other).

Additionally, we include also a measure of the level of digitalization of the business, composed of questions related to the adoption of business practices based on digitalization and of digital financial services, and an indicator of the impact of the Covid pandemic in terms of reduction of turnover, profits, liquidity, employees and increase of debts, that might have affected credit demand in those years. Finally, we include an indicator of the financial stability of the enterprise. This is measured using a question that asks respondents whether, since the start of the COVID-19 pandemic, the enterprise had faced situations where cash inflows were insufficient to cover cash outflows or to pay expected expenses. This final aspect could clearly affect credit demand, especially during periods characterized by economic shocks.[2]

In order to verify the relationships between our variables, and considering the dichotomous nature of the dependent variable (*Access to credit*), we employ a probit regression model to analyze the effect of insurance coverage and the other independent variables on the likelihood of accessing credit (Eq. 1):

$$\Pr(\text{Access to credit}=1)_i = \beta_0 + \beta_1 \text{Insurance}_i + \sum \delta_i \text{ Individual} + \sum \delta_i \text{ Business} + \sum \delta_i \text{ Industry} + \varepsilon_i \quad (1)$$

Due to the extension of the equation, the control variables were grouped into three categories: *Individual* (gender, age, education, financial literacy), *Business* (digitalization, turnover, employees, firm age, Covid impact, stability, north, centre) and *Industry* (primary, secondary).

We also define an alternative proxy for measuring credit access, denoted as *Bank loan*. This is a dummy variable (where 1 indicates an affirmative answer) capturing whether the enterprise currently uses or has utilized a loan from a bank within the last 24 months (or since business creation if the firm is younger than 24 months).

*Access to credit* remains our preferred measure because its construction requires that financing was both requested and successfully received during the critical pandemic period, thus enabling a more accurate selection of firms actively seeking external finance. Conversely, the *Bank loan* measure is less precise for our main analysis: while it identifies firms with a current or recent banking relationship, it does not allow us to distinguish firms that simply did not request a loan from those that were unsuccessful or had no financing needs.

Nonetheless, we include *Bank loan* in our analysis because it offers a more general indicator of *Access to credit*, spanning a broader two-year period and is not specific to the demand conditions generated by the COVID-19 crisis. Using both measures strengthens the overall robustness of our findings.

Furthermore, we have to address potential endogeneity concerns, as the results may be subject to reverse causality, omitted variable bias, and measurement error. The issue of reverse causality is particularly relevant in the relationship between insurance and credit access. It is possible that firms acquired an insurance policy simultaneously with, or as a direct requirement for, obtaining a bank loan, rather

[2] More details on the survey questions used for building our variables are available on the OECD/INFE survey instrument to measure the financial literacy of MSMEs (OECD (2020)) or upon request.



than having stipulated the coverage beforehand to facilitate access to finance. Since the survey instrument does not precisely capture the chronological sequence of these decisions, this makes it challenging to establish a clear direction of causality. Furthermore, omitted variable bias may arise due to unobservable characteristics that simultaneously influence both insurance coverage and credit access. A key example is the risk preference or prudence of the business owner, which is unobservable in our data. An owner with a higher propensity for prudence may be more diligent in implementing risk management practices (e.g., obtaining insurance) and in designing robust investment projects, thereby making the firm inherently more creditworthy. This confounding effect would lead to an upward bias in the estimated relationship. Finally, as we utilize secondary data from a survey, the possibility of measurement error in the self-reported answers–a common limitation in cross-sectional firm-level data–must be acknowledged.

In order to overcome these limitations, we adopt an Instrumental Variable (IV) approach by employing a two-stage regression analysis, following previous studies (Semadeni et al. 2014).[3] We consider the entrepreneurial experience of the respondents' parents (*Parents' experience*) as the instrumental variable for the entrepreneurs' insurance coverage. This variable is expected to capture whether the respondent may have acquired business and financial skills from the family, including an understanding of the importance of owning insurance coverage. It is plausible that having parents who were entrepreneurs themselves has a positive and significant effect on the respondent's propensity to adopt sound financial practices, such as purchasing adequate insurance. The survey includes a specific question asking entrepreneurs whether their parents currently own or have owned a business in the past. *Parents' experience* is a dummy variable, which takes the value of 1 if at least one of the entrepreneur's parents was a business owner, and 0 otherwise. Crucially, this parental characteristic is exogenous to the entrepreneur's current decisions regarding credit access, as it is a characteristic determined prior to the respondent's own economic and financial choices. To address potential violations of the exclusion restriction–specifically that parental experience might directly affect credit access through managerial ability or risk preferences–we include a comprehensive set of controls. Beyond standard demographics (gender, age, education) and firm age (a proxy for business experience), we leverage a multidimensional measure of financial literacy. This goes beyond basic numeracy to include indicators of managerial best practices (e.g., systematic expense tracking, provider benchmarking) and individual risk/planning attitudes (e.g., pension planning and long-term goal setting). By explicitly controlling for these traits, we isolate the path through which parental background affects credit access: the propensity to adopt formal insurance tools.

As a robustness check, we consider a further alternative dependent variable, indicating whether the entrepreneurs have been affected by discouragement in applying for credit (*Discouragement*). This measure is designed to capture firms that needed credit but did not apply. It includes entrepreneurs who did not apply for credit for specific reasons, such as the complexity of the application procedure or the belief that the loan would not be approved. This is a dummy variable, taking the value of 1 when

[3] We use the ivprobit command in STATA.



**Table 2** Access to credit, bank loan and discouragement

| | Freq | Percent |
|---|---|---|
| **Access to credit** | | |
| 0 | 947 | 47.40 |
| 1 | 1,051 | 52.60 |
| Total | 1,998 | 100.00 |
| **Bank loan** | | |
| 0 | 752 | 37.64 |
| 1 | 1,246 | 62.36 |
| Total | 1,998 | 100.00 |
| **Discouragement** | | |
| 0 | 1,835 | 91.84 |
| 1 | 163 | 8.16 |
| Total | 1,998 | 100.00 |

This table shows the answers given by the respondents to the questions on access to credit, bank loan and discouragement among the overall sample

**Table 3** Insurance score

| Insurance | Freq | Percent | Cum |
|---|---|---|---|
| 0 | 484 | 24.22 | 24.22 |
| 1 | 469 | 23.47 | 47.70 |
| 2 | 557 | 27.88 | 75.58 |
| 3 | 369 | 18.47 | 94.04 |
| 4 | 119 | 5.96 | 100.00 |
| Total | 1,998 | 100.00 | |

This table shows the distribution of the score obtained in the proxy of insurance coverage among the overall sample

**Table 4** Single insurance coverages

| Insurance | Freq | Percent |
|---|---|---|
| Property insurance | 469 | 37.29 |
| Third-party liability insurance | 1,364 | 68.77 |
| Business interruption insurance | 236 | 11.81 |
| Life insurance for the owner | 811 | 40.59 |

This table shows statistics on the different insurance coverages owned by the respondents among the overall sample

the respondent is classified as discouraged, and 0 otherwise. Descriptive statistics for our main variables of interest (*Access to credit*, *Bank loan*, *Discouragement*, and *Insurance*) are reported in Tables 2, 3 and 4. The full text of the survey questions used to construct our main variables is available in Appendix A.

## Results

Tables 2 and 3 present the descriptive statistics for our main variables of interest. Regarding the dependent variables (*Access to credit* and alternative proxies, *Bank loan* and *Discouragement*), the analysis reveals that more than half of the sample (52.60%, 1,051 firms) obtained credit since the beginning of the pandemic. Furthermore, over 60% (1,246 respondents) currently use, or have used in the last 24



months, a loan from a bank. It is noted that the 8.16% of the respondents (163 units) are included in the *Discouragement* category (Table 2).

Considering the main independent variable (*Insurance*), the evidence suggests that insurance coverage is not widely diffused among Italian Micro, Small, and Medium Enterprises (MSMEs). Approximately 25% of the sample (24.22%) scores 0 on this proxy, indicating the absence of the insurance types investigated in this survey. Conversely, only 24.43% of the firms possess at least three kinds of insurance coverage (Table 3).

It is relevant to examine the specific distribution of insurance coverage across the sample to identify the most and least common types. Table 4 indicates that the most frequent coverage is the Third-Party Liability Insurance (68.77%, 1,364 respondents), which provides protection against damages caused to a third party by the owner, employees, or products. The least common is the Business Interruption Insurance (or business income/profit losses insurance), which compensates lost income due to events disrupting the normal course of business, held by only 11.81% of the sample (236 respondents). Life Insurance for the Owner (40.59%) and Property Insurance (37.29%) fall into an intermediate range, though they are owned by less than half of the sample. This initial evidence suggests that the adoption of insurance coverage among Italian enterprises appears to be generally low. Beyond the distribution of the insurance coverages among the sample, it is also interesting to analyse clustering patterns and overlaps in the ownership of specific insurance policies. For these purposes, since our insurance coverages are represented by dummy variables, we first provide a tetrachoric correlation matrix for examining correlations among the types of insurance policies (Table 5). Correlation coefficients are all positive and moderately high. These findings suggest that the adoption of different insurance policies is not independent: firms that hold one type of coverage are more likely to hold others as well. Insurance decisions therefore tend to move together. This pattern indicates a widespread combined insurance decision-making process, consistent with a broader and more structured risk-management strategy. Furthermore, we investigate the clustering of insurance policies by showing the combinations in the ownership of the insurance coverages considered. We report these findings in Table 6. The combinations are listed in order from the most to the least common in the sample. These findings show that, apart from the largest group (24% of the sample), which has no insurance at all, there are no dominant patterns in insurance coverage. The remaining firms have a wide variety of insurance packages. This highly heterogeneous distribution ensures that our estimates are not driven by specific recurring combinations.

Table 7 presents the estimation results of our main regression model, which analyzes the effect of insurance coverage on access to credit. It is important to note that

**Table 5** Tetrachoric correlation matrix of insurance coverages

| | Property | Third-party | Business interr | Life insurance |
|---|---|---|---|---|
| Property | 1.0000 | | | |
| Third-party | 0.7078 | 1.0000 | | |
| Business interr | 0.4872 | 0.4654 | 1.0000 | |
| Life insurance | 0.4165 | 0.5235 | 0.4298 | 1.0000 |

This table reports the tetrachoric correlation matrix among the different types of insurance



**Table 6** Combinations between insurance coverages

| Property | Third-party | Business interr | Life insurance | Freq | Percent |
|---|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 484 | 24.22 |
| 0 | 1 | 0 | 0 | 363 | 18.17 |
| 1 | 1 | 0 | 1 | 290 | 14.52 |
| 0 | 1 | 0 | 1 | 260 | 13.01 |
| 1 | 1 | 0 | 0 | 244 | 12.22 |
| 1 | 1 | 1 | 1 | 119 | 5.96 |
| 0 | 0 | 0 | 1 | 77 | 3.85 |
| 1 | 1 | 1 | 0 | 45 | 2.25 |
| 0 | 1 | 1 | 1 | 32 | 1.60 |
| 1 | 0 | 0 | 0 | 25 | 1.25 |
| 0 | 1 | 1 | 0 | 21 | 1.05 |
| 1 | 0 | 0 | 1 | 19 | 0.95 |
| 0 | 0 | 1 | 1 | 12 | 0.60 |
| 0 | 0 | 1 | 0 | 4 | 0.20 |
| 1 | 0 | 1 | 1 | 2 | 0.10 |
| 1 | 0 | 1 | 0 | 1 | 0.05 |
| | | | | 1,998 | 100.00 |

This table reports the distribution of combinations of insurance coverage (property insurance, third-party liabilities, business interruption, and life insurance) across the sample, with corresponding frequencies and percentages

**Table 7** Insurance coverage and access to credit - baseline model

| Variables | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Access to credit | Access to credit | Access to credit | Access to credit |
| Insurance | 0.0649*** | 0.0536*** | 0.0517*** | 0.053*** |
| | (0.0088) | (0.0092) | (0.0090) | (0.0090) |
| Individual | No | Yes | Yes | Yes |
| Business | No | No | Yes | Yes |
| Industry | No | No | No | Yes |
| Observations | 1,998 | 1,998 | 1,998 | 1,998 |

This table presents the average marginal effects of the relationships between the level of insurance coverage and access to credit, with control variables progressively included. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

the table reports the Average Marginal Effects (AMEs) derived from a Probit model, rather than the raw coefficients. Consistent with previous findings in the literature (Bank of Italy 2024; Zou and Adams 2008; Guiso and Schivardi 2010), insurance coverage is positively and highly significantly related to access to credit. To demonstrate the robustness of this relationship and the consistency of the results, we introduce our control variables progressively across four specifications. Column (1) reports the baseline model with no control variables. Column (2) incorporates individual entrepreneurial characteristics (gender, age, education, financial literacy). Column (3) further includes business characteristics (digitalization, turnover, employees, firm age, Covid impact, stability, north, centre). Finally, Column (4) presents the full model, also controlling for industry dummies. The estimated Average Marginal Effect of the relationship between *Insurance* and *Access to credit* remains positive

and highly significant across all specifications. This AME represents the average change in the probability of obtaining credit when the insurance coverage proxy increases by one unit on its 0–4 scale. Considering the results of the fully specified model (Column 4), the AME is 0.053, indicating that, on average, each additional insurance policy is associated with a 5.3 percentage point increase in the probability of access to credit. This effect is not only statistically significant but also shows clear economic relevance, since it represents a meaningful improvement for MSMEs in credit accessibility.

In order to have a clearer understanding of the economic magnitude of the estimated relationship, we show the adjusted predictions considering each level of the *Insurance* variable. Specifically, these predictions represent the estimated average probability of obtaining credit if all individuals in the sample have exactly 0, 1, 2, 3 or 4 insurance policies, while keeping their other actual characteristics (individual, business, industry) unchanged. While the AME provides a summary of the average unit change, the predicted probabilities offer a more detailed view of the economic magnitude across the full range of the variable (from 0 to 4 policies). These values are reported in Table 8. As shown in the analysis, when the number of policies is set to zero, the predicted probability of credit access is 44%. This probability rises progressively as more policies are held, reaching a maximum of 65% for individuals with the full set of four insurance covers. Overall, the total change, moving from no coverage (0 policies) to full coverage (4 policies), results in a 21 percentage points increase in the likelihood of access to credit (from 0.44 to 0.65). This substantial gap suggests that insurance coverages serve as a critical signal of creditworthiness or risk mitigation in the lending process. These are clearly non-negligible numbers in terms of potential relevance for policymakers, that underscore the importance of insurance coverage for access to credit.

We report also the estimation results including the Average Marginal Effects (AMEs) for all control variables. These coefficients are reported in Appendix B, where we also show regression results considering *Bank loan* as alternative dependent variable. It is crucial to interpret these effects especially in the context of our main dependent variable, *Access to credit*, which is defined as a loan being requested and accepted during the pandemic period. Thus, a significant effect on this variable may reflect changes in the firm's necessity (demand side) or its creditworthiness (supply side).

**Table 8** Insurance coverage and access to credit - adjusted predictions

| Insurance | Adjusted prediction |
|---|---|
| 0 | 0.4411*** |
| | (0.0181) |
| 1 | 0.4951*** |
| | (0.0119) |
| 2 | 0.5492*** |
| | (0.0113) |
| 3 | 0.6024*** |
| | (0.0166) |
| 4 | 0.6536*** |
| | (0.0235) |

This table presents the adjusted predictions of access to credit considering each level of the *Insurance* variable. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively



Several variables demonstrate a positive and significant relationship with access to credit (Column 1). Specifically, financial literacy of the entrepreneur, the level of digitalization, the number of employees, and the impact of the COVID-19 pandemic are found to be significant. The positive association with the COVID-19 impact likely reflects a heightened credit demand from firms due to liquidity needs during that period.

This evidence suggests potential factors influencing both demand and supply: firm size (employees), the entrepreneur's financial competence (financial literacy), and the adoption of digital practices and services (digitalization). Digitalization, for instance, may render business activities more flexible and simplify relationships with financial intermediaries, potentially easing both the request and the acceptance processes (Zhang et al. 2023; Deng and Qian 2024).

Conversely, negative and significant effects are observed for firm age, potentially indicating that younger, less established firms had a greater financing necessity and thus a higher probability of requesting credit. A negative effect is also found for the proxy of financial stability, which strongly suggests that financially stable enterprises had a lower necessity to request external credit, thereby reducing the probability of observing a joint request and acceptance. Finally, the negative effect observed for the primary industry suggests that credit demand was likely higher in other sectors during the studied period.

No significant results are reported for turnover. This lack of significance may be explained by the flexible policies implemented for credit provision in the post-COVID period, including public guarantees on loans, which allowed credit access even to enterprises experiencing temporary financial difficulties, overriding typical constraints related to revenue performance.

Moving to our alternative proxy for access to credit (*Bank loan*), shown in the same table (Appendix B), in Column 2, the relationship between insurance coverage and access to credit remains positive and highly significant. It is also economically significant, with a marginal effect around 9 percentage points. Results are confirmed also for main control variables, such as financial literacy, digitalization, Covid impact and financial stability. Obtaining similar results across different specifications provides strong credibility to the relationship analyzed, demonstrating that the primary evidence is not dependent exclusively on the precise definition or measurement of the dependent variable.

Table 9 presents the estimation results of our Instrumental Variable (IV) probit model to address the endogeneity issues previously discussed. The first-stage regression (Column 1) regresses our endogenous variable, *Insurance*, on the selected instrumental variable, *Parents' experience*. We find a positive and highly significant relationship between the instrumental variable and insurance coverage, satisfying the relevance criterion. The table reports the F-statistic for the excluded instrument (29.66) and the Cragg–Donald Wald F-statistic (30.17). Both values are well above the conventional threshold of 10, and they exceed the critical values established by Stock and Yogo (2002), allowing us to firmly reject the null hypothesis of weak instruments, thus confirming the validity of the instrumental variable in terms of relevance. In the second stage, we re-estimate the structural model using the fitted value of insurance coverage obtained from the first stage, considering two distinct



**Table 9** Insurance coverage and access to credit – Addressing endogeneity concerns (IV)

| Variables | (1) | (2) | (3) |
|---|---|---|---|
| | 1st stage: Insurance | 2nd stage: Access to credit | 2nd stage: Bank loan |
| Parents' experience | 0.2870*** | | |
| | (0.0527) | | |
| Insurance | | 0.1301* | 0.1874** |
| | | (0.0761) | (0.0746) |
| F-statistic 1st stage | 29.66 | | |
| Cragg-Donald Wald F statistic | 30.17 | | |
| Observations | 1,998 | 1,998 | 1,998 |
| Controls | Yes | Yes | Yes |

This table presents the results of the regressions employed using the IV approach. The instrument variables used is *Parents' experience*. The average marginal effects are reported. Coefficients of control variables are available upon request. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

dependent variables: *Access to credit* (Column 2) and *Bank loan* (Column 3). The estimated coefficients for *Insurance* remain positive and statistically significant when considering both dependent variables. The consistency of these findings across two different measures of credit access strengthens the reliability of our results. The evidence from the IV analysis provides strong support for the hypothesis of a causal relationship running from enterprises' insurance coverage to their credit outcomes. By successfully mitigating endogeneity concerns through the use of a valid instrument, we are able to confirm the fundamental positive association suggested by the previous estimations.

## Robustness checks

First, while recognizing that Probit models are particularly suitable for a dichotomous dependent variable, they inherently rely on specific distributional assumptions and involve more complex estimation procedures. As a primary robustness check, we replace our baseline estimation with a Linear Probability Model (LPM). Furthermore, to verify the findings obtained through the Probit model addressing endogeneity, we employ a Two-Stage Least Squares (2SLS) regression, which replaces the Probit framework entirely. We find that the results are substantially consistent across these alternative specifications.[4] This consistency confirms the robustness of the primary findings, demonstrating that the observed relationship is not dependent on the specific non-linear functional form assumed by the Probit model nor the specific estimation technique used to address endogeneity.

Second, we consider the possibility that the individual types of insurance policies may have a differential impact on credit access. Table 10 presents the results of four separate regressions, analyzing the relationship between each specific insurance coverage type and the probability of accessing credit. In each of the four models, the relationship between the individual insurance coverage and the dependent vari-

[4] Results are available from the authors upon request.



**Table 10** Insurance coverage and access to credit – focus on different insurance policies

| Variables | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Access to credit | Access to credit | Access to credit | Access to credit |
| Property insurance | 0.0638*** | | | |
| | (0.0222) | | | |
| Third-party liability insurance | | 0.114*** | | |
| | | (0.0233) | | |
| Business interrupt. insurance | | | 0.0660** | |
| | | | (0.0326) | |
| Life insurance for the owner | | | | 0.113*** |
| | | | | (0.0216) |
| Male | − 0.0117 | −0.0129 | −0.0125 | −0.0137 |
| | (0.0235) | (0.0235) | (0.0236) | (0.0235) |
| Age | −0.000324 | −0.000298 | −0.000289 | −0.000242 |
| | (0.000375) | (0.000370) | (0.000373) | (0.000372) |
| Graduated | −0.0414 | −0.0405 | −0.0414 | −0.0303 |
| | (0.0360) | (0.0359) | (0.0360) | (0.0360) |
| High school | 0.00828 | 0.0115 | 0.00805 | 0.0150 |
| | (0.0326) | (0.0324) | (0.0326) | (0.0325) |
| Financial literacy | 0.120*** | 0.108*** | 0.124*** | 0.113*** |
| | (0.0202) | (0.0203) | (0.0201) | (0.0201) |
| Digitalization | 0.128*** | 0.125*** | 0.134*** | 0.120** |
| | (0.0486) | (0.0484) | (0.0485) | (0.0483) |
| Turnover | 0.00101 | 0.000915 | 0.000956 | 0.000955 |
| | (0.000640) | (0.000641) | (0.000638) | (0.000628) |
| Employees | 0.00188** | 0.00183** | 0.00194** | 0.00173** |
| | (0.000782) | (0.000788) | (0.000787) | (0.000784) |
| Firm age | −0.0008** | −0.0007** | −0.00085** | −0.00086*** |
| | (0.00030) | (0.00034) | (0.00034) | (0.00033) |
| Covid impact | 0.187*** | 0.189*** | 0.194*** | 0.200*** |
| | (0.0333) | (0.0332) | (0.0332) | (0.0331) |
| Stability | −0.161*** | −0.161*** | −0.159*** | −0.158*** |
| | (0.0231) | (0.0229) | (0.0231) | (0.0230) |
| North | −0.00813 | −0.0131 | −0.000803 | −0.00993 |
| | (0.0251) | (0.0251) | (0.0249) | (0.0249) |
| Centre | 0.0566* | 0.0493* | 0.0628** | 0.0583** |
| | (0.0299) | (0.0298) | (0.0299) | (0.0296) |
| Primary | −0.0780* | −0.0738* | −0.0769* | −0.0880** |
| | (0.0408) | (0.0408) | (0.0411) | (0.0408) |
| Secondary | 0.0464 | 0.0596 | 0.0451 | 0.0434 |
| | (0.0406) | (0.0404) | (0.0407) | (0.0401) |
| Observations | 1,998 | 1,998 | 1,998 | 1,998 |

This table presents the regression results of the robustness test consisting of re-estimating the model considering each form of insurance individually. The average marginal effects are reported. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively



**Table 11** Insurance coverage and discouragement – focus on discouragement

| Variables | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Discouragement | Discouragement | Discouragement | Discouragement |
| Insurance | −0.0247*** | −0.0184*** | −0.0146*** | −0.0143*** |
| | (0.00548) | (0.00548) | (0.00519) | (0.00517) |
| Individual | No | Yes | Yes | Yes |
| Business | No | No | Yes | Yes |
| Industry | No | No | No | Yes |
| Observations | 1,998 | 1,998 | 1,998 | 1,998 |

This table presents the average marginal effects of the relationships between the level of insurance coverage and discouragement in apply for credit, with control variables progressively included. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

able (*Access to credit*) is found to be positive and highly significant. The effects and significance levels of the control variables included in these models are also highly similar to those observed in the previous aggregated specifications. This evidence confirms that the positive link between risk mitigation and credit outcomes is robust and does not rely solely on the overall level of insurance coverage, but is maintained when considering specific policies individually.

Finally, Table 11 displays the regression results examining the relationship between *Insurance* and *Discouragement*. Consistently with previous results, when considering *Discouragement* as the dependent variable, the relationship between insurance coverage and the outcome is negative and highly significant, with an economic magnitude of around 1.4%. We confirm this finding by progressively introducing our control variables across multiple specifications, noting that the results remain consistent throughout the analysis. This latest evidence is congruent with previous findings in the literature, demonstrating that insurance coverage is associated with a lower likelihood of being discouraged in apply for credit and with generally positive credit outcomes. Additionally, by focusing on the *Discouragement* variable, we isolate the demand-side effect: we find that broader insurance coverage significantly reduces the probability of a firm being discouraged. This complements our main model, which is estimated only on firms that applied for credit and thus captures the supply-side effect (the lender's approval).

## Discussion and conclusions

This study investigates the relationship between insurance coverage and credit outcomes among a sample of Italian MSMEs, a topic generally under-explored in the finance literature. Our findings provide compelling new evidence regarding the crucial role of risk mitigation strategies in facilitating credit access. The evidence robustly demonstrates that owning insurance coverages positively and significantly affects the probability of accessing credit for small enterprises.

Furthermore, firms with higher levels of insurance coverage appear to be significantly less discouraged from applying for financing. We assume these results to be highly reliable and robust, considering the comprehensive set of control variables



included, the use of an Instrumental Variable (IV) approach to mitigate endogeneity concerns, and the successful confirmation of the findings across multiple robustness checks (alternative dependent variables, LPM, and the disaggregation of the insurance proxy). These results underscore the importance of insurance for small businesses, not only as a tool for financial protection and resilience against unexpected shocks but also as a powerful signaling mechanism to financial service providers. Insurance coverage, by protecting assets and cash flows from sudden and significant losses, signals greater solidity and stability to banks evaluating borrower creditworthiness. This mechanism is particularly relevant when considering the economic uncertainty prevalent during the period of our survey.

The findings of this study yield several relevant policy and practical implications. Policymakers and financial institutions should formally recognize the role of insurance coverage as a complementary tool to traditional collateral for improving credit access for small enterprises. Encouraging wider insurance adoption among small and micro enterprises could simultaneously enhance their financial resilience and strengthen their credibility in the eyes of lenders. Public interventions such as premium subsidies, targeted awareness campaigns, or the development of integrated financial products combining credit and insurance could effectively help reduce credit constraints for smaller firms. Overall, fostering broader insurance coverage within the small business sector can contribute to greater financial stability and a more inclusive credit market. Another factor that certainly affects the demand for insurance by businesses is the level of financial and insurance literacy among entrepreneurs (Ricci and Santilli 2024; Bongini et al. 2023; Tennyson 2011; Lin et al. 2019). These results also show how important is to improve policies that pursue these goals, in order to develop an environment where there is greater knowledge and awareness of financial products and risk assessment.

The topic is also relevant in the light of the recent developments in the regulatory framework. Risk mitigation strategies based on insurance are indeed consistent with the principles set out in the EBA Guidelines on loan origination and monitoring (Eba 2020) and by the Basel Committee credit risk mitigation policies (Bank for International Settlements 2022) which stress the importance of robust risk-mitigation tools for improving borrower assessment and credit allocation. In this context, adequate insurance coverage represents a complementary risk-reduction mechanism that can improve a firm's risk profile and credit assessments. Our evidence therefore aligns with these supervisory expectations, suggesting that broader insurance adoption among small firms could not only strengthen their financial stability but also improve their credit risk assessments.

Despite the significance and robustness of our findings, this research is subject to certain limitations, including limited information contained in the survey, the restricted sample size, the study's national scope, the reliance on a single year of observation, and the subjective nature of the survey data. More specifically, the cross-sectional nature of the dataset implies that causal interpretations should be treated with caution. Even though we employ an IV approach, which is commonly used to mitigate endogeneity concerns, reverse causality cannot be completely ruled out. In addition, the dataset does not provide information on potentially relevant aspects, such as the precise timing of insurance purchases and loan applications, the length of



the relationship with the bank, previous loan performance, or industry credit conditions. Due to data constraints, our insurance measures are based on the existence of specific policy types rather than on granular details such as premium costs or coverage limits (the so-called intensive margin). While this prevents us from constructing a weighted index based on the magnitude of risk transfer, our empirical results nevertheless suggest that the mere presence of insurance serves as a powerful signal of risk-management sophistication to lenders. We argue that, for a lender, the aggregate signal of being widely insured is a primary driver of credit access, which our index captures effectively.

The dataset also does not include granular data and information at the regional, province or municipality-level. The only geographical information available is the macro-area in which the firm is located. Finally, the pandemic context may have amplified the importance of risk mitigation tools and financing needs; therefore, the generalization of these findings to non-crisis periods should be interpreted carefully. For future research, conducting similar studies with larger, multi-country samples over a multi-year period would be highly beneficial. Moreover, new surveys could be designed to collect more granular data on specific insurance types, on timing of insurance purchase and loan application, the conditions under which credit was obtained, and additional instrumental variables to further refine causal inference.

Notwithstanding these constraints, this study makes a novel contribution to the existing academic literature on access to credit and the financial characteristics of small enterprises. The robust findings are also relevant for entrepreneurial education and for improving the understanding of lending practices and dynamics of financial intermediaries.

## Appendix A: Variables questions

| Topic | Number | Question | Answer |
|---|---|---|---|
| **Insurance** | | | |
| Property insurance | QP4_16 | Please can you tell me whether you currently use or have used this type of financial product or service for your business in the last 24 months (or since business creation if the business existed for less than 24 months)? | 1=Yes, 0=Otherwise |
| Third-party liability insurance | QP4_17 | Please can you tell me whether you currently use or have used this type of financial product or service for your business in the last 24 months (or since business creation if the business existed for less than 24 months)? | 1=Yes, 0=Otherwise |
| Business interruption insurance (or business income insurance, or profit losses insurance) | QP4_18 | Please can you tell me whether you currently use or have used this type of financial product or service for your business in the last 24 months (or since business creation if the business existed for less than 24 months)? | 1=Yes, 0=Otherwise |



| Topic | Number | Question | Answer |
|---|---|---|---|
| Life insurance for the owner | QP4_19 | Please can you tell me whether you currently use or have used this type of financial product or service for your business in the last 24 months (or since business creation if the business existed for less than 24 months)? | 1=Yes, 0=Otherwise |
| **Access to credit** | | | |
| Application | QX9 | Since the start of the COVID-19 pandemic, have you applied for a new loan for the business? | 1=Yes, 0=Otherwise |
| Outcome | QX10 | What was the outcome of the application? | 1.The loan has been fully obtained, 2.The loan has been only partially obtained |
| **Bank loan** | | | |
| Business loan from a bank | QP4_2 | Please can you tell me whether you currently use or have used this type of financial product or service for your business in the last 24 months (or since business creation if the business existed for less than 24 months)? | 1=Yes, 0=Otherwise |
| **Discouragement** | | | |
| Application | QX9 | Since the start of the COVID-19 pandemic, have you applied for a new loan for the business? | 1=Yes, 0=Otherwise |
| Discouragement reasons | QX11 | Why didn't you apply for a loan? | 1.Application procedure was too complex, 2.Did not think the loan would be approved |
| **Parents' experience (IV)** | | | |
| Parents' entrepreneurial experience | QD7 | Could you tell me whether any of your parents currently own a business, or owned a business in the past? | 1=Yes – at least one of my parents is or was a business owner, 0=Otherwise |

## Appendix B: Insurance coverage and access to credit – alternative measures

| Variables | (1) | (2) |
|---|---|---|
| | Access to credit | Bank loan |
| Insurance | 0.0531*** | 0.0902*** |
| | (0.00903) | (0.00857) |
| Male | − 0.0145 | − 0.00924 |
| | (0.0234) | (0.0228) |
| Age | − 0.000305 | 0.000204 |
| | (0.000370) | (0.000344) |
| Graduated | − 0.0339 | − 0.0503 |

| Variables | (1) | (2) |
|---|---|---|
| | Access to credit | Bank loan |
| | (0.0357) | (0.0345) |
| High school | 0.0122 | 0.0179 |
| | (0.0322) | (0.0312) |
| Financial literacy | 0.103*** | 0.0761*** |
| | (0.0203) | (0.0194) |
| Digitalization | 0.113** | 0.118** |
| | (0.0484) | (0.0467) |
| Turnover | 0.000881 | 0.000928 |
| | (0.000634) | (0.000574) |
| Employees | 0.00170** | 0.000600 |
| | (0.000780) | (0.000660) |
| Firm age | − 0.000800** | − 0.000150 |
| | (0.000300) | (0.000310) |
| Covid impact | 0.189*** | 0.115*** |
| | (0.0330) | (0.0325) |
| Stability | − 0.162*** | − 0.119*** |
| | (0.0229) | (0.0225) |
| North | − 0.0216 | 0.0211 |
| | (0.0251) | (0.0240) |
| Centre | 0.0491* | 0.0341 |
| | (0.0297) | (0.0285) |
| Primary | − 0.0873** | 0.0869** |
| | (0.0408) | (0.0400) |
| Secondary | 0.0510 | 0.0643 |
| | (0.0399) | (0.0397) |
| Observations | 1,998 | 1,998 |

This table presents the average marginal effects of the relationships between the level of insurance coverage, access to credit and bank loan with all control variables included. Robust standard errors in parentheses. *, **, *** indicate statistical significance at the 10%, 5% and 1% levels, respectively

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**Data availability** The data that support the findings of this study are available on the Bank of Italy website, precisely on the webpage of the 2021 survey on financial competence and use of digital tools in MSMEs.

## Declarations

**Conflict of interest** No potential Conflict of interest are reported by the authors.

**Ethical approval and consent to participate** This study was conducted in accordance with the ethical guidelines of COPE. All authors agreed with the content and gave explicit consent to submit.

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