

# THE ROLE OF GUARANTEES IN SUPPORT OF ENTREPRENEURIAL MICROCREDIT IN ITALY.

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*This paper proposes an empirical analysis of the microcredit initiatives promoted by local and cooperative credit banks trying to take advantage of any differences in the initiatives promoted by other types of operators in terms of default rates of loans. The differences are analyzed on the basis of distinctive features to identify a possible way of developing microcredit in Italy. The empirical analysis verifies the existence of a statically significant correlation between characteristics of the entrepreneurial microcredit programs and their default risk. The presence of credit guarantee schemes and the role of banking intermediaries as promoters reduce significantly the risk of default on these initiatives. The Italian microcredit programs do not show territorial differences.*

(J.E.L.: G21, L31, O16)

## 1. INTRODUCTION<sup>3</sup>

This paper has as its focus the investigation on micro-credit for small business as a tool for reducing the intensity of financial exclusion which prevents them to grow and become more competitive in not only local context. The unavailability of financial resources prevents companies to enterprises, especially those of micro- and small that traditionally have little financial autonomy, to undertake sustainable long-term growth plans. During the recent economic crisis the availability of credit influenced a growing number of individuals constrained by a lack of cash flow. Lack of access to finance is one of the main obstacles that micro-enterprises face. Microfinance, which includes guarantees, microcredit, equity and quasi-equity extended to persons and micro-enterprises that are having difficulty accessing credit, can help reduce it. In other words, we are dealing with an action capable of both overcoming short-term financial distress and preventing future cash flow imbalances.

Once the temporary difficulties have been overcome, beneficiaries may have the opportunity to begin a business project generating income streams in the longer term. In order to achieve financial independence via microcredit tools, small firms offer products and services to develop entrepreneurial skills. However, microcredit should not only provide easier access to credit to unbanked individuals and contribute to the development of the poorest territories. Microcredit has in fact also become more sustainable, both economically and financially (Porretta et al. 2013; Cull et al. 2009); Bogan 2009; Hulme & Arun 2008; Cull et al. 2009; Armendáriz & Szafarz 2009; Hermes & Lensink 2007). The use of guarantee funds (Lopez & de Angulo 2005; Szabó 2005; Columba et al., 2009) ranks among different proposals have been put forward.

This paper tries to verify the role that guarantee schemes might play on default risk of entrepreneurial microcredit in Italy during the period 2004-2013. According to Levitsky (1997) a sustainable and well designed scheme should aim to have a default rate between 2 and 3 percent. Newly established schemes in developing countries might consider a higher default rate (i.e. over 5 percent) in their early years of operation.

This paper, analyzing the Italian situation up to 2013, aims to identify possible causes of the increased risk of the entrepreneurial microcredit schemes. Territorial analysis is also conducted to test the likelihood of spatial differences in the Italian microcredit programs.

The used definition of entrepreneurial microcredit is given by art. 111 of the Banking Act, introduced by Legislative Decree 141 of 13 August 2010 (and subsequently amended by Legislative Decree 169 of 19 September) that is a loan that meets the following characteristics

- The amount not exceeding 25,000 euro. This amount may be increased by a further 10,000 euro in presence of divided loan, the development of the project has met the achievement of interim results and the beneficiary has at least returned the last six previous installments;

- It does not require real guarantees. The guarantee can be provided by special funds or, more frequently, will be represented by membership of the beneficiary to an association which operates as an institution of the beneficiary's discipline. In other words the presence of a social network functions as a guarantee of repayment of the credit and allows you to keep a very low level the cases of insolvency;

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- Is used to fund the start-up or development of entrepreneurial activities and integration into the labor market. Funding can also be used to remunerate new employees or members. With reference to this last destination of use, the legislature intended to refer to the payment of training courses for retraining of employees, partners and contractors as well as the payment of training courses to facilitate the integration of beneficiaries in the labour market;

- The maximum loan period may not exceed seven years. This time threshold could reach 10 years for loans used to pay for training courses to promote the integration into the labor market;

- The loan repayment rate should not exceed the quarter;

- The same person will be eligible for a second loan if the amount of the new loan, plus the outstanding amount of the current loan does not exceed the threshold of € 25,000 (or € 35,000 in the case of divided loan);

- Provides for the payment by the promoter of auxiliary services of assistance and monitoring of the financed subjects.

The presence of the micro-credit sector regulation is not a widespread practice in all EU countries. For example, in Spain<sup>4</sup>, a true mapping of microcredit operators is rather difficult, given the lack of a specific regulation for the sector in question (Porretta et al. 2013).

According to Italian and European Legislation entrepreneurial microcredit is riskier. In 2010 The Italian Banking Law added a number of provisions on microcredit to identify potential beneficiaries. The Table 1 in appendix underline that the entrepreneurial microcredit intends to satisfy the demands of two typologies of beneficiaries: 1) autonomous workers 2) micro-businesses organized in the form of individual firm, people's society, simplified srl or cooperative society. With reference to the first subject, the legislator establishes that self-employed people or companies that, at the time of the request of the loan, are VAT registered for more than five years, may not require microcredit. As regards the second category of beneficiaries, the new legislative framework shows that individual businesses and companies with a workforce of more than 5 and 10 units may not require microloans. In the case of companies, the legislature has identified other requirements such as a greater total asset than 300,000 euro, gross revenues more than € 200,000 and a level of debt more than 100,000 euro.

The new regulation also contains provisions aimed at facilitating the identification of operators, which are exclusively involved the provision of micro-loans, if in possession of specific requirements regarding the legal form, the capital, to the respectability and professionalism of members and corporate officers. These subjects must have a minimum capital not less than five times that of the Spa. The monitoring of compliance with these requirements is entrusted to the Bank of Italy that in case of positive evaluation, put these subjects in a special list. To these subjects called "microcredit operators", the legislator also added the "Casse Peota" ie entities, non-profit, collect small sums locally and deliver small loans. In addition also "finance Operators and mutual solidarity" carrying on an activity equivalent to micro-credit because they intend to meet the same financing needs. Unlike traditional microcredit operators, these individuals may pay amounts up to € 75,000 and for a maximum duration of ten years. To complete this taxonomy of persons authorized to offer microcredit there are specialized operators in the provision of auxiliary services of assistance and monitoring, and banks and financial intermediaries pursuant to art. 106 of the TUB. Before 2011, the lack of an ad hoc regulation of the microfinance sector had allowed different types of institution to assume the role of promoters of microcredit programmes/initiatives (Religious Bodies, Third Sector Organizations and non-banking Foundations and subjects of a public-institutional nature). With reference to the public subjects, the analysis by Ente Nazionale per il Microcredito underline that At first position there are Regions and regional Finance companies, also for the EC guidelines and the financial resources offered by European Funds to development of microcredit sector. However Provinces and Councils are not excluded having promoted (in 2011), overall, 11% of all microcredit projects. La prese

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<sup>4</sup> Porretta et al. (2013) map the following types of promoters of microcredit programmes in Spain:

1. Financial Institutions: (Commercial banks, Saving banks (CAI, Caixa de Catalunya, BBK, Caja Granada), Specialized MC banks);
2. Social Microcredit Support Organizations (SMSOs, Public and private organization non profit);
3. Foundations (Fundación BBVA para las Microfinanzas, Fundación CajaSol, Fundación CPAC, Fundación Mujeres...);
4. Associations (Federación Española de Entidades de Empresas de Inserción);
5. Public entities (Instituto de Crédito Oficial-"ICO"-, Direcció General d'Economia Social i Cooperativa i Treball Autònom, Institut Balear de Joventut, Madrid Emprende).

The SMSOs may be private or public institutions geared towards bolstering the creation of micro-businesses, fomenting self-employment and providing incentives for entrepreneurial activities. More specifically, they are public organisations run by regional or local councils (employment agencies, local development agencies, employment enterprise centres, etc.), or private organisations that are generally non-profit (chambers of commerce, unions, NGOs, administrative agencies and consultants, among others).

The paper is divided into four sections. After this introduction, section 2 contains a review about the benefits and the limits of the guarantees schemes within credit process. These evidences will be supported by the presentation of some case studies in member states of UE. Section 3 provides an econometric analysis to test the existence of significant correlations between some features of the entrepreneurial microcredit programs and their risk of default. Section 4 contains some final remarks.

## 2. THE GUARANTEES SCHEMES IN BANKING LITERATURE: BENEFITS AND WEAKNESSES

The studies that have as a research focus the credit guarantees relate to two theories: "*borrower theories*" and "*lender theories*". The first justifies the use of collateral on the basis of the need to reduce the information gap between the employers and the borrowers to avoid unfairness about the real capacity / intention of the latter to repay the loan. The latter argue that behind the use of guarantees there is a different banks' ability to collect and process the basic information for a correct assessment of the creditworthiness of the borrower thereby reducing moral hazard and adverse selection (Beanko e Thakor 1987; Boot et al. 1991; Ono e Uesugi 2009; Berger et al. 2011). According to the lending theories the use of credit guarantees is prerogative of local banks. The greater geographical proximity between bank and customer causes an easier exchange of qualitative information that otherwise would be difficult to find (Inderst and Muller 2007; Jimenez et al. 2009).

In the European Union, the difficulties of the credit access are mostly suffered by small and medium-sized enterprises than the big ones. On average 23.9 percent of small enterprises have identified access to finance as a major constraint within their local development processes compared to only 18.2 percent of large firms. This different impact of the credit access on growth projects undertaken by SMEs is attributable to the following causes: higher administrative costs of small loans, the interaction with a financial system shortly diversified much more oriented to the traditional corporate lending, higher credit risk of the SMEs, the information asymmetries and lack of guarantees on the repayment of loans. With reference to the first aspect, some studies have shown that the Colombian financial institution "Caja Social" incurs administrative costs ranging from 11 to 13 percent of the portfolio's value per year for small loans (Green 2003). The main consequence of adverse selection, a typical example of information asymmetry, is that the banks to avoid a deterioration of the quality of their credits doesn't increase the interest rate beyond a certain target. Thus it originates a credit rationing affecting mainly SMEs which are although typically riskier investments, will be would be willing to pay the higher interest rate. Both adverse selection and lending administrative costs can support the implementation of evaluation process of creditworthiness based only on firm-size and collateral. The attention only due aspect causes that the profitable projects that don't meet these conditions may be unable to obtain financing. The final result is a suboptimal allocation of credit.

In order to lessen the financing constraints faced by SMEs, governments, NGOs and the private sector have developed initiatives such as *credit guarantee schemes* (CGSs). CGSs first emerged in Europe in the 19th and the early 20th centuries. Currently, there are over 2,250 schemes implemented in different forms in almost 100 countries (Green 2003). Smaller firms in SEE are required to put up on average 152 percent of the loan value as collateral; medium firms need 154 percent. European Union (EU) countries average only 100 to 120 percent of the loan value (World Bank 2008). CGSs can be considered as one possible solution to help the banks to overcome information asymmetries by aiding accurate identification of lending risk and improving banks' ability to make appropriate lending decisions (Levitsky 1997). The increased riskiness of SMEs can be alleviated thanks to the guarantee schemes. They can be a mechanism of risk transfer and diversification. Furthermore, CGSs absorb an important share of borrower risk thus redressing the absence of guarantees typical of the most financially fragile creditors.).

The result is higher overall lending although the debate about the benefits of CGSs on the development of credit market in favor to small and medium enterprises is still actual. Experience suggests that credit guarantee schemes do play a role in expanding credit to SMEs. However, empirical evidence on the exact nature and size of the impact of CGSs doesn't produce similar results. For example one of the effects of the presence of CGSs is the possibility of additional credits. These loans would not have come about without the credit guarantee scheme .For Levitsky (1997) the presence of CGSs create, on average, 30 to 35 percent financial additionality . Larraín and Quiroz (2006) have analyzed the benefits by the fund, trough the example of the fund FOGAPE "Partial Credit Guarantee Fund" in Chile<sup>5</sup>. According tto this authors, FOGAPE has produced not only credit additionality but

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<sup>5</sup> This fund is administrated by a governmental agency. In 2004 it had a total equity of USD 52 million. The number of guaranteed loans has risen from 200 in 1998 to approximately 34,221 in 2004. In 2004, the total amount of loans covered by the guarantee fund was USD 472 million and the average coverage ratio was 65 percent. The maximum coverage ratio can go up to 80 percent for loan amounts below USD 90,000 and up to 50 percent for amounts above USD 90,000. Llisterri et al. (2004) have described the functioning structure of this fund. For these authors the fund determines coverage rates based on auction take place

also economic additionality. The customer that use this fund have higher probability (about more 14 percent) to obtain a loan than non-customers. Among main benefits associated to this fund: an increase of the volume of credit market by 40 percent, higher turnover increased by 6 percent. Nevertheless, it is important to note that the study only looked at loans made in larger cities. There are still some questions about the impact of FOGAPE in rural areas.

The economic additionality refers to the fact that companies have easier credit access thanks to CGSS can increase their profits, provide employment and obtain financing for investments that can improve their productivity. On other example of CGSs in favor of this type of additionality is KOTEC “Korean Technology Credit Guarantee Fund”<sup>6</sup> that offers credit guarantees to new technology-based firms. Since its foundation, KOTEC (1998) has provided a total of USD 99.7 billion in guarantees. In addition to credit guarantees this fund offers other services such as: 1) Technology appraisal undertaken by a national network of Technology Appraisal Centres (TACs); 2) Advisory services to encourage customer-oriented products and services. These include consultation services to encourage technology development among SMEs and help SMEs overcome managerial and technological obstacles; 3) Support systems for company restructuring and technology transfer, including financial and legal advice, help in formulating business strategies etc. Some empirical works (Kang J. W. and Heshmati A. 2008; Roper S. 2009) have verified that the firm evaluation process and the system to support technology implementation have contributed to a high survival probability of loans.

The spillover effect is another type of impact associated to CGSs thank to supply of services such as consulting and training to entrepreneur. To evidence this observation we can consider the CSBF “Canadian Small Business Financing Program”<sup>7</sup>. The benefits in terms of occupation growth are evidenced by Riding and Haines (2001). In their analysis The Small Business Loans Act (SBLA) has created about 66,000 additional jobs in 1995. Of these, 1.53 jobs on average were created by firms participating in CSBF against 0.16 in the firms that did not participate in the programme.

Green (2003) identifies four types of guarantee funds:

- **public guarantee schemes**: usually involve state subsidies, especially initially. Typically, they are managed by a private organization or an administrative unit of the government. An advantage of this system is that, in case of loan default, the guarantee is paid out directly from the government budget. This gives such a scheme higher credibility within the banking sector (an example is the SBDF “The Small Business Development Fund” whose operating structure and main objectives are presented in Box 1 in the appendix);

- **corporate funds**: are generally funded and operated by the private sector, e.g. banks and chambers of commerce. They reduce the guarantee fund’s dependency on public funds, which can sometimes be unstable. They are managed by experienced corporate leaders and generally benefit from the direct involvement of the banking sector. The banks and other private institutions can have a direct stake in a fund’s capitalisation<sup>8</sup>;

- **international schemes**: are typically bilateral or multilateral government or NGO initiatives, e.g. the ILO, UNIDO or the European Investment Fund. Often, international schemes combine both a guarantee fund with technical assistance to firms (see Box 2 in the appendix);

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place four to six times per year. In every auction FOGAPE distributes resources for three types of credit guarantees: (i) 50 percent of total resources go to short-term loans; (ii) 30 percent go to long-term loans, exporters and emerging companies; and (iii) the remaining resources go toward other credit. Tenders are selected based on the coverage rates proposed by lending institutions – lower coverage rates are selected before higher coverage rates. Once the tenders have been accepted, FOGAPE establishes a contract with the winning financial institution fixing the coverage and commission rates, and outlining the contractual obligations of both parties in the case of default. Interestingly, the auction system has led to decreasing coverage rates – average coverage rates have fallen from 80% when initiated in 2000 to 65% in 2004. Once the contract is concluded between FOGAPE and the lending institution, loans based on the guarantees must be distributed to borrowers within a two month time frame. If during that period, the guarantee is not used, FOGAPE calls for a new bid. In 2005, lending institutions typically used 85 percent of the resources available to them. In order to increase usage, FOGAPE recently required that the contracting financial institution must use 90 percent of the guarantees awarded to them. Another weakness in the FOGAPE system was recently fixed. In 2005 one financial institution obtained the majority of the resources distributed by FOGAPE. As a result, FOGAPE recently established a cap of 66 percent of total resources that one single contracting financial institution can receive.

<sup>6</sup> KOTEC was founded in 1989 by the Korean Government as a not-for-profit guarantee institution under the new “Korea Technology Finance Cooperation Act”.

<sup>7</sup> The Small Business Loans Act (SBLA) established the first credit guarantee scheme, CSBF, in Canada in 1961. Loan and guarantee approval is handled entirely by lenders. The programme guarantees almost 10,000 loans worth more than 1 billion Canadian dollars each year. The fund can finance up to 500,000 Canadian dollars for any single business.

<sup>8</sup> - In many West African countries, public resources were not rapidly injected into the guarantee schemes. As a result, the schemes faced delays in disbursing their guarantees. Lenders were therefore reluctant to apply to the guarantee schemes. The end result was that many of the schemes, including those from Burkina Faso and Cote D’Ivoire, were forced to close (Balkenhol, 1990).

*mutual guarantee associations (MGA)*: aims to bridge the gap between banks and entrepreneurs. They are also sometimes known as mutual guarantee associations, societies or funds. They are private and independent organisations formed and managed by borrowers with limited access to bank loans. Each member contributes to a common fund that is used to make guarantees on loans procured by its members. Mutual guarantee schemes benefit from the active involvement and experience of their members. An important characteristic of an MGA is that it also relies on social capital, i.e. the fund creates social norms and positive peer pressure to encourage repayment amongst its members. Although they are largely funded from membership fees, etc., in many instances, they operate with some form of government support. In some instances, the government provides the appropriate legal and regulatory framework within which MGSs can operate. The structure of MGA involves the activities of three actors: . the General Assembly, the Executive Board and the Supervisory Board. The first is composed by all members and determines the regulations for issuing guarantees and elects members to the Executive and Supervisory Boards. The second monitors, supervises the technical management of the fund, takes the decision on which guarantee applications to accept, decides whether to admit new members to the fund. The third monitors the guarantee contracts and the fund's financial situation (see figure 2 and Box 3 in appendix).

The World Bank in 2008 has conducted a comparative analysis on these guarantee funds taking into account their application on 46 developed and developing countries. The first result refers to different geographical basin of these fund: the mutual guarantee funds tend to operate in high-income countries while the public funds are more used in middle and low-income countries. The second result is younger age of mutual fund that operate above all in emerging markets. The third result is that thanks to their cooperative governance structure, the mutual funds can more easily satisfy the goal of financial sustainability.

According to Tschach (2000), an important feature of MGAs that determines the competitive advantage than other type guarantees schemes is their expertise and knowledge of the economic and social situation of borrowers covered by the fund. In this way MGAs are able easily to value the credit capacity of borrowers. A pressure is exerted on members to avoid opportunistic behavior. Therefore, for them it is impossible not to settle a debt, and ask for further loans. There should be negative social factors which encourage members to make good on their loans. Another important benefit of the relationship between MGAs and SMEs is a more powerful bargaining position for the latter. In this way the small and medium enterprises are able to have credit access at a lower cost.

For (Balkenhol 1990) in Côte d'Ivoire, where 250 applications were considered by the fund between 1968 and 1981 and 90 percent of them (221 requests) were accepted by the management committee. to avoid bankruptcy of the guarantee scheme it's necessary the presence of experienced and qualified staff to manage them. The absence of clear selection criteria of creditworthiness may cause an huge credit supply. For example in Cote d'Ivoire, 250 applications were considered by the fund between 1968 and 1981. This apparently positive results in terms of easier credit access. However most of the firms which received a guarantee eventually stopped business activity, and 37 defaults crippled the financial health of the fund.

Some weaknesses of credit guarantees schemes were highlighted by Porretta et al. (2013). The first is a bad planning of microcredit programs. This weakness is a common feature of European countries. The agreed objectives should be defined in terms of expected results by planned actions. In other words, "what" is expected in terms of quality of life and improvements for businesses "where" and "for who". The second an erroneous valuation of the borrower's risk profile can undermine MFI's economic and financial sustainability. The microborrowers' risk analysis tends to be more difficult because of the lack of a credit history, transparent bookkeeping procedures, a database, the project idea and credit scoring systems. Therefore, for these authors a possible solution could be the construction of microcredit risk central (this is what is happening in Morocco). The third is the duplication of activities within the credit-guarantee chain that causes higher administrative costs. The fourth is bad structure of guarantee contracts which might disrupt the relationship among guarantee fund managers and financial intermediaries. The fifth regards the excessive public subsidies that can undermine the sustainability of microfinance institution, discourage the implementation of modern and efficient risk management tool. Therefore the guarantee schemes, for their stronger and sustainable development, must be funded both with private and public resources. The sixth is lack of communication between the different actors involved in a microcredit programs. The last weakness relates to the fact that microcredit programs are not adequately monitored. The presence of public support and guarantee schemes might not be enough to achieve the expected goals. To end it is necessary to build a monitoring system in order to measure the program's efficiency and the use of public resources.

### 3. THE DEFAULT RISK OF ENTREPRENEURIAL MICROCREDIT: AN EMPIRICAL EXERCISE

#### 3.1 Objectives

As a final step, it proposes an empirical analysis designed to identify which characteristics of different microcredit initiatives launched in the Italian macro regions have had a greater impact on their probability of default.

The decision to focus exclusively on entrepreneurial microcredit programs can be traced to three different motivations. The first from the conclusions of various contributions that have investigated the dynamics of the credit market in the current economic downturn (as a result of the international crisis). Furthermore the Institute for Studies and Economic Analyses (ISAE), in 2010, highlighted the occurrence of a more severe deterioration in the quality of loans issued to firms than to households.

Credit rationing from both the supply and demand side are the main reasons for households and small firms experiencing difficult relations with their lending banks (National Microcredit Agency, 2013) because of the long waiting times for loan requests. The timing of borrowing is a crucial factor for entrepreneurial and social microcredit. The Financial Stability Report of the Bank of Italy (2013) notes that in 2013 it was mostly small and medium-sized enterprises that suffered from a higher intensity of credit rationing.

According to this source the latest credit crunch originated mainly from a tightening of credit supply conditions. In the second half of 2014 the situation worsened in terms of payments and other typology of financing, but, on the other hand, the role of microcredit might play a role in the improvement of micro businesses during the downturn.

The National Microcredit Agency (2013) which monitored 106 microcredit programs reports that the amount financed for microcredit to small businesses is greater than the social microcredit (20,000 against 5,000 Euros) but the frequency of rejection is higher than the social microcredit. These considerations worsened in the southern Regions (Campania, Calabria, Puglia and Sicily) where social loans are present in 7.5% of cases, when compared to 92.5% of lending money for activities related to creating one's own job of work.

Social microcredit, as well as being less common, delivers even fewer resources than entrepreneurial microcredit: the social lending money in 84% of cases is less than 5,000 euros and never exceeds 15,000 euros, while lending to small business is never below 2,500 euros and only 11.8% of cases exceed the limit of 25,000 euros.

The microcredit initiative, especially in backward Italian regions, could act as a catalyst for an active employment policy. Of the 125 recipients interviewed, around 90% applied to microcredit in order to begin new activities and, more specifically, 74.4% set self-employment as their priority goal. The benefits of using microcredit as a tool for self-employment do not only come to the applicant but also on his/her staff: as many as 46.2% of the applicants have their own salaried staff. Therefore microcredit can be seen as a multiplier of work opportunities, helping to create jobs both directly and indirectly.

Another reason was that microcredit for business attracted the greatest interest of the legislature, which regulated the microcredit sector with a bill presented in August 2010 and passed in early June 2015. Before 2010 microcredit was not the subject of any special legislative framework and its ordinary operations were carried out by banks in the form of loans of reduced size (art.106 of the Banking Act).

The new bill consisted of two articles (111 and 113) and the subsequent decree 176 of 17 October 2014 of the Ministry of Economy and Finance (MEF), under the title of "Microcredit for starting or the development of business initiatives and for inclusion in the labor market".

The first article introduces the new discipline of microcredit as a derogation from Article 106, distinguishing, on the one hand, parties authorized to grant finance to individuals and small firms (entrepreneurial microcredit up to 25,000 euros), and, on the other, those operators in non-profit organizations who can offer loans to particularly vulnerable economic or social individuals (social microcredit up to 10,000 euros).

Other aspects of this article are the obligatory requirement to be included in the Bank of Italy lists (paragraph 2), the characteristics of the beneficiaries (paragraph 3) and the information to be provided to customers (paragraph 4).

The use of the word "microcredit" (paragraph 5) is subject to a specific meaning of granting loans according to the characteristics of borrowers referred to in the above-mentioned paragraphs 1 and 3.

Art.113 entrusted the Bank of Italy to own a list of operators specializing in the provision of microcredit and the supervisory function of the Central Bank (paragraphs 1-3).

The aforesaid Decree introduced a series of rules such as:

- 1) the characteristics of the beneficiaries to be financed;
- 2) purposes of financing;
- 3) auxiliary services of assistance and monitoring (following a full microfinance approach);
- 4) maximum amount, characteristics of funding and distribution channels.

This short summary of a few aspects of the new regulation of microcredit shows the new framework for microcredit initiatives in Italy, having as their final objective the avoidance of opportunistic behavior by improvised operators and potential beneficiaries who cannot comprehend the true significance and opportunities of these financing opportunities.

### 3.2 The dataset and some descriptive statistics

The dataset for the empirical analysis was provided by C.Borgomeo & Co., who have, since 2004, analyzed the number of microcredit programs realized in Italy, including loans and financing volume whilst taking into consideration promoters, sponsors and beneficiaries. All data was also analyzed with regard to geographical area and size.

The methodology for the construction of the data set involves the use of a schematization of micro-credit programs divided into four main variables:

- The *beneficiary*: single person or group (eg an informal group, a family or a couple), legal entities (cooperatives or partnerships);
- The *lender subject*: public entities, ordinary banks and self-management mutuals (MAG);
- The *promoter*: it does not necessarily coincide with the funder. He often claims costs, for example related to promotional activity prior to the commencement of the program or other services. This role can be assumed by banking foundations, banks, non-banking foundations, associations, MAG, dioceses, the state, the regions, other local authorities and universities;
- The *guarantee repayment of the loans*: provides guarantees (in full or in part) to the subject lender against the risk of non-repayment of the loan. This role can be played by the public guarantee funds (eg regional funds) or private (run by foundations) or, in some cases, different funds can contribute to cover, in varying degrees, the credit risk.

In addition to these variables, which represent the basic architecture of the micro-credit model other variables were considered such as the size of loans, the territorial scope and the progress of the micro-credit initiatives, the needs. The size of the loans varies within four possible size classes (up to 5000 Euros, up to 10,000 EUR, up to 25,000 € and over 25,000 €). The geographical area covers the territory (often a region, a province, a municipality or a neighborhood) in which they reside percipients. The state of progress of the project to microcredit has four types of micro-credit programs: the first fall programs of which there is only a preliminary study or feasibility of the initiative; in the second the programs for which there are the first formal acts (such as signed agreements, public notices) that make explicit the intention of the promoters; in the third, there are the programs started during the reference year; fourth in programs undertaken by several years and still going. The needs of the beneficiaries are classified into three types: indistinct financial requirements, financial requirements to start or sustain economic activity, financial requirements to support higher education or postgraduate. Within the empirical analysis this type of need is neglected because little relevant to the micro-credit business which is the subject of investigation of this contribution.

Micro-credit programs undertaken in the years 2005-2013 were selected by a constant search for information available on the internet and specialized press for every new micro-credit initiative. After this phase of research, followed by a further phase of research aimed at identifying the promoter of each micro-credit initiative and in particular the contact person or person to contact in order to deepen the objectives and progress of the initiative. After identifying the programs and their promoters, it was given an interview to each representative in order to gather qualitative and quantitative information about the program.

The database is based on 126 microcredit programs (69 social and 57 entrepreneurial) for which it was possible to monitor the quality of loans, distinguishing between repaid and nonperforming loans. The social microcredit schemes are distributed primarily in the North (49%, 34 initiatives) and in smaller percentages in the South (25%, 17 events) and the Centre (17%, 12 initiatives) of Italy. The entrepreneurial microcredit schemes are distributed mainly in the South (in 49% of cases, i.e. 28 events) and in lesser amounts in the Centre (21% i.e. 12 events) and the North (18% of cases, i.e. 10 events). 7 programs cover the national territory (Table 2).

In Southern Italy the entrepreneurial microcredit programs have provided the greatest number of credits (5401) and also have absorbed a greater volume of resources (€ 13,451,704). It is always this macroregion that mostly draws near to the data on the number of loan and volumes attributed to the programs that have as geographical

basin the whole Italy (5880 and € 32.982.401). Of the 28 programs, 25 have disbursed amounts up to 35,000 EUR, while 3 have exceeded that threshold up to a maximum amount of 150,000 Euros (relating to only one program). In the North only one program exceeded the threshold of € 35,000 with a maximum amount of € 75,000. At the Center five programs have exceeded the threshold of 35,000 euro and a program has disbursed an amount of 110,000 Euros. Both at the Centre and in the South there are programs with maximum amount higher than the figure recorded at the national level (€ 100,000). Are the Northern Italian programs to be characterized by a longer duration (120 days versus 84 days both at the Centre and in the South) close to that of the national entrepreneurial microcredit programs (180 days). Comparing these data with the analysis elaborated by Porretta et al. (2013) is clear that in Spain the average amount of micro-loans is much lower (between 6,000 and 25,000 Euros), while the average duration is higher (between 2.2 to 6 years).

The local banks, the subject of the previous section, held marginally functions of entrepreneurial microcredit in Central Italy (only 8.3% of cases corresponding to a single program). Interestingly the strong predominance of loans granted through programs with subjects public promoters in the South and Center (respectively 42% and 54% of cases ie 5 and 5 programs). In the North, most of the loans is promoted by banking institutions in particular foundations (in 40% of cases that 4 programs) while the Centre and the South local authorities. A major role is played by religious organizations in the South (in 18% of cases corresponding to 5 programs) (Table 3). In another European country such as Spain the microloans are currently offered above all by banks, in particular Saving Banks and Specialized Banks both the social sector as well as microbusiness (Porretta et al. 2013).

In North 50% of loans are granted to individuals and the remaining 50% as part of programs called "mixed" that does not allow you to identify whether the individual or society. Of the latter type of programs it focused the intervention of entrepreneurial microcredit to South and Central (59% and 68%). Almost absent the programs for cooperatives, voluntary associations and non-profit organizations (only present in South Italy with percentages less than 4%) (Table 4).

The study of the objectives of the loans is very interesting. With reference to the last available year, in most cases it comes to financing start-up projects or to start self-employment (50% in the North, 54% in the South and 75% in the center); in the center 25% of the loans is targeted at existing businesses; in the North is 20% the share of loans given to mixed cases, and another 30% is made to combat the phenomena of wear. It is striking that there are no entrepreneurial programs against wear in the South and the Centre (Table 5).

Table 2: Some features of entrepreneurial microcredit programs in Italy

Macroregions	Number of programs	Number of loans	Volume of Loans (€)	Max amount (€)	Max duration (days)
North	10	1297	1.858.744	75.000	120
Center	12	1269	1.759.643	110.000	84
South	28	5401	13.451.704	150.000	84
Italy	7	5880	32.982.401	100.000	180

Source: data calculated on cumulated values up 2013, \*no indication for two paid loans programs

Table 3: Types of promoters of entrepreneurial microcredit programs in Italy

Promoters	Sector	North	Center	South	Total
Banking Foundation	Banking	4	3	2	9
Local Bank	Banking	-	1	-	1
No Banking Foundation	Private subjects	3	1	3	7
Private Associations	Private subjects	1	1	4	6
Local Ente	Public subjects	2	5	15	22
Religious body	Religious subjects	-	1	4	5

Source: our elaboration on C.Borgomeo &Co. database

Table 4: Types of beneficiaries of entrepreneurial microcredit programs in Italy

Beneficiary	Cluster	North	Center	South
Individuals	Single	5	3	4
Legal entities	Entities	-	2	4
social cooperatives, associations, non-profit organizations	Entities	-	-	1
Individuals or legal entities	Single or entities	5	7	19

Source: our elaboration on C.Borgomeo &Co. database

Table 5: Types of needs

Needs	North	Center	South
Start-up	5	9	15
Old firms	-	3	2
Start-up or old firms	2	-	11
Fight wear	3	-	-

Source: our elaboration on C.Borgomeo &Co. database

This database is used to monitor all Italian programs in their long-term trend, covering the period 2003-2013, including the high peak of the current economic crisis, also having gone through a period of financial uncertainty.

The 57 entrepreneurial microcredit programs for which it was possible to measure the risk of default (see at tables 6,7), provided loans for an average amount of almost 33,000 euros. There is a wide heterogeneity between them, as evidenced by the high value of the standard deviation (Euro 280.000, not included in the tables) and the wide gap between the minimum and maximum (respectively 2,500 and 150,000 euros, not inserted in the table 8).

Twenty-one micro-credit programs, or 37% of the total initiatives that have provided loans, exceeded the threshold determined by Italian Law (Article 111 and 113 of Legislative Decree 13 August 2010) i.e. 25,000 euros per beneficiary. Of these 21, eleven exceeded the further threshold of 35,000 euros wherever financing provides grants fractionated by making subsequent payments under the following conditions:

- 1) timely payment of one of the last six previous instalments;
- 2) the development of the project being funded, and certified by the achievement of intermediate results as laid down by the contract and verified by the people working in the field. These 11 programs may be indicated as “mixed” because of the dual individual and social nature of the funds, making the microcredit portfolio loans riskier in terms of reimbursement to borrowers .

The project duration of the Italian microcredit initiatives indicates another granular characteristic. On average, these microcredit initiatives (calculated on the basis of 55 programs, see Table 6) have a median duration of about 68 days, ranging from 18 to 180 days. Shown in Table 3, up to 2013, are the mean values of the 243 loans funded.

The high value of the standard deviation (602) indicates that among 57 entrepreneurial programs, there are programs that have allowed/ a single loan and those that have granted/ a large number of customers.

Since the objective of the subsequent empirical analysis is to identify some of the determinants of the default risk of microcredit business programs, the quality of loans was analyzed in Table 7 .

In this context, each of the 57 microcredit programs was monitored and the presence of three types of loans distinguished, which can be ranked in a descending order of quality: performing loans, paid loans, non performing loans.

The first category includes loans that are not in or near default. The paid loans are fully repaid, whereas the non performing loans are those that are either in default or close to being in default, with the failure to promptly pay interest or principal when due.

Looking at the distribution of microcredit initiatives based on the quality of loans, the dataset shows most of the programs are characterized by loans with a regular mechanism of amortization (211 loans). The fully repaid loans are 27. About 32 loans are insolvent and characterized by a greater risk of default..

Table 6: Statistics on entrepreneurial microcredit programs in Italy

<i>Variabile</i>	<i>Mean Value</i>	<i>Standard Deviation</i>	<i>Min</i>	<i>Max</i>
<i>AMOUNT (€)</i> <i>(computed on 57 programs)</i>	€32895	€28089	€2500	€150000
<i>DURATION- days-</i> <i>(computed on 55 programs)</i>	68	24	18	180
<i>NUMBER OF LOANS</i> <i>(computed on 57 programs)</i>	243	602	1	3951

Source: data calculated on cumulated values up 2013, \*no indication for two paid loans programs

Table 7: Quality of loans on entrepreneurial microcredit programs in Italy

<i>Variables</i>	<i>Mean Value</i>	<i>Standard Deviation</i>
<i>PERFORMING LOANS</i> <i>(calculated on 57 programs)</i>	211	575
<i>PAID LOANS *</i> <i>(calculated on 55 programs*)</i>	27	73
<i>NON PERFORMING LOANS (NPL-calculated on 57 programs)</i>	32	78

Source: data calculated on cumulated values up 2013, \*no indication for two paid loans programs

Microcredit schemes are characterized by a significant variation between them as shown by the high value of the standard deviation (575): we have programs for which the presence of the performing loans is minimal (1 loan) and programs marked with more widespread good quality of loans.

In addition on average 27 loans are regularly repaid as indicated in the table above. The maximum number of loans repaid amounted to 1533. A presence, slightly above the value of 27, was recorded as nonperforming loans (NPL- 32) that turn out to be insolvent and therefore characterized by a greater risk of default. The high standard deviation (78) on NPL is attributable to 10 specific microcredit programs (i.e. 17% out of the total) for which loans were found anomalous in quantities higher than the average.

### 3.3 The model

The question analyzed may be treated as a statistical problem of binary choice, ie between two alternatives x and y. The dependent variable is a binary variable (or indicator) equal to 1 if there is an alternative x 0 or if there is the alternative y.

The default of the loans becomes objective only when, reached the end of the loan repayment, the beneficiary is insolvent and produces losses for the lender. If the probability that the loan go into default is p, then  $P(\text{Default} = 1) = p$ ; accordingly, the probability that the loan is regularly returned is  $P(\text{Default} = 0) = 1-p$ . The probability function of a random binary variable as this is given by:

$$f(\text{Default}) = p^{\text{Default}}(1-p)^{1-\text{Default}} \quad \text{Default} = 0,1 \quad [1]$$

The default variable has expected value  $E(\text{Default}) = p$  and variance  $\text{Var}(\text{Default}) = p(1-p)$ .

A model to solve a binary choice problem is the linear probability model that can be so formalized:

$$y = E(y) + \varepsilon = \beta_1 + \beta_2 x_2 + \dots \beta_k x_k + \varepsilon \quad [2]$$

The empirical analysis identifies the variables that make up the basic structure of the micro-credit model, can better influence the probability of default. In light of this goal it is not possible to estimate a linear probability model. This model; in fact, it can give rise to certain difficulties, related to the fact that the expected probability can be less than 0 or greater than 1. The estimating equation [2], using the least squares method, allows to obtain an approximation of the systematic component of y and (y) which coincides with p, the probability associated with the alternative x. In formulas:

$$\hat{p} = b_1 + b_2 x_2 + \dots b_k x_k \quad [6]$$

If the model [6] is used to predict the values associated with different values of x, it is possible to obtain negative values of or greater than 1, that have no meaning as probability. In addition to this difficulty, some of the estimates of the variances obtained, by means of the [4] equation may be negative. This problem is mainly caused from the assumption that, for each variation of the variable x is associated with a constant impact on the probability of the variable y. In formulas:

$$\frac{d_p}{d_x} = \beta_2$$

If the above assumption is valid, then when the variable x increases the probability p of the variable y increases at a steady rate. This hypothesis can not find any application since the probability, by definition, can assume values in the range [0,1].

To overcome this problem a nonlinear probit model can be used. This model is characterized by a report, S-shaped, between x and p. Therefore, the direct relation between x and p typical of the linear probability model, is only valid for low values of x. As x increases, p grows but at a less than proportionate rate. The slope of this curve, captured by beta estimated coefficients associated with the explanatory variables, unlike the previous model, is no longer constant.

The non-linear probit model expresses the probability p that y has a value of 1 as a non-linear relationship between p and  $\beta_1, \beta_2 \dots \beta_k$ :

$$p = P(Z \leq \beta_1 + \beta_2 x_2 + \dots \beta_k x_k) = \Phi(\beta_1 + \beta_2 x_2 + \dots \beta_k x_k) \quad [7]$$

where:

$$\Phi(z) = P(Z \leq z) = \int_{-\infty}^z \frac{1}{\sqrt{2\pi}} e^{-0,5u^2} du$$

It is the probit function connected to a distribution of standard normal probability.

This model allows us to estimate the marginal effects of a change in x on the probability that y = 1 by calculating the first derivative of the equation [7]:

$$\frac{dp}{dx} = \frac{d\Phi(t)}{dt} * \frac{dt}{dx} = \phi(\beta_1 + \beta_2 x)$$

where  $t = \beta_1 + \beta_2 x$  and  $\phi(\beta_1 + \beta_2 x)$  is the value of the density function of the standard normal distribution associated with  $\beta_1 + \beta_2 x$ .

In this empirical analysis three probit models were estimated where the dependent variable is a binary variable with the value 0 or 1 depending on whether the loans granted are considered paid or not paid.

The paid loans are those regularly reimbursed at the end of the amortization period. The nonperforming loans are those which, although they have completed the amortization period, have not been repaid to the lender. Therefore, the dependent variable of all three estimated models is a measure of the risk of default defined according to the Basel II. Internal Convergence of Capital Measurement and Capital Standards.

The explanatory variables are the logarithm of the amounts granted, the maximum duration of the loans and dummy expressions of certain features of programs, specifically guarantees .. Table 8 below shows the structure of Model.

#### Model

$$P(Z \leq \beta_1 + \log \text{loans } x_2 + \log \text{duration } x_3 + \text{Region } x_4 + \dots \text{Region } x_6 + \text{Guarantees } x_7 + \dots \text{Guarantees } x_{11}) = \Phi(\beta_1 + \log \text{loans } x_2 + \log \text{duration } x_3 + \text{Region } x_4 + \dots \text{Region } x_6 + \text{Guarantees } x_7 + \dots \text{Guarantees } x_{12})$$

We also tested the null hypothesis stating that the amounts and duration of microcredit programs have a significant impact on reducing the probability of default of entrepreneurial microcredit programs. These results are not reported in this paper; they are not significant and we are looking for better and sounder explanations.

Table 8: Model – Dependent and Explicative Variables

<b>MODEL : ANALYSIS OF GUARANTORS (GUARANTEE SYSTEMS)</b>	
<i>Probability of Default: Dependent variable</i>	
<i>Explanatory variable - Guarantees</i>	No guarantor or Beneficiary* Fund risks internal to the program** Existing external fund to the program
<i>Explanatory var. – log of maximum amount financed via the programs</i>	Logloans
<i>Explanatory var. – log of maximum duration of programs</i>	Logduration
<i>Explanatory var. –territorial dummies relating to macro region programs</i>	North, Center, South

Source: Our elaboration. Legend: \* (guarantee of the beneficiary, internal guarantee of bank-agent, moral or group guarantee), \*\* (Pawn or liquid fund of promoter with multiplicative factor of consistency risks  $M = 1$ , New fund of promoter with  $M > 1$ , Fund existing of promoter with  $M > 1$ )

The effectiveness of the explanatory variables on the dependent variable of the model was tested via the Wald test This test enables one to estimate a vector  $\theta$  of K parameters  $\theta = (\theta_1, \theta_2 \dots \theta_k)$  maximizing the function of log likelihood:

$$\max_{\theta} \text{Log } L(\theta)_{\theta} = \max_{\theta} \sum_i^N \log L_i(\theta)$$

The goal of the test is to verify the statistical significance of some linear constraints on the parameter vector  $\theta$ . Such constraints help to formalize the null hypothesis of the test i.e.  $H_0: R\theta = q$ , where  $q$  is a constant column vector of dimension  $J \times 1$  and  $R$ , the matrix of size  $J \times K$ .

Under the null hypothesis  $R\theta = q$  and then you can build a test statistic using quadratic form:

$$\xi_w = N(R\hat{\theta} - q)' [R\hat{V}R']^{-1} (R\hat{\theta} - q)$$

Where the accented term  $\hat{V}$  is a consistent estimator of  $V$ . Under this null hypothesis, this statistic test is distributed as a chi-square with  $J$  degrees of freedom. High values of this statistic (p-value associated with very low levels) lead to rejecting the null hypothesis.

### 3.3.1 Analysis of guarantees: main results

The first empirical analysis was carried out to verify the ability of the guarantor to assess loan credit merit by reducing the default risk of granted loans oriented towards entrepreneurial initiatives. In Table 1 different typologies of guarantors were analyzed.

The rationale of this approach is connected to all inherent risks engendered by the life span of all financial transactions, including microcredit loans, and influenced by the unexpected performance of financial assets. According to the Bank of Italy, microcredit loans are classified in the supervisory retail portfolio by considering the following features:

- The beneficiaries are individuals or small and medium-sized enterprises;
- In the case of a single beneficiary (individual or groups of borrowers) the outstanding amount does not exceed 1% of the volume of the portfolio;
- An individual client (or a group of related customers) can obtain up to 1 million euros from the banks without collateral

Therefore, even in the face of the demand for microcredit, lenders perform an analysis assessing the applicant's ability to be solvent under the agreed terms and thus judgment is passed on creditworthiness. In light of such considerations, the guarantor assumes a key role in the organization of the credit process in advance. The effectiveness of the guarantee is a form of protection for the promoters who usually do not concur with the financing party in the implementation of the various initiatives of microcredit.

They have the burden of certain costs (for example, related to promotional activity) before the start of the microcredit operations. The accuracy of the selection of the beneficiary (the so-called screening) is an expression of the ability of the guarantor to select the best customers, avoiding the incidence of credit loss that would cause an erosion of assets. It must also be monitored in the continuum, in order to adopt pro-active behavior (and, thus, the formation of a capital base in excess) that would allow anti-cyclical measures to anticipate adverse events.

This ability of the guarantor requires interaction, which is not always easy to be realized with the financing party, in order to determine the main economic conditions to be applied to loans (return times, interest rates) and the rules for distribution of the costs of assessment and investigation of requests for credit, guarantees, methods of collection of applications, the non-financial services to offer to the beneficiaries and how they will be funded. Moreover, this ability of the guarantor has difficulty emerging in full, given the nature of the beneficiaries of microcredit initiatives. The reasons are the high variability of income flows (i.e. the small amounts funded) and geo-segmentation (concentration risk).

The granularity (many clients) of the portfolio has both strengths and weakness, among the benefits a greater diversification of the credit risk is a significant point of strength. Additionally a more diversified business base is a good buffer to avoid a higher risk for a single huge financial loan. Among the critical issues we have the erosion of individual loan control caused by the high costs associated with these supervisory activities, a crucial aspect especially during the adverse economic cycle generated by the global crisis of the last few years.

The result are listed within table 9.

The variables regarding the amount and duration of the programs are not significant, even taken together with other features investigated.

Non sono presenti differenze territoriali nel rischio di default dei programmi di microcredito imprenditoriale nel periodo 2003-2013.

The variables indicated as “internal guarantee” and “beneficiary” are statistically significant. This indicates that microcredit programs, not supported by explicit and specific forms of guarantee, were disbursed.

However, in order to reduce the risk of the loans, the borrower may decide to decrease the risk premium of uncollateralised lending through the adoption of appropriate and protective measures. In this case the guarantees take the form of “internal guarantees paid by the promoter”, “sureties paid by the beneficiary” and “moral or network guarantees”.

TABLE 9: ANALYSIS OF GUARANTEES

DEPENDENT VARIABLE: PROBABILITY OF DEFAULT <sup>(1)</sup>			
<i>Explanatory variables</i>	<i>Estimates (<math>\beta</math>)</i>	<i>Robust Standard Error</i>	<i>z-ratio</i>
Logloans	0.288717	0.293642	0.98
Logdurata	0.735105*	0.829769	0.89
North	-5.347962*	1.067089	-5.01
Center	-5.788761*	0.904143	-6.40
South	-5.595133*	1.000006	-5.60
Internal guarantee	-5.482315*	0.536000	-10.23
Religious bodies	-4.718471*	0.875704	-5.39
Private	-5.544597*	0.566713	-9.78
Public	-5.662889*	0.611504	-9.26
Private & Public	-5.923271*	0.875692	-6.76
Beneficiary	-11.11406*	0.559936	-19.85
Constant	5.212696	3.983036	1.31

(1)The dependent variable is a dummy that takes the values 0 or 1 according to the probability of performing or not performing loans \* The values are significant at a confidence level  $\alpha$  of 1%.  $\chi^2_{Wald} = 1376.22$ ,  $p$ -value = 0.0000

### 3.3.2 Analysis of guarantees: discussion on results

The absence of statistical significance about territorial dummies reflect the homogeneous effects of the financial and real crisis, as well as the related impact of financial and social exclusion in Italy. Poverty and material deprivation are widely present in Italy and the magnitude of the coefficient for the North, Center and South (Table 9) constitutes a clear sign, denoting a homogeneous “borrowers” category throughout Italy: i.e. the unbanked).

The important role of guarantees to reduce default risk of entrepreneurial microcredit programs is coherent with the diffusion of microcredit guarantees in Europe, as highlighted by Jayo et al. 2010. According to these authors, contrary to the general idea that microcredit is not backed by collateral, in Europe, about the 41% of microloans are guaranteed. The presence of third parties which raise capital from interested investors in this segment of the credit market and make it available for the microcredit promoters.

About the different investigated guarantees schemes, in the case of internal guarantees, given the small number of loans issued by microcredit, the promoters decided to bear all the credit risk. In our dataset these guarantees are made available mainly by local authorities (88%) and banks (16%). Personal sureties are a prerogative of microcredit initiatives promoted by MAG<sup>9</sup> (Financial Cooperatives). In this case the decision to grant credit is not taken on the basis of the assessment of asset allocations of beneficiaries, but rather on the assessment of the economic viability of the project and of the existence of a fiduciary relationship between the beneficiary and the

<sup>9</sup>The first financial cooperative MAG, started (1978) in Verona. Today the entities connected to MAGs and Verona are 350, operating in different sectors (farming, hospitality, health and social care, fair trade).

lender. In other words, we are dealing with the concept and application of ethical finance used marginally (only 1% of the number of programs launched in 2013 corresponding to a single initiative).

The other two examples of guarantee for the beneficiary were requested by promoters linked to banking (foundations and national banks). With reference to the role of the banks, some studies that take into account Europe, have shown that the presence of a non-competitive banking system is one of the causes of failure of guarantee funds in addition to the weakness of the regulatory environment (Levitsky 1993). The moral or network guarantees indicate that the beneficiaries are members of social networks or organizations likely to take the most diverse forms (local, ethnic communities, centers of various combinations, churches etc.). To be a member of these organizations a kind of internal discipline is required pushing the beneficiary to discharge his obligations, under threat of exclusion from the community (Piersante and Stefani 2013, Provenzano 2012). Piersante and Stefani (2013) have shown that the action of peer monitoring, which constitutes the success factor of group lending, is amplified by the social pressure (“peer pressure”) mitigating the exclusionary processes; more generally speaking, the significance of social control is relevant to the existence of credit unions. The deterioration in the credit quality of the loans (measured by the bad debit ratio on loans) is lower in the lending relationships with shareholders and a positive correlation exists between credit quality and intensity of local participation in cooperative governance<sup>10</sup>.

All other guarantors refer to microcredit programs that have provided for the establishment of internal risk funds to cover unexpected losses on loans.

This guarantee system may occur in three different forms:

#### 1. Risk fund with multiplier $M = 1$ (100% coverage of the financing - no leverage effect).

This fund includes the available resources from the promoters to protect the lenders in the event of non-repayment of the loan (fully or partially) by beneficiaries. In this case the loan is returned wholly to the lender. Thus there is a more than proportionate return of the loan granted in the event of insolvency of the beneficiary, representing a 1 to 1 ratio between the loan and the guarantee by the fund. Thus the multiplier applied to the amount of the fund does not generate the kind of leverage that causes an increase in secured debt. In our database this type of security is present in 19% of micro-credit programs. 100 percent coverage exists in countries such as Canada, Japan, and Luxembourg. A World Bank study from 2008 revealed that among the 76 schemes in 46 developed and developing countries, 40 percent of them offer this option (World Bank 2008). Coverage rate below 50 percent reduces banks’ incentives to participate in the guarantee programme, especially because loan administration costs can be quite high. Some countries with low coverage rates for example Egypt and Thailand, have been able to maintain the attractiveness of their scheme by using other financial incentives in addition to guarantees (Levitsky 1997). According to this author the coverage rates should generally be between 60 and 80 percent. For World Bank (2008), on 76 schemes, the median coverage rate was 80 percent.

#### 2. Risk fund with multiplier $M > 1$ : this type of guarantee is totally absent among the programs monitored. In this case the Credit Guarantee Consortia (Confidi) bear the risk on the financial operation.

These financial operators, as well as local banks (including CCBs) characterized by a strong mutual vocation, are not very competitive in the Italian microcredit market, especially compared to the national banking intermediaries and the private and public authority.

The increased presence of these operators, given their intense relationship with the local areas, would produce a kind of leverage amplification of the amounts guaranteed by the consortia (direct effect) and bank lending (indirect effects), significantly reducing the credit risk of loans issued by microcredit<sup>11</sup>.

#### 3. New “Dedicated” Guarantee Fund with $M > 1$ (Multiplier of the Risk)

This type of guarantee is adopted by 44% of the 57 micro-credit programs for which it was possible to calculate the default rate (i.e. 25 programs) and covers 21% of total volumes delivered (i.e. 10,451,800 thousand euros). For this reason, a higher multiplier was applied to these funds. In other words, this condition is the result of agreements/conventions that the promoters of microcredit grant in order to finance loans amounting to over

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<sup>10</sup> As emphasized by Borgomeo (2013), one single factor should not be applied indiscriminately to all the liability provisions. This observation takes on greater value for Consortia under Article 106 (now Art. 112 of the TUB, introduced by Legislative Decree 141 of 2010) as opposed to the Consortia art. 107 that may have a capital buffer.

<sup>11</sup> As emphasized by Borgomeo (2013), one single factor should not be applied indiscriminately to all the liability provisions. This observation takes on greater value for Consortia under Article 106 (now Art. 112 of the TUB, introduced by Legislative Decree 141 of 2010) as opposed to the Consortia art. 107 that may have a capital buffer.

100% of the Guarantee Fund and why the programs were implemented. Therefore the resources available to the fund will be used exclusively to cover losses on those loans that meet all the requirements before the program of microcredit and never for those losses from lender to the beneficiary. The available data show that this fund has been used to hedge average minor loans of, on average, 550,094 euros. For example in Spain the guarantees supplied are funded with a limited multiplication effect and are used in the ambit of programmes linked to public sector initiatives. The three main programmes are: ICO Microcredit Line (Instituto de Crédito Oficial)<sup>7</sup>, Microcredit Programme for Entrepreneurs and Business Women of the Instituto de la Mujer (Women's Institute), and the Microcredit Programme for Youth of INJUVE (Ministry of Health, Social Services and Equality). For example the ICO Microcredit Line provides for the involvement of four actors: the European Investment Fund, public institutions, local financial intermediaries and three Instituciones de Asistencia Social. More specifically, the ICO issues direct guarantees to the banking system (mainly commercial banks and saving banks) against credit granted to microbusinesses, at the same time activating a counter-guarantee issued by the FEI that carries out the role of a second level counter-guarantor that contributes to the payment of the obligation in the event of default by the microentrepreneur.

#### 4. CONCLUSIONS

In order to promote more wide-ranging development of microcredit, the importance of guarantees schemes (CGSs) to mitigate credit risk (in particular the creation of a Central Guarantee Fund and a Private Guarantee Funds) is considered fundamental to all types of financial institutions at the national and local level. Especially in the microcredit sector whose demand for credit is made up by unbanked subjects, CGSs aim to assist SMEs that are otherwise creditworthy but don't have adequate collateral to obtain a loan at a reasonable interest rate and realize sustainable investments project fundamental to their growth.

This finding is consistent with the empirical analysis on the guarantees. The existence of statically significant and negative correlation among the implementation of a guaranteed microcredit and its default risk denotes that the adopted guarantee schemes have been well designed and managed to achieve full sharing of credit risk between financier, the beneficiary and the guarantor. If this sharing is not done there would be an increase of opportunistic behavior such as adverse selection and moral hazard. The capacity of CGSs to reduce the default risk of entrepreneurial microcredit programs in Italy confirms the ability to create financial and economic additionality. Therefore the self-sustainability is not enough to ensure the success of the guarantee schemes.

Other key factors are the regulation and supervision, the development of a specific designed scoring system for microcredit clients, the increased promotion of auxiliary services for borrowers to support all grants and active involvement of the private sector. The provision of non-financial services such requires greater involvement of private actors to improve the design of CGSS. It is necessary to conduct a study and calibration of the criteria to be used for the assessment of credit risk with the dual objective of not penalizing beneficiaries and at the same time safeguard the stability of the intermediary, avoiding to the latter to take on too much risk. In Europe 76 percent of the schemes use risk management tools, 20 percent purchase some form of loan insurance, 10 percent securitize the loans portfolio and 5 percent use risk management strategies (World Bank 2008). If the guarantees schemes provide individual loans there is a direct relationship between the borrower and the lender. The individual model of guarantees schemes applies when applications are approved by the guarantor even if this method can also be more costly for the fund to manage. In this way more careful risk management and likely reduces the probability of moral hazard even if this method can also be more costly for the fund to manage. On the contrary the portfolio model is characterized by less meticulous screening process, higher default rates and less risk diversification. According to the World Bank, 72 percent of credit guarantee schemes use the selective or individual loan approach, only 14 percent the portfolio model and 9 percent a combination of the loan-level/individual model and portfolio model (World Bank 2008). Porreta et al. (2013) underline that entities that issue guarantees on microloans present scarce ability in correctly monitoring financing operations and not least in evaluating atypical entrepreneurial realities. Their approach is an insurance one for banking intermediaries.

National banks seem oriented towards the implementation of new scoring systems while the CCBs are more focused on the network condition to develop a social model of microcredit.

The initiatives of microcredit facilitate the creation of social capital, because the beneficiaries of these programs are encouraged to take part in regular (weekly) meetings with members of other groups and program staff following a peer monitoring approach. These regular meetings help program members to propose community development projects that are more effective than in contexts where the intervention of microfinance is manifest. In addition, the beneficiaries often receive ancillary services such as training or technical assistance to support the financial initiatives.

A final point. We are also testing the determinants of the microcredit projects default rate, considering the territorial context in which they are used, the characteristics of the loans (in terms of duration and amount) and

those of percipient subjects. This analysis shows, territorially, that the default rates registered no significant differences between the geographical areas of the North, Center and South.

A possible explanation is that these initiatives tend to involve borrowers with relatively homogeneous characteristics, at this stage unrelated to any territorial differences, and therefore future legislation should consider general and codified rules oriented to a more efficient way of making credit available to unbanked people in Italy.

In addition, with more specific data it will be possible to understand better the Italian evolution of microcredit, which already reflects a different characterization in comparison to the European scheme.

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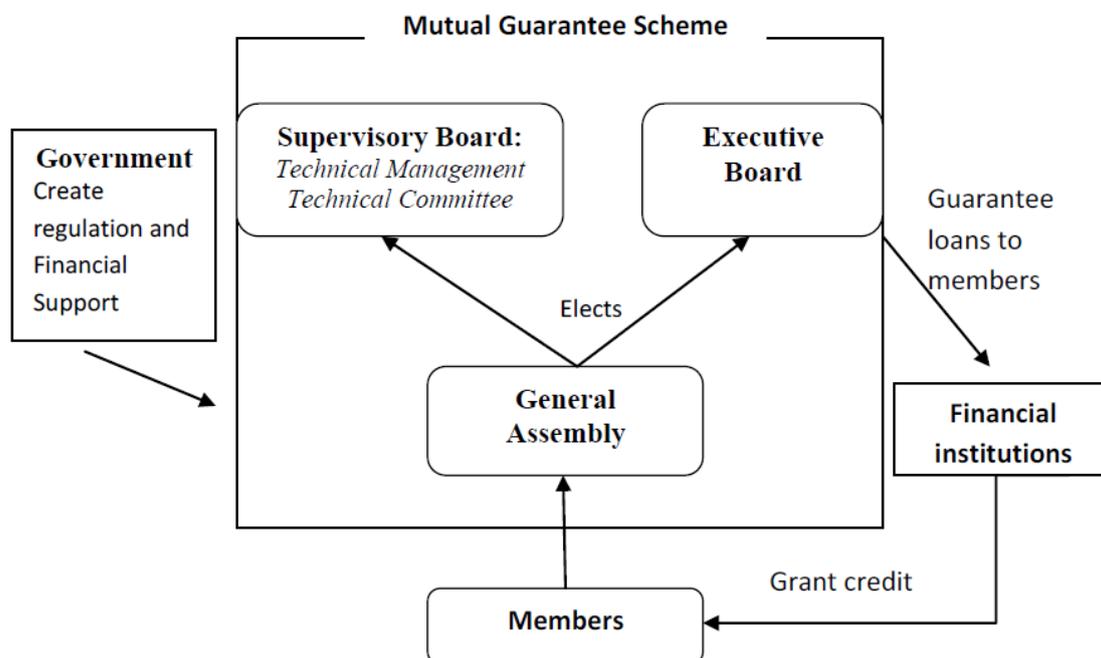
## APPENDIX

Table 1

THE NEW REGULATION OF MICROCREDIT		
Object	Beneficiaries	Operators
<ul style="list-style-type: none"> <li>• amount not exceeding € 25,000</li> <li>• No collateral</li> <li>• Financing of start-up or development of entrepreneurial activities, inclusion in the labor market or remuneration employees or members</li> <li>• Maximum duration 7 years</li> <li>• Quarterly repayment</li> <li>• The same beneficiary may obtain a second loan</li> <li>• auxiliary support services and monitoring of financed subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Autonomous workers</li> <li>• Individual firm</li> <li>• Micro-businesses: individual firm, people's society, simplified Srl, cooperative society</li> </ul>	<ul style="list-style-type: none"> <li>• Microcredit operators: stock company, limited partnership with a share capital, limited liability company, cooperative society</li> <li>• Casse Peota</li> <li>• Mutual funds</li> <li>• Banks and other financial intermediaries</li> <li>• Service providers</li> </ul>

Source: Our elaboration from La Torre (2015)

Figure 1: Structure of a mutual guarantee scheme



Source: Green (2003)

#### Box 1: The Small Business Development Fund (SBDF)

**Slovenia's Small Business Development Fund (SBDF)** was established in 1992 by the Government of Slovenia to promote the establishment and development of small business units. It guarantees both long-term and short-term loans, in collaboration with banks. All forms of support are provided on the basis of a public invitation to lenders to participate in the programme. First, a loan must be accepted by a bank. Then the board of directors, which consists of representatives from banks and government, takes the final decision on which applications to guarantee under the fund. In 1997, 28 banks had signed an agreement to offer guarantees with the SBDF. For long-term loans the SBDF guarantees up to 80 percent of the purchase price of the equipment or plant bought with the loan. The SBDF also has a series of regional guarantee funds (RGF) that operate through Regional Business Centres. RGFs receive funds from both the SBDF and from local resources. At the end of the 1990s, the fund provided a 50 percent guarantee of credit for amounts between USD 6,000 to USD 60,000. Repayment periods span from one to five years and interest rates are generally around 6%. In the late 1990s, RGFs operated with a fund of USD 2 million and the SBDF maintained a fund of USD 23 million. In 1996 and 1997, the SBDF fund benefited from an influx of capital coming in from the privatisation programme following the Privatisation Law of 1995. 9.5 percent of funds coming from these privatisations were allocated to the SBDF.

Source: OECD (2000), "Financing Newly Emerging Private Enterprises in Transition Economies"

#### Box 2: USAID's Loan Portfolio Guarantee Schemes (LPG)

USAID's Loan Portfolio Guarantee Scheme (LPG) does not provide funding to any particular organisation. Instead, it facilitates public-private partnerships. This is done through a series of international bilateral commercial guarantee agreements between USAID's Centre for Growth and privately-owned commercial banks. USAID uses the Development Credit Authority (DCA) to stimulate lending through the use of credit guarantees. DCA was established in late 1999 and now has more than 225 partial credit loan and bond guarantees. The DCA has enabled approximately USD 1.8 billion of private capital to be loaned in over 60 countries. The DCA offers four guarantee products: loan guarantees, loan portfolio guarantees, bond guarantees and portable guarantees, all of which cover up to 50 percent of the default risk. Loan amounts typically range between USD 5 million to USD 10 million, but loan guarantees have been as low as USD 1 million and as high as USD 40 million. USAID also combines technical assistance with the DCA.

Source : [www.usaid.gov](http://www.usaid.gov)

#### Box 3: Confidi

Modern MGSs appeared in Europe in the 1940s and since then they have grown in both size and number. In 2000 MGSs provided guarantees worth over EUR 14 million to more than 2 million SMEs (De Gobbi, 2003). Confidi, the first Italian MGA, was created in the late 1950s. Today it operates over 700 individual MGAs in many different sectors and has over 940,000 SMEs as members (De Gobbi, 2002). Each MGA operated by Confided has on average 2,000 members. The membership structure is based on the principle of equality: each member has one vote regardless of its size. In some cases, Confidi has also benefited from government assistance and money from the EU. However, subsidised credit is only a small proportion of overall lending and has heavy and expensive procedures. Some important characteristics that have made Confidi a success are its: 1) High quality technical management; 2) Focus on risk sharing and strengthening of SMEs.

Source: De Gobbi (2002)