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Do Government Loan Guarantee Instruments Make Sense?

Evaluating Effectiveness of the Tranched Cover Fund

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Abstract

Small and Medium Enterprises (SMEs) have a fundamental role in advanced economies in generating employment and in fostering innovation, but they often struggle with lack of financing resources due to the presence of information asymmetries. Loan Guarantee Instruments are the most adopted schemes to mitigate market imperfections, allowing banks to shift some risk on the guarantor, thus leading to a less restrictive lending behavior.

The overall aim of this thesis is to examine whether the Tranched Cover Fund, a guarantee scheme implemented in an Italian region, is appropriate to the financing needs of local SMEs. The primary objective was to determine the effectiveness of the fund by measuring financial and economic additionality. Moreover, the study provides the first effectiveness prediction model allowing to predict the potential success of the scheme on a firm basis using simple and readily available information about companies. Finally, the study investigates the presence of causal relationships between financial additionality and a number of independent factors to understand whether possible adjustments might lead to higher effectiveness.

Three major findings emerge from the study: first, the Tranched Cover Fund demonstrates to be an effective instrument to increase credit availability to local SMEs; second, the effectiveness of the Fund is predicted through loan characteristics and companies' data, such as the amount, the interest rate, employees, EBITDA, Equity and ROI. Finally, it turns out that the odds of experiencing financial additionality are affected by managers' personal characteristics and firms' characteristics and financials.

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1. Introduction

Small and Medium Enterprises (SMEs) have always played a relevant role in advanced economies as engine of growth and economic development. In Europe, SMEs represent 99% of all firms and account for most of total private sector employment (66,9%), thus playing a fundamental role in European economies (European Commission, 2014).

SMEs contribution to economies is threefold: first, SMEs are sources of continuous innovation, fostering entrepreneurship and export competitiveness and, in turn, industrial growth; second, they are an engine of new jobs creation, thus reducing unemployment and poverty. Third, a high number of SMEs promotes industry's competition and flexibility, ensuring economic dynamism and a faster and less costly recover during economic downturn.

The academic literature discusses that SMEs often face tight financial conditions and have huge difficulties in accessing funds. The presence of *market imperfections*, mainly *asymmetric information*, may generate *adverse selection* and *moral hazard* phenomena, which bring to an inefficient allocation of resources. Hence, banks may be induced to restrict the amount of loans and cause *credit rationing*. This is particularly relevant for SMEs, which are more dependent on banks and on debt financing than larger firms, thus suffering more credit rationing.

These factors justify public intervention and most governments intervened by introducing *loan guarantee programs* to solve market failures and improve SMEs access to finance. These instruments are supposed to increase the lending volume available to SMEs and offer more relaxed terms and conditions to borrowers.

Using a sample of 38 firms funded under the Tranched Cover Fund, a regional guarantee scheme adopted in Italy, this research provides evidence that loan guarantee programs designed and implemented locally make sense by generating additionality in the form of an increased availability of finance or other economic benefits. Moreover, it provides a model to estimate the effectiveness of the fund and investigates possible relationships between the generation of additionality and owners' personal characteristics and firms' characteristics and financials.

The thesis is organized as follows: the next chapter is devoted to the review of the relevant literature, while the third chapter is devoted to the discussion of the research questions, data and methodologies adopted. Chapter 4 presents the results and discuss the main findings, while chapter 5 is left for concluding remarks, limitations and future research suggestions.

2. Literature Review

This chapter is devoted to the review of the academic literature. It begins by highlighting the importance of SMEs in economies and their most pressing problem, which is the lack of financing resources. Then, the rationale for public intervention in the credit market is given and governments' policy response briefly analyzed. To conclude, the last section explains the motivations to undertake this research.

2.1 SMEs Financing Issues: Loan Dependency and Financial Gap

Many economists argue that high rates of economic growth dramatically contribute to economic and social development and the reduction of poverty. SMEs have always played a relevant role in the history of many advanced economies as an engine of growth and economic development, through employment and innovation generation. Hence, SMEs represent the most economical use of capital in relation to job creation and provide the strongest channel for development and innovation (Nooteboom, 1994), (Thurik, 1996).

SMEs rely on bank financing to fund their operations. Cole et al. (1996) found that in 1993 60% of credit extended to U.S. SMEs came from banks. Brewer et al. (1996) argue that smaller firms tend to be more "loan dependent" than larger firms, which instead rely more on equity financing, while Berger and Udell (1998) justify the loan dependency as the unique alternative for SMEs, because issuing additional equity may not be ideal as the owner-entrepreneur will suffer value dilution and loose control over his company.

The economic literature widely recognizes that SMEs are in general confronted with the lack of financing resources (Berger & Udell, 2005), (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2006), (Beck, 2007). Credit supply has always been an important impediment to SMEs' access to finance, thus generating a *"gap"* in the long-term debt markets.

> *"A debt gap exists when the demand for credit exceeds supply and the price of credit does not adjust to equate the two. This may involve borrowers getting less than is justified on economic grounds (Type I rationing), and in some cases (Type II rationing) borrowers getting no money for viable projects."* (Cressy, 1999)

2.2 Rationale for Public Intervention

It's worth noting that a market failure in SMEs financing is a fundamental structural issue due to a series of market, policy and institutional failures (OECD, 2014) that economically justify public intervention in the field of entrepreneurship (European Investment Fund, 2015).

2.2.1 Information Asymmetries, Transaction Costs, and Credit Rationing

Information asymmetries are key factors affecting SMEs ability to access credit, as they are the main reason for a structural hesitancy of banks to provide SME loans. Economically, imperfect information, may arise in three specific situations: when a *"player"* does not know exactly either the physical outcome function of the game, other players' utility functions or other players' set of possible strategies (Harsanyi, 1967).

> *"The entrepreneur has access to better information concerning the operation of the business and has considerable leeway in sharing such information with outsiders."* (OECD, 2006, p. 19)

Therefore, asymmetry occurs because lenders usually have poorer information about the small business and its owner than the borrower (Han, Fraser, & Storey, 2009).

Ex-Ante Information Asymmetries and Adverse Selection

Stiglitz and Weiss (1981, 1983) found that credit markets characterized by imperfect information about borrowers' characteristics may result in contracts that generate *adverse selection* and *incentive effect*. The presence of *ex-ante information asymmetries* implies that financial intermediaries are not able to carry out a proper valuation of clients' creditworthiness and to distinguish good from bad borrowers. Hence, banks increase the pricing of the loan to protect themselves from the new and unmeasurable risk, leading to *adverse selection*.

In spite of the increased pricing of the loan, only high risk individuals will apply for a loan with a higher interest rate, while low risk borrowers will drop out of the market (Akerlof, 1970). *"As the interest rate rises, the average riskiness of those who borrow increases, possibly lowering bank's profits"* (Stiglitz & Weiss, 1981, p. 393). The dramatic consequence of adverse selection is not only that good borrowers are driven out of the market, but the entire market existence is undermined. *"The presence of people in the market who are willing to offer inferior goods tends to drive the market out of existence"* (Akerlof, 1970, p. 495).

Transaction Costs

Considering the existence of an information gap between lenders and small-scale borrowers, banks are required to design, implement and manage a specific and expensive system to carry out a proper creditworthiness assessment of borrowers (Stiglitz, 1975). Intuitively, banks would be able to recognize good from bad borrowers and offer them different contracts on

the basis of their actual probability of default. Hence, ex-ante information asymmetries are reduced and resource allocation would be more efficient.

However, the new screening procedure generates higher *transaction costs*, which banks directly translate in a higher pricing of the loan. Considering that the impact of such costs is decreasing with firm size, it could be easily generalized that the smaller the firm, the bigger the information asymmetries and the higher the incidence of transaction costs (Pelly & Kraemer-Eis, 2012).

Ex-Post Information Asymmetries and Moral Hazard

Finally, the higher pricing of the loan, rewarding both the higher risk and the screening procedure cost, might lead to *ex post information asymmetries* and to the relative *moral hazard*, which is a typical agency problem that occurs when the agent (borrowers) and the principal (the lender) have divergent interests and the agent takes actions and decisions that adversely affect the principal's return (Arrow, 1985). To avoid moral hazard, banks tend to invest more money in the monitoring process leading to a lower profitability or to an increased pricing of the loan. Confirming the hypothesis of moral hazard, Cowling and Mitchell (2003, p. 70) found that *"when banks increase their borrowing costs default increases and survival times shorten."*

The Consequences of Information Asymmetries: Credit Rationing

Stiglitz and Weiss (1981) argue that banks prefer to reduce the amount of credit offered instead of rising the pricing of the loan, therefore avoiding adverse selection and moral hazard but leading to a *credit rationing* problem. As a result, many clients would be willing to bear a higher pricing of the loan, but their demand remains unfulfilled.

> *"Potential borrowers who are denied loans would not be able to borrow even if they indicated a willingness to pay more than the market interest rate"*, as *"increasing interest rates could increase the riskiness of the bank's loan portfolio"*, thus this instrument won't *"necessarily be used to equate the supply of loanable funds with the demand for loanable funds."* (Stiglitz & Weiss, 1981, p. 408)

The credit rationing will affect SMEs more than larger firms as they have lower information standards, due to the lack of legal reporting requirements, and are exposed to a grater risk variability than larger firms (Panetta, 2012). This confirms that banks have little incentive to invest in such systems and in long-lasting relationships with SMEs. As a result, information asymmetries are not going to be easy to overcome.

2.2.2 A Solution to Credit Rationing: A Self-Selection Mechanism

In alternative to credit rationing, banks can react by designing contracts' terms and conditions that induce borrowers to take actions in line with their own interests (Stiglitz & Weiss, 1981). Harris and Townsend (1981) discuss that credit contracts, in order to work properly, shall be designed to avoid borrowers to be induced to misrepresent his own type.

> *"This means that high-risk borrowers must pay higher interest rates than low-risk borrowers and must, therefore, be deterred from choosing the contract designed for low-risk types" (Besanko & Thakor, 1987, p. 677).*

However, banks are not able to distinguish between different borrowers and to provide them with different contracts, unless the contract itself acts as a self-selection mechanism (Bester, 1987).

The Role of Collateral

Bester (1985, 1987) discusses the important role of collaterals as *sorting* and *incentive* devices in response to *adverse selection* and *moral hazard* phenomenon in a setting of imperfect information

> *"The collateral chosen by the borrower provides a signal to the lender of the borrower's information, and, in a rational expectations equilibrium, the signal can be fully revealing" (Chan & Kanatas, 1985, p. 93-94).*

Besanko and Thakor (1987) discuss that safer borrowers are more likely to pledge collaterals and secure their loans than high risk borrowers. Moreover, Bester (1987) found that *"Investors with low probability of default will reveal themselves by accepting collateral requirements which would be unattractive for high risk"* (Bester, 1987, p. 887). Furthermore, high risk borrowers are more likely to accept contracts with lower collateral requirements but a higher interest rate, because the probability of paying it is low and they are more likely to lose the collateral (Bester, 1987).

"Collateral in this case sorts effectively because it is more onerous to high-risk borrowers than to low-risk borrowers" (Besanko & Thakor, 1987, p. 677). Even in case of moral hazard, *"collateral requirements serve as an incentive mechanism because a higher collateral enforces a selection of less risky projects*" (Bester, 1987, p. 887).

Therefore, banks may use different contracts as a self-selection mechanism and reduce credit rationing. Bester (1987) argues that there won't be any form of credit rationing in equilibrium if an increase in collaterals can be used to improve borrowers' sorting or to induce investments in safer projects. Rationing occurs when borrowers have limited wealth to be

used as collateral, thus restricting lenders' ability to design terms and conditions acting as self-selection mechanism. Hence, the policy of demanding collaterals applied by many lenders may turn out to be dangerous for small business that have viable projects but limited collaterals to offer, therefore being credit rationed.

2.3 Government Policy Response: Loan Guarantee Programs

Over the past twenty years, public authorities around the world developed a comprehensive range of financial policies and instruments to support SMEs with the most appropriate sources and types of financing at each stage of their life. Governments have often intervened by introducing *loan guarantee programs* with the objective of increasing credit availability to SMEs by inducing "*lenders to extend loans to individuals and firms they would otherwise not accept as loan clients."* (Vogel & Adams, 1997, p. 1)

2.3.1 Nature and Common Features of SME Loan Guarantee Programs

A loan guarantee program plays the role of a *counteracting institution*, i.e. an institution that counteracts the effects of quality uncertainty.

> *"One obvious institution is guarantees. Most consumer durables carry guarantees to ensure the buyer of some normal expected quality. One natural result of our model is that the risk is borne by the seller rather than by the buyer."* (Akerlof, 1970, p. 499)

As in the case of durable goods,

> *"Loan guarantee schemes attempt to overcome these imperfections by allowing lenders to shift some loan recovery risk to the guarantee program -- risks not covered by collateral furnished by small and new borrowers."* (Vogel & Adams, 1997, p. 1)

Honohan (2008) argues that guarantee schemes are a solution to market failures in three ways:

1. Reduction of Information Asymmetries: banks effectively overcome information asymmetries through a more accurate identification of borrowers' creditworthiness and risk, thus improving their lending behavior.
2. Reduction of Small-Scale Lending Costs;
3. Reduction of Collateral Requirements.

The last two effects are consequences of the *risk-sharing* mechanism underlying such guarantee instruments: the risk born by lenders is actually lower as the guarantor covers part

of firms' default risk, therefore ensuring secure repayment of all or part of the loan in default situations.

2.3.2 Measuring the Success of Government Loan Guarantee

The literature widely recognizes the importance of loan guarantee programs as a facilitator between lenders and SMEs and as a third-party risk-sharing intermediary. Cowling and Mitchell (2003, p. 63) argues that loan guarantee schemes are *"an integral part of SME policy in both developed and developing countries",* but, "*little has been done to evaluate such programs*". The key question is whether or not such schemes are able to solve SMEs financing problems and if these schemes are effective.

The success of these schemes is measured by the concept of *additionality*. On the one hand, *Financial Additionality* is the amount of new finance facilitated through the program otherwise not available to borrowers.

> *"The success of these programs hinges on the extent to which guarantees cause additional lending to targeted groups, additional meaning more lending than would have occurred without the guarantee."* (Vogel & Adams, 1997, p. 10)

On the other hand, *Economic Additionality* refers to the improvements in the overall economy due to the increased access to finance for SMEs. Examples of these benefits may be increase in business turnover or in the number of employees, accessing a new market, introduce a new product, and so on. Although the concept of financial additionality is of greater attention for public administration, assessing the level of economic additionality is an integral part of the evaluation as it increases the overall welfare in the economy.

> *"Economic additionality (strengthening businesses, increasing profit and sales, employment, export, and so on) may be considered by most designers of guarantees as a more important objective than financial additionality."* (Levitsky, 1997)

Evidence of Additionality of Loan Guarantee Schemes

Several scholars found evidence of the generation of additionality due to the presence of loan guarantee schemes. Cowling and Mitchell (2003) found evidence of an expansion of SMEs lending volume due to the Small Firms Loan Guarantee Scheme, designed and implemented in the U.K. Boocock and Sharrif (2005), evaluating the performance of a Malaysian scheme, estimated a 37% of additionality, while Riding, Madill and Haines (2007) found a much more convincing additionality measure of 75% in Canada.

Many other scholars and professionals found evidence of different forms of additionality, such as increase in economic activity, employment, exports and so on. Riding and Haines (2001) found that the scheme brought to increases in employment and in tax revenues from the business and its employees, while Bradshaw (2002) discusses that such schemes may also foster exports of goods and services. Moreover, Riding et al. (2007) argue that banks may also profit from a relationship with SMEs, as the borrower may even use the bank for personal banking services, therefore providing for a new source of revenues for banks in addition to the guaranteed loan.

2.4 Motivations for this research

As seen above, the literature has not yet agreed whether or not loan guarantee instruments produce beneficial effects. The most common conclusion is that more studies and researches are needed in order to better understand how to design and manage loan guarantee schemes.

> *"It is impossible to arrive at definitive conclusions about the effectiveness of loan guarantee programs until more careful and comprehensive evaluations are done."* (Vogel & Adams, 1997, p. 14)

The aim of this thesis is to find further evidence that loan guarantee programs help SMEs in increasing credit availability to SMEs. This thesis complements the existing academic literature by further analyzing the generation of financial and economic additionality under SME loan guarantee programs.

However, the approach adopted in this work brings some novelty to the existing academic knowledge. In fact, the entire work contributes also to understand whether a *local guarantee scheme,* i.e. a guarantee mechanism set up and managed at a regional level as opposed to a broader level, makes sense. The underlying hypothesis is that local public authorities are more aware than central government of the idiosyncratic conditions that local SMEs face in the everyday context, hence are better able to design instruments that specifically fit their needs. In this sense, this work looks for evidence of the beneficial effects of guarantee programs in a regional setting, while the entire academic literature has focused on country-level schemes.

As far as was researched, the academic literature has not yet produced specific models to predict the effectiveness of a guarantee scheme on a firm basis and has never discussed the factors underlying a higher generation of financial additionality. This study aims at filling this important gap by providing two models: the first one allows to predict the success of a guarantee scheme with simple and readily available information about the companies and, in

turn, distinguish between the financial and economic additionality components, while the second model explains the key determinants of financial additionality maximization.

In conclusion, this research differs from other studies because it does not only provide an evaluation of the performance of a regional guarantee scheme, but it also provides a clear methodology for the evaluation of the results and to understand the main *levers* available to correct the performance of the fund.

3. Research Questions and Methodology

This chapter is devoted to fully explain the research design adopted in this work, in particular describing the Tranched Cover Fund, the program adopted by Regione Puglia to increase credit availability to SMEs. This is also the chapter where the methodology is outlined and the hypotheses are developed.

3.1 The Tranched Cover Fund

The European Commission adopted in 2006 Reg. 1083/2006 that lays down common provisions on the employment of the European Structural and Investment Funds (ESIF). The regulation introduces the possibility for local managing authorities to use structural funds for *financial engineering instruments*, primarily designed for SMEs, such as venture capital funds, guarantee funds and loan funds. Under this legal framework, Regione Puglia, one of most advanced regional economies in Italy, adopted the Tranched Cover Fund with DGR (Regional Law) n. 2819/2011, being one of the first regions in Italy to adopt guarantee schemes on a regional basis.

The Tranched Cover Fund acts as a guarantee instrument by covering the first losses of a segmented bank portfolio of loans. The necessary condition on lenders' side is to have a tranched (or segmented) portfolio of SMEs loans with at least two different classes of risk: junior and senior. The managing authority (Puglia Sviluppo S.p.A.) guarantees 80% of the Junior Tranche through a cash collateral, while financial intermediaries (commercial banks) bear the full risk of the senior tranche. The portfolio may also have a mezzanine tranche that can be guaranteed by Mutual Guarantee Fund ("Confidi") (Sistema Puglia, 2015).

As discussed by D'Auria (2011), tranched cover structures are considered as a securitization operation for the purposes of prudential discipline (Basel). The key advantage to financial intermediaries is to achieve transfer of credit risk, which, in turn, originates regulatory capital relief. Such capital relief arises from the reduction in risk-weighted assets and is proportionate to the weighting of loans comprising the underlying pool of each transaction. By allowing banks to achieve regulatory relief on their SME lending portfolio, banks can effectively lend without committing too much of their capital base, and, as a result, the lending activity is boosted and indirect capital market funding of SMEs promoted.

3.2 Objectives of the Research

Many governments around the world designed guarantee schemes to foster entrepreneurship. One of the biggest problems, especially for public administration, is the lack of a proper

framework to carry out a profound analysis of the real benefits generated by guarantee schemes. In addition, these schemes usually use public resources in a "rotating fashion" and, as such, require the most effective and efficient use.

Therefore, the interest of the public administration is not only in understanding how much additionality was created but also the mechanism available to increase it in order to use public resources at the best. In particular, understanding the key determinants of additionality is pivotal to design economic policies that fit more the specific needs of local enterprises.

The research has three broad objectives:

- Measure the additionality generated by the Tranched Cover Fund;
- Develop a statistical model to predict the effectiveness of the fund;
- Ascertain the presence of some causal relationships between the generation of financial additionality and owners' or firms' characteristics.

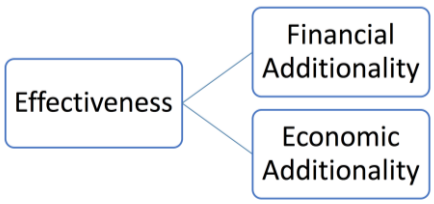
3.3 The Model

In order to accomplish these goals, the researcher developed a model for a straightforward comprehension of the analysis. As seen, the success of guarantee scheme is function of:

- *financial additionality:* the amount of finance that would have not been available from commercial sources;
- *economic additionality:* measures economic benefits different from financial, such as the impact on revenues, profit, employees and so on.

In this study, *effectiveness* is a measure of the performance of the guarantee scheme as function of financial and economic additionality. Figure 3.1 shows a schematic diagram of effectiveness.

Figure 3.1 Schematic Diagram of Effectiveness



Following suggestions of the existing academic knowledge, the researcher formulated two theoretical frameworks that allowed to generate hypotheses governing relationships between the chosen variables.

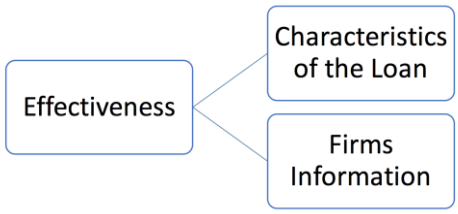
The first theoretical framework is related to the effectiveness of the Tranched Cover Fund. The model wants to predict the effectiveness (success) of the fund on a given firm based on simple and readily available information about the firm.

Two groups of independent predictors are studied:

1. **Characteristics of the loan**;
2. **Firms Information**.

The schematic diagram of this theoretical framework is shown in Figure 3.2.

Figure 3.2 Diagram of Effectiveness Framework



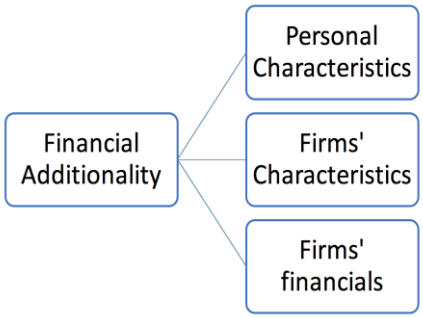
This first framework is a useful instrument for the public administration to predict the level of effectiveness of the fund on a firm even before it takes up the loan. However, it is in the best interest of the public administration to understand also the mechanisms available to increase the effectiveness of the fund. As mentioned before, two *levers* are available to increase effectiveness: financial and economic additionality. Improving the generation of one or both the levers will, in turn, lead to an improved effectiveness.

Therefore, the second theoretical model studies the financial additionality and possible factors affecting its maximization. The underlying assumption is that firms experiencing financial additionality have some features in common. Therefore, the aim of this model is to analyze the relationship between financial additionality and a set of factors related to the following areas:

1. **Personal Characteristics of the Owner/Manager;**
2. **Firms' Characteristics;**
3. **Firms' Financials.**

The schematic diagram of this theoretical framework is shown in Figure 3.3.

Figure 3.3 Diagram of Financial Additionality Framework



3.4 Research Questions and Hypotheses

The model described above allowed the researcher to formulate three research questions and the relative hypotheses:

RQ1. Is The Tranched Cover Fund an Effective Instrument?

H1. The Tranched Cover Fund generates Financial Additionality, i.e. additional finances that companies would have not been able to obtain from other commercial sources.

H2. The Tranched Cover Fund generates Economic Additionality, which represents benefits other than financial.

RQ2. Is it possible to predict the effectiveness of the fund on a loan?

H3. It is possible to predict the effectiveness of the fund through loan characteristics.

H4. It is possible to predict the effectiveness of the fund through readily available information about the firm.

RQ3. Is it possible to predict financial additionality? What factors affect its maximization?

H5. The generation of financial additionality is affected by personal characteristics of the owner/manager.

H6. The generation of financial additionality is affected by firms' characteristics.

H7. The generation of financial additionality is affected by firms' financials.

While the first research question and the two inherent hypotheses will be mainly addressed in a descriptive fashion, the other research questions will be investigated with the adoption of statistical techniques.

3.5 Methodology

The next step is to design a research methodology that represents the best way to collect data in order to test the proposed hypotheses. The research methodology adopted in this study relies on primary and secondary data. Primary data have been gathered accessing the database of the participant firms at PugliaSviluppo S.p.A. and through a questionnaire sent out to participants, while secondary data are public information about the companies.

The researcher, following an internship at Puglia Sviluppo S.p.A., accessed the database of companies financed under the programme, which contains relevant information related to each loan, such as the amount, the interest rate, duration, purpose etc. At the time of this study a total of 394 companies participated in the program between January 2014 and June 2015.

Considering the magnitude of the phenomenon under observation, the information on the companies and on the loans provided by the database was not enough to deeply evaluate additionality. In particular, the main difficulty in carrying out this analysis is to understand what the lender would have done in absence of the instrument, which, according to Vogel and Adams (1997), can be only addressed by surveying either lenders or borrowers. Therefore, the researcher decided to design an online questionnaire to collect the required information regarding the participants. The questionnaire assessed several areas such as personal characteristics of the owner/manager, whether the company would have received an alternative loan, the economic benefit experienced and reasons for application to this type of loans[1].

The questionnaire was created through Qualtrics.com, and it was sent out to 250 companies through a certified e-mail address of the managing authority containing a link to the online questionnaire. The survey had a response rate of 26,8% with a total of 67 responses, of which 56 complete answers.

Finally, balance sheet data and other general information, such as sector, number of employees etc., have been obtained from AIDA, a Bureau Van Djik database to access information about all Italian companies. Public information was not available for 18 companies, thus the final sample of the study is made of 38 companies.

[1] See Figure 7.5 in Appendix for the copy of the questionnaire

3.5.1 Dependent Variables

This section explains the dependent variables adopted in this study. The first theoretical framework attempts to predict the level of effectiveness based on simple information about the loan and the firm. However, to carry out this analysis, a reliable measure of the effectiveness is needed. Effectiveness is function of financial and economic additionality generated.

Therefore,

$$Effectiveness = W_1 * Financial\ Add.Index + W_2 * Economic\ Add.Index$$

where

W_1, W_2 are the weights assigned to each factor

$Financial\ Add.Index$ is a measure of the financial additionality of the loan

$Economic\ Add.Index$ is a measure of the economic additionality of the loan

In this study, the researcher decided to adopt $W_1 = 0{,}75\ and\ W_2 = 0{,}25$ because the main aim of the instrument is to increase the availability of credit to SMEs. Although the benefits related to economic additionality may be even greater than those produced by financial additionality, the effectiveness of the Tranched Cover Fund should be analyzed mainly in its ability to generate finance otherwise not available. The resulting variable assesses effectiveness in percentage, therefore a company will be 100% effective if it is fully additional and has experienced all the economic benefits under observation.

The next step is to define how we obtained a measure of financial and economic additionality. The study measures financial additionality through the questionnaire, which asked respondents two questions: whether or not the firm would have obtained a loan elsewhere and the amount of alternative finance available. Therefore, a loan would be considered additional in two cases:

- *Pure FA*: the firm would have not been able to raise finance elsewhere, thus it had no alternative financing sources;
- *Partial FA*: the firm would have been able to raise finance elsewhere, but for a lower amount than the loan obtained through the fund.

On the basis of this classification, two variables are obtained:

- Pure Additionality: a dummy variable that takes value 1 in case of Pure FA

- $Financial\ Additionality\ Index\ (\%) = \frac{Loan\ Amount - Alternative\ Finance\ Available}{Loan\ Amount}$

While the first variable only says whether or not a company experienced Pure Additionality, the second variable takes value 1 only in case of Pure Additionality, otherwise the higher the amount of alternative finance, the lower the Financial Additionality Index.

Economic Additionality, instead, is assessed on the basis of firms' answers to ten items, which asked whether the company experienced several benefits as a consequence of the participation to the fund. Ten variables were assessed as binary variables, taking value 1 if the effect is present, 0 otherwise.

The magnitude of economic additionality is evaluated as the sum of the benefits experienced by the firm divided by the total number of items, in this case 10. Therefore:

$$Economic\ Additionality\ Index\ (\%) = \frac{Effect\ 1 + Effect\ 2 + \cdots + Effect\ 10}{10}$$

Therefore, the Economic Additionality Index will take value 1 if a company experienced all the ten effects assessed in the questionnaire, otherwise will take a value between 0 and 1.

Table 7.15 in Appendix describes the ten items employed to measure economic additionality and the list of independent variables used as predictors in this study.

3.5.2 Statistical Analysis

This section explains the statistical methodologies adopted to test the hypotheses. The first two theoretical models want to predict respectively the amount of effectiveness and whether or not a loan would be additional. Therefore, the researcher relied on two regressions to test these hypotheses.

In the first case, effectiveness is measured by an interval ratio variable and the set of independent factors are continuous, nominal and ordinal variables. Therefore, this analysis is carried out employing a Multiple Regression Analysis. In the second case, instead, the variable additionality is a binary variable and is tested with continuous, nominal and ordinal independent factors, thus a Binary Logistic Regression represented the best alternative for this analysis.

4. Results and Discussion

This chapter presents the main findings of the study. The objectives of this research is a full evaluation of the effectiveness of the Tranched Cover Fund and this will be achieved by both descriptive statistics and statistical analysis. The quantitative analyses employ all the 38 cases but not all the variables obtained through the survey because some data are irrelevant to the analysis while other had missing information.

The chapter proceeds as follows: the evaluation of effectiveness and the two components, financial and economic additionality, is carried out by using descriptive analysis and is reported in the first section; in the following section, the results of the effectiveness and additionality prediction models are reported, while a discussion on the results obtained follows in the final section.

4.1 Financial and Economic Additionality

This section answers the first research question *"Is the Tranched Cover an Effective Instrument?"*. Two hypotheses were developed to address such question:

H1. The Tranched Cover Fund generates Financial Additionality, i.e. finance that companies would have not been able to obtain from other commercial sources.

H2. The Tranched Cover Fund generates Economic Additionality, which represents benefits other than financial

4.1.1 Financial Additionality

The first step is to measure the level of financial additionality experienced by participant companies. As seen in previous chapters, a company experiences financial additionality whenever it would have not been able to take up a loan in the market.

The total amount of finance lent under the Tranched Cover Fund to all companies in the sample is 8.759.514 €, of which 2.764.100 € were available through traditional sources of finance, hence this amount would have been available to SMEs even in absence of the guarantee instrument, while 5.995.414 € (68.44%) were not available in the market unless the loan was guaranteed by the Tranched Cover, thus resulted in additional finance. Put it differently, for 1€ lent under the Tranched Cover Fund 0,68 €/cent were additional, i.e. not available among commercial sources.

Another way to measure financial additionality is in terms of the number of firms experiencing financial additionality. In this case, 27 out of 38 companies declared that they

would have not been able to raise the same amount of finance. Therefore, 71,1% of the companies were either Pure or Partial additional[2] and the 77,8% of them experienced Pure Additionality. This is an important point to notice meaning that most of additional companies experienced Pure Additionality, thus they basically had not alternatives in terms of business financing.

In conclusion, 11 out of 38 firms experienced zero additionality, while the remaining 27 companies experienced *partial* or *pure additionality*. In order to understand these measures, we take into account results and suggestions obtained in other studies.

In particular, the studies conducted by NERA (1990) and (National Economic Research Associates (NERA), 1990) (1992) on the British Loan Guarantee Schemes measured financial additionality of 48% and 68% respectively. Boocock and Mohd Sheriff (1996) measured levels of financial additionality near 63%, but taking into account alternative finance from non-financial institutions the rate fell below 50%. More recently, Boocock and Sheriff (2005), analyzing the NPGS scheme, estimated a 37% additionality for Malaysian companies.

Levitsky (1997) and Bannock and Partners (1997) suggest that "*not less than 60 percent of the loan should be additional preferably nearer 80 or even 90 percent. If additionality is below these targets, then appropriate action should be taken".* Considering the two estimations obtained above, financial additionality for this sample ranges between 68,44% and 71,1%, which, according to existing literature, is a really good result for the Tranched Cover Fund. Therefore, hypothesis *H1* is substantiated.

However, we should acknowledge the big difference between this study and those cited above. In fact, while the latters measure financial additionality on nation-wide programs (UK, US and so on), this study analyses the effects generated by a regional program. Being this study the first attempt to analyze a regional small-scale program, we do not have any similar measurements to compare results with. Although this fact, the results obtained in this first section are quite clear: the Tranched Cover Fund works quite well when compared to other guarantee schemes studied above. It is even possible to infer that regional programs might generate higher financial additionality than their national counterparts, the underlying assumptions being that local public administrations know better the idiosyncratic economic condition and the specific needs of local companies, and therefore design more tailored

[2] See Table 7.1 in Appendix

programs. It should be noticed that the results obtained in this study are slightly higher than those presented in other studies and this may also be due to other factors, such as the smaller dimension of companies under observation, a more restrictive lending behavior of Italian banks as a consequence of financial crisis and the following deleveraging process or even the fact that these companies have less financing alternatives.

4.1.2 Economic Additionality

This section is devoted to measure economic additionality in practical terms. As anticipated in the previous chapter, the questionnaire assessed the economic impact of the fund on the basis of ten items.

First of all, it is important to notice the level of economic additionality generated by companies, which is on average 51,84%, with a minimum of 10% and a maximum of 90%. This insight means that on average participating companies experience 5 out of 10 economic benefits measured through the survey.

In particular, 63,2% of companies experienced an increase in turnover, of which 31,6% of a moderate 1 to 5%, while 26,6% of them experienced a strong 6 to 10% increase in turnover thanks to the instrument. However, it should be acknowledged that a vast part of companies (36,8 %) also experienced no difference in turnover due to the instrument. Moreover, only a modest minority of companies (21,1%) perceived no difference in profits, while 63,2% experienced a growth in profits of 1 to 5%, and another 13,2% of companies between 6 and 10%. The third item assesses the increase in EBIT due to the loan. In this case also, a vast majority of companies (68,4%) experienced growth in EBIT following the take up of the loan. Table 7.2, 7.3 and 7.4 in Appendix report the relative frequencies.

As regards credit access[3], 68,4% of companies in the sample experienced an increase in the availability of credit following the participation to the program. This last point maybe explained by the fact that companies, after having received a loan under the Tranched Cover Fund, create a track history of repayments or a long-lasting relationship with the bank that increase the trust of a firm. As a consequence of the loan obtained under the fund, a company may be able to take up a new loan.

The next point is to analyze the impact in terms of employment. Table 7.6 shows that a modest 39,5 % of companies experienced an increase in the number of employees thanks to instrument, while the remaining 60,5 % experienced no difference. Although this data may

[3] See Table 7.5 in Appendix

seem low, we should remember that the instrument acts as a guarantee instrument and the generation of jobs, even though highly desired, is only an indirect effect. Therefore, the generation of jobs following the take up of a loan under the Fund is not an obvious implication, thus this data should be considered as an incredibly positive result.

As regards the impact of the loan on the remaining items[4], the loan has a limited impact on opening up the doors of a new market, generating a new technology or increase export activity, with a modest 28,8%, 23,7% and 15,8% of the sample experiencing the three benefits respectively. On the other side, companies found the loan particularly effective to introduce new products or service and to design new processes to increase business' efficiency. In fact, 55,3% of companies were able to introduce a new product thanks to the loan, while 76,3% of firms designed new processes.

In conclusion, the Tranched Cover Fund has demonstrated to have a relevant impact in terms of business growth in terms of turnover, profits, employees and in the ability to introduce new products, services or business processes. Therefore, hypothesis *H2* is substantiated.

4.2 Effectiveness Prediction Model

This model tries to answer to the second research question: *Is It Possible to Predict the effectiveness of the Fund on a loan?* In fact, the first theoretical framework wants to predict effectiveness through some simple and readily available information about the companies.
Two hypothesis have been developed for this test:

H3.It is possible to predict the effectiveness of the fund through loan characteristics;

H4.It is possible to predict the effectiveness of the fund through readily available information about the firm.

In order to test these hypotheses a linear regression was run in SPSS with *effectiveness* as dependent variable. Firms in the sample score an average effectiveness of 58,01%, with a maximum value of 97,5% and a minimum of 5%. A number of independent factors were tested with effectiveness. In particular, the following factors were tested:

- Loan Amount
- Interest Rate
- Previous Loan
- Rating

Loan

Firm's Information

[4] See Table 7.7, 7.8, 7.9, 7.10 and 7.11 in Appen

- Number of Employees
- EBITDA
- Equity
- Return on Investment

A multiple regression was run to predict *effectiveness* from these independent variables. The assumptions of linearity, independence of errors, homoscedasticity, unusual points and normality of residuals were met. The variables analyzed statistically predicted the level of effectiveness, $F\ (8,29) = 3,632$ and $p < 0,01$, thus the regression model is a good fit of the data. The model shows a high level of prediction, as shown by R = 0,707, and independent variables explain a good proportion of *effectiveness* variance, as shown by $R^2 = 0,50$, which is also indicative of a large effect size, according to Cohen's (1988) classification. The results of the linear regression are reported in Table 4.1 and 4.2.

Table 4.1 Model Significance

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.707[a]	.501	.363	.296599829	2.501

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.556	8	.320	3.632	.005[b]
	Residual	2.551	29	.088		
	Total	5.108	37			

As regards independent variables, 6 out of 8 factors were statistically significant at p < 0,05 level. In particular, the amount of the loan and the interest rate are positively related to *effectiveness,* while the rating of the companies and the fact of having already taken a loan were not found to be significant. As regards, instead, firms' information all the four variables were significant. In particular, effectiveness turns out to be negatively related to the number of employees, the equity and the ROI of companies, while it is positively related to the EBITDA.

Table 4.2 Estimated Coefficients of Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.155	1.014		-2.124	.042		
	LOAN AMOUNT	.237	.085	.485	2.790	.009	.569	1.757
	INTEREST RATE	18.080	6.350	.470	2.847	.008	.633	1.581
	OLD LOAN	.252	.140	.302	1.800	.082	.611	1.637
	RATING	.141	.075	.281	1.884	.070	.774	1.292
	EMPLOYEES	-.010	.003	-.538	-3.226	.003	.620	1.612
	EBITDA	.069	.025	.564	2.809	.009	.428	2.338
	EQUITY	-.137	.059	-.566	-2.340	.026	.295	3.394
	ROI	-.022	.007	-.529	-3.308	.003	.673	1.487

Therefore, the hypotheses developed were tested and hold true, but two variables Rating and Old Loan have not been found to be statistically significant at $p < 0,05$, however, they turn out to be statistically significant at $p < 0,1$.

In practical terms, this means that the higher the amount of the loan and the interest rate and the higher the effectiveness of the Fund will be. At the same time, smaller and less capitalized companies tend to presents greater levels of effectiveness, as well as less profitable companies.

Therefore, the equation that predicts the effectiveness score of a firm is the following:

$$Effectiveness = -2,155 + 0,237 * Loan\ Amount + 18,08 * Interest\ Rate - 0,01 * Employees + 0,069 * EBITDA - 0,137 * Equity - 0,022 * ROI$$

Once predicted the effectiveness of a firm, the model allows also to obtain the prediction for Financial Additionality Index and Economic Additionality Index. As seen, Effectiveness is the weighted average of the two indexes. Mathematically,

$$Effectiveness = W_1 * Financial\ Add.Index + W_2 * Economic\ Add.Index$$

Therefore, by isolating the two factors, the following inverse equations are obtained:

$$Financial\ Add.Index = \frac{W_2 * Economic\ Additionality\ Index - Effectiveness}{W_1}$$

$$Economic\ Add.Index = \frac{W_1 * Financial\ Additionality\ Index - Effectiveness}{W_2}$$

On the basis of the analysis made, the researcher provides a classification of companies' effectiveness scores. Figure 7.1 in Appendix helps the user of the model to understand how much benefits a company generates and it is based on the three measures used above: *effectiveness, financial additionality index* and *economic additionality index*. The green area of the table represents categories experiencing a higher level of effectiveness.

Three broad groups of companies can be recognized. The first one is made of firms experiencing a really low level of effectiveness (< 30%) mainly due to the absence or low level of financial additionality. Companies in this group may even experience a good to high

level of Economic Additionality, but they are not likely to experience Financial Additionality.

Therefore, the number of these companies in the Fund should be minimized in order to achieve superior performances.

The second group, instead, is made of companies experiencing a medium level of effectiveness ranging between 30% and 50%. This group is made of companies experiencing low levels of financial additionality and good to high levels of economic additionality. Considering that the main aim of the instrument is to increase financial additionality, companies in these group should be funded only if they generate really high levels of economic additionality that may justify a lower level of financial additionality.

The third group is made of companies experiencing a medium to high level of effectiveness, ranging between 50% and 100%. Companies in this group show a high level of financial additionality that ranges between 60% and 100%, while economic additionality may be either high or low. Obviously, this is the group of companies that should be encouraged because they experience at least an acceptable level of financial additionality. However, financing companies in the bottom side of the Table would mean to increase the overall performances of the fund.

Finally, the researcher designed an excel sheet to provide the user of the model the easiest way to understand results. In particular, by only inserting the variables of the equation estimated above, the excel model provides immediately a prediction of effectiveness in percentage for a company with those characteristics and the range of financial and economic additionality generated. Based on this information, a graphic animation clearly suggests the convenience to finance that company or not. Figure 5.2, 5.3 and 5.4 in Appendix show the graphic interface of the excel model designed and report three examples.

This model has several practical advantages for the public administration:

- The possibility to know ex-ante the level of effectiveness that a loan would generate; in this case, the model may act as a screening device to recognize and finance only companies with high potential to generate financial and economic additionality.
- The possibility to employ the framework for ex-post evaluations, which is required at the end of each programming period by the European Commission;
- In both the previous cases, the possibility of measuring effectiveness and estimate the impact in terms of the two components of additionality.

However, while this first model is of a fundamental importance for evaluation purposes, it does not offer lots of insights on how to influence the effectiveness. Therefore, the next section goes in depth on understating possible relationships between financial additionality and some independent factors.

4.3 Additionality Prediction Model

The third research question ask whether or not is possible to predict financial additionality and, if so, what factors might affect its maximization. Therefore, the next step is to understand whether some causal relationships exist between the generation of financial additionality and characteristics of OMs and firms' characteristics and financials. In particular, it is of a fundamental importance to understand factors underlying a higher generation of financial additionality, which, in turn, would lead to a higher effectiveness. To do so, a binary logistic regression model was adopted using as dependent variable the dummy Additional (0,1) while owners' characteristics, firms' characteristics and firms' financials are tested as independent factors. A set of three hypotheses was developed:

H5. The generation of financial additionality is affected by personal characteristics of the owner/manager.

H6. The generation of financial additionality is affected by firms' characteristics.

H7. The generation of financial additionality is affected by firms' financials.

It should be acknowledged that the nature of this analysis would require to investigate the presence of such relationships with a wide number of observations. As mentioned before, this study was only able to collect information on 38 cases and, despite this fact may inflate the results obtained, the researcher decided to go with this analysis anyway. The framework employs the following variables about the sample companies to test the hypotheses[5]:

- Age
- Education
- Experience
- Business Education

Personal Characteristics of

- Years of Operation
- Number of Employees
- Public Funding
- Complementarity

Firms'

[5] For a detailed description of the Independent Variables, see Figure 7.15 in Appendix

- Rating

- Productivity
- EBITDA
- Debt
- FOR
- ROA
- A1
- A2

Firms'

A logistic regression was performed to ascertain the effects of Personal Characteristics of OMs, Firms' Characteristics and Financials on the likelihood that participant firms experience Pure Financial Additionality. As shown in Table 4.3, the logistic regression model was statistically significant $\chi^2 (17) = 31{,}319$, $p < 0{,}05$. The model explains a wide proportion (75,1%, *Nagelkerke* R^2) of variance in Financial Additionality and the Hosmer and Lemeshow test is not statistically significant ($p = 0{,}886$) indicating that the model is not a poor fit. Moreover, the correlations of independent variables were obtained to evaluate the presence of multicollinearity, which may affect the results of the model. This is particularly relevant for financial variables, which obviously tend to be correlated. However, as reported in Table 7.16 in Appendix, the Pearson Correlations do not suggest the presence of multicollinearity as there are no variables showing really high correlations (r > 0,8).

Table 4.3 Summary and Significance of Logistic Regression

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	31.319	17	.018
	Block	31.319	17	.018
	Model	31.319	17	.018

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	20.938[a]	.561	.751

Hosmer and Lemeshow Test

Step	Chi-square	df	Sig.
1	3.671	8	.886

Moreover, the model shows a good prediction power and correctly classifies 81,6 % of the cases, as reported by Table 4.4. Two other important measures to evaluate the prediction power of a logistic model are *Sensitivity* and *Specificity*. The former is the percentage of cases with the observed characteristic that have been correctly predicted as such by the model, while the latter is the percentage of cases not having the observed characteristic and were predicted as not having the characteristic. In both measures, the model shows high accuracy in prediction as shown by a really high Sensitivity (85,7%) and Specificity (76,5%).

Table 4.4 Classification Table of Logistic

Observed		Predicted		
		ADDITIONAL		Percentage Correct
		0	1	
Step 1	ADDITIONAL 0	13	4	76.5
	1	3	18	85.7
	Overall Percentage			81.6

Table 4.5 Coefficients and Significance of Logistic Regression

		B	S.E.	Wald	Sig.	Exp(B)
Step 1	AGE	-.438	.248	3.126	.077	.645
	EDUCATION	-3.525	2.370	2.211	.137	.029
	EXPERIENCE	6.221	2.816	4.882	.027	503.457
	BUSINESSEDUCATION(1)	-17.421	8.709	4.001	.045	.000
	PUBLICFUND(1)	23.975	10.984	4.764	.029	2.584E+10
	COMPLEMENTAR(1)	-8.479	4.922	2.967	.085	.000
	YEARSOPERATION	-.756	.341	4.913	.027	.470
	EMPLOYEES_A	-.712	.322	4.884	.027	.491
	RATING	-3.450	2.193	2.475	.116	.032
	PRODUCTIVITY	-4.419	2.371	3.475	.062	.012
	EBITDA	1.532	.834	3.380	.066	4.629
	DEBT	6.831	3.262	4.387	.036	926.180
	LEVERAGERATIO	-1.012	.605	2.800	.094	.363
	FOR	.836	.393	4.533	.033	2.308
	ROA	-.152	.171	.783	.376	.859
	A1	15.346	7.066	4.717	.030	4619042.57
	A2	-27.548	20.261	1.849	.174	.000
	Constant	-17.883	24.545	.531	.466	.000

The focus now moves on the contribution of independent variables to the model and the relative significance. As can be seen in Table 4.5, a total of 17 variables were tested as independent factors in the logistic regression and 8 of them were statistically significant at $p < 0,05$, while 13 variables were significant at $p < 0,1$.

H5. The generation of financial additionality is affected by personal characteristics of the owner/manager.

A total of four variables were studied to test this hypothesis: age, education, experience and business education. Age and Education were not found to be statistically significant, while business experience was positively related to financial additionality ($p < 0,05$). Finally, Business Education was found to be statistically significant ($p < 0,05$) and negatively related to the generation of financial additionality.

Therefore, *H5* was substantiated to a significant degree: two variables were found to be statistically significant at $p < 0,05$, while 3 were significant at $p < 0,1$. According to results, the generation of additionality is negatively related business education while positively related to Experience.

H6. The generation of financial additionality is affected by firms' characteristics.

To test this hypothesis 5 variables were used as independent factors: years of operation, number of employees, the rating of the company, whether the company was previously public funded and whether the loan received was used in a "complementary fashion" with other financing resources. In this case, 3 out of five variables were statistically significant at $p < 0,05$.

In particular, it turns out that financial additionality is positively related to having received previous public subsidy. A possible explanation to this last point may be given by the fact that these companies may be in difficult economic conditions when they apply to public programs, thus public subsidy may be the last relief for some companies. Therefore, having received a previous public aid is a good signal to understand companies experiencing Pure financial additionality. In addition, financial additionality is negatively related to the years of operation and the number of employees ($p < 0,05$). In particular, a reduction of 1 year in the "age of the firm" increases the odds of experiencing additionality by a 2,12 factor, while a reduction of 1 employees increases the odds by 2,03.

Therefore, hypothesis *H6* is substantiated as demonstrated by 3 out of 5 variables statically significant ($p < 0,05$). In particular, experiencing financial additionality is negatively related to the number of employees and the years of operation of the companies, while positively related to having received previous public aid.

H7. The generation of financial additionality is affected by firms' financials.

To test this hypothesis 8 variables were tested: productivity, EBITDA, debt, leverage ratio, financial expenses on revenues, Return on Assets (ROA), Working Capital/Assets and Equity/Assets. The selection of variables was partly suggested by the existing literature and

partly chosen in order to reflect at the best firms' financial conditions. Only 3 out of 8 variables were found to be statistically significant at $p < 0,05$, but this number doubles if we increase the significance level at $p < 0,1$.

First of all, financial additionality is positively related to companies' leverage. The higher the amount of debt and the higher the amount of financial expenses on revenues, the higher the odds of experiencing additionality ($p < 0,05$). In particular, an increase of 1% in financial

Table 4.6 Summary of Hypotheses and Results

Hypotheses	Results
H1. The Tranched Cover Fund generates Financial Additionality, i.e. finance that companies would have not been able to obtain from other commercial sources.	**Substantiated**
H2. The Tranched Cover Fund generates Economic Additionality, which represents benefits other than financial	**Substantiated**
H3. It is possible to predict the effectiveness of the fund through loan characteristics;	**Substantiated**
H4. It is possible to predict the effectiveness of the fund through readily available information about the firm.	**Substantiated**
H5. The generation of financial additionality is affected by personal characteristics of the owner/manager.	**Substantiated**
H6. The generation of financial additionality is affected by firms' characteristics.	**Substantiated**
H7. The generation of financial additionality is affected by firms' financials.	**Substantiated**

expenses on revenues increases the odds of experiencing financial additionality by a 2,3 factor. This causal relationship is quite important. In principle, the aim of the instrument is to actually increase access to credit for SMEs. More leveraged companies obviously are riskier and should have lower access to credit, therefore there is a positive relationship between leveraged companies and experiencing Pure financial additionality.

In addition, the odds of experiencing financial additionality is positively related to A1, which is the ratio between Working Capital and Total Assets. Thanks to this data, we may infer that companies experiencing financial additionality have liquidity to run their day-to-day operations. However, most part of loans are requested for investment purposes, thus companies may lack funds to finance their investment rather than their working capital.

Hence, this hypothesis was only partially substantiated as only 3 variables were found to be statistically significant ($p < 0,05$). As seen, more leveraged companies are more likely to

experience financial additionality, as well as companies paying a higher share of revenues in financial expenses. Table 4.6 summarizes the hypotheses and the results obtained.

4.4 Discussion of Results

This final section is devoted to a further discussion of results obtained above. The discussion will proceed based on the main questions that this study posed since its inception. The study here provides a definitive answer on whether government loan guarantee schemes make sense and whether it is possible to predict effectiveness and financial additionality. In the last part, some suggestions are given to improve the overall performance of the Tranched Cover Fund.

4.4.1 Do Government Loan Guarantee Schemes Make Sense?

The academic literature widely acknowledges that the *effectiveness* of a general government guarantee scheme is related to the actual benefits that the scheme generates. In particular, it has been shown that the effectiveness of a guarantee instrument should be evaluated in terms of Financial and Economic Additionality. The former represents the ability of the instrument to increase the availability of bank credit to SMEs with no alternative financing sources, while the latter measures benefits other than strictly financial, such as increase in turnover and profit, employees, introducing new products or services, design a new process and so on.

It was shown that the Tranched Cover Fund generated a good level of Financial Additionality. Two measures of the financial additionality generated are provided: the first one related to the amount of additional finance, while the second in terms of number of firms experiencing additionality. In the first case, the total amount of loans under the Fund for this sample was 8.759.514 €, of which 5.995.414 € resulted to be additional (68,44%), while in the latter case, 27 out of 38 companies experienced at least Additionality (71,1 %). Therefore, based on Levitsky (1997) suggestions, the Tranched Cover Fund works really well and does not require any urgent intervention, although it might be possible to improve fund's results through simple adjustments.

The next step was to evaluate the economic additionality generated by the instrument. Companies scored on average 51,84% in terms of economic additionality, which means that companies experienced 5 out of the 10 benefits measured through the survey. In particular, 57,9% of companies experienced and increase in turnover between 1 and 10 %, while 76,4% experienced the same increase in business profits and 65,8% in terms of EBIT.

As regards the benefits, 68,4% of companies declared to have experienced improved condition in the availability of credit while 39,5% of them was able to increase the number of employees thanks to the instrument. The instrument also proved to be particularly effective to

design and implement a new process to improve business efficiency (76,3%) and to introduce new products or services (55,3 %), while only a limited impact in accessing new markets (28,9%), on generating new technology (23,7%) and increase export activity (15,8%).

Therefore, considering the data above and the fact that the main aim of the instrument is to increase credit availability, it was shown that the Tranched Cover Fund generates benefits different from strictly financial, thus *Hypothesis H2* is substantiated.

According to the results obtained by the Tranched Cover Fund in this first section, the answer of this work to the question "Do government loan guarantee schemes make Sense?" is absolutely positive.

4.4.2 Is it Possible to Predict Effectiveness and Additionality of the Tranched Cover Fund?

The second part of the work was devoted to provide a set of models at disposal of the public administration. In particular, an *effectiveness prediction model* was estimated allowing to know the level of effectiveness even before the take up of a loan based on simple information about the company and the economic conditions of the loan. The importance of this model is that public administration is able to carry out a prompt and straightforward evaluation of the effectiveness of the fund on a firm basis and also to estimate the relative amount of financial and economic additionality.

The model was significant ($p < 0,01$) and performed quite well, explaining a good proportion of variance and confirming *hypotheses H3* and *H4*. Effectiveness turns out to be positively related to the amount of the loan, the interest rate and the EBITDA, while negatively related to the number of employees, the equity and the ROI of companies.

The following equation was estimated:

$$Effectiveness = -2{,}155 + 0{,}237 * Loan\ Amount + 18{,}08 * Interest\ Rate - 0{,}01 * Employees + 0{,}069 * EBITDA - 0{,}137 * Equity - 0{,}022 * ROI$$

In order to provide the user of the model an evaluation method of the effectiveness score obtained, the researcher also provided a graphical table and an excel sheet allowing to predict the benefits generated on the basis of the score obtained through the model. Therefore, the model may be employed by the public administration as a screening device, to recognize and finance only those companies showing the potential to generate a high level of effectiveness.

Moreover, the study proceeded to a further analysis, trying to investigate the possible presence of relationships between the generation of financial additionality and the characteristics of firms or their owners/managers. The reason to investigate such relationships is quite simple: if it's possible to recognize some common characteristics of companies experiencing Pure Additionality, then it would be possible to increase effectiveness by making simple adjustments to the access conditions of the Fund.

The results of the logistic regression indicated that the model was significant ($p < 0,05$) and found evidence to support the three hypotheses. Therefore, it turned out that personal characteristics of OMs and firms' characteristics and financials highly influence the ability of a company of experiencing Pure additionality, thus supporting Hypotheses H5, H6 and H7.

4.4.3 How to Increase in Practice the Performance of the Tranched Cover Fund?

The theoretical frameworks were designed to support a discussion on possible adjustments that might lead to a higher performance of the Fund. In particular, the effectiveness prediction model revealed some important factors directly affecting effectiveness level, while the additionality prediction model allows to understand the factors underlying the maximization of financial additionality and, in turn, effectiveness.

First of all, personal characteristics of owners/managers seems to affect the fact of experiencing Pure Financial Additionality. In particular, financial additionality is positively related to business experience and negatively related to business education. Therefore, increasing the share of loans to experienced OMs but with no business background would lead to an increase in the number of companies experiencing Pure Additionality and, in turn, effectiveness. In practical terms this last observation might suggest to impose among requirements that OMs have a minimum of 5 to 10 years of business experience and no business education.

Moreover, firms' characteristics affect the generation of additionality. In particular, it turns out that Pure Additionality is negatively related to the number of employees and the age of the companies and positively related to a previous public funding. This means that young companies with few employees are more likely to experience Pure Additionality, and the odds increases if the company already received public subsidy. In particular, it turned out that a reduction of 1 year in the age of the firm increases the odds of experiencing additionality by a 2,12 factor, while the reduction of 1 employee increases the odds by 2,03.

Moreover, firms' financials have an important role in explaining Pure Additionality. As seen above, there is a positive relationship between additionality and the total amount of firms' debt and the ratio between financial expenses and revenues. This means that more leveraged companies and companies paying a high share of their turnover in financial expenses are more likely to experience Pure Financial Additionality. In particular, an increase of 1% of financial expenses on revenues (FOR) ratio increases the odds of experiencing financial additionality by a 2,3 factor. In addition, the level of effectiveness is negatively related to the equity and the return on investment (ROI) of the companies, suggesting that undercapitalized and less profitable companies are more likely to experience a higher level of effectiveness. Furthermore, effectiveness is positively related to the amount of the loan and the interest rate paid by companies.

Following the information described above, this last part reports some suggestions that could increase additionality in practice. In particular, the researcher suggests slight adjustments to the actual edition of the Fund based on the main findings of this study.

First of all, the managing authority should impose that a given share of the banks' portfolios to be build under the future editions of the program must be reserved to the specific categories of companies in order to increase effectiveness. In particular, the ideal profile of this category is made of companies with the following characteristics:

- Less than 10 years of operation
- Less than 25 employees
- Low Capitalization
- Highly Leveraged

These characteristics have been found to statistically influence the generation of additionality and effectiveness. Therefore, the higher the share of companies with such characteristics, the higher financial additionality and the overall effectiveness.

In addition, effectiveness was positively related with the amount of the loan, meaning that loans of higher amount tend to be more effective. Therefore, another suggestion is to impose a minimum threshold on the amount of loans taken under the program, which, in researcher's opinion, should not be lower than 100.000 €.

Moreover, as shown above financial additionality is also positively related to the level of working capital, meaning that companies do have enough money to run their day-to-day

operations and more likely they lack funds for investment purposes. Therefore, it would be a good idea to limit the amount of loans taken for working capital purposes.

In conclusion, some adjustments to the application and procedures should be made. In particular, a wide part of respondents indicated the easiness (73,7%) and the speed (84,2%) of the entire process of obtaining a loan as important for their application to the program. In addition, 21,1% declared that less documents should be requested for application, while another 15,8% suggested to improve the communication of the program to local enterprises[6].

Therefore, the last suggestion is to streamline the process to obtain a loan under the fund and to improve the marketing strategy to target directly groups of interest.

In particular, the managing authority should:

- Reduce the amount and standardize the types of information required by banks to take up a loan under the program. There is no need to collect a huge amount of firms' information;
- Reduce to processing time for both banks and firms, as the higher the time needed to give/obtain the loan, the lower the convenience for banks and firms to take up a guaranteed loan.
- Improve the marketing strategy of the fund to create a bigger awareness of programs available to local firms through specific events and meetings, which should be used to promote all the programs offered and should guide companies to select the most appropriate one.

[6] See Table 7.12, 7.13 and 7.14 in Appendix

5. Conclusions

Small and Medium Enterprises are the backbone of many advanced economies and, in Europe, they account for 99% of total firms and represent two thirds of total private employment.

SMEs are said to be often confronted with lack of financial resources, especially in the early days of operation. As opposed to big companies that may easily rely on alternative financing instruments, SMEs usually rely on bank financing to fund their business. The presence of *asymmetric information* between small businesses and banks undermines perfect competition in the market, as it may generate *adverse selection* and *moral hazard* phenomena. Hence, banks may be encouraged to restrict their lending behavior to avoid such problems, especially during financial crises. Such situation may generate *credit rationing,* where part of the demand for bank loans remains unfulfilled, thus putting additional burden on SMEs financing difficulties.

Considering the importance of SMEs and the presence of a market failure, public intervention is required in order to mitigate the negative effects produced by credit rationing and many governments in advanced economies designed some schemes to address such issue. One of the most adopted instruments is loan guarantee scheme, allowing banks to shift part of the loans' risk on the guarantor and minimizing losses in case of default. In practice, this mechanism allows banks to reduce the risk of banks' assets and, in turn, the prudential capital required, thus leading banks to a less restrictive lending behavior.

The success of these schemes is usually measured in terms of additionality, which may be either financial or economic. Financial Additionality represents the total amount of finance lent under the program that was not available from commercial sources, while Economic Additionality refers to other economic benefits that a company may have experienced, such as increase in turnover, employees and so on.

Although guarantee schemes are among the most adopted instruments, the literature has discussed this topic only marginally. Several attempts have been made to evaluate the additionality generated by national guarantee programs, of which the most successful are those related to the evaluation of Small Firms Loan Guarantee Scheme (SFLGS) in UK.

However, as of the best knowledge of the researcher, no attempts have been made to evaluate the performances of schemes applied in a regional setting instead of a country level. In addition, no one has ever attempted to provide a model allowing to estimate the success of

the scheme on a firm basis even before the take up of the loan. Finally, the literature did not discuss factors underlying a higher generation of additionality.

This study, using a sample of 38 companies that were funded through the Tranched Cover Fund, an instrument implemented in an Italian region, fills these gaps: it finds evidence of the effectiveness of guarantee instruments even at a smaller level, a regional one; moreover, it provides a model to estimate the effectiveness of the fund on a loan basis and evaluate the impact in terms of financial and economic additionality; finally, it evaluates the possible factors explaining a higher generation of financial additionality.

5.1 Main Findings

To carry out the analysis, the researcher built three theoretical frameworks and developed a set of 7 hypotheses to be tested. The first research question was concerned with understanding whether the Tranched Cover Fund is *effective*, meaning that it increases access to credit for SMEs and generates other economic benefits. Both the hypotheses tested hold true and it has been shown that 71,1% of the companies experienced financial additionality. Moreover, it turns out that 0,68 €/cent for each euro lent under the Fund are additional and that companies experience on average 5 out of 10 economic benefits, especially increase in turnover and profit and in the number of employees. In addition, it was shown that the utilization of the Fund is positively related with the possibility of introducing new products or services or to implement new processes that improve business efficiency.

The second research question, instead, wanted to investigate whether it is possible to predict the level of effectiveness/success of a firm through loans' and firms' characteristics. Therefore, this model estimates an equation to predict the effectiveness score based on 6 factors: the amount of the loan, the interest rate, the number of employees, EBITDA, Equity and ROI.

Once obtained the score, through inverse equation, is also possible to estimate the amount of financial and economic additionality. In particular, three groups of firms were identified: the first one made of companies experiencing a low level of effectiveness (<30%), medium level (30 – 50 %) and medium to high level (50 – 100 %). Moreover, a graphical table and an excel sheet were provided to help the user to interpret the results obtained in an easier fashion. It was shown that financing companies in the bottom side of the table or with an effectiveness score greater than 50% would lead to a higher overall performance of the fund, while

reducing the number of companies with opposite characteristics would inevitably lead to high increase in financial additionality.

The model turns out to be useful both ex-ante and ex-post the take up of the loan: in the first case, if the guarantor could have the opportunity to choose the companies to finance, then it would finance only those companies with a high level of financial additionality, thus the model can be used as a *screening device*; in the second case, the model can be used only for ex-post evaluation to ascertain how much additionality was generated.

The third research question was concerned with investigating the presence of some relationships between financial additionality and a set of factors. In particular, the relationships were tested with personal characteristics of the owner/manager, firms' characteristics and firms' financials. Three hypotheses were developed and all of them were substantiated ($p < 0,05$). In particular, financial additionality is maximized with experienced entrepreneurs with no business background, while a negative relationship was found between additionality and the years of operations and the number of employees, meaning that the odds of experiencing financial additionality is higher for young companies with few employees. Finally, there was a positive relationship between having experienced financial additionality and the amount of debt and financial expenses, thus more leveraged companies are more likely to experience financial additionality.

5.2 Is the Tranched Cover Fund Successful?

It is quite clear that the Tranched Cover Fund was an effective instrument not only to increase credit availability to SMEs but also to generate other economic benefits. In addition, the convenience to implement guarantee schemes was demonstrated even at regional level. Financial additionality was estimated to be near 68% in terms of total amount of additional finance and 71 % in terms of number of firms experiencing additionality. Following suggestions of Levitsky (1997) and Bannock and Partners (1997), the amount of financial additionality generated is quite high and the Fund does not require any immediate correction.

However, some adjustment to the Fund may be implemented in order to bring the instrument to superior performances. Given the considerations above, the managing authority should target, in particular, young companies with less than 25 employees, highly leveraged and with shortage of internal capital. In addition, financial additionality would be higher for companies that received previous public funding and represented by experienced owners/managers with no business background. Finally, results suggest also to streamline the

process of obtaining a loan reducing the documentation and the time to obtain a loan. Finally, it would be important to bring improvements on the communication to the target groups, otherwise the choice of the companies to be financed will only be based on banks' decisions and on firms' default risk.

5.3 Limitations and Future Research

We have demonstrated that government funded guarantee schemes make sense to foster entrepreneurship and innovation among companies, and sometimes, especially during financial crises, these instruments may represent the last relief for SMEs in financial troubles. This research represents the only attempt to predict the effectiveness of the scheme and to understand factors leading to a higher financial additionality.

Three limitations to this study should be highlighted: Regional bias, Counterfactual problem, Economic bias.

As regards the first point, the sample of companies used in this study is based in Regione Puglia, a region in south of Italy. Although the region is one of the most advanced regional economies in Italy, the results obtained in this study highly depend on the idiosyncratic characteristics of companies in this area and the generalization of the models is possible in regions or countries with similar socio-economic characteristics. It should be acknowledged that while Barkham et al. (1996) discuss that regional studies may suffer this bias if there are differences among firms' or OMs' characteristics between regions, other studies (Storey et al. (1989) and Keasey and Watson (1994)) refuse regional or locational differences as important factors in SMEs studies.

The second limitation of this study is what Vogel and Adams (1997) described as counterfactual problem *"It is impossible to know with precision what the lender would have done in the absence of the loan guarantee program"* (Vogel & Adams, 1997, p. 11). The authors suggest that there are two ways to deal with counterfactual problem, which is ask directly lenders or participant firms. Both the methods are exposed to subjectivity and to the Hawthorne Effect, which means that lenders or firms may alter their responses because they know to be under observation. However, as shown in the literature review section, the questionnaire assessment of additionality is among the most used methodologies to evaluate objectively the success of guarantee schemes in terms of additionality.

The third limitation is related to the specific economic conditions of firms that participated to the Fund. This analysis was carried out in late 2015 in Italy, an economy that experienced a

huge slowdown following the financial crisis, which had dramatic consequences for the financial system and, in turn, SMEs. The situation was exacerbated by the deleveraging process initiated by Italian banks as a consequence of the bad asset quality, which resulted in a loss of confidence toward small companies financing and restrictions in banks' lending behavior. Therefore, the overall perception of the economy as whole may have slightly influenced effectiveness estimation.

Finally, there are several opportunities for future research to feed academic literature continuing on this work. First of all, it would be useful to test the models proposed here on a large scale sample, which would allow the generalization of the models at a country level. Moreover, it would be also interesting to understand the role of mutual guarantee societies on the instrument and whether they increase effectiveness and financial additionality.

In addition, at the time of this writing, companies in the sample did not repay yet the loan, thus it was not possible to estimate the actual cost of the scheme to the managing authority. Therefore, an obvious step would be to analyze the number of defaults in order to estimate the *efficiency* of the Fund. It would be also interesting to understand whether personal characteristics of OMs and firms' characteristics and financials are able to explain some companies' patterns or profiles. Moreover, understanding the relationship between financial additionality and default rates would be interesting to study.

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7. Appendix

Table 7.1 Additionality Frequencies

Total Additionality	Frequency	Percent	Cumulative Percent
No	11	28.9	28.9
Additional	27	71.1	100.0
Total	***38***	***100.0***	

Table 7.2 Impact of the Loan on the Business

Turnover Impact	Frequency	Percent	Cumulative Percent
Decrease	0	0.0	0.0
No Difference	14	36.8	36.8
1 to 5%	12	31.6	68.4
6 to 10%	10	26.3	94.7
>10%	2	5.3	100.0
Total	***38***	***100.0***	

Table 7.3 Impact of the Loan on the Business

Profit Impact	Frequency	Percent	Cumulative Percent
Decrease	0	0.0	0.0
No difference	8	21.1	21.1
1 to 5%	24	63.2	84.2
6 to 10%	5	13.2	97.4
>10%	1	2.6	100.0
Total	***38***	***100.0***	

Table 7.4 Impact of the Loan on EBIT

EBIT Impact	Frequency	Percent	Cumulative Percent
Decrease	0	0.0	0.0
No Difference	12	31.6	31.6
1 to 5%	20	52.6	84.2
6 to 10%	5	13.2	97.4
>10%	1	2.6	100.0
Total	***38***	***100.0***	

Table 7.5 Impact of the Loan on Credit Availability

Credit Access	Frequency	Percent	Cumulative Percent
No Difference	12	31.6	31.6
Increased	26	68.4	100.0
Total	***38***	***100.0***	

Table 7.6 Impact of the Loan on Employment

Employees	Frequency	Percent	Cumulative Percent
No Difference	23	60.5	60.5
Increased	15	39.5	100.0
Total	***38***	***100.0***	

Table 7.7 Impact of the Loan on Accessing New

New Markets	Frequency	Percent	Cumulative Percent
No	27	71.1	71.1
Yes	11	28.9	100.0
Total	***38***	***100.0***	

Table 7.8 Impact of the Loan on New Products or Services

New Products	Frequency	Percent	Cumulative Percent
No	17	44.7	44.7
Yes	21	55.3	100.0
Total	***38***	***100.0***	

Table 7.9 Impact of the Loan on New Processes

New Process	Frequency	Percent	Cumulative Percent
No	9	23.7	23.7
Yes	29	76.3	100.0
Total	***38***	***100.0***	

Table 7.10 Impact of the Loan on New Technology

New Technology	Frequency	Percent	Cumulative Percent
No	29	76.3	76.3
Yes	9	23.7	100.0
Total	***38***	***100.0***	

Table 7.11 Impact of the Loan on Export Activity

Export	Frequency	Percent	Cumulative Percent
No Difference	32	84.2	84.2
Increased	6	15.8	100.0
Total	***38***	***100.0***	

Table 7.12 Importance of Easiness on the Application to the Program

Easiness	Frequency	Percent	Cumulative Percent
Not Important	3	7.9	7.9
Not really Important	1	2.6	10.5
Neutral	6	15.8	26.3
Important	23	60.5	86.8
Extremely Important	5	13.2	100.0
Total	***38***	***100.0***	

Table 7.13 Importance of Speed on the Application to the Program

Speed	Frequency	Percent	Cumulative Percent
Not Important	3	7.9	7.9
Not really Important	2	5.3	13.2
Neutral	1	2.6	15.8
Important	25	65.8	81.6
Extremely Important	7	18.4	100.0
Total	***38***	***100.0***	

Table 7.14 Improvements to the Program

Improvements	Frequency	Percent	Cumulative Percent
Nothing	4	10.5	15.4
Speed-Up Process	7	18.4	42.3
Less Documents	8	21.1	73.1
Increase Communication	6	15.8	96.2
Other	1	2.6	100.0
Cases	***26***	***68.4***	
Missing Cases	***12***	***31.6***	
Total	***38***	***100.0***	

Table 7.15 Independent Variables List

Personal Characteristics of Owners/Managers			
VARIABLE	**MEASURE**	**SOURCE**	**CODING**
AGE	Age of Administrator	Questionnaire Q.2	-
EDUCATION	Administrator's Education level	Questionnaire Q.3	1 = Elementary School 2 = Middle School 3 = High School 4 = Graduate/Post-Graduate 5 = Master / PhD
EXPERIENCE	Administrator's Years of Experience	Questionnaire Q.4	1 = Less than 1 Year 2 = 1 to 5 Years 3 = 6 to 10 Years 4 = 11 to 20 Years 5 = More than 20 Years
BUS_EDU	Administrator's Business Education	Questionnaire Q.5	1 = Yes 0 = No

FIRMS CHARACTERISTICS			
VARIABLE	**MEASURE**	**SOURCE**	**CODING**
YEAR_OPERATION	Year of Establishment	AIDA, Bureau Van Dijk	-
LEGAL STATUS	Legal Status of the SME	AIDA, Bureau Van Dijk	-
SECTOR	SME's Sector	AIDA, Bureau Van Dijk	-
EMPLOYEES	Number of Employees	AIDA, Bureau Van Dijk	-
RATING	Firms Rating	Elaboration on Puglia Sviluppo Data	Scale 1 - 4

FIRMS' FINACIALS			
TOTAL DEBT		AIDA, Bureau Van Dijk	-
EQUITY		AIDA, Bureau Van Dijk	-
EBITDA		AIDA, Bureau Van Dijk	-
FOR	Financial Expenses / Revenues	AIDA, Bureau Van Dijk	-
LEVERAGE RATIO		AIDA, Bureau Van Dijk	-
A1	Working Capital /Total Assets	AIDA, Bureau Van Dijk	-
A2	Equity / Total Assets	AIDA, Bureau Van Dijk	-
Return On Assets (ROA)		AIDA, Bureau Van Dijk	-
Return On Investment (ROI)		AIDA, Bureau Van Dijk	-

Loan Characteristics			
VARIABLE	**MEASURE**	**SOURCE**	**CODING**
LOAN_AMOUNT	The amount of the loan	Puglia Sviluppo data	-
LOAN_PURPOSE	The purpose of the loan	Puglia Sviluppo data	-
INT_RATE	The interest rate applied	Puglia Sviluppo data	-
OLD_LOAN	The company took another loan before applying to the program	Questionnaire Q.9	1 = Yes 0 = No
PUB_FUNDIN	Whether or not the company received public funding before	Questionnaire Q.10	1 = Yes 0 = No
COMPLEMENT	Assesses whether or not the loan received under the program is complementar to other financing sources or not.	Questionnaire Q.11	1 = Yes 0 = No, the Tranched Cover is Substitute

Economic Additionality			
IMPACT_TURNOVER	Measures the impact of the program on business turnover	Questionnaire Q.16	1 = Yes 0 = No
IMPACT_PROFIT	Measures the impact of the program on business profit		
IMPACT_EBITDA	Measures the impact of the program on EBITDA		
CREDIT_ACC	Whether or not the company will find easier to access credit after the application to the program	Questionnaire Q.17	1 = Yes 0 = No
EMPLOYEES	Whether or not the program allowed to increase the number of employees	Questionnaire Q.18	1 = Yes 0 = No
NEW MARKETS	Whether or not the program allowed to access new markets		
NEW PRODUCTS	Whether or not the program allowed to develop new products or services		
NEW PROCESS	Whether or not the program allowed to develop new processes to increase business efficiency		
NEW TECH	Whether or not the program allowed to develop new technologies		
EXPORT	Whether or not the program allowed to increase export		

Table 7.16 Correlations of Independent Variables of Additionality Model

		ADDITIONAL	AGE	EDUCATION	EXPERIENCE	BUSINESS EDUCATION	PUBLIC FUND	COMPLEMENTAR	YEARS OPERATION	EMPLOYEES	RATING	PRODUCTIVITY	EBITDA	DEBT	LEVERAGE RATIO	FOR	ROA	A1	A2
Pearson Correlation	ADDITIONAL	1.000	-.098	-.230	.059	-.119	.064	-.156	-.176	-.177	.030	.085	.019	.002	.025	.038	.016	-.048	-.024
	AGE	-.098	1.000	-.344	.554	.065	.372	-.065	.487	.291	.225	.191	.261	.313	-.278	-.073	-.063	-.135	.398
	EDUCATION	-.230	-.344	1.000	-.049	.439	-.207	.191	-.305	-.014	-.229	-.069	.178	-.157	-.149	-.021	.257	-.123	-.127
	EXPERIENCE	.059	.554	-.049	1.000	.297	.153	.021	.342	.171	.237	.445	.324	.263	-.248	-.091	.127	-.185	.043
	BUSINESS EDUCATION	-.119	.065	.439	.297	1.000	.255	.031	-.019	-.129	.137	-.014	.142	-.075	-.148	.167	.286	-.238	.052
	PUBLIC FUND	.064	.372	-.207	.153	.255	1.000	.042	.409	.317	.259	.039	.149	.245	-.034	-.156	.000	-.107	.181
	COMPLEMENTAR	-.156	-.065	.191	.021	.031	.042	1.000	.010	.191	-.041	.014	.194	.241	-.201	-.033	.015	-.091	-.018
	YEARS OPERATION	-.176	.487	-.305	.342	-.019	.409	.010	1.000	.216	.078	.182	.157	.353	-.077	-.008	-.300	-.017	-.032
	EMPLOYEES	-.177	.291	-.014	.171	-.129	.317	.191	.216	1.000	.079	.092	.387	.691	-.052	-.208	-.227	.150	-.100
	RATING	.030	.225	-.229	.237	.137	.259	-.041	.078	.079	1.000	-.097	.114	-.113	-.226	.109	.076	-.049	.221
	PRODUCTIVITY	.085	.191	-.069	.445	-.014	.039	.014	.182	.092	-.097	1.000	.447	.460	-.228	-.601	.082	.319	-.031
	EBITDA	.019	.261	.178	.324	.142	.149	.194	.157	.387	.114	.447	1.000	.374	-.771	-.488	.300	.039	.330
	DEBT	.002	.313	-.157	.263	-.075	.245	.241	.353	.691	-.113	.460	.374	1.000	.028	-.218	-.448	.062	-.306
	LEVERAGE RATIO	.025	-.278	-.149	-.248	-.148	-.034	-.201	-.077	-.052	-.226	-.228	-.771	.028	1.000	.371	-.426	.100	-.695
	FOR	.038	-.073	-.021	-.091	.167	-.156	-.033	-.008	-.208	.109	-.601	-.488	-.218	.371	1.000	-.217	-.439	-.259
	ROA	.016	-.063	.257	.127	.286	.000	.015	-.300	-.227	.076	.082	.300	-.448	-.426	-.217	1.000	.078	.567
	A1	-.048	-.135	-.123	-.185	-.238	-.107	-.091	-.017	.150	-.049	.319	.039	.062	.100	-.439	.078	1.000	-.089
	A2	-.024	.398	-.127	.043	.052	.181	-.018	-.032	-.100	.221	-.031	.330	-.306	-.695	-.259	.567	-.089	1.000
Sig. (1-tailed)	ADDITIONAL	.	.280	.082	.363	.239	.350	.175	.145	.144	.428	.305	.455	.495	.441	.410	.462	.387	.443
	AGE	.280	.	.017	.000	.348	.011	.350	.001	.038	.087	.125	.057	.028	.046	.332	.355	.209	.007
	EDUCATION	.082	.017	.	.386	.003	.106	.125	.031	.466	.083	.340	.143	.173	.186	.450	.060	.231	.223
	EXPERIENCE	.363	.000	.386	.	.035	.179	.450	.018	.153	.076	.003	.024	.056	.066	.293	.223	.133	.399
	BUSINESS EDUCATION	.239	.348	.003	.035	.	.061	.427	.454	.221	.206	.466	.198	.326	.188	.158	.041	.075	.377
	PUBLIC FUND	.350	.011	.106	.179	.061	.	.401	.005	.026	.058	.409	.187	.069	.420	.175	.500	.262	.139
	COMPLEMENTAR	.175	.350	.125	.450	.427	.401	.	.476	.125	.404	.467	.121	.072	.113	.421	.464	.294	.457
	YEARS OPERATION	.145	.001	.031	.018	.454	.005	.476	.	.096	.320	.138	.173	.015	.322	.481	.033	.459	.425
	EMPLOYEES	.144	.038	.466	.153	.221	.026	.125	.096	.	.320	.291	.008	.000	.377	.106	.085	.184	.276
	RATING	.428	.087	.083	.076	.206	.058	.404	.320	.320	.	.282	.248	.250	.086	.258	.326	.385	.091
	PRODUCTIVITY	.305	.125	.340	.003	.466	.409	.467	.138	.291	.282	.	.002	.002	.084	.000	.313	.026	.427
	EBITDA	.455	.057	.143	.024	.198	.187	.121	.173	.008	.248	.002	.	.010	.000	.001	.033	.408	.021
	DEBT	.495	.028	.173	.056	.326	.069	.072	.015	.000	.250	.002	.010	.	.434	.094	.002	.356	.031
	LEVERAGE RATIO	.441	.046	.186	.066	.188	.420	.113	.322	.377	.086	.084	.000	.434	.	.011	.004	.275	.000
	FOR	.410	.332	.450	.293	.158	.175	.421	.481	.106	.258	.000	.001	.094	.011	.	.095	.003	.058
	ROA	.462	.355	.060	.223	.041	.500	.464	.033	.085	.326	.313	.033	.002	.004	.095	.	.321	.000
	A1	.387	.209	.231	.133	.075	.262	.294	.459	.184	.385	.026	.408	.356	.275	.003	.321	.	.297
	A2	.443	.007	.223	.399	.377	.139	.457	.425	.276	.091	.427	.021	.031	.000	.058	.000	.297	.
N	ADDITIONAL	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	AGE	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	EDUCATION	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	EXPERIENCE	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	BUSINESS EDUCATION	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	PUBLIC FUND	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	COMPLEMENTAR	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	YEARS OPERATION	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	EMPLOYEES	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	RATING	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	PRODUCTIVITY	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	EBITDA	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	DEBT	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	LEVERAGE RATIO	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	FOR	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	ROA	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	A1	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38
	A2	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38	38

Figure 7.1 Classification of Effectiveness Prediction Model

Group	Effectiveness	Financial Additionality Index	Economic Additionality Index
Low	10%	10%	10%
	20%	20%	20%
	30%	30%	30%
Medium	40%	40%	40%
	50%	50%	50%
Medium High	60%	60%	60%
	70%	70%	70%
	80%	80%	80%
	90%	90%	90%
	100%	100%	100%

Figure 7.2 Example 1

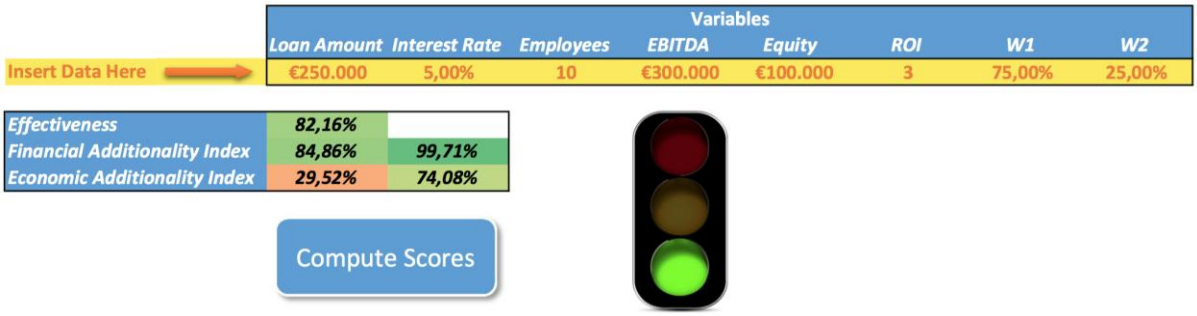

Figure 7.3 Example 2

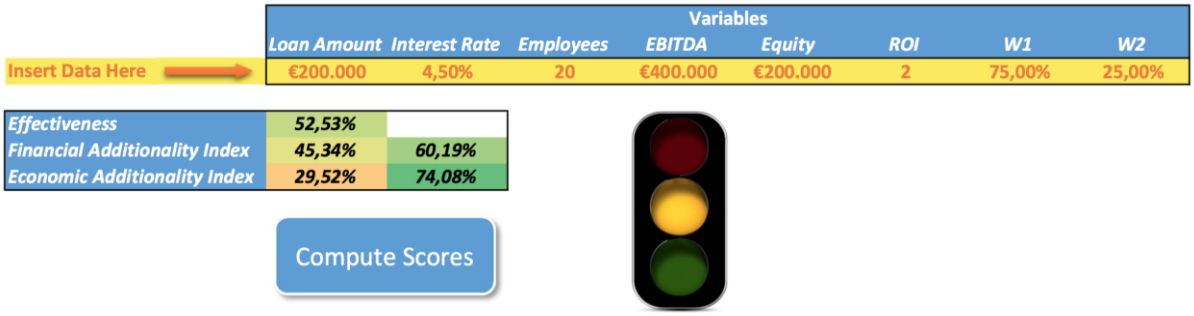

Figure 7.4 Example 3

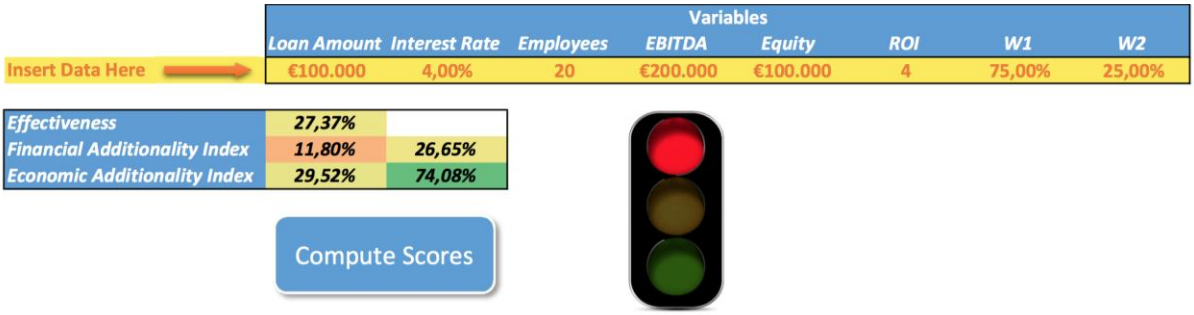

Figure 7.5 Questionnaire sent to firms participating to the Tranched Cover Fund

pugliasviluppo

Salve,
La ringraziamo per la sua disponibilità nel contribuire all'indagine. Il suo contributo è di fondamentale importanza per lo studio, perciò Le chiediamo di rispondere a TUTTE le domande con la massima sincerità e, qualora non dovesse sapere con esattezza la miglior risposta, scelga sempre l'opzione che ritiene più vicina alla realtà.

Alcune domande potrebbero apparire simili ma sono di fondamentale importanza a fini metodologici e statistici per comprendere più a fondo la sua esperienza. Il questionario richiede dai tre ai cinque minuti per il completamento.

I dati saranno trattati confidenzialmente secondo le vigenti norme sulla privacy ed elaborati in modo aggregato. Tuttavia, le chiediamo di inserire alcuni dati relativi alla sua impresa utili ai soli fini statistici.

Grazie per il supporto

Indicare il NOME dell'impresa

Indicare la PARTITA IVA / CODICE FISCALE dell'impresa

Vuoi ricevere una copia dei risultati ottenuti da questo studio?

Sì
No

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Indicare il SESSO del rappresentante legale dell'impresa

Maschio
Femmina

Indicare l'ETÀ del rappresentante legale

Livello di Istruzione del rappresentante legale dell'impresa?

Licenza Scuola Elementare
Licenza Scuola Media Inferiore
Diploma Scuole Superiori
Laurea Breve / Specialistica
Master / Dottorato

Anni di esperienza del rappresentante legale come amministratore/imprenditore?

Meno di 1 Anno
Da 1 a 5 Anni
Da 6 a 10 Anni
Da 11 a 20 Anni
Oltre i 20 Anni

Il rappresentante legale dell'impresa ha frequentato un corso di management, economia o qualsiasi altra area utile allo sviluppo del business?

Sì
No

Pensi che avresti comunque ricevuto un finanziamento in assenza del Programma Tranched Cover?

Sì

No

Indica l'ammontare di denaro (€) che avresti potuto ricevere in assenza del programma Tranched Cover.

Quanto è stato importante per la tua impresa aver ottenuto il prestito garantito dal programma Tranched Cover?

Per niente importante

Decisamente poco importante

Né importante né non importante

Molto importante

Estremamente importante

L'impresa ha RICHIESTO e OTTENUTO un altro finanziamento da banche o altre istituzioni finanziarie (esclusi programmi pubblici) PRIMA di partecipare al programma Tranched Cover?

Sì

No

L'impresa ha ottenuto altre forme di agevolazioni pubbliche PRIMA di partecipare al programma Tranched Cover?

Sì

No

Stai utilizzando i fondi ottenuti tramite tranched cover in aggiunta o in alternativa ad altre fonti di finanziamento?

In aggiunta ad altri finanziamenti
In alternativa ad altri finanziamenti

Quale fonte di finanziamento hai utilizzato in aggiunta / alternativa? Se più di una, indica solo la principale.

Banca
Familiari / Amici
Risparmi Personali
Venture Capital
Altri Programmi Pubblici
Altri Finanziamenti Privati

Ritieni che l'assenza del programma avrebbe avuto un impatto sul business dell'impresa?

NO, l'andamento del business sarebbe stato lo stesso
SI, l'andamento del business non sarebbe stato lo stesso
SI, l'andamento del business sarebbe stato peggiore
SI, altrimenti il business non sarebbe sopravvissuto

Ti è stato richiesto un business plan in sede di presentazione della domanda al bando?

Sì
No

Ritieni che l'impresa abbia raggiunto / raggiungerà gli obiettivi prefissati nel business plan in termini di fatturato, profitto e numero di dipendenti?

NO, l'impresa NON ha raggiunto/raggiungerà i risultati attesi

NO, l'impresa ha raggiunto / raggiungerà solo in parte i risultati attesi

SI, l'impresa ha raggiunto / raggiungerà i risultati attesi

SI, l'impresa ha superato / supererà i risultati attesi

Che impatto pensi che ha / avrà il finanziamento ottenuto tramite Tranched cover su:

	Decremento	Nessuna Differenza	Incremento 1 - 5%	Incremento 6 - 10%	Incremento Superiore al 10%
Fatturato	○	○	○	○	○
Reddito Operativo	○	○	○	○	○
Utile Netto	○	○	○	○	○

Ritieni che a seguito della partecipazione al programma Tranched Cover la tua impresa vedrà migliorare le condizioni di accesso al credito, ovvero ottenere finanziamenti più facilmente e/o a condizioni economiche più vantaggiose?

Sì

No

Indica per i seguenti elementi SI o NO. Il finanziamento ottenuto dal programma Tranched Cover mi ha permesso di:

	SI	NO
Incrementare Numero Dipendenti	○	○
Aprire le porte di nuovi mercati	○	○
Sviluppare nuovi prodotti o servizi	○	○
Sviluppare nuovi processi volti a migliorare l'efficienza dell'impresa	○	○
Sviluppare una nuova Tecnologia	○	○
Incrementare le esportazioni	○	○

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Secondo te, riuscirà l'impresa ad onorare il finanziamento concesso?

NO, l'impresa non riuscirà a ripagare l'importo nel suo intero ammontare

SI, l'impresa riuscirà a ripagare il prestito, ma con qualche ritardo

SI, l'impresa riuscirà a ripagare il prestito senza problemi

Come sei venuto a conoscenza del programma Tranched Cover?

Banca

Colleghi / Dipendenti

Familiari o Amici

Canali Istituzionali

Altra impresa

Nell'aderire al programma Tranched Cover, chi hai interfacciato prima?

Puglia Sviluppo S.p.A.

Banca presso cui ho ottenuto il finanziamento

Quanto ritieni importante il programma tranched cover per:

	Per niente importante	Decisamente poco importante	Né importante né non importante	Molto importante	Estremamente importante
Promuovere l'imprenditorialità	○	○	○	○	○
Migliorare le condizioni di accesso al credito per le PMI	○	○	○	○	○
Incrementare l'accesso al credito per le PMI	○	○	○	○	○

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Indica la rilevanza dei seguenti elementi per la tua partecipazione al programma Tranched Cover?

	Per niente importante	Decisamente poco importante	Né importante né non importante	Molto importante	Estremamente importante
Un più basso tasso di interesse	○	○	○	○	○
Un prestito di maggiore importo	○	○	○	○	○
Una scadenza più lunga	○	○	○	○	○
Minori garanzie da offrire	○	○	○	○	○
Facile adesione al programma	○	○	○	○	○
Velocità per ottenere il prestito	○	○	○	○	○
Non avevo altre possibilità di finanziamento	○	○	○	○	○
Altre condizioni economiche del prestito	○	○	○	○	○

Cosa miglioreresti del Programma Tranched Cover?

Niente

Velocizzare il processo per ottenere il prestito

Ridurre la documentazione richiesta

Migliorare la comunicazione dei programmi alle imprese locali

Altro

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