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**SMEs and Banks:
Investigating the Link between Trust and the Pledging of Personal
Collateral**

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SMEs and Banks: Investigating the Link between Trust and the Pledging of Personal Collateral

Abstract

Research on relationship lending focuses attention on economic factors which influence the relationships between SMEs' owners/managers and banks but no previous work has focused on the role of trust. Trust is expected to reduce agency costs, the perceived credit risk and, thus, influence credit availability and credit terms. Trustworthiness is associated with three attributes of SME owner managers' namely; ability, benevolence and integrity. It is hypothesised that lending managers' assessment of the trustworthiness of SME owner managers affects the request of personal collateral from bank when credit is provided. Trustworthiness is hypothesised as negatively associated with personal collateral in the form of personal guarantees and personal assets. Using the data obtained from a survey of lending managers from banks in North East Italy we test this relationship. Research methods include construction of control variables and a vector of trustworthiness factors based on the data collected on a random sample of 535 borrowing firms. Results from the regression analysis show some evidence that the line of credit of firms enjoying high level of trust are less collateralised with entrepreneurs' personal assets even if the significance of both the specification and trust is low. Our findings support the view found in earlier literature on trust that personal collateral pledging is decided at the beginning of the relationship and then such a decision is not changed by the bank. Some implications of these results and future research are discussed.

Keywords: Trust, Relationship lending, SMEs, Collateral, Personal Commitments

1. Introduction

The banking system is essential for the life of firms and especially for small and medium enterprises as they do not have access to capital markets. Lending process is very complex and substantially involves the risk evaluation of the firms. Banks rely on different lending technologies and tend to use more than one technology at a time (Berger & Udell, 2006). Among the various lending technologies, relationship lending has a peculiar role. In relationship lending, the bank relies on a variety of private information gathered through contact with the firm, its owner, and the local community in order to evaluate the firm (see seminal works by Petersen & Rajan, 1994, 1995 and Berger & Udell, 1995). Thus, on one hand the personal ties can help banks to deal with SMEs opaqueness and the related difficulty in valuing firm riskiness; on the other small businesses can be better off because of easier access to credit. Previous research on relationship lending focuses attention on a set of variables such as its length, its closeness, the concentration of lending relationships on few banks, the quality of the relationship (Petersen & Rajan, 1994, 1995, Berger & Udell, 1995, Harhoff & Körting, 1998, Berger, et al. 2001, Lehmann & Neuberger, 2001, Stanton, 2002, Akhavein et al., 2004, Elsas, 2005, Agarwal & Hauswald, 2008).

Interestingly, when a bank makes a decision to provide credit, even though it is a contractual relationship, it is underpinned by an assessment of trust. From an etymological point of view, the word credit derives from the Latin noun *creditum* which is translated as a loan or a thing entrusted to another; the related Latin verb *credere* means to believe, to trust, entrust but also to provide credit (Castiglioni & Mariotti, 1981). The potential borrower's analysis of the risk return trade-off is an assessment of its trustworthiness. Literature on trust stresses that high levels of trust are purported to encourage trustworthy behaviour (Nooteboom, 2002) and that trust can play an important role in reducing agency problems (such as moral hazard and adverse selection), in cutting transaction costs (Macaulay, 1963, Nooteboom et al., 1997) as well as the expenses of monitoring and control (see Lewicki et al. 1998). Thus, trusting relationship can benefit banks and SMEs. This is not a utopian view of the world and the benefits of increasing levels of trustworthiness could include a reduction in the request for collateral. This point is theoretically supported by the model proposed by Howorth and Moro (2006).

Present study analyses whether bank managers' perceived trustworthiness of the small business owner-managers is associated with a request of reduced personal collateral in the form of either personal guarantees or pledge of personal assets. The research question is tested using a vector which measure trust derived from previous studies, in particular from Mayer et al. (1995) and uses a unique dataset collected during the period 2004-2007. Econometric findings support partially our preposition, discovering a negative relationship between trust and personal collateral provided by the entrepreneur.

The present paper is organised as follows: section 2 illustrates the literature on relationship lending and trust explaining the role of trust as an independent variable. Section 3 illustrates the research question and section 4 the methodology and how variables are operationalised. In section 5 the research question is tested and the findings are commented. Section 6 concludes.

2. Banks, SMEs and Trust

Banks play a key role in financing the firms as they tend to leverage bank debt in preference of equity. Interestingly, the wide use of bank debt to finance firms and projects is not context specific: one finds it for large firms and small ones; in both developed and developing economies; in the Continental Europe as well as in Japanese and Anglo-Saxon world.

Research on lending argues that the lending technologies can be grouped into four main categories (Berger & Udell, 2002): financial statement lending (based on the evaluation of information from the financial statement); asset based lending (based on the provision of collateral and its quality); credit scoring lending (based on statistical techniques); relationship lending. The first three lending techniques are usually grouped together and labelled transaction lending because the risk evaluation is based on available factual and public information, collected independently from the quality of the relationship and include loans that are mainly for non recurrent needs. Relationship lending is different from transaction lending because it is based on recurrent needs and focuses on the fact that the improvements in the relationships between banks and businesses can help the banks in evaluating firms' riskiness increasing credit availability, reducing the cost of credit and the pledging for collateral, accordingly (Agarwal & Hauswald, 2008). Berger (1999) summarises the three main characteristics of relationship lending: the information is gathered beyond the relatively transparent data available in the official documents; information gathering is through a continuous process; information remains confidential to the provider of funds who uses it as a basis for taking other decisions.

In reality, the different lending technologies are not mutually exclusive as banks tend to use more than one technology at a time (Berger & Udell, 2006). Since the beginning, relationship lending research pays particular attention to small firms (Petersen & Rajan, 1994 and 1995) because they are informationally opaque (Berger et al. 2001) and therefore their lending process is more profoundly affected by relationship. Later research (for instance, Harhoff & Körting, 1998 but also Akhavein et al., 2004) not only confirms this point but it expands the research on the factors that affect relationship lending.

2.1 The Request for Collateral

The firm and the entrepreneur can be asked to provide collateral and guarantees (see Berger, et al., 2006) in order to access the credit the firm needs. In Italy, the area where data have been collected, local branch bank managers have room for manoeuvre in deciding whether to ask for personal collateral since pledging personal collateral is neither implicit in the loan nor decided unilaterally by the top management of the bank. It is subject to the local bank manager's evaluation about the creditworthiness of the firm.

Collateral gives the lender a claim over specific assets which are controlled by the secured claimants who can prevent the borrower from selling or disposing them. In contrast, a guarantee is a general claim and the borrower can sell his/her assets without any limits at any time before the lender exerts a claim on them because of a default in repaying principal and/or interest. Italian bank system tends to rely on personal commitments. Zecchini and Ventura (2009) found that more than 83% of the Italian small firms provide personal collateral or personal guarantees to the banks in order to access credit.

Literature on bank lending points out that personal commitments have two different roles: the first is to reduce the loss in case of default (loss at default) for the lender (Blazy & Weill, 2006). Jiménez and Saurina's (2004) work shows that collateralised loans are those with a higher probability of default. A second role personal commitments have, is to align borrower's and lender's interests that is to address problems of moral hazard and adverse selection. The argument is that personal commitments increase entrepreneurs' stake making them exert additional effort in the venture. Avery, et al. (1998) as well as Voordeckers and Steijvers (2006) research support the opinion that commitments are used to influence borrower behaviour to reduce the probability of default. They argue that personal commitments have a different role with respect the firm's collateral: personal commitments by increasing the liability of the shareholders of limited liability firms, reduce the moral hazard as well as adverse selection and agency risk. The main role of firms' collateral is to provide the bank with a hedge in case of default (Voordeckers & Steijvers, 2006).

What affects collateral request? Scholars have approached the problem by looking at both the length of the relationship and the age of the firm. There is evidence that the probability of gaining credit increases (and being collateralised decreases) with the age of the firm (Akhavain et al., 2004) since newer firms are considered to be the riskiest: they have to gain market shares, have to survive the start up period of getting established. Moreover, the potential lender is uncertain about the competence, skills and trustworthiness of the management as well as the kind of investment opportunities that could arise (Petersen & Rajan, 1994, Berger & Udell, 1995). By looking at the SMEs, Jiménez, et al. (2006) stress the different functions of collateral: younger firms are more prone to provide collateral as a way of signalling that they have no problems of moral hazard (Bester, 1985). Thus, the older the firm, the longer the current ownership and the longer the relationship, the less the collateral requested as already pointed out by Harhoff and Körting (1998) and Degryse and Van Cayseele (2000). Put differently, firms with more experience appear to be asked to provide collateral less often than other firms since a long relationship provides banks with great amount of private information giving them the possibility to discriminate between firms with poor track records and those that present moral hazard and adverse selection risks (Diamond, 1984, Berger, et al., 2005).

Longhofer and Santos (2000) by modelling the importance of the bank seniority (obtained through collateral or the use of guarantees), point out that personal commitments can be a supporting factor in building relationship lending. The explanation provided is based on the idea that "if banks are junior to other creditors, they may benefit little in bad states from additional investments in the firm and hence will have little incentive to build up relationships that might allow them to determine the value of such an investment" (Longhofer & Santos, 2000).

Relationship is also a matter of closeness (Petersen & Rajan, 1994). A large body of empirical evidence (for Italy see Castelli et al., 2006) as well as theoretical models (Dell'Ariccia & Marquez, 2004) support this point. The value of private information depends on its gathering on one (or few) collector(s), as the greater the concentration, the more complete the information, the smaller the agency problems and moral hazard risks. Thus, the lower the request for collateral.

Finally, relationship lending is a matter of quality of information where the higher its quality, the easier for the bank to evaluate the riskiness of the firm the lower the request for collateral (Harhoff & Koerting, 1998). Research by Lehmann and Neuberger (2001) looks at a set of variables that try to measure the interaction activity between bank manager and the entrepreneur. They find a negative correlation of the interactional variables with the collateral request from the bank (i.e. greater interaction is associated to less collateral). A corollary to the Harhoff and Koerting (1998) and Lehmann and Neuberger (2001) findings is provided by Berlin and Mester's (1998) who argue that in local and more concentrated markets lenders have better information about borrowers. Thus, in general lenders ask for less private collateral

2.2 Trust

As shown in the literature review provided, previous studies on lending relationships do not consider trust among covariates. To the best of our knowledge, only two of them consider it as one of the independent variables (Harhoff & Körting, 1998, Ferrary, 2003) but neither address the role of collateral. Trust as a variable is far too important to be overlooked (for a general review see Nooteboom, 2002). Bromiley and Harris (2006) argue that excluding trust from lending relationship models partially reduces the explanatory power of the models. Entering trust shifts the attention from the traditional approach linked to transaction costs economics and agency theory to a wider (and more complex) approach where interpersonal ties and relationship are taken into consideration (Barney, 1990).

The importance of trust in human relations is highlighted by various authors. The extensive literature on trust emphasizes that its presence reduces agency problems (e.g. Ring & Van den Ven 1992); cuts transaction costs (e.g. Macaulay, 1963); reduces expenses of monitoring and control (e.g. Zand, 1972); decreases the use of legalistic remedies (Sitkin & Roth, 1993); improves relationships (e.g. Fisman & Khanna, 1999); supports cooperation (e.g. Doz); aids decision taking in a situation where information is scarce (e.g. Luhmann, 2000). Trust is closely linked to ethics, it is culturally specific (Donaldson & Dunfee, 1994) and is a construct common to various disciplines from sociology and psychology, to economics, and organisational relations (see Rousseau, et al., 1998). The multidisciplinary interest in trust implies different approaches to analysing it.

Trust must not be confused with confidence which implies that one does not consider the alternative opportunities, or with reliance which is simply dependent on the proven capability. Trust requires a previous engagement of one person and presupposes a situation of risk where the damage is greater than the advantage. Mayer et al. (1995) present a useful definition of trust which shows trust as the willingness to accept the consequences of placing trust in a trustee:

“the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor and control that other party”

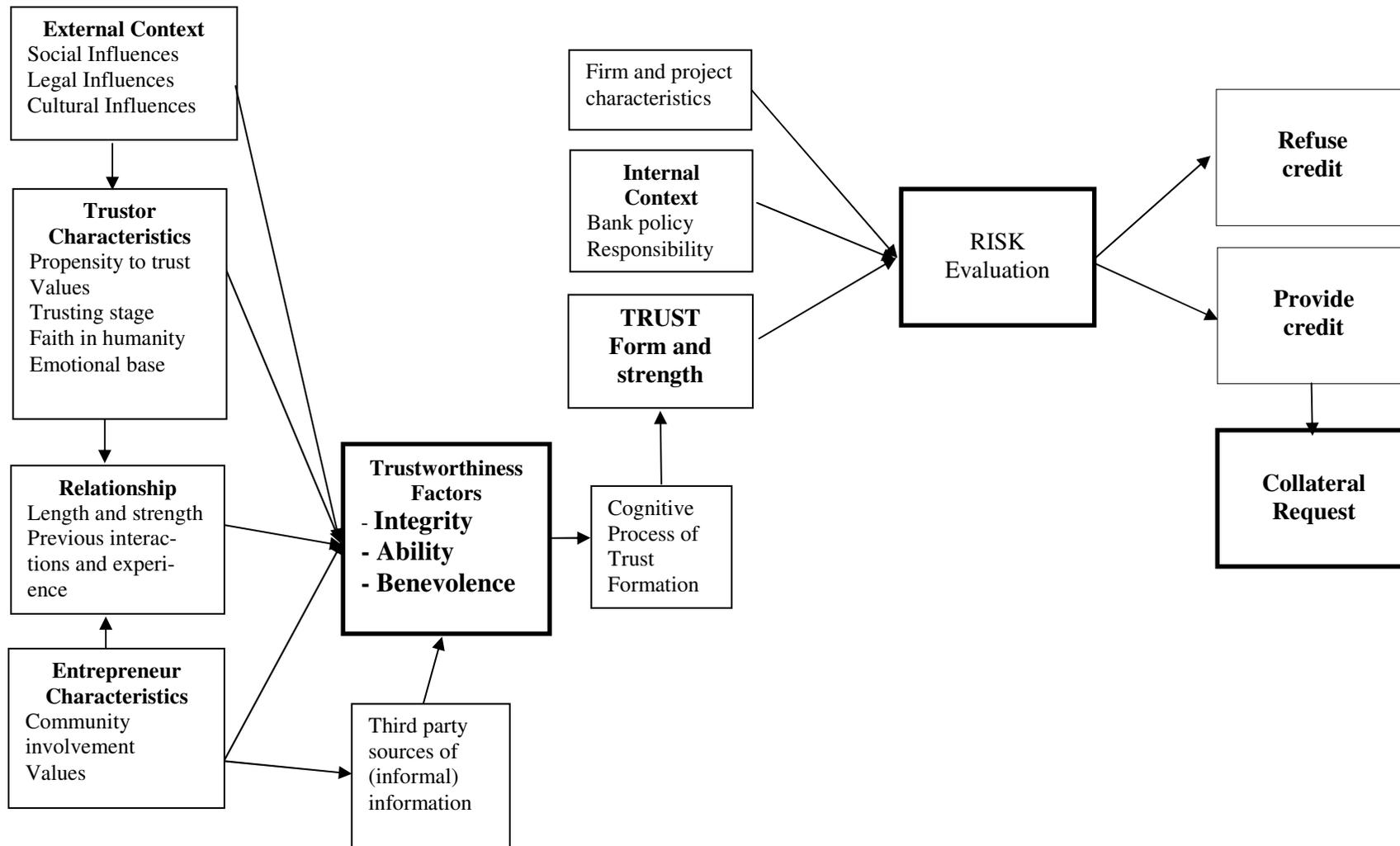
(Mayer et al., p. 712, 1995).

Since there is no single universally accepted definition of trust it makes difficult to find what affects trust. Indeed, if trust is identified with a subjective probability that the trusted party will not abuse the trust put in by the trustee, anything that contributes to this subjective probability would belong to trust (Nooteboom et al., 1997). Mayer et. al., (1995) provide one framework to model the relationship based lending behaviour that incorporates trust. Howorth and Moro (2006) adapted Mayer et. al., (1995) model to lending relationships. This study follows the Howorth and Moro (2006) model (Figure 1).

The perception of another's trustworthiness underpins the trust that exists between them. The focus here is on factors that influence the lending managers' assessments of trustworthiness. Mayer et al. (1995) suggest that trustworthiness is based on three factors: ability, benevolence and integrity. *Ability* looks at aspects such as skills and competence, it is domain specific and it cannot necessarily be generalised to other situations. Trust in the owner/manager's business ability will reduce the bank manager's perceived likelihood of default risk. *Benevolence* is the extent to which a trustee is voluntarily believed to do good to the trustor. Often, benevolence is viewed as relationship specific. In the bank – owner/manager relationship benevolence can play an important role; it can increase the expectation of the bank manager that the SMEs owners/managers will meet the obligations (repayment plans, covenants, etc.). *Integrity* is the trustor's perception that the trustee adheres to a set of principles considered acceptable to the trustor. Integrity (i.e. morality and ethical principles) is not linked to skills or competences nor is it relationship specific (morality is over and above each kind of specific relationship). Integrity is quite intrinsic part of individual's commitments to moral principles making integrity a personal characteristic of owner/manager. Thus, integrity is perceived as high only when trustor (that is bank manager) perceives that trustee's (that is owner/manager) moral principles and ethics are close to his/hers. In lending relationships, integrity can help to reduce the expectation of moral hazard, as well as increasing the perceived reliability of information supplied by the SMEs owners/managers.

Ability, benevolence and integrity will contribute to an assessment of the trustworthiness of each SME owner/manager. Earlier research has found it difficult to distinguish empirically between of trustworthiness factors, particularly benevolence and integrity (Nooteboom, et al., 1997) and it has been suggested that perceptions of trustworthiness draw on all the trustworthiness factors with varying degrees of emphasis depending on the context.

Figure 1 - Influences on Trust, Risk and Lending Outcomes (Adapted from Howorth & Moro, 2006)



3 Research question

The literature about trust points out its relevance as a means of reducing transaction and agency costs. At the same time, literature on relationship lending stresses the importance of agency issues and moral hazard reduction to reduce risk and improve credit availability also reducing the request of collateral. Interestingly, by conflating the two streams of research a general question arises i.e. what is the impact of trust on the lending relationships between banks and small firms owners/managers? More specifically, does trust decrease the request of personal collateral, that is collateral provided by the shareholders and managers of the firm?

As illustrated above, the trust which is bestowed on SMEs owners/managers is expected to be based on an assessment of the SME owners/managers' integrity, benevolence and ability which will have been made by way of the individual cognitive process of trust formation of the trustor, in this case, of the bank manager.

Because of the trust formation process and what affects it, trust can influence and reduce the request of collateral. Thus, Howorth and Moro (2006) develop a proposition that states that the "*Requests for collateral and personal guarantees are negatively related to bank manager's trust.*" This study investigates whether the proposition is supported by empirical analysis of lending decisions taken by banks.

4. Research Method and Data

We use both qualitative and quantitative approaches in this study. Measurement of trust was carried out using a survey of perceptions and actions of lending bank managers. Having measured the trust this measure is used along with other variables to carry out a quantitative analysis of the impact of these variables on private collateral requested the banks. The findings were discussed with a panel of SMEs owners/managers and bank managers.

The data on trustworthiness factors was collected using a survey filled in by the bank manager. The main body of the survey was aimed at collecting information on managerial and financial aspects of the firm along with various items which measure the three trustworthiness factors (*integrity, ability and benevolence*) and then perceived trust as is explained below.

Factor analysis is employed to test whether trust could be derived from the vector of items. The research question is then investigated using logit regression with a bootstrapped estimation of the standard errors. In fact, the dependent variable is a dummy one that assumes value 1 if the shareholders/managers provide personal collateral and 0 otherwise. The bootstrap technique in estimating standard errors of the dependent variable provides an estimate of the standard errors that is not linked to assumptions regarding the probability distribution of the population (Efron, 1979). In other words, it is a robust system to estimate the standard errors and significance level in general and specifically for the regression covariates (Efron & Tibshirani, 1998).

4.1 Model Specification

Foregoing literature review identified that there are various variables that could influence private commitments. However, our interest in this study is to investigate the role of trust on personnel commitments while controlling for the impact of other non-trust related variables. We therefore divide all the identified explanatory variables into three sets of variables. In first category we group together variables which are exogenous to firm such as location, competition, among banks, the region, the economic conditions. In second category interest paid, amount of credit gained, the average used debt, and size (turnover) of firm are included. These are collectively called 'hard variables' as they represent hard information or data. In the third category we group together variables that measure the strength of relationship and trust. These are length of relationship, frequency of meetings, number of relationship managers and multiple relationships with the bank. In order to investigate our research question following models were used. This approach gives us the possibility to verify which vector affects personal commitments independently of other vectors.

Exogenous variables

$$\text{COLL} = \beta_0 + (\beta_1 \text{LOCNAT} + \beta_2 \text{NBANKS} + \beta_3 \text{REGION} + \beta_4 \text{ECON}) + \varepsilon \quad (\text{Equation 1})$$

Hard variables

$$\text{COLL} = \beta_0 + (\beta_5 \text{INTOV} + \beta_6 \text{OVDUSE} + \beta_7 \text{LNTURNOVR} + \beta_8 \text{LNSTD}) + \varepsilon \quad (\text{Equation 2})$$

Relationship variables

$$\text{COLL} = \beta_0 + (\beta_9 \text{LNLENGTH} + \beta_{10} \text{FREQREV} + \beta_{11} \text{FREQMEET} + \beta_{12} \text{MANAGER} + \beta_{13} \text{MULTI} + \beta_{14} \text{TRUST}) + \varepsilon \quad (\text{Equation 3})$$

Then, in order to investigate the overall impact of different covariates, we use the following specification where the three vectors are entered together

$$\text{COLL} = \beta_0 + (\beta_1 \text{LOCNAT} + \beta_2 \text{NBANKS} + \beta_3 \text{REGION} + \beta_4 \text{ECON}) + (\beta_5 \text{INTOV} + \beta_6 \text{OVDUSE} + \beta_7 \text{LNTURNOVR} + \beta_8 \text{LNSTD}) + (\beta_9 \text{LNLENGTH} + \beta_{10} \text{FREQREV} + \beta_{11} \text{FREQMEET} + \beta_{12} \text{MANAGER} + \beta_{13} \text{MULTI} + \beta_{14} \text{TRUST}) + \varepsilon$$

All the terms used in the above equations are explained in the next paragraph.

4.2. Operationalisation of the variables

This section illustrates how variables are operationalised and their main statistics.

Dependent Variable

Personal commitments can be measured in two different ways: by looking at the value of the assets provided by managers and shareholders; or by simply looking if they provide personal commitments. The former approach is difficult to implement as reliable data can not be collected: entrepreneurs and managers are unwilling to disclose the

value of their personal wealth; even when provided such values can be difficult to ascertain in absence of market prices. Thus, collateral and guarantees are measured using a dummy variable that simply state whether the credit is assisted by some kind of personal commitment. This research follows such an approach. We operationalise the dependent variable (COLL) by using a dummy variable that has the value of 1 when the credit is assisted by personal commitments and 0 otherwise.

Independent Variable

Trust is measured according to a vector of 10 items that measure the three trust factors.

Table 1 – Trustworthiness Factors

Ability	
The entrepreneur knows very well the market in which he/she operates	<i>ABI1</i>
The entrepreneur is good at selecting the needed resources	<i>ABI2</i>
The entrepreneur is good at managing the resources	<i>ABI3</i>
The entrepreneur is good at understanding market evolution	<i>ABI4</i>
Benevolence	
The entrepreneur adapts his/her interests with those of his/her commercial partners	<i>BEN1</i>
The entrepreneur pays attention to the needs of his/her employees	<i>BEN2</i>
The entrepreneur is very involved in the community	<i>BEN3</i>
Integrity	
The entrepreneur is totally honest during negotiations with commercial partners	<i>INT1</i>
The entrepreneur is consistent in his /her behavior and decisions	<i>INT2</i>
If you know that the entrepreneur is looking for a personal assistant, Would you suggest a female friend to apply to the firm?	<i>INT3</i>

The bank managers were asked to evaluate the items on a 5 point Likert-type scale between “I totally disagree” (1) to “I totally agree” (5). Each item was based on previous trust inventories (e.g. Cummings & Bromiley, 1995, Currall & Judge, 1995) as well as items previously developed according to the proposed model, since they gave reliable results (see Mayer & Davies, 1999, Jarvenpaa et al., 1998). Table 1 list the items. They are reduced to one TRUST factor using factor analysis. The factor is expected to be negatively related to COLL since the higher the trust, the lower the probability that entrepreneurs and managers are asked to provide personal commitments.

Trust items data are reported in table 2. The mode score is 4 (I partially agree) for each item except for the item “The entrepreneur pays attention to the needs of his/her employee” and “The entrepreneur is very involved in the community” where the mode score is 3 (neither agree nor disagree). The average of each item is above 3 which stands for neutral. The lowest average is 3.08 (“The entrepreneur is very involved in the com-

munity”) while the highest is 4.11 (“The entrepreneur knows very well the market in which he/she operates”).

As previously illustrated trust is a complex construct: its components interact and help jointly the development of trust. The factor analysis of the survey provides a strong support to this point: it is very hard to split trust in its trustworthiness factors. Principal components analysis was employed to reduce the vector of ten items into trustworthiness factors. However, empirically, the (forced) two and three factors models were always sub-optimal with Eigenvalues well below 1.0 for all factors except the first one (although the items did load as expected on components representing ability, benevolence and integrity).

Table 2 – Trust indicators ability, benevolence and integrity (N=457)

Var.	Description	Mean	St.Dev.	Factor1 TRUST	Uniqueness
ab1	the entrepreneur knows very well the market in which she/he operates	4.11	.71	0.7268	0.4717
ab2	the entrepreneur is able in selecting the needed resources	3.71	.80	0.7139	0.4908
ab3	the entrepreneur is able in managing the resources	3.80	.78	0.7764	0.3973
ab4	the entrepreneur is able in understanding market evolution	3.81	.78	0.7450	0.4449
ben1	the entrepreneur adapts his interests to suit those of commercial partners	3.78	.70	0.7599	0.4226
ben2	the entrepreneur pays attention to the needs of the employees	3.54	.75	0.6566	0.5688
ben3	the entrepreneur is very involved in the community	3.09	1.17		
int1	the entrepreneur is totally honest in negotiations with commercial partners	3.88	.72	0.6437	0.5856
int2	the entrepreneur is consistent in his decisions and behaviour	3.81	.69	0.7417	0.4499
int3	you would be happy to recommend to a female friend to work in the firm	3.43	.95	0.7051	0.5079

The one component model was superior and had very high reliability. BEN3 (involvement in community) had a low communality and was dropped from the PCA which improved the reliability analysis. PCA was run on nine items (Cronbach Alpha 0.8806).

The PCA results indicate that perceived trustworthiness in this context appears to be a single complex entity that draws on ability, benevolence and integrity. This is in line with previous research (Nooteboom et al., 1997) that found it difficult to distinguish empirically between trustworthiness factors, particularly benevolence and integrity. As a consequence, one factor (TRUST) was extracted from the nine items instead of trying to extract three factors (ability, benevolence and integrity).

Control Variables - Exogenous

Berlin and Mester (1998) stress that in local and more concentrated markets lenders have better information about borrowers since news and gossip travel fast. As a matter of fact, lenders ask for less private commitments to compensate for the improved access to information. In the regressions, the number of the banks that operate in each municipality are entered (N_BANKS) as proxy for concentration in the lending market. A negative relation is expected between the concentration and request for collateral. The study focuses on two different regions. A dummy variable (REGION) is included where 1 represents Friuli Venezia Giulia. Firms in Friuli Venezia Giulia have less access to grants and public sources of finance and are less protected than those in South Tyrol. In addition, in Friuli firms face more competition from firms which have headquarters outside of the region.

The dataset has data from local and large banks a dummy variable (LOC_NAT) is used to control for the type of bank. Large banks (1) are supposed to be less supportive and consequently a positive relation with the dependent variable is expected. As argued by previous literature, a positive correlation between personal commitments and risk is expected (Berger & Udell, 1995). The covariate that tries to measure the risk (at systemic level) is ECON. It is an index collected by Bank of Italy in accordance to the European Central Bank, which measures the expected change in providing credit to customers. It is implicitly a measure of the change in perceived risk linked to change in economic climate. It is collected every three months through a survey administered to bank managers. The values used are those collected by Bank of Italy in the quarter when the data were collected in each bank. Since positive values are associated to a more stringent credit policy, a positive relationship between ECON and COLL is expected.

Control Variables - Hard

Riskiness is linked to firm size: bigger firms need more finance on one hand and are considered less risky on the other. In addition, they have greater negotiation power as found by Lehmann and Neuberger (2001). In the regressions, the size of the firm is measured by the natural logarithm of the annual turnover (LN_TURNOVER), in line with previous empirical research and a negative relation is expected. Three financing specific covariates are considered: the amount of short term credit provided by the bank in the form of natural logarithm (LNSTD), the average used short term debt (OV_USED) and the interest rate charged (INT). They are expected to be positively related to personal commitments requested. The bigger the amount of credit provided, the greater the risk for the bank and the more likely to be asked to provide some kind of hedging. The higher the use of the short term provided the greater the perceived riskiness of the firm. Regarding the interest rate on overdraft (INT_OV), literature stresses that when banks cannot discriminate a priori between different levels of risk of the investments because of inadequate information, they offer high/low interest and low/high collateral pairings in order to cause high and low risk borrowers to self select (Bester, 1985). In this case, the pairings of interest/collateral can clear the market. Clearly, there is no causation between interest and commitments but a negative correlation is expected. We decided to avoid traditional variables to control for the quality of the firm. In fact, neither the profit nor the assets are entered in the regression. The decision is linked with the poor quality of this data: they are strongly affected by the accounting standard used by Italian SMEs and by accounting creativity.

Control Variables – Relationship and Trust

The relationship provides the banks with additional information that helps to increase the knowledge of the firm and the general context as well. As pointed out by some theoretical models, borrowing constraints become less strict with time because of the increased reputation of the borrower (Martinelli, 1997). At the same time, when firms are small, they can face hold up problems (Howorth et al., 2003). In line with the previous empirical research the log of the length of the relationship (LN_LENGTH) is entered in the regression and a positive relationship is expected to occur since the bank capture effect is likely to prevail over the information production effect. If the firm has more than a simple lending relation with the bank (for instance, it relies on the bank for cash management), it has the possibility to give the bank a lot of additional information about firm performance. MULTI is a dummy variable that control for it. When the information is held by few or even only one bank manager, information dissipation is reduced: a positive relationship between the number of people involved in the relationship at bank level (MANAGERS) and personal commitments is expected. At the same time, the lending relationship is influenced by bank manager perception of facing a situation with reduced information asymmetry. Previous research (Berger et al., 2001) stresses the importance of the frequency the bank manager meets firms: this increases the acquisition of private information and helps in better evaluating firm's risk and, from the firm point of view, in reducing the request of private commitments (FREQ_MEET). The same effect is expected for FREQ_REV which measure the reviewing activity.

4.2 Sample Data

The research focuses mainly on local community banks that have the legal form of the Banche di Credito Cooperativo. The decision to pay attention to them is twofold: previous research stresses local banks' role in affecting national growth (Usai & Vannini, 2005); they are very small, are local and have strong ties with the community. The sample is represented by six Raiffeisenkassen and two Banche di Credito Cooperativo. In addition, data was collected from local branches of two large national banks.

A sample of non agricultural SMEs firms (as defined by European Community standards) was created for each bank. The sample was built up randomly and represents between 10% and 20% of the overall number of firms that had a credit facility with the bank (in terms of both short-term and long-term debt) in the case of local bank while for large national banks the sample represents less than 1% of the entire population and around 5% of the local population of customers. The initial list contains 535 firms which provided a final dataset of 457 useful observations (85.44%) with a turnover between 13,000 Euros and 46,900,000 Euros. The overall response rate is homogeneous among the different banks. Summary of the data is reported in table 3.

In the dataset 81.10% of the firm credit is collateralised with some form of personal commitments. This percentage is very close to the figure reported by Zecchini and Ventura (2009) who, by looking at the Italian Central Bank dataset (Centrale Rischi) found that more than 83% of the Italian firms provide some form of personal commitments to the bank system in order to access the credit they need.

Table 3 Summary statistics of variables used (N= 457)

Variable Description	Variable	Mean	Std. Dev.	Min	Max
Commitments (0=no commitments; 1=commitments) = personal and firm assets	COLL ₁	NA		0 18.90%	1 81.10%
Used debt (in percentage) = percentage of the rolling credit facility used	OVDUSE	60.67%	35.62	0	132
Typology of Bank (0 = Local; 1 = National)	LOCNAT	NA		0 18.47%	1 81.53%
Interest rate on overdraft – percentage (N =444)	INT_OV	5.35	1.43	1	12.75
Number of banks in the area	NBANKS	6.92	4.04	1	12
Region (0=Alto Adige; 1=Friuli)	REGION ₁	NA		0 87.25%	1 12.75%
Bank of Italy coefficient about expectations in increasing (positive) or reducing (negative) rigidity in providing new/additional credit	ECON	.059	.39	0	.17
Turnover of the firm for the most recent complete financial year (absolute values in thousands) - €	LNTURNOVR	2,205,000	4,629,000	13,000	46,900,000
Length of the relationship in years	LNLENGTH	10.34	7.72	0	35
Short Term Credit Provided - €	LNSTD	299,099	638,697	0	7,500,000
Frequency of reviewing = number of reviewing in a year	FREQREV	2.04	.48	1	3
Frequency of meetings = times of meetings in a year	FREQMEET	2.95	1.23	1	4
Number of bank managers involved in the relation (N =452)	MANAGER	1.59	1.16	1	7
Multiple relationship with this bank (0=no other bank products, 1=other bank products)	MULTI ₁	NA		0 41.98	1 58.02
Trust (Factor) - standardised PCA	TRUST	-9.34e-10	.94	-4.24	2.24

¹ Dummy variable (mean and standard deviation meaningless)

5. Testing Credit Constrained - Regression Findings

In table 4 three regressions are presented: the first considers only the covariates exogenous to the firm and to the relationship. The second one, looks only at the firm and finance characteristics. The third one considers only the relationship between banks and firms. The number of observation considered is slightly different among the specifications but the t-tests on different datasets show no significant difference. Interestingly, the first specification is not significant at all stressing the fact that the exogenous variables do not affect the request of personal commitments. The second specification is significant at 99% and both INTOV and OVUSED are significant between 95% and 99%. By examining the second regression, no support to Bester (1985) point about interest – collateral pairs is found. In addition, finance characteristics of the firm impact on the request of personal commitments more than the exogenous general characteristics of the area and of the economic context. In fact, the covariates that are not significant are borderline.

Table 4 – Regression findings

<i>Exogenous Model</i>		<i>Endogenous Model</i>		<i>Relationship Model</i>	
Number of obs	455	Number of obs	422	Number of obs	450
Replications	750	Replications	750	Replications	750
Wald chi2(4)	4.22	Wald chi2(4)	16.16	Wald chi2(6)	9.75
Prob > chi2	0.3461	Prob > chi2	0.0028	Prob > chi2	0.1357
Log likelihood	-218.6694	Log likelihood	-191.1557	Log likelihood	-213.392
Pseudo R2	0.0087	Pseudo R2	0.0458	Pseudo R2	0.0215

		Observed Coef.	Bootstrap Std. Err.	P> z 	Observed Coef.	Bootstrap Std. Err.	P> z 	Observed Coef.	Bootstrap Std. Err.	P> z
Exogenous	LOCNAT	-.40311	.47705							
	NBANKS	.07242	.04549							
	REGION	-.17193	.60235							
	ECON	-.13357	4.4531							
Hard	INTOV				.35396	.10478	***			
	OVUSED				.00861	.00390	**			
	LNTURNOVR				.17048	.11116				
	LNSTD				.19491	.12079				
Relational	LNLENGTH							.19350	.15089	*
	FREQREV							.43533	.25412	
	FREQMEET							-.01269	.11274	
	BANKMAN							.08543	.15596	
	MULTI							.14679	.26263	
	TRUST							-.24476	.13011	*
	_CONS	1.0775	.42353	***	-5.4976	2.2058	**	.03980	.62358	

* Sig. at 90%

** Sig. at 95%

*** Sig. at 99%

The specification that consider only the relationship variables is not significant and has an adjusted R^2 greater than 0.02. All the variables entered are not significant except TRUST and LNLENGTH that are significant at 90% level. Interestingly, what can be derived by looking at the three regressions is that only firm financial and operational characteristics affect the request of personal commitments.

Moving on in the analysis, in table 5 four specification are presented. The first one considers only hard covariates (that is the exogenous variables and firms' specific characteristics); the second enter the relationship covariates except TRUST. This gives us the possibility to compare the specification results to the findings of previous research and test how relationship variables impact on the request of personal commitments. TRUST is entered in the third one. By entering it separately we can appreciate how it impacts on the model. The last regression is the parsimonious version of the third specification, where the covariates that are not significant are dropped.

Regressions have adjusted R^2 between 0.058 and (first specification) and 0.087 (third regression). Only the last regression is significant at 99% according to Wald χ^2 test: the first one is significant at 98%, the second one at 95% while the specification with all the covariates has a significant level slightly below 90%. Interestingly, the poor level of the specification emerges using the bootstrap technique for estimating the standard errors. In fact, traditional estimation provide apparent stronger results with significance level of the specification always above 99.5%.

Missing data affects slightly the number of observations in the regressions. T-tests on the dependent variable and firm dimension (LNTURNOVER) did not show any significant difference at 99% level between datasets. The third (and fourth) specification provide a weak support to the hypothesis: TRUST has the expected sign (negative) confirming the role of trust in reducing the request of personal commitments and it also maintains negative sign (and is significant) in specifications not reported here.

Turning attention to other covariates, only competition (NBANK) is significant among the exogenous variables (even if only at 90%); the area (REGION), the bank characteristic (LOCNAT) as well as the economic context (ECON) does not affect personal commitments pledging. Interestingly, hard covariates are significant: INTOV is positively related to COLL and is significant. The relationship between personal commitments and the amount of short term credit is as expected (even if very weak) as well as the relationship with the average use of the credit gained. Managers and shareholders of firm with greater turnover (that is bigger and more powerful ones) are not necessarily better off in avoiding to provide personal commitments to the bank.

It is interesting that all the relational variables but LNLENGTH do not affect personal commitments pledging significantly. The LNLENGTH is positively and significantly linked to personal commitments pledging supporting the point that firms suffer bank capture effect. The frequency with which the bank check the line of credit is positively linked to commitments (it is not significant but border line). A possible explanation is that riskiest firms are those which are more monitored on one hand and are requested to provide more personal commitments on the other.

Table 5 – Regression findings

Number of obs	422	Number of obs	417	Number of obs	417	Number of obs	422
Replications	750	Replications	750	Replications	750	Replications	750
Wald chi2(8)	19.60	Wald chi2(13)	22.16	Wald chi2(14)	20.73	Wald chi2(9)	23.93
Prob > chi2	0.0120	Prob > chi2	0.0530	Prob > chi2	0.1089	Prob > chi2	0.0044
Log likelihood	-191.5524	Log likelihood	-185.3007	Log likelihood	-183.4161	Log likelihood	-188.8478
Pseudo R2	0.0585	Pseudo R2	0.0779	Pseudo R2	0.0873	Pseudo R2	0.0718

		Observed Coef.	Bootstrap Std. Err.	P> z									
Exogenous	LOCNAT	-.89812	.63994		-.79494	.81820		-.83830	.79037				
	NBANKS	.08549	.06040		.13129	.07772	*	.14035	.07808	*	.03475	.04051	
	REGION	-.87432	.82204		-1.0778	.97064		-1.2980	.96159		-.63628	.42204	
	ECON	2.1907	6.2888		4.7864	7.9039		6.1056	7.4398				
Hard	INTOV	.41743	.12053	***	.39893	.13359	***	.39739	.13992	***	.36469	.11873	***
	OVUSE	.00892	.00386	**	.00843	.00431	**	.00774	.00450	*	.00805	.00393	**
	LNSTD	.22558	.13335	*	.17133	.14326		.21319	.14661		.22558	.13335	*
	LNTURNOVR	.15736	.13470		.20031	.14080		.20275	.15004		.15736	.13470	
Relational	LNLENGTH				.25146	.17894		.30393	.20073		.30348	.16797	*
	FREQREV				.42619	.36147		.45611	.39030		.41519	.28781	
	FREQMEET				-.03729	.12994		-.02651	.12893				
	BANKMAN				.23651	.23861		.26567	.22389				
	MULTI				.17619	.29803		.16082	.29562				
	TRUST							-.27634	.16117	*	-.23656	.13947	*
	_CONS	-6.4416	2.6354	***	-8.4339	2.9413	***	-9.2225	3.1758	***	-7.1806	2.4320	***

* Sig. at 90%
 ** Sig. at 95%
 *** Sig. at 99%

5.1 Comments on Findings

The regression analysis shows that trust does have an impact on reducing the request of personal commitments even if the finding is not highly significant. Interestingly, all relationship covariates entered in the regressions (even in those not reported here) are not significant (except for the length of the relationship); only the variables that measure the economic and financial characteristics of the firm are significant. Moreover, the significance level of the specifications is quite poor stressing the fact that the suggested model does not capture the determinants of the request of personal guarantees. These findings are not only at least partially in contradiction with the hypothesis but also with previous literature.

An explanation can be found by looking at Howorth and Moro (2006) research. They provide a quote of one of the bank managers they interviewed who stated that “Trust influences the credit conditions more at the beginning of the relationship: as the relationship evolves we tend to keep unchanged the previous conditions.” Our econometric findings support this statement. This means that, possibly, banks are over-hedged when they provide credit to successful firms since as the risk decreases they do not adapt the request of personal commitments accordingly. If this can be sensible from the bank point of view, it is not from the entrepreneurs’ one. Why entrepreneurs do not react?

Two different explanation can be provided: either the bank exploit hold up situation linked to the small dimension of the SMEs and their incapability to swift to another bank; or firms’ owners as well as firms’ managers are not very concerned about the personal commitments they provide to the bank. In order to investigate which is the reason, we ran some interviews with entrepreneurs and bank managers who were asked to comments on our findings.

Some entrepreneurs clearly stated that they are not concerned to provide personal commitments to the bank since this is the standard way to run the business and to collect finance. One of them clearly told us “this is my own business: is there something wrong in investing in it all my personal wealth?”. Even bank managers support this point. One of them told us “I clearly state to the entrepreneurs: if you do not invest in the venture all your personal wealth, you’ll tell us you are not committed to your venture. So, why do I have to trust your venture?” An additional support was given by some entrepreneurs who clearly stated that they did not remember whether they had provided the bank with personal guarantees: one of them questioned us “does it matter?” Others wrongly thought that the bank was not provided with personal commitments. This emerged by crosschecking what the entrepreneurs told us and evidences in the bank files. Finally, according to bank managers interviews, entrepreneurs very infrequently ask to be unpledged. Indeed, bank managers stressed this is the least common request and usually it is interpreted negatively by the bank. Bank managers’ tend to stress that often, soon after the request of being unpledged, the performance of the firm deteriorates. Thus, bank managers are used to interpret the request of unpledging personal commitments as “warning light” that is an attempt by the entrepreneurs to save their personal assets when they know personal assets are at real risk. Thus, paradoxically, when the entrepreneurs ask for being unpledged, they hardly are satisfied in their request.

Overall, interviews support the argument that entrepreneurs do not seem bother whether they are requested to provide personal collateral. They do not pay too much attention to the terms of credit and their financial implications of their venture since they are mainly focused on the operations, the relationships with customer and suppliers, the management of the human resources, etc. Possibly, our econometric finding (a negative relationship between trust and personal commitments) is mainly linked to trust between bank managers and customers that pre-exists in the lending relationship. This can happen because of bank managers' knowledge of the entrepreneur is based on gossip and information the bank manager was able to access before starting the lending relationship.

6. Conclusions

Present study is an additional step in the research about the role trust plays in the business relationship. There is some research that looks at the role of trust in accessing venture capital, in developing relationships with business angels, in accessing trade credit, in getting support from customers and suppliers when starting up or a spinning off a firm. At the same time, there is lack of empirical research about the role of trust in banking relationships. Even though it is a contractual relationship, underpinning the potential creditor's analysis of the risk return trade-off is an assessment of the trustworthiness of the borrower.

By approaching lending relationship from a different perspective, present research opens a new, interesting perspective on pledging personal commitments. We find partial support to our argument that decision to require personal commitments cannot be reduced to facts and figures because trust (and soft information in general) plays an important role in accessing credit. We argue that the weak role of trust is due to the fact that personal commitments are requested at the beginning of the relationship (when trust is implicitly very low) and that there is some inertia in both the bank system (which exploit hold up situations) and in entrepreneurs in reducing private collateral. Indeed, the entrepreneurs are not concerned about the additional personal wealth they implicitly invest in the venture as personal commitments.

Present research opens up scope for future research. The first area for further investigation might be to test the hypotheses in regions with a different cultural background mainly to investigate if such a state of mind about personal commitments is general or country/region specific. Secondly, it could be interesting to investigate why entrepreneurs, owners and managers of SMEs are not concerned about the guarantees provided. Finally, it could be interesting to investigate whether the changes in the value of personal commitments provided affect the lending decisions of the banks either asking for more personal commitments or reducing the line of credit provided. In fact, if changes in personal wealth do not affect lending decisions, it could mean that trust may play some real role on the request of personal commitments.

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