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Abstract

Previous research on relationship lending has paid very little attention to the role of trust. Trust might be expected to reduce agency costs, perceived credit risk and thus the request for personal collateral. Trustworthiness is associated with three attributes of SME owner/managers': ability, benevolence and integrity. We hypothesised that loan managers' assessment of the trustworthiness of owner/managers is negatively associated with the personal collateral demanded by banks. Using the quantitative and qualitative data about 457 SMEs-bank relationships in North East Italy, we tested this hypothesis. The results show that trust has a minor role in reducing the request of collateral.

Keywords: Trust, Relationship lending, SMEs, Personal Collateral

I. Introduction

The banking system is essential for the life of firms and especially for small and medium enterprises, as they do not usually have access to equity capital markets. The lending process is very complex and 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 and Udell, 2006). Among the various lending technologies, relationship lending plays a peculiar role since it supports SMEs in accessing credit. Indeed, in this case banks rely on various sources of private information gathered through contact with firms, their owners and the local community in order to evaluate firms' creditworthiness (Petersen and Rajan, 1994, 1995 and Berger and Udell, 1995). Personal contacts and informal channels can help banks to deal with SMEs opaqueness and the related difficulty of evaluating risk. Thus, small businesses can be better off as a result of easier access to credit.

Previous research on relationship lending has focused attention on a set of variables such as relationship length, closeness of the relationship, the concentration of lending relationships on a few banks and the quality of the relationship. Very little attention has been paid to trust.

Interestingly, when a bank makes a decision to provide credit, even though the relationship created is a contractual relationship, it is underpinned by an assessment of trust. Literature on trust stresses that high levels of trust 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, a trusting relationship may benefit banks and SMEs as illustrated theoretically by the model proposed by Howorth and Moro (2006) who 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 evidence. More specifically, the present study tests whether the level of trust placed by bank managers in SME owner/managers is associated with the request for personal collateral in the form of either personal guarantees and/or the pledging of personal assets. Trust is measured employing a vector derived from Mayer *et al.*, (1995).

The present study relies on a unique dataset of 457 observations collected in the Italian North East during the period 2004-2007 that is used to test the research hypothesis. In addition, the researchers conducted a set of interviews with managers of the banks involved in the research and with SME owner/managers. During these interviews the econometric results were discussed.

Our econometric findings suggest that trust has a minor role in the reduction of the personal collateral. Interviews with loan managers and entrepreneurs indicate that, on the one hand, the collateral is requested at the beginning of the relationship (when trust is inevitably low) and on the other hand that both loan managers and entrepreneurs exhibit inertia. Our interviews suggest that loan managers like to be "over hedged" with extra guarantees, while entrepreneurs are surprisingly not particularly sensitive to the additional risk they incur because of the personal collateral provided. In fact, they are not very careful about the personal collateral at the point that, sometimes, they are not even aware about the personal collateral provided to the bank.

This paper is organised as follows: Section 2 discusses the literature on relationship lending and trust, explaining the role of trust as an independent variable. Section 3 describes the research methodology and how variables modelled are operationalised. In Section 4 the results are reported and discussed. Section 5 draws conclusion and identifies areas for future research.

II. Overview of the Literature

Banks are a very important source of finance for SMEs. SMEs tend to leverage bank debt in preference to equity and after having exploited other sources of finance such as trade credit (Howorth, 2001) and bootstrap finance, which can only partially cover firms' financial needs (Wingborg and Landström, 2000). In addition, banks look at cash flow generated by the projects to evaluate firms' creditworthiness. This approach differs from that used by venture capitalists, business angels and by the owner-manager, as well (Mason and Stark, 2004). The use of bank debt to finance firms and projects is at least partially affected by the socioeconomic and legal context: however one finds it in large firms and small ones; in both developed and developing economies; in Continental Europe as well as in the Japanese and Anglo-Saxon worlds. Research on SMEs suggests that the adoption of Basel II has adversely affected their access to credit, in particular for financing R&D (Scellato and Ughetto, 2010). As a result, the firms are required now to provide more guarantees irrespective of whether they can access loan guarantees provided by national or local financial/governmental institutions (Camino and Cardone, 1999).

Research on lending demonstrates that the lending technologies can be grouped into categories (Berger *et al.*, 2005): financial statement lending (based on the evaluation of information from the financial statements); asset based lending (based on the provision of collateral and its quality); credit scoring lending (based on statistical probability analysis). These three categories are usually grouped together and labelled transaction lending; the risk evaluation is based on available factual and public information, and they are used for loans that are mainly for non- recurrent needs. The fourth category is relationship lending which targets firms' recurrent needs and focuses on the fact that improvements in the relationships between banks and businesses may help the banks in evaluating firms' riskiness, increasing credit availability, reducing the cost of credit and the pledging of collateral (Agarwal and Hauswald, 2008). In the case of relationship lending, the information is gathered beyond the relatively transparent data available in the official documents; the information gathering is through a continuous process; the information remains confidential to the provider of funds who uses it as a basis for taking other lending decisions (Berger, 1999). Relationship lending is found to affect the maturity of the debt differently in different countries (Hernández-Cánova and Koëter-Kant, 2008).

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

II.1. The Request for Collateral

The firm and its owner/manager can be asked to provide collateral and guarantees (see Berger *et al.*, 2006) as conditions for being granted the credit it needs. 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 of 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. The Italian bank system relies on personal commitments as shown by Zecchini and Ventura (2009) who

found that more than 83% of Italian small firms' owners/managers 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 and Weill, 2006) providing the bank with a hedge in case of default (Voordeckers and Steijvers, 2006). In support of this role of personal collateral, Jiménez and Saurina (2004) show 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, reducing implicitly the probability of default. The argument is that personal commitments increase the owner/managers' stake, making them exert additional effort in the venture. Avery *et al.* (1998) as well as Voordeckers and Steijvers' (2006) research, supports the view that commitments are used to influence borrower behaviour to reduce the probability of default; Steijvers *et al.* (2010) find that the total value of the assets plays an important role in the pledging of collateral.

Banks' decisions regarding the pledging of personal collateral are affected by various factors. Scholars point out the role of both the length of the relationship and the age of the firm. There is evidence that the probability of gaining credit increases (and the request for collateral decreases) with the age of the firm (Akhavein *et al.*, 2004) since newer firms are considered to be the riskiest. Newer firms have to gain market share, survive the start up period getting established and the potential lender is uncertain about the competence, skills and trustworthiness of the management (Petersen and Rajan, 1994, Berger and Udell, 1995). Jiménez *et al.* (2006) explain that younger firms are more prone to provide collateral as a way of signalling that they have no problems of moral hazard. The older the firm, the longer the current ownership and the longer the relationship with the bank, the less the collateral requested (Harhoff and Körting, 1998, Degryse and Van Cayseele, 2000). Indeed, firms with more experience and with a long relationship provide banks with a 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) point out that personal commitment 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.

The quality of the relationship is also a matter of closeness (Petersen and Rajan, 1994): the closer the relationship the easier for the bank to access the information it needs. In addition, the value of private information depends on the number of parties collecting the information, as the greater the concentration, the more complete the information received. Thus, the more the relationships are concentrated on a few banks, the lower the request for collateral will be.

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 and hence the lower the request for collateral (Harhoff and Körting, 1998). Research by Lehmann and Neuberger (2001) looks at a set of variables that are intended to measure the interaction activity between bank manager and the SME owner/manager. These authors find a negative correlation between the interactional variables and the collateral request from the bank (i.e. greater interaction is associated with less collateral). A corollary to the Harhoff and Körting (1998) and Lehmann and Neuberger (2001) findings is provided by Berlin and Mester (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.

II.2 Trust

As the foregoing discussion of the relevant literature demonstrates, previous studies on lending relationships only peripherally consider trust among the covariates. To the best of our knowledge, in the banking finance literature, there are four studies that consider trust as one of the independent variables (Harhoff and Körting, 1998, Ferrary, 2003, Saparito and Gopalakrishnan, 2009 and Howorth and Moro, forthcoming). Ferrary (2003) investigates how bank managers can gain trust from networks of customers by developing social capital; Saparito and Gopalakrishnan (2009) investigate knowledge transfer in lending relationships; Howorth and Moro (2012) investigate the impact of trusting relationships on interest rate. Harhoff and Körting's (1998) research investigates the determinants of interest and collateral. Although they consider trust among the covariates, the role of trust is not a major feature of their research. Moreover, these authors simply asked the bank managers whether they trust or do not trust the owner/manager, using a simple dummy variable to indicate the response. Thus, the role of trust is under-investigated even though it is far too important to be overlooked (Nooteboom, 2002). Bromiley and Harris (2006) argue that excluding trust from relationship models reduces the explanatory capability of the postulated models. Incorporating trust shifts the attention from the traditional approach linked to transaction cost economics and agency theory to a wider (and more complex) approach where interpersonal ties and relationships are taken into consideration (Barney, 1990).

The importance of trust in human relations is highlighted by various authors. The literature on trust emphasizes that its presence reduces agency problems (e.g. Ring and Van de 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 and Roth, 1993); improves relationships (e.g. Fisman and Khanna, 1999); supports cooperation (e.g. Doz, 1996); 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 and Dunfee, 1994) and is a construct common to various disciplines from sociology and psychology, to economics, and organisational relations (see Rousseau, *et al.*, 1998). Trust requires a previous engagement of one person and presupposes a situation of risk where the damage is greater than the advantage. Therefore, trust is different from confidence which implies that one does not consider the alternative opportunities.

An additional layer of complexity is linked to the fact that trust is not static, since it can evolve from a weak form to a strong one and vice versa. The weakest form of trust is calculus trust, which is based on a calculation of the costs of trusting other versus its benefits (Lewicki and Bunker, 1996) and can be easily broken. When this form of trust applies, governance devices are more prevalent and may include detailed contracts (Barney and Hansen, 1994). Trust may evolve in the form of knowledge based trust (Lewicki and Bunker, 1996) that derives from predictable behaviour based on prior knowledge of the trustee. Such trust is based on relationships and reciprocal testing and increases with regular communication (Lewicki and Bunker, 1996). The strongest form of trust is unconditional or identification based trust which implies identification with others' ideas, desires and intentions and a strong reciprocal understanding in terms of values and standards of behaviour. It is independent of any specific situation (Barney and Hansen, 1994). Here, the psychological contract substitutes for formal contractual safeguards.

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. Trustworthiness in the SME owner/manager's business ability will reduce the bank manager's perception of the risk

of default. Benevolence is the extent to which a trustee is believed to voluntarily do good to the trustor: in the bank – owner/manager relationship, it can increase the bank managers' expectation that the SME owner/manager will meet the firm's obligations (repayment, covenants, etc.) to the bank. Integrity is the trustor's perception that the trustee adheres to a set of principles considered acceptable to the trustor. Integrity is not linked to skills or competences nor is it relationship specific (morality/ethics exist over and above any particular relationship). Integrity is an intrinsic part of an individual's commitments to moral principles (Smith, 1759), making it a personal characteristic of the owner/manager. 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.

The literature on trust indicates its relevance as a means of reducing transaction and agency costs. At the same time, the literature on relationship lending stresses the importance of relationships, suggesting that they can be helpful in order to address agency issues and moral hazard risk. Thus, improved relationships can increase credit availability, and also reduce the request for collateral. Interestingly, by conflating the two streams of research (trust and relationship lending), a question arises: does trust decrease the request for personal collateral that is the collateral provided by the shareholders and managers of the firm?

According to Mayer *et al.* (1995) as adapted by Howorth and Moro (2006), the trust which is bestowed on SMEs owners/managers is expected to be based on an assessment of the SME owner/manager's integrity, benevolence and ability. Thus, trust can influence and reduce the request for collateral. 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 evidence.

III. Research Method and Data Collection

In undertaking the empirical research for this study, we employed a combination of quantitative and qualitative methods. The quantitative research was based on a large-scale survey of bank managers. The main body of the survey was aimed at collecting information on managerial and financial aspects of the client firm, along with various items which are taken as indicators of the three trustworthiness factors (*integrity, ability* and *benevolence*). The data obtained were used to derive measures of trust and of a number of other variables hypothesised as influencing the personal collateral, in order to facilitate a quantitative analysis of the impact of these variables on the amount of private collateral requested by the banks. Factor analysis was employed to test whether trust could be derived from the vector of items. The research (whether requests for collateral are negatively related to bank managers' trust) was then investigated using logit regression with a bootstrap estimation of the standard errors (Efron and Tibshirani, 1998). In fact, the dependent variable is a dummy one that assumes value 1 if the shareholders/managers provide personal collateral and 0 otherwise.

The qualitative component of our research was based on a series of interviews with SME owner/managers and bank managers, using a semi-structured questionnaire to elicit their respective perceptions of the trust relationship and its implications for the pledging of collateral.

III.1 Operationalisation of the variables

In order to operationalise the model, in addition to the dependent variable (COLL) and the independent variable (TRUST) we employed a set of control variables. The foregoing literature review indicated that there are a number of variables that could influence the request for personal guarantees. However, our interest in this study is to investigate the role of

trust on the request for personal guarantees. We therefore divided the potential explanatory variables into three categories. In the first category we grouped together variables which are exogenous to the firm. In the second category the variables related to the firm's own characteristics are included. These two categories are collectively called 'hard variables' as they represent hard information or data. In the third category, we grouped together variables that measure the strength of relationship.

III.1.a Dependent Variable

Personal commitments can be measured in two different ways: by looking at the value of the assets provided by managers and shareholders; by simply determining whether they provide personal commitments. The former approach is difficult to implement as reliable data is hard to obtain: entrepreneurs and managers are unwilling to disclose the value of their personal wealth. Even when an assets list is provided, values can be difficult to ascertain in the absence of market prices. Thus, collateral and guarantees are measured using a dummy variable that simply states whether the granting of credit is facilitated by some kind of personnel commitment. Therefore, we operationalise the dependent variable (COLL) by using a dummy variable that has the value of 1 when the granting of credit is facilitated by personal commitments and 0 otherwise.

III.1.b The Independent Variables

Trust is measured according to a vector of 10 items that measure the three trust factors (Mayer *et al.*, 1995) as reported in Table 1. The bank managers in our survey were asked to evaluate the items on a 5 point Likert-type scale between "I totally disagree" (1) to "I totally agree" (5) except for the last item (INT3) where they are asked to evaluate between "I totally advise against" (1) to "I totally advise". Each item was based on previously established trust inventories (e.g. Cummings and Bromiley, 1996, Currall and Judge, 1995, Mayer and Davies, 1999, Jarvenpaa *et al.*, 1998).

Jarvenpaa *et al.* (1998) and Mayer and Davies (1999) suggest measuring ability by using items that are focused on the use and the selection of firm's resources. In addition, they suggest focussing attention on trustee skills. Indeed, Jarvenpaa *et al.* (1998) measure trust by using items like "I feel very confident about the team member skills" and Mayer and Davies (1999) use items such as "Top management is very capable in performing its job". Our four ability items capitalise on these previous approaches.

Benevolence is traditionally measured by looking at the opinion the trustor has about trustee orientation towards balancing his/her interests with those of the commercial partners. Thus, Mayer and Davis (1999) uses "Top management is very concerned about my welfare", "My needs and desires are very important to top management", and "Top management really looks at what it is important for me". Similarly, Jarvenpaa et al. (1998) use "The other team members are concerned about what is important to the team" or "the other team members do everything within their capacities to help the team perform". Finally, Cummings and Bromiley (1996) use "we think people are fair in the negotiations with us" or "we think people behave according to the commitments". In addition, since benevolence is linked to altruism (Mayer *et al.*, 1995), whether the trustee is actively involved in the life of the community is also taken into account. All these aspects are mirrored by the three items we use to measure benevolence.

Integrity is linked to the intention of not cheating the commercial partners, as well as on behaving in a manner consistent with expectations. Jarvenpaa *et al.* (1998) measure integrity with items such as "The other team members try hard to be fair in dealing with one another" and "The other team members have a strong sense of commitment". Similarly, Mayer and Davies (1999) use "Top management has a strong sense of justice" or "Top management actions are very consistent". Cummings and Bromiley (1996) use items such as "We think

that people tell the truth in the negotiations". Our three items reflect these aspects. Table 1 shows the items used in this research listing the sources for each item.

Trustworthiness factors are reduced to one TRUST factor using factor analysis. This 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.

Data collected on trust items are reported in Table 1. 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 3.09 ("The entrepreneur is very involved in the community") while the highest is 4.11 ("The entrepreneur knows very well the market in which he/she operates").

[Insert Table 1 here]

Factor analysis supports the proposition that trustworthiness factors interact and help jointly the development of trust. 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). The PCA results indicate that perceived trustworthiness in this context appears to be a single complex entity that draws on ability, benevolence and integrity: the one component model was superior and had very high reliability. 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. BEN3 (involvement in community) had a low communality and was dropped from the PCA, which improved the reliability analysis. Thus, PCA was performed on nine items (Cronbach Alpha 0.8806) and one factor (TRUST) was extracted.

III.1.c 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. In such circumstances, lenders ask for less private commitments to compensate for the improved access to information. In the regressions we performed, the number of the banks that operate in each municipality are entered (NBANKS) and a positive 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. Thus, a positive relationship is expected. The dataset contains data from local and large banks: a dummy variable (LOCNAT) 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.

Previous literature has suggested a positive correlation between personal commitments and risk (Berger and Udell, 1995). The covariate that tries to measure the risk (at systemic level) is ECON. This is an index compiled by Bank of Italy in accordance with 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 we used are those collected by Bank of Italy in the quarter when the data were collect-

ed from each bank. Since positive values are associated with a more stringent credit policy, a positive relationship between ECON and COLL is expected.

III.1.d Control Variables - Hard

Riskiness is linked to firm size: bigger firms need more finance on the one hand but they usually are considered less risky since they have more assets, a larger customer base and provide more sound (e.g. audited) financial reports. 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 (LNTURNOVER), 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 short-term debt used (OVDUSE) and the interest rate charged (INTOV). These covariates are expected to be positively related to the personal commitments request. The greater the amount of credit provided, the greater the risk for the bank and the more likely the owner/manager is asked to provide some kind of hedging. The higher the quota of short term debt used, the greater the risk that the firm is credit constrained and hence the higher the perceived financial risk from the bank point of view. Regarding the interest rate on overdraft (INTOV), the literature stresses that when banks cannot discriminate *a priori* between different levels of risk for their investments because of inadequate information, they offer high/low and low/high interest – 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 according to Bester (1985) a negative correlation is expected.

III.1.e Control Variables - Relationship

The relationship provides the banks with additional information that helps to increase their knowledge of the firm. As indicated 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 may face hold up problems (Howorth, *et al.*, 2003). In line with the previous empirical research, the log of the length of the relationship (LNLENGTH) 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 measures the existence of more than a simple lending relation. 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 the requirement for 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 with which the bank managers meet firms (FREQMEET): it increases the acquisition of private information and helps in better evaluating the firm's risk and, thereby, in reducing the request for private commitments. The same effect is expected for FREQREV which measures the intensity of reviewing activity, i.e. how many times in the year bank manager reassesses the credit provided to the SME.

III.2 Model Specification

The subdivision of the covariates into three sets, gave us the possibility of verifying which vector affects personal commitments independently of other vectors. Thus, we develop three different specifications as listed below:

Exogenous variables

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

Hard variables

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

Relationship variables

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

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

$$COLL = \beta_0 + (\beta_1 LOCNAT + \beta_2 NBANKS + \beta_3 REGION + \beta_4 ECON) + (\beta_5 INTOV + \beta_6 OVDUSE + \beta_7 LNTURNOVR + \beta_8 LNSTD) + (\beta_9 LNLENGTH + \beta_{10} FREQREV + \beta_{11} FREQMEET + \beta_{12} MANAGER + \beta_{13} MULTI + \beta_{14} TRUST) + \varepsilon \quad \text{(Equation 4)}$$

III.3 Sample Data

The research focuses mainly on local community banks that have the legal form of the Banche di Credito Cooperativo located in North East Italy. The decision to focus on these banks was linked to previous research that stressed local banks' role in affecting national growth (Usai and Vannini, 2005) and that they have strong ties with the community. The sample consists of 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 SME firms (as defined by European Community standards) was selected 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 banks, 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 contained 535 firms which provided a final dataset of 457 useful observations (85.44%) with a turnover for the constituent firms between 13,000 Euro and 46,900,000 Euro. A summary of the data is reported in Table 2.

[Insert Table II here]

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.

IV. Testing the Role of Trust in the Requirement for Collateral

The role of trust in the pledging of personal collateral was analysed both quantitatively and qualitatively. We discuss first the quantitative analysis.

IV.1 Regression Findings

In Table 3, the results of three regressions are presented: the first considers only the covariates exogenous to the firm and to the relationship. The second looks only at the firm's characteristics. The third one considers only the relationship between banks and firms. The

number of observations 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, emphasising the fact that the exogenous variables do not affect the request for personal commitments. The second specification is significant at 99% and both INTOV and OVUSED are positively related to COLL and significant between 95% and 99%. By examining the second regression, no support for Bester's (1985) proposition concerning interest – collateral pairs is found. In addition, finance characteristics of the firm explain the request for personal commitments more than the exogenous general characteristics of the area and of the economic context even if only 4.6% of the overall variance. In fact, the covariates that are not significant are borderline.

The specification that considers only the relationship variables is not significant and has a very low adjusted R^2 (the specification explains just 2% of the overall variance). None of the variables included is significant except TRUST and LNLENGTH that are significant at 90% level. What can be derived by looking at the three regressions is that only firm financial and operational characteristics affect the request of personal commitments even if they explain a minor part of the variance.

[Insert Table III here]

Moving on in the analysis, in Table 4 four specifications are presented. The first specification considers only hard covariates (that is the exogenous variables and firms' specific characteristics); the second enters 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 for personal commitments. TRUST is entered in the third specification. 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.

[Insert Table IV here]

Regressions have adjusted R^2 values between 0.058 (first specification) and 0.087 (third specification). Only the last regression is significant at 99% according to the Wald chi^2 test: the first one is significant at 98%, the second one at 95%, while the specification with all the covariates has a significance level slightly below 90%. It is worth noting that the low level of the specification significance emerges by using the bootstrap technique for estimating the standard errors. In fact, traditional estimation provides apparently 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) specifications support the argument that, at variance with our hypothesis, TRUST (and soft variables in general) have only a minor role in reducing collateral. In fact, TRUST has the expected sign (negative) but it explains only 1% of the overall variance and it is significant only at 90%. Also in other regressions not reported here, it is always significant just above 90%.

Because of the role played by hard variables and trust, it can be questioned whether trust is simply linked to the quality of the firm and that bank managers simply trust good firms. In order to test whether trustworthiness is distinct from the quality of the firm, we carried out some additional econometric tests. Firstly we investigated the link between TRUST and hard variables: TRUST has a very low correlation with other hard variables (TRUST –

TURNOVER 0.057; TRUST – OVUSE -0.135; TRUST INT .0147). In addition, we measured the correlations between TRUST and two financial performance indicators (ROS, ROE): they were not significant and correlations were all less than 0.1. Then, we regressed COLL against these indicators (ROS, ROE) and other variables (assets, debtors, equity). Neither the regression nor the covariates were significant. This evidence indicates there is no mechanistic correlation between bank managers' trust and firm quality. Similarly, because of the role played by relationship variables and trust, it can be questioned whether trust is simply a proxy of the quality of the relationship. Thus, we investigated the link between trust and the length of the relationships and the intensity of the relationship (BANKMAN, FREQREV FREQMEET). In this case the correlations were between +0.0238 (TRUST - FREQREV) (and +.1379 (TRUST - LNLEGTH). In addition, the specification with TRUST as a dependent variable and these soft variables as independent variables is not significant and no variable is significant. Thus, as in the case of performance variables, it is possible to rule out a mechanistic correlation between trust and other soft variables.

Turning attention to other covariates, only competition (NBANK) is significant among the exogenous variables (even if only at 90%). 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 weak) as well as the relationship between OVDUSE and COLL. Managers and shareholders of firms with greater turnover (that is bigger and more powerful ones) are not necessarily better off in avoiding the provision of personal commitments to the bank.

It is worth noting that all the relational variables except LNLENGTH do not affect the pledging of personal commitments significantly. LNLEGTH's positive link to the pledging of personal commitments supports the proposition that firms suffer bank capture effect. The frequency with which the bank checks the line of credit (FREQREV) is positively linked to personal commitments (it is not significant but border line). A possible explanation is that the riskiest firms are those which are monitored more frequently and are required to provide more personal commitments.

IV.2 Evidence from the Panel of Bank Managers and SME Owner/Managers

The regression analysis shows that trust has a comparatively small impact on reducing the requirement for personal commitments: the significance level of the specifications is quite low, suggesting that the model does not capture the determinants of the requirement for personal guarantees; moreover, TRUST is significant only at 90%. All in all, econometric testing suggests a lack of importance of trust and other soft variables. These findings are definitely at variance with the findings reported previously in the literature. Thus, further analysis is needed.

The semi-structured interviews we undertook with bank manager and entrepreneurs provided useful insights in clarifying the role of trust. Bank managers clearly stated that, in general, they set up the credit conditions at the beginning of the relationship and, then, they hardly change them subsequently. More specifically, bank managers tend not to change the guarantees they were provided with, as the relationship evolves. A bank manager commented that he never accepted a reduction in collateral the owner/managers provided. If anything, he asked for additional personal collateral. Possibly, banks are over-hedged when they provide credit to successful firms since, as the risk decreases, bank managers do not adjust the request for personal commitments accordingly. We questioned bank managers about over-hedging and a common comment was that there is nothing wrong in being over-hedged. In fact, over-hedging can be a sensible strategy from the bank's point of view, but it is not from the entrepreneurs' one. So, why do entrepreneurs not react?

Two different explanations can be provided: either the banks exploit a hold up situation linked to the small size of the SMEs and their inability to switch to another bank; or firms' owners/managers are not very concerned about the personal commitments they provide to the bank.

Some entrepreneurs clearly stated that they are not concerned about providing personal commitments to the bank since this is the standard way to run the business and to obtain finance. Other entrepreneurs stated that they did not remember whether they had provided the bank with personal guarantees. One of them asked us if this matters. Some entrepreneurs wrongly thought that the bank had not been provided with personal commitments. This incorrect belief emerged by crosschecking what the entrepreneurs told us with evidence in the bank files. Finally, according to bank managers, entrepreneurs very infrequently ask to be unpledged. Indeed, bank managers stressed that this is one of the least common requests and usually it is interpreted negatively by the bank. Bank managers are inclined to interpret this request as a "warning light": an attempt by the entrepreneurs to save their personal assets when they know their personal assets are at real risk because the situation of the firm is worsening. Thus, paradoxically, when entrepreneurs ask to be unpledged, they effectively preempt the possibility of this happening.

Even if we cannot dismiss a hold up effect, interviews tended to support the argument that entrepreneurs are not greatly concerned whether they are required to provide personal collateral. All in all, the combined interpretation of our econometric findings (a weak negative relationship between trust and personal commitments) and interviews, suggest that banks tend to ask for collateral regardless of trust, and that entrepreneurs are generally willing to give it to them. This is the result of the apparent inertia of both bank and entrepreneurs with regard to dealing with personal collateral. Indeed, the effect of trust is probably linked primarily to trust between bank managers and customers that pre-exists the lending relationship and only marginally to the lending relationship. This could happen because bank managers' knowledge of the entrepreneur is based on gossip and information that the bank manager was able to access before starting the lending relationship.

V. Conclusions

The present study is an additional step in the research into the role trust plays in the firm-bank relationship. There is some existing research that looks at the role of trust in accessing venture capital and in developing relationships with business angels. At the same time, there is a lack of empirical research into the role of trust in banking relationships. Even though it is a contractual relationship, underpinning the potential creditors analysis of the risk- return trade-off is an assessment of the trustworthiness of the borrower.

By approaching the lending relationship from a different perspective, the present research opens a new, interesting perspective on the pledging of personal commitments. We do not find clear support for the argument that the decision to require personal commitments is affected by trust. We argue that the lack of importance of trust manifest in our regression findings, is due to the fact that personal commitments are requested at the beginning of the relationship (when trust tends to be low) and that there is thereafter some inertia in both the bank system and in entrepreneurs in reducing private collateral: the entrepreneurs do not seem to be concerned about the additional personal wealth they implicitly invest in the venture as personal commitments; loan managers are happy to be provided with extra hedging.

However, this study does have limitations which imply that the results should not be generalised but, rather are indications of future research directions.

Firstly, the data used are cross sectional. Future research could employ longitudinal studies to examine the relationship between the assessment of the entrepreneur-managers'

trustworthiness at the time of lending and the behaviour *ex post*. In particular, such an approach could help to test whether our conjecture about the role of trust at the beginning of the relationship instead of during it is correct. An additional limitation but potentially an 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. Thirdly, it could be interesting to investigate why entrepreneurs/managers of SMEs are not concerned about the guarantees provided. It could also be interesting to investigate whether changes in the value of personal assets provided as guarantees affect the lending decisions of the banks.

Notwithstanding the limitations of the dataset and context, the study indicates that trust (and soft information in general) plays only a minor role in lending relationships.

Table I – Trust indicators (ability, benevolence and integrity) and Factor Analysis (N=457)

Var.	Description	Mean	St.Dev.	Factor1 TRUST	Uniqueness	Source
ab1	The entrepreneur knows very well the market in which she/he operates	4.11	.71	**0.7268**	0.4717	Mayer and Davis (1999); Jarvenpaa et al, (1998)
ab2	The entrepreneur is able in selecting the needed resources	3.71	.80	**0.7139**	0.4908	Mayer and Davis (1999); Jarvenpaa et al, (1998)
ab3	The entrepreneur is able in managing the re-sources	3.80	.78	**0.7764**	0.3973	Mayer and Davis (1999); Jarvenpaa et al, (1998)
ab4	The entrepreneur is able in understanding market evolution	3.81	.78	**0.7450**	0.4449	Mayer and Davis (1999); Jarvenpaa et al, (1998)
ben1	The entrepreneur adapts his interests to suit those of commercial partners	3.78	.70	**0.7599**	0.4226	Mayer and Davis (1999); Jarvenpaa et al, (1998) Bromiley, P., and J. Harris, 2006
ben2	The entrepreneur pays attention to the needs of the employees	3.54	.75	**0.6566**	0.5688	Mayer and Davis (1999); Jarvenpaa et al, (1998) Bromiley, P., and J. Harris, 2006
ben3	The entrepreneur is very involved in the commu-nity	3.09	1.17			Bromiley, P., and J. Harris, 2006
int1	The entrepreneur is to-tally honest in negotia-tions with commercial partners	3.88	.72	**0.6437**	0.5856	Mayer and Davis (1999); Jarvenpaa et al, (1998) Bromiley, P., and J. Harris, 2006
int2	The entrepreneur is con-sistent in his decisions and behaviour	3.81	.69	**0.7417**	0.4499	Mayer and Davis (1999); Jarvenpaa et al, (1998)
int3	You would be happy to recommend to a female friend to work in the firm	3.43	.95	**0.7051**	0.5079	Bromiley, P., and J. Harris, 2006; Currall and Judge, 1995

Table II 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]	.8110		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	.8153		0 18.47%	1 81.53%
Interest rate on overdraft – percentage (N =444)	INTOV	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]	.1275		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]	.58.02		0 41.98	1 58.02
Trust (Factor) - standardised PCA	TRUST	-9.34e-10	1.00	-4.24	2.24

[1] Dummy variable (mean and standard deviation meaningless

Table III – Regression findings

		Exogenous Model			***Hard Variables Model***			***Relationship M***	
		Number of obs	455		Number of obs	422		Number of obs	
		Replications	750		Replications	750		Replications	
		Wald chi2(4)	4.22		Wald chi2(4)	16.16		Wald chi2(6)	
		Prob > chi2	0.3461		Prob > chi2	0.0028		Prob > chi2	
		Log likelihood	-218.6694		Log likelihood	-191.1557		Log likelihood	
		Pseudo R2	0.0087		Pseudo R2	0.0458		Pseudo R2	
		Observed Coef.	**Bootstrap Std. Err.**	**P>|z|**	**Observed Coef.**	**Bootstrap Std. Err.**	**P>|z|**	**Observed Coef.**	**B S**
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	
	FREQREV							.43533	
	FREQMEET							-.01269	
	BANKMAN							.08543	
	MULTI							.14679	
	TRUST							-.24476	
	_CONS	1.0775	.42353	***	-5.4976	2.2058	**	.03980	

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

Table IV – Regression findings

		Number of obs	422		Number of obs	417		Number of obs		
		Replications	750		Replications	750		Replications		
		Wald chi2(8)	19.60		Wald chi2(13)	22.16		Wald chi2(14)		
		Prob > chi2	0.0120		Prob > chi2	0.0530		Prob > chi2		
		Log likelihood	-191.5524		Log likelihood	-185.3007		Log likelihood		-
		Pseudo R2	0.0585		Pseudo R2	0.0779		Pseudo R2		
		Observed Coef.	**Bootstrap Std. Err.**	**P>|z|**	**Observed Coef.**	**Bootstrap Std. Err.**	**P>|z|**	**Observed Coef.**	**Bootstrap Std. Err.**	
Exogenous	LOCNAT	-.89812	.63994		-.79494	.81820		-.83830	.7903	
	NBANKS	.08549	.06040		.13129	.07772	*	.14035	.0780	
	REGION	-.87432	.82204		-1.0778	.97064		-1.2980	.9615	
	ECON	2.1907	6.2888		4.7864	7.9039		6.1056	7.439	
Hard	INTOV	.41743	.12053	***	.39893	.13359	***	.39739	.1399	
	OVUSE	.00892	.00386	**	.00843	.00431	**	.00774	.0045	
	LNSTD	.22558	.13335	*	.17133	.14326		.21319	.1466	
	LNTURNOVR	.15736	.13470		.20031	.14080		.20275	.1500	
Relational	LNLENGTH				.25146	.17894		.30393	.2007	
	FREQREV				.42619	.36147		.45611	.3903	
	FREQMEET				-.03729	.12994		-.02651	.1289	
	BANKMAN				.23651	.23861		.26567	.2238	
	MULTI				.17619	.29803		.16082	.2956	
	TRUST							-.27634	.1611	
	_CONS	-6.4416	2.6354	***	-8.4339	2.9413	***	-9.2225	3.175	

* Sig. at 90%

** Sig. at 95%

*** Sig. at 99%

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