



## Relationship lending, hierarchical distance and credit tightening: Evidence from the financial crisis

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### ABSTRACT

This paper examines the firms' credit availability during the 2007–2009 financial crisis using a dataset of 5331 bank–firm relationships provided by borrowers' credit folders of three Italian banks. It aims to test whether a strong lender–borrower relationship can produce less credit rationing for borrowing firms even during a credit crunch period. The results show that exclusivity of the relationship can mitigate the firm credit rationing. We also verify the influence of lending organizational structure during crisis. A new measure of distance in lending technologies has been introduced: the hierarchical distance calculated as the distance between the branch that originates the loan and the location of the hierarchical level responsible for financing decision. Our findings document a negative impact of distance on credit availability, consistent with the idea that proximity facilitates the transmission of soft information.

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### 1. Introduction

This study aims to assess the ability of relationship banking to mitigate the consequences of widespread shocks affecting credit availability for firms. More precisely, the question is whether loan lending based on high-intensity relations between banks and firms can reduce the negative effects of a crisis on the ability of firms to access credit. From this point of view, the recent global financial crisis, which began in late 2007 and came to a head in September 2008, is an ideal testing ground for this type of inquiry.

The available studies emphasise the advantages of relationship lending in terms of credit availability and explicit lending terms and conditions, but most of the literature tests these benefits for firms during economically stable periods. Empirical studies concerning the potential effects of the relationship lending approach during crisis are relatively limited.

The basic literature on this topic suggests that relationship lending mainly aims to resolve agency problems and informational asymmetries.

In general, lending activity implies the collection of two types of borrower information: (i) hard information, which can be easily reduced to a numerical entry and credibly transmitted (e.g., credit history, balance sheet data, amount borrowed, credit scoring), and

(ii) soft information, which is difficult to numerically encode (e.g., entrepreneur's competence, honesty and diligent approach to management, employee morale) and cannot be unambiguously documented in a report that a loan officer can pass onto his superiors. Relationship lending is based on the development of a privileged, collaborative and repeated relationship with the firm in which the bank invests in the collection of soft information, thus qualifying as a financial partner of reference with the objective of maximising the profitability of the overall relationship in the medium and long term.

The measures of relationship strength used in literature combine different indicators such as the length, the breadth, and the exclusivity of the relationship between the firm and the bank. Empirical studies have shown that credit availability and loan terms improve as the length of the banking relationship increases, which can be interpreted as an implicit measure of the proximity between the bank and the customer (Petersen and Rajan, 1994). This finding can be considered evidence of the influence of soft information on lending decisions. Other studies also focus on bank exclusivity and the benefits of accumulating information, especially soft information, in a single lender (Berger et al., 2005).

In the bank–firm relationship, even the distance between the bank and the firm seems to influence credit availability. Distance affects the bank's ability to collect soft information from borrowers and to transfer this information inside the bank organisation. Recent analysis has verified that the distance adversely affects credit availability, particularly for small firms (Alessandrini et al., 2009).

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The original contribution of this paper is in both the special period investigated and some of the measures adopted, such as proxies for bank relationship lending intensity.

We contribute to the existing empirical literature on lending relationships in two ways. First, we intended to enrich the empirical literature on the role of lending relationship intensity in credit tightening during the recent financial crisis. Second, a unique dataset allows us to construct a new and meaningful measure of bank organisational complexity, namely hierarchical distance, to detect whether the distance across layers of a bank's structure negatively affects firm credit access due to the difficulty of transmitting soft information to the upper levels.

To verify the benefits of credit availability for firms during a credit crunch period, we use the unique internal data of three Italian banks reporting 9800 bank–firm relationships. For each credit relationship, a set of variables was collected to describe the type of relationship between lenders and borrowers. The values for each variable refer to December 2007 and September 2009. The outcome shows how intense bank–firm relationships offer better and more stable credit access conditions for borrowers, even when the banks are under strain.<sup>1</sup>

The Italian economy is an interesting subject of analysis for several reasons. First, during the period examined (but also after it), the Italian government did not intervene to support domestic banks or firms after the crisis. Thus, both domestic loan supply and loan demand were not affected by external factors. Moreover, as Italian firms (especially small firms) are highly dependent on bank credit for both working capital and longer-term financing, they are very sensitive to any distortion in credit supply. Finally, the great concentration of bank headquarters in a single area of one city (i.e. Milan) makes Italy an excellent case to employ a distance-based approach for our analysis.

This study also considers the impact of hierarchical distance on credit conditions, where hierarchical distance represents the physical distance between the operating branch from which the loan originates and the location of the hierarchical level within the bank making the final decision about granting the loan.

The hypothesis tested confirmed that, as there is a negative relationship between the contribution of soft information to the credit decision and the physical distance between loan offices and decision-making headquarters, it follows that firms funded by banks with a strongly vertical hierarchical structure obtain fewer benefits from a relationship-banking model during a credit shock. This hypothesis is consistent with theory predicting that organisations with a narrower gap between allocation and control are more efficient providers of relationship-based small business loans (Cerqueiro et al., 2007; Berger et al., 1999).

The paper proceeds as follows. In Section 2, we highlight related studies and introduce the concept of hierarchical distance. In Section 3, we develop in greater detail the hypotheses to be tested. In Sections 4 and 5, we describe the dataset and the methodology adopted. In Section 6, we test our empirical specification. Section 7 contains some robustness checks and additional evidence. Section 8 discusses the main findings and conclusions.

## 2. Related studies and our contribution

The widely studied field of relationship lending raises numerous issues on the effect of relationship intensity on the availability and quality of corporate credit. This section examines the literature concerning only the following two aspects of the subject: (i) the link between the intensity of bank–firm relationships and credit

availability under crisis conditions, and (ii) the impact of hierarchical distance on lending policies during credit tightening.

As for the first aspect of the literature, one of the first elements to be analysed is the measurement of the intensity of a bank–firm relationship. The measures used most often for this purpose are degree of creditor concentration and number of bank lenders. From an analysis of the literature on this subject, at least three important phenomena emerge: (1) a negative link between the size of the asymmetric information and the number of banks (*inter alia*, Elsas and Krahenen, 1998), (2) the ability of firms that have developed relationships of the *Hausbank* type to benefit from greater credit availability (*inter alia*, Petersen and Rajan, 1994), and (3) lower likelihood that firms with a one-bank relationship will have to provide collateral (Harhoff and Körting, 1998).

The persistence of the benefits of relationship lending during a financial crisis has been analysed mainly from the perspective of firms. Ferri et al. (2001) provide evidence on the ability of this type of relationship to have reduced the effects (on bank-dependent firms) of the 1997–98 Asian financial crisis. They argue that a strong bank–firm relationship mitigates the degree of financial constraints and, consequently, reduces the probability of bankruptcy, which may be very costly. However, the structure and health of the banking system in each country during a crisis can lead to different results. Jiangli et al. (2008) investigate whether lending relationships benefitted firms during the 1997–98 Asian financial crisis and find that Thai and Korean borrowers were more likely to obtain credit, while relationship lending did not have any impact on Philippines and Indonesian firms. Chava and Purnanandam (2011) examine the credit contraction that followed the 1998 Russian crisis and show that bank-dependent borrowers without access to public debt markets experienced greater valuation losses.

Examining Italian evidence during the recent crisis, a comprehensive study by De Mitri et al. (2010) finds that domestic firms that were borrowing from more banks suffered on average a larger decrease in bank credit and experienced a higher probability of contraction in outstanding bank debt.

However, a high level of intensity in the credit relationship, especially if long term, leads to negative consequences such as lender hold up. The information monopoly of the main bank can cause opportunistic behaviour on the part of the bank, such as tougher credit conditions and inefficient credit negotiation procedures. Degryse and Van Cayseele (2000) show how a sample of Belgian firms demonstrates a positive relationship between interest rates on loans and the length of the bank–firm relationship. Angelini et al. (1998) reach largely similar conclusions in analysing the pricing policies of a sample of 90 credit cooperative banks in Italy and show, among their various results, the “hold up” power that banks have over the customer through longer-term loans. Various proposals have been formulated to mitigate the hold up problem. Some suggest the introduction of more flexible contract terms, especially for longer-term funding (see Von Thadden, 1995); others suggest the superiority of the multiple banking model, recognising its benefits relative to non-relationship loans (see Farinha and Santos, 2002), although the risk of adverse selection procured by the lower availability of information of new lenders cannot be neglected in this case (see Detragiache et al., 2000).

### 2.1. Hierarchical distance

A second focus of this study is the implications that the geographical and organisational structure of a bank can have on credit availability for firms under conditions of market stress.

The physical location of banks is relevant in determining the terms and availability of financial services. The role of geographic proximity in the provision of banking services is most often attributed to its effect on the transaction costs, which are usually

<sup>1</sup> Unlike other studies (De Mitri et al., 2010; Albertazzi and Marchetti, 2010), we cannot extend these results to the Italian bank system because of the scarce representativeness of the sample.

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