SME financing and the choice of lending technology in Italy: Complementarity or substitutability? ☆

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ABSTRACT

This paper investigates SME financing in Italy. The literature distinguishes between two main different lending technologies (LTs) for SMEs: transactional and relationship LTs. We find that banks lend to SMEs by using both LTs together, independently of the size and proximity of borrowers. Moreover, we show that the use of soft information decreases the probability of firms being credit rationed. Finally, we find that more soft information is produced when the bank uses relationship LT as primary technology individually or coupled with transactional LT. Our results support the view that LTs can be complementary, but reject the hypothesis that substitutability among LTs is somehow possible for outsiders by means of hardening of soft information.

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1. Introduction

Among academics and policymakers there is a clear perception that small and medium-sized enterprises (SMEs) lack adequate financing and need to receive special assistance (see, e.g., Vos et al., 2007). Recent research shows that also large banks provide large amounts of funding and other services to small firms (e.g., De la Torre et al., 2010). Nevertheless, under the current paradigm in SMEs lending research, large banks are believed to specialize towards relatively large, informationally transparent firms using hard information, while it is held that small banks have advantages in lending to smaller, less transparent firms using soft information. Hence large banks would tend to specialize in the transaction-based lending technology, while small bank in the relationship lending technology. Theories based on incomplete contracting suggest that small organizations have a comparative advantage in activities that make extensive use of soft information. The model

of Stein (2002) predicts that large banks will tend to shift away from small-business lending, because this is an activity that relies more heavily on the production of soft information, which cannot be verifiably documented in a report that the loan officer can pass on to his superiors. Hence, the loan officer's incentives to produce high-quality information are weak when she works in a large bank. On the contrary, in the case of larger firm lending can be based more heavily on verifiable information, such as firm's financial statements and the balance sheet. In this case the model suggests that a large bank will have no problem at providing incentives for hard information production.

The above paradigm has found some support in the empirical literature (see, e.g., Berger et al., 2005b). There have been some important refinements, but the conclusion on the dichotomy between large versus small banks in the choice of lending technologies still holds. In turn, Berger and Udell (2006) argue that a common oversimplification is the treatment of transactions technologies as homogeneously unsuitable for lending to informationally opaque SMEs. Moreover, Berger and Black (2011) suggest that large banks do not have equal advantages in all of these transactions technologies and such advantages are not all increasing monotonically in firm size. They also analyze lines of credit without fixed-asset collateral in order to focus on relationship lending and confirm that small banks have a comparative advantage in

relationship lending. But their comparative advantage appears to be strongest for lending to larger firms.

Hence, the current paradigm on SME lending emphasizes the dichotomy between large and small banks by predicting that relationship lending will be used to the exclusion of transaction-based lending technologies and *vice versa*, i.e. suggesting that these alternative types of lending technologies tend to be mutually exclusive due to the presence of incentives in specializing in one of them. In other words, the possibility of complementarity is not neglected but is considered a less likely outcome in practice and therefore has so far gathered very little attention in the literature.[1]

The aim of the present paper is to fill this gap in the literature and investigate the possibility for banks of combining lending technologies for financing SMEs, independently of their size. In particular, we argue that the paradigm that suggests that large financial intermediaries are disadvantaged in relationship-based lending to opaque SMEs is misleading. We show that complementarity among transactions and relationship lending technologies is indeed a prevailing phenomenon, compared to specialization in one primary lending technology, and that complementarity is higher for large banks compared to small local banks.

To address these issue, we use a novel component of survey micro-data allowing us to learn the lending technology used by the firm's main bank. The data refer to the end of 2006 and come from the 10th wave of the Survey of Italian Manufacturing Firms (SIMF) run by UniCredit banking group.[2] This survey constitutes an ideal testing ground for two main reasons. First, the data set provides unusually detailed information on the relationship between the firm and its main bank, based directly on firms' responses to survey questions. Second, the small and medium size of the businesses in our sample and the central role of banks in the external financing of investment renders Italy an ideal environment to study the firm–main bank relationship. In fact, in Italy stock and bond markets are relatively underdeveloped so that SMEs that are denied loans by banks are usually forced to scale down their investment plans.

In the first part of our empirical analysis we study the specific features and the deployment of lending technologies that appear to be more widespread toward SMEs. In particular, we provide empirical evidence on the existence and relevance of complementarity between transaction-based and relationship-based lending technologies. A possible explanation of the novelty of our result compared to the existing literature can be found in the methodology. In fact, the identification strategies used in the literature for the two alternative lending technologies imply by construction that they are mutually exclusive (see, for instance, Berger and Black, 2011). On the contrary, our identification strategy does avoid this problem by defining lending technologies in terms of their specific features allowing by construction the possibility that the bank is using at the same time more than a single lending technology when financing a given firm.

The second part of the analysis addresses the role of lending technologies in the production of soft information under both hypotheses of a single primary lending technology or complementarity among lending technologies. Previous literature has associated soft information with relationship lending only. Various papers suggest that more hierarchical banks, such as large and for-

eign banks, are relatively less capable of processing and quantifying soft information and transmitting it through the channels of large and complex organizations (Berger et al., 2001; Stein, 2002). However, Petersen (2004) conjectures that transactional lenders might be able to "harden" soft information to boost their local competitive stance and allow them to compete more aggressively outside core markets.

The approach used in the present analysis for identifying lending technologies allows us to shed new light providing a better understanding of the above issues. In order to tackle these issues, the second part of our analysis is divided into two steps. Firstly, we measure the production of soft information by the main bank and investigate its impact on the probability that a firm is credit-rationed. The results show that soft information lowers the probability that SMEs are credit rationed. Secondly, we try to understand the impact of transaction-based and relationship lending technologies in the production of soft information by the main bank. We find that the production of soft information increases when either the relationship lending technology is used alone or together with the transactions lending technology. By contrast, when the transactions lending technology is used alone it seems to be ineffective in producing soft information. The implications of these findings are twofold. First, the way soft information becomes embodied in the lending decision might still differ between relational and transactional technologies. Second, substitutability between lending technologies for outsiders by means of hardening of soft information might be rather unfeasible.

The paper is structured as follows: Section 2 briefly discusses the literature on lending technologies and the role of soft information for financial intermediaries. Section 3 presents the dataset, as well as the methodology we use to construct the variables employed. Section 4 presents the empirical evidence on lending technologies and the role of soft information. Section 5 concludes.

2. Related literature

2.1. Lending technologies

Banks lend to SMEs by means of a variety of technologies. Berger and Udell (2006) define a lending technology as a unique combination of primary information source, screening and underwriting policies/procedures, loan contract structure, and monitoring strategies/mechanisms. Different banks use different lending technologies (Rajan, 1992). Thus, the choice of the main bank is a key component for the strategy of any firm, in particular for SMEs that usually depend on bank financing as a source of external funding. Among the various lending technologies used to finance firms, the literature has thus far focused mostly on two classes: transaction-based lending technologies and relationship lending technologies. According to the prevailing paradigm large banks hold a comparative advantage in transactional lending, while the smaller-sized or local banks have an edge in relationship lending (Stein, 2002).

There is a growing literature on the lending technologies that banks use to finance SMEs. The empirical research has tried to test the results derived from the theoretical models. In particular, several papers have analyzed the impact of relationship lending on the financing of SMEs. For the United States, Cole (1998) finds that a lender is less likely to grant credit to a firm if the customer relationship has lasted for 1 year or less, or if the firm deals with other financial counterparts. On data for Italy, Angelini et al. (1998) show that the intensity of relationship banking reduces the probability that borrowing firms will be rationed, even though the lending rates charged by the banks tend to increase as the bank–firm relationship lengthens. For Belgian enterprises, Degryse and Van

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[1] To our knowledge of the literature, an exception is represented by Uchida et al. (2008, 2006) who have found the existence of complementarity among lending technologies for the case of Japan, by using an approach for identifying lending technologies similar to that followed in the present paper, although the analysis developed by them is rather different. They argue that further research based on other countries should be developed in order to assess whether their findings should be interpreted as being inconsistent with the prior literature or rather better interpreted as a reflection of an idiosyncratic situation prevailing in Japan.

[2] Formerly the survey was run by Mediocredito Centrale and Capitalia banking group.