



Relationship lending and firm innovativeness[☆]

Caterina Giannetti^{*}

Royal Holloway, University of London, United Kingdom

ARTICLE INFO

Article history:

Received 4 June 2011
 Received in revised form 20 July 2012
 Accepted 19 August 2012
 Available online 27 August 2012

JEL classification:

C34
 G21
 O31

Keywords:

Credit relationship
 Innovative phases
 Bank competition

ABSTRACT

This study investigates the effects of close ties between firms and banks – as measured by the share and length of the relationship with the main bank, and by the number of lenders – on a firm's ability to develop innovation and introduce new products. As these effects may vary depending on both the type of firm and innovation, this study provides results for small and high-tech firms and distinguishes between process and product innovation. The results suggest that for small firms banks do not intervene at the development stage of an innovation but rather play their traditional role of financing investments for constrained firms. In contrast, relationship banks do play an important role for high-tech firms in the development of a process innovation and in the introduction of new products. In addition, for both types of firms, the financing decision of the main bank seems to be correlated with the lending behaviour of other banks, with multiple borrowing exerting a positive effect on firm innovative capability.

© 2012 Elsevier B.V. All rights reserved.

1. Introduction

As the fourth Community Innovation Survey highlighted (Eurostat, 2008), the main obstacles inhibiting innovation in the majority of European firms are financial factors. However, a firm's financial needs are not constant and vary in relation to firm characteristics (e.g., a firm in a high-tech sector) and the project phase (e.g., the development stage of an innovation). Lacking the visibility of more established firms, young and small firms are likely to suffer even more when financing their investments because of asymmetric information problems (Berger and Udell, 1998). Moreover, the different phases of a project are characterised by different degrees of risk.

Despite theoretical papers having already emphasised complex links between finance and innovation (e.g., de la Fuente and Marin, 1996; O' Sullivan, 2004) and notwithstanding the current richness of enterprise-based innovation surveys (Hall and Mairesse, 2006; Mairesse and Mohnen, 2010), there is little in the existing empirical micro-economic literature on the functions of the various sources of funding across different innovation phases. The main objective of this paper is to fill this gap by studying the effects of relationship lending – that is, the ability of a bank to acquire over time information on a borrower's quality – in two different phases of an innovative process: the “discovery phase”, which captures firms' financial needs related to the development of an innovation, and the “introduction phase”, which depicts the financial needs associated with bringing products to a market.

[☆] I wish to thank anonymous referees, Elena Carletti, Hans Degryse, Davide Dottori, Giampiero Gallo, Alexia Gaudeul, Vasso Ioannidou, Tobias Klein, Alessio Moneta, Steven Ongena, Giancarlo Spagnolo, Tanja Tanayama, Maurizio Zanardi, and the participants of the Finance Brown Bag and TILEC seminar (Tilburg University), EARIE 08 Conference, 9th BOF/CEPR Conference, SMYE 09, and GK Summer School 09 for useful discussions and suggestions. I also thank Maria Engracia Rochina-Barrachina for her programmes. All errors are my responsibility.

^{*} Egham, TW20 0EX London, United Kingdom. Tel.: +44 1784414971.

E-mail address: caterina.giannetti@rhul.ac.uk.

The analysis takes advantage of a dataset collected through a survey of Italian manufacturing firms that contains information on both firm innovation (according to the guidelines in the OSLO manual – OECD, 1997) and relationship lending. With regard to relationship lending in particular, the dataset contains the variables that have been identified in the literature as depicting the information privilege that a bank has accumulated over time with a firm (Ongena and Smith, 2001), such as the *length* of a bank-borrower relationship, the *share* of debt financing of the main bank, and the *number of lenders* (Elsas, 2005). As banks are by far the most important source of external finance in Italy and Italian firms have strongly relied on relationship banking to finance investments, the role of the bank-firm relationship in fostering innovation is thus isolated with this dataset (Benfratello et al., 2008). Consistent with Schumpeter's scheme of innovation (Schumpeter, 1934), banks in this country are in fact likely to be the gatekeepers of the innovative process; at all stages, they provide the credit by which firms can bid resources away from established uses. The money they provide is not simply a veil; rather, it turns ideas into products and facilitates the exploration of new routes and the acquisition of new technology and new machines.

Closely related to this paper are the analyses of Benfratello et al. (2008) and Herrera and Minetti (2007). However, this paper departs from Benfratello et al. (2008) by looking at the effects of bank-firm ties instead of focusing on the effects of local financial development (i.e., on the number of branches in a province) on the probability of innovation. Although this factor is also considered in the present analysis, the major focus here is on disentangling the effect of a specific bank-firm relationship on a firm's innovative ability. With respect to the analysis of Herrera and Minetti (2007), who also look at the effect of the length of a bank-firm relationship, the methodology adopted here is substantially different. These authors investigate the endogeneity of this variable while estimating the probability of introducing innovation. In this paper, the method of estimation will account for the endogeneity of the entire set of relationship lending variables to firm (fixed) unobservable characteristics, additionally considering different phases of innovation and other important variables that were neglected in their work (e.g., the effects of fixed capital and R&D investment). In other words (and this is another important novelty of the present analysis), this study investigates the effects of a firm's debt structure on its ability to innovate by jointly considering the share of the main bank, the number of lenders, and the length of the relationship. Recent papers on credit concentration (e.g., Ongena et al., 2007) have shown that the share of the main bank has important implications for the financing decisions of other banks. In firms with less liquid assets, for example, the presence of a main lender with a higher share may be beneficial for the many "arm's length" lenders, who are more likely to see their small loans repaid (Elsas et al., 2004). Other banks tend also to increase their exposure with the increased exposure of the main bank (Ongena et al., 2007). Moreover, empirical analyses have shown that the share of the main bank and the number of lenders are important determinants of a bank's access to firm information and its influence on a firm's management (Elsas, 2005).

From an econometric perspective, to disentangle the effects of bank ties in the discovery phase of an innovation and the introduction phase of new products, and address firms' financial needs related to these phases, the following analysis proceeds in two steps by adopting a generalised Tobit model. This model accounts for firms being either innovative or not by considering the firm's probability of introducing an innovation and (among the innovative firms) the extent to which they are innovative by measuring new products as a percentage of total sales (Mohnen et al., 2006). This strategy has several advantages. First, it allows one to establish in which phases of an innovative project a relationship bank may play a role. Distinguishing between these two phases is also important in light of firm innovation patterns, as firms may tend to absorb innovations from outside rather than performing research. Finally, it also allows one to control for the problems of selection and endogeneity caused by firms' unobservable characteristics. More precisely, the analysis begins with a cross-sectional type Tobit model, or Heckman selection model, to keep selectivity problems under control and then uses panel estimators to control for endogeneity problems as well. In recent years, a number of panel estimators have been suggested for sample selection models in which both the selection equation and the equation of interest contain individual effects that are correlated with the explanatory variables (Dustmann and Rochina-Barrachina, 2007; Raymond et al., 2010). In particular, the present analysis relies on the estimator proposed by Rochina-Barrachina (1999), which extends Heckman's two-step estimator by deriving an expression for the selectivity term of two different time periods. In addition, the analysis applies a conditional logit to estimate a firm's probability of introducing an innovation in a panel setting.

Consistent with Herrera and Minetti (2007), the results suggest that for small firms, banks do not play a role in the development of an innovation, as they intervene later, at the stage of the introduction of new products. However, at this stage, a longer relationship with the main bank can additionally have a negative effect on the capacity of small firms to introduce a successful innovation. For small firms, it thus seems better to borrow from multiple lenders. For firms in high-tech sectors, by contrast, relationship banks play an important role in both phases: in the discovery phase (consistent with Benfratello et al., 2008), and in the introduction phase, especially for product innovation. For these firms, a higher share and a longer relationship with the main lending bank have a positive impact on their capability to innovate. However, borrowing from multiple lenders also seems to have positive effects for these firms, especially in the introduction phase, although the effect is not economically sizeable. Therefore, consistent with the literature on credit concentration (Ongena et al., 2007), the financing decision of the main bank seems to have a positive effect on the lending behaviour of other banks, which may consequently extend their lending to those firms with higher exposure to the relationship lender, thus improving the chance to introduce innovation and successful products.

The paper is structured in the following way. The next section gives an overview of the literature. After a brief description of the empirical determinants of relationship lending identified in the literature, Section 3 explores its possible links to firm innovativeness. Section 4 introduces the dataset and the main descriptive statistics used to calculate the degree of firm innovativeness. Section 5 presents the econometric model, which distinguishes the introduction and discovery phases of

Download English Version:

<https://daneshyari.com/en/article/958476>

Download Persian Version:

<https://daneshyari.com/article/958476>

[Daneshyari.com](https://daneshyari.com)