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When does relationship lending start to pay?☆

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ABSTRACT

This paper empirically characterizes relationship lending using data from more than 20,000 loans of a Spanish bank to small and medium enterprises (SMEs). The study analyzes the pricing determinants of loans to firms based on the entire previous bank–firm relationship, allowing for the identification of nonlinear pricing patterns in the bank–firm relationship. We show that firms only start capitalizing the gains of relationship lending when the relationship extends beyond two years. This reduction in the loan rate spread charged is driven by the opaque firms, for which the acquisition of “soft” information is especially relevant. Finally, we find that relationship lending significantly mitigates the increased costs of re-financing loans along two dimensions: relationship duration and having additional contracts—other than loans—with the bank.

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1. Introduction

Relationships generate valuable private information in asymmetric information environments. Previously acquired knowledge about borrowers can result in more fluent loan contracting and, at the same time, it can foster more affordable loan pricing by banks. Based on canonical models highlighting the role of asymmetric information in financial transactions (Stiglitz and Weiss, 1981), different papers have analyzed the role of repeated lender–borrower interactions on several contracting dimensions: availability of credit, loan interest rate dynamics and collateral pledging. Following the seminal, empirical papers by Petersen and Rajan (1994), Berger and Udell (1995), a large body of literature has proposed relationship variables such as age, intensity, or exclusivity in

order to characterize relationship lending.¹ Our study analyzes the pricing determinants of loans to firms based on the entire previous bank–firm relationship, allowing for the identification of nonlinear pricing patterns in the bank–firm relationship.

Our analysis focuses on loan contracts awarded by a Spanish bank to SMEs during the 2013–2014 period. Spain is an economy where most of the credit to firms is provided by banks (78%, CNMV Annual Report (2010))² and where SMEs represent 99.9% of the total number of firms. For these reasons, soft information should be especially relevant in the Spanish banking sector and in fact, this is corroborated by its high number of bank branches.³ This reflects the preferences of both households and firms for close and direct relationships with banks and so, for a high number of bank

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¹ See Boot (2000), Degryse and Ongena (2008) and Elyasani and Goldberg (2004) for detailed reviews of relationship lending literature.

² This value is higher than in Italy (70%), Germany (55%), France (45%), the United Kingdom (35%), and the United States (30%).

³ By 2013 Spain remained as one of the countries with the most bank branches in the world (74.5 per 100,000 adults), only surpassed by small countries such as San Marino or Luxembourg. Despite the on-going restructuring of the Spanish banking industry, which is lowering the number of bank branches, Spain remains as one of the countries with the most bank branches in the world.

branches.⁴ Thus, understanding the role of relationship lending in banks is of key importance for most Spanish SMEs.

In 2008, Spain suffered a remarkable real estate crisis with painful spillovers to the financial sector and the real economy. One of the outcomes of the financial crisis was a deep economic recession—essentially lasting from 2008 to 2013—with unemployment rates jumping to levels above 25%. During this period, credit to the Spanish SMEs exhibited a persistent decline, with an annual drop of 4.4% in 2014 (Bank of Spain Economic Report, 2015). Many savings banks disappeared in the process, and there was a big wave of mergers and acquisitions, often financed via public recapitalizations, and also through credit negotiated by Spanish policy makers with European institutions. Starting in 2011, Spanish banks were subject to stress tests and stringent capital requirements in the context of a massive overhaul of the banking regulation landscape. For the purposes of our study, the 2013–2014 interval—end of crisis and start of recovery—provides a formidable period to gauge the effect of bank–firm relationship resilience.

This paper makes use of a unique proprietary dataset containing the complete historical relations between a Spanish bank and SMEs, and detailed information on more than 20,000 loans granted in the 2013–2014 period. These loans were granted to SMEs that at the loan origination date already had a relationship with the bank. We thus have the rich historical perspective of all loans granted to the SMEs which had new loans in the 2013–2014 period, because our dataset contains full loan information on all the previous loans between the bank and those SMEs. This is important for at least two reasons. First, as firms make their decisions on whether to continue the relationship or to switch to another bank, they need to understand what to expect from the relationship. By knowing when and why benefits, in terms of lower rates, start accruing, the firm can make more informed dynamic decisions regarding loan contracting with a specific bank. Second, historical loan characteristics, such as the sum of previous loan sizes, have direct implications on bank revenues and are thus likely to influence the bank–firm relationship.

The key contribution of this paper is to show that the interconnection between loan rates charged to firms and relationship age is nonlinear based on the duration of the relationship. Indeed, under the lens of a complete history of a bank–firm relationship, this relationship is concave: The interest rates charged increase up to a point, after which they start to decrease. According to our estimates, this tipping point occurs after 25 months. As more information is gathered during the bank–firm relationship, the bank will progressively reduce the asymmetric information problem with the acquisition of “soft” information. Eventually, when the level of asymmetry is small or non-significant, there will be a reduction of the loan spread charged. After 25 months of relation, there is a reduction of 4.4 (9.4) basis points 5 (10) years after the tipping point. Given that the mean loan rate spread in our sample is 5%, this implies a non-negligible cost reduction for the borrower. We show that this reduction in the spread charged is driven by the most opaque firms, for which the acquisition of “soft” information is especially relevant.

There has been a long debate in the literature on whether the duration of relationship lending represents a cost or a benefit for the firm in terms of funding costs. Some theoretical contributions predict a negative relation between relationship length and the

loan interest rate (Boot and Thakor, 1994). This seminal paper emphasizes that banks charge higher rates when the borrower type is unknown and reduce rates when this asymmetric information is reduced or eliminated. In contrast, other theories predict that borrowers should become more locked in to their banks as the duration of the relationship increases leading to a positive relation between duration and loan rates (Sharpe, 1990; Rajan, 1992). While our model is empirical in nature, the non-linear relation found in our results suggests that both theories can be at work and can be reconciled if we take into account the whole life of the bank–firm relationship.

A second contribution of our study is to show that relationship lending also helps to reduce the high interest rates charged to refinancing contracts. Refinancing contracts should, in principle, embed a higher interest rate premium induced by the borrowers’ liquidity risk. Surprisingly, the empirical literature on the differential impact of refinancing contracts on loan pricing and about the role played by relationship lending, is still scarce. Our results show that both the duration of the relationship and the existence of other contracts with the bank reduce the interest rate refinancing premium for firms. In particular, having other contracts with the bank or increasing the duration of the relationship from 0 to 5 years reduces the refinancing premium by 25% and 50%, respectively. This finding thus illustrates how relationship lending also operates through lowering the cost of refinancing contracts.

Our results highlight the need to track the full relationship to accurately map the time-varying benefits of relationship lending for the firm, which can accrue after some time in terms of interest rate reductions. This finding suggests that short-run opportunistic behavior on the part of firms switching to other banks offering more competitive rates may not maximize profit over the long term. The real duration of the relationship and other dimensions of relationship lending, such as the amount previously amortized, are relevant inputs for firms when making their cost-benefit analyses. Finally, we document that two dimensions of relationship lending (i.e., duration and cross-product synergies) provide partial insurance against refinancing costs, and can thus be highly relevant to the firm’s financial stability.

The paper is structured as follows. Section 2 describes our empirical regression framework and the variables used in the analysis. Section 3 explains the database used in the paper, emphasizing its differential features. Section 4 presents the research hypotheses and outlines the motivation behind them. Section 5 shows the empirical results related to those hypotheses. Section 6 contains a series of extensions and Section 7 concludes.

2. Empirical framework

In this section, we lay out the econometric framework which will be the basis to test the paper hypotheses. We also provide the definition of the dependent and independent variables used in our empirical study. Throughout the article, we discuss the motivation for the choice of each specific measure.

We now postulate our empirical regression framework, where l_{jt} is the loan j nominal annualized interest rate spread (including fees and in percent) over the 3-month Euribor in day the loan is granted. It is regressed on a set of variables containing information on relationship lending, loan and firm characteristics plus industry, municipality, and year-month fixed effects:

$$l_{jt} = \beta_1 RL_{f,m-1} + \beta_2 L_j + \beta_3 F_{f,y-1} + \gamma_i + \delta_c + \mu_m + \varepsilon_j, \quad (1)$$

where RL is a vector containing a set of variables measuring the relationship lending of firm f one month before the month in which

⁴ Despite the key role of banks in the Spanish economy, there are very few studies focusing on Spanish relationship lending. Jiménez, et al. (2006, 2009) analyze the impact of many variables—including relationship lending—on collateral pledged, whereas we focus on the loan interest rate. Hernández-Cánovas and Martínez-Solano (2006, 2007) study the impact of relationship-lending variables on borrowing costs for the 1998–2000 period, but they do not observe the actual loan interest rates and have far fewer observations and variables to measure relationship lending.

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