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FINANCIAL ECONOMICS | RESEARCH ARTICLE

Empirical determinants of relationship lending

Sahar Loukil[1]* and Anis Jarboui[1]

Abstract: We study the determinants of the incidence of relationship lending. For our study, we combine established insights from the study of Elsas with empirical banking relationship lending literature. We relate loan contract and borrower characteristics to self-assessments of Tunisian banks with respect to the existence of close relationship. Using detailed loan contract information from Tunisian banks and a questionnaire addressed to loan officers, we report the first comprehensive evidence on the development of relationship lending. We find that access to information, the ability to influence the manager, and the solvency of the company are relevant factors. While the exclusivity and the duration of the relationship, classic measures of the existence of close ties with the bank, are not determining factors. So these proxy measures should be used with caution in future empirical works.

Subjects: Banking; Business Ethics; Corporate Finance; Financial Accounting; Financial Statement Analysis

Keywords: relationship lending; relational lender status; self-assessments; classic measures

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1. Introduction

Many information-based theories of financial intermediation support the idea that, when costly information asymmetries exist between investors and project insiders, a bank arises as the best mechanism for channeling funds. In the seminal paper of Diamond (1984), when costly information

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PUBLIC INTEREST STATEMENT

Many information-based theories of financial intermediation support the idea that, when costly information asymmetries exist a bank arises as the best mechanism for channeling funds. In the context of financial intermediation, this explains the raison d'etre of banks, Boot (2000). Then relationship banking fits into the core economic services and point at its costs and benefits. So, the impact of bank–borrower relationship on the terms of the loan contract is a topic worth researching. However, little is known about how the incidence of relationship lending depends on borrower characteristics. We explore self assessments of Tunisian banks with respect to their relational status in corporate lending and relate loan contract and borrower characteristics to this attribution. We find that access to information, the ability to influence the manager, and the solvency of the company are relevant factors. While the exclusivity and the duration of the relationship, classic measures of the existence of close ties with the bank, are not determining factors.

asymmetries exist between projects insiders and investors, these latter delegate the responsibility of monitoring firm cash flow to the bank in order to avoid both duplication of monitoring and free-riding. In turns, the efficient monitoring of the bank leads to lower cost financing for the firm. Developing on these theme, economists (see Campbell & Kracaw, 1980; Diamond, 1991; Fama, 1985; Haubrich, 1989; Leland & Pyle, 1977) describe how can financial institutions overcome market frictions by producing information and using it in their credit decision. In the context of financial intermediation, this explain the *raison d'être* of banks, Boot (2000). From there, the relationship banking fits into the core economic services provided by banks and point at its costs and benefits. These theories suggest that a firm with close ties to financial institutions should have a lower cost of capital and greater availability of funds.

So, the impact of various aspects of the bank–borrower relationship on the terms of the loan contract is a topic worth researching. In fact, the empirical literature is mainly focused on assessing the *consequences* of relationships on loan pricing, credit availability, or efficiency of workout decisions by banks if borrowers face financial distress.[1] However, little is known about how the incidence of relationship lending depends on borrower characteristics, or how it is reflected in loan contract design. In fact, the review of the empirical literature shows several indicator variables frequently used in empirical work to identify relationship lending. These measures are inspired from the bank's ability to develop close relationship with borrowers over time. Specifically, the key element of relationship lending identification is the informational privilege of the bank and the resulting bargaining power vis-a-vis the borrower. This element in turn provides the rationale for several indicator variables frequently used in empirical work to identify relationship lending.

The most commonly applied proxies for relationship lending are the duration of a bank–borrower relationship (see e.g. Beck, Demirgüç-Kunt, & Martinez Peria, 2008; Behr et al., 2011; Berger & Udell, 1995; Degryse & Van Cayseele, 2000; Ongena & Smith, 2001; Petersen & Rajan, 1994), the exclusivity of a bank relationship (see Ongena & Smith, 2001;[2] Houston & James, 2001), the number of banks (see e.g. Cole, 1998; De Bodt, Lobez, & Statnik, 2005; Harhoff & Korting, 1998; Petersen & Rajan, 1994), the scope of the relationship (see e.g. Degryse & Van Cayseele, 2000; Kano, Uchida, Udell, & Watanabe, 2011; Uchida, Udell, & Watanabe, 2008), the geographical distance between the bank and the firm[3] (see e.g. Berger, Clarke, Cull, Klapper, & Udell, 2005; Berger & Udell, 2002; Degryse & Ongena, 2005; Elyasiani & Goldberg, 2004; Uchida et al., 2008) and social interaction measures (see Lehmann & Neuberger, 2001).

The empirical evidence is mixed, with some studies finding a positive association between relationships lending and loan contract terms, and others finding the opposite or no correlation between the two phenomena. Consequently, it is not clear which proxies should be used for relationship lending. Yet, it seems important to understand when a bank will engage in relationship lending, and which borrowers choose to have a relationship lender. This has raised a host of interesting theoretical and empirical questions, the exploration of which has begun to shape the modern literature on relationship banking.

In this paper, since relationship lending is complex and difficult to directly measure, we use two direct measures proposed by Elsas (2005) and Degryse, Leaven, and Ongena (2009) where the bank considers itself to be the main bank of that firm or not. Thus, we can try to empirically test the plausibility of classic measures. Elsas (2005) approximate the existence of a close banking relationship through the binary variable Hausbank, considered as the best approximation of the relational financing through direct assessment of the bankers responsible of the credit. He explores self-assessments of German universal banks with respect to their Hausbank status in corporate lending and relates loan contract and borrower characteristics to this attribution. The analysis shows that Hausbank status is positively related to better access to information and the bank's influence on borrower management. While the duration of the bank–borrower relationship is not related to Hausbank status, banks are more likely to be Hausbanks when their share of borrower debt financing is higher and when the number of bank relationships is lower. Degryse and Ongena (2007) measure the existence of close

banking relationship through the binary variable RELATIONSHIP BANKING which indicates if the length of the relationship with the borrower exceeds one year and if the bank considers itself as main bank.

This raises the following important question that we seek to empirically address in this paper: What are the factors that determine whether a particular bank lender is a relationship lender? We address this question empirically using a sample of small- and medium-sized corporate borrowers of major Tunisian banks. We find, in line with the relationship lending paradigm, that when there is a better access to information, a more solvent firm with a higher bank's share of debt financing the bank is more likely to be engaged in relationship banking. Regarding typical measures, we find that the duration of the relationship and the exclusivity of the banking relationship are not determining factors. So, these proxy measures should be used with caution in empirical work.

The rest of the paper is organized as follows. In the next section, we describe our data-set, the estimation methodology, and we explore the written explanations of the banks regarding their relational lender status and the interdependencies with other measures for relationship lending (like duration and the number of bank relationships). In Section 3, we discuss the econometric results for the basic model and various robustness exercises. Finally, in Section 4 we draw some concluding remarks.

2. Methodology

The relationship lending is complex and difficult to directly measure. This explains the several numbers of variables employed as proxies for close financial ties. In order to improve our understanding of classic measures like the duration, the number of bank relationships, and the share of debt financing regarding their ability to identify relationship lending, we relate all of the aforementioned indicator variables to the existence of a close financial relationship and other observable borrower and contract characteristics. We will identify relationship lenders through the use of self-assessments, where credit officers in charge of the corporate borrowers explicitly indicate their status as a relationship lender.

2.1. Data

We adopt a direct approach to detect the empirical determinants of relationship lending through a rich sample of data on credit records and a questionnaire in which bankers mention factors explaining the nature of their relationship with the company. A random sample of firms was drawn from the portfolios of Tunisian banks. The sample size is 100 borrowers, each maintaining a credit relationship with one of the banks during 2009–2011. Our firm sample is well-suited to analyze relationship lending since it represents firms from a segment potentially subject to severe informational asymmetries. To be eligible for selection, firms had to meet three selection criteria:

- Firms are small- and medium-sized.
- Every firm obtained at least a line of credit during the relationship with the bank.
- None of these firms issued public debt or are exchange-listed.
- The size and legal form characteristics of the sample ensure that equity holdings by banks do not exist.

This data include contractual characteristics, borrower characteristics, and bank-specific information relevant for credit decisions.

2.2. Exploration of self-assessment

Before asking a bank officer to indicate whether the bank is a relationship lender, we offer a clear definition for the relationship lending. Although bank's officers implicitly rely on the achievements of this relationship during the credit decision-making, the concept of relationship lending is not widely in use. According to Degryse and Van Cayseele (2000), maintaining a close financial ties means that

bank officer implicitly accord credit to lower rate. In our case, we will assume that the bank is a relational lender if the borrower gets a credit at a lower cost with no collateral asking. Elsas (2005) argues that the main advantage of this procedure is that one does not have to rely on observed, potentially endogenous and noisy borrower, or loan contract characteristics. It is straightforward ways to elaborate a criterion for assessing whether the bank maintain close financial ties with the borrower.

We offer the respondent the option to choose from several factors explaining the existence of close financial ties by allowing him to suggest other explanations. We asked the two following questions to bankers:

- Do you keep a close banking relationship with the company?
  - YES
  - NO
- If yes, please explain by choosing between these grounds:
  - High share of debt financing.
  - High share of payment transactions.
  - High business intensity.
  - Exclusive business.
  - Long duration.
  - Influence on the management.
  - Good access to information.
  - High collateralization of loans.
  - Other(s):

.....

The classification procedure is only complex for the answers suggested by the banker. These responses were systematically categorized and coded through statistical analysis. Sometimes these responses required a subjective interpretation. In fact, in addition to the eight reasons offered to bankers, we cite two reasons offered by the following bankers:

- Good morality of the manager.
- Solvency of the company.

Therefore, we conclude that from the perspective of the lending banks, 10 factors determine the self-assessment of the relational lender status. In Table 1, we summarize our findings.

The analysis of mentioned factors shows that most of them may be directly or indirectly related to "Good access to information," "Influence on the management," and "Solvency of the company."

While it's obvious for the mentioned factors, we notice that the pattern "Long duration," commonly used as a measure of relationship intensity could be directly associated with the accumulation of information since duration reflects the acquisition of information over time and across multiple interactions. In addition, the patterns "high share of debt financing," "Exclusive relationship," and "Good morality of the manager" could be indirectly linked to both "Access to information" and "Influence on the management." Indeed, the bank can gain valuable private information as a main or unique provider of funds and could increase its bargaining power as its substitution by another bank would be more costly. In addition, the good character of the manager allows the banker

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Table 1. Ranking explanations of the establishment of close banking relationship

Factors definition	Frequency
Good morality of the manager	76
High share of payment transactions	61
Good access to information	51
Exclusive business	48
Long duration	47
High share of debt financing	44
High collateralization of loans.	40
Solvency	40
High business intensity	38
Influence on the management	29

Notes: Analysis of 100 relational Bank status questionnaires. Factors are sorted by descending frequency of mentioning.

to get to private information more confidently and than he can supervise the latest choices and protect bank's interests.

Moreover, the patterns "High share of payment transactions" and "High collateralization of loans" could be directly related to the "Solvency of the company" as guarantees are designed to ensure recovery in case of payment difficulties. On the other hand, "High business intensity" may be indirectly related to the "Solvency of the company." Indeed, we expect that more attractive is the business sector more expended would be the activity. In this case, the increase of turnover will facilitate the recovery of the company's bank debt.

In conclusion, the main factors underlying assessments of bankers regarding the existence of a close banking relationship are mainly related to "Good access to information," "Influence on the management," and the "Solvency of the company." These results are interesting since the first two patterns are consistent with the theoretical concept of the relationship banking. Indeed, the pattern "Good character of the manager" most frequently mentioned is consistent with relational financing theory and stems from the basic assumption of this theory suggesting the ability of the banker to product "soft" information through direct and repeated contact with the manager. So, trust, confidence and satisfaction seem to play the key role in the development of a relationship (Ganesan, 1994; Perrien, Filiatrault, & Ricard, 1993).[4] As a preliminary result, we can conclude that trust and social interactions affect positively the likelihood of the development of close banking ties. Nevertheless, this could not deny the importance of the transactional aspect. Indeed, the pattern "Solvency of the company" is mentioned by bankers as a relevant factor enabling firms to develop privileged relations with bank. So, a compromise between relational and transactional aspect allow us to create a more complete picture of the reality of bank financing in Tunisia and give a more rigorous explanation of the nature of the relationship between the bank and the firm.

2.3. Relationship lending and alternative indicators

The most important advantage of our approach consist in the extraction of new, more direct measures resulting from the exploration of banker's assessments rather than relying on proxies variables commonly used such as the duration of the relationship, the share of financing, and the number of banks. Analyzing theses classic close banking relationship indicators through a comparison with direct assessments of loan officers, allow us evaluate their relevance. But, this result is not confirmed when ranking these indicators according to the total frequency of mention. The indicators "Long duration" and "High share of funding" are not equivalent to close relationship lending since they occupy successively the fifth and sixth rank among the 10 reasons suggested by bankers while "Exclusive business" ranks fourth. First, we relate the self-declared status of relational lender to

Table 2. Frequency distribution of duration, share of debt financing, and number of bank relationships

Duration			Number of bank relationships			Share of debt financing		
Interval	Φ, 2011	Thereof RB, 2011	Number of banks	Φ, 2011	Thereof RB, 2011	Interval	Φ, 2011	Thereof RB, 2011
	# (∑%)	# (∑%)		# (∑%)	# (∑%)		# (∑%)	# (∑%)
[2; 4]	20 (0.2)	16 (0.18)	1	53 (0.53)	49 (0.55)	[0; 0.4]	16 (0.16)	13 (0.146)
[4; 11]	49 (0.69)	44 (0.49)	2	34 (0.87)	30 (0.89)	[0.4; 0.6]	10 (0.26)	9 (0.247)
[11; 19]	15 (0.84)	15 (0.17)	3	10 (0.97)	8 (0.98)	[0.6; 0.8]	12 (0.38)	9 (0.348)
[19; 25]	4 (0.88)	4 (0.05)	4	3 (100)	2 (100)0	[0.8; 1]	62 (100)	58 (100)
[25; 33]	12 (100)	10 (0.11)	5					
Mean	10.67	10.775	Mean	1.63	1.62	Mean	0.79	0.79
Std. dev	8.32	7.90	Std. dev	0.78	0.81	Std. dev	0.29	0.27
Median	9	9	Median	1	1	Median	0.94	1
No. Obs.	100	89	No. Obs.	100	89	No. Obs.	100	89

Notes: # denotes number of observations.

∑% denotes cumulated percentage points. These measures are based on the data-set of lines of credits (L/Cs) from the portfolios of several Tunisian banks in 2011.

alternative proxies (or indicators) of the incidence of relationship lending. Common proxies in applied empirical work are duration, the number of bank relationships, and the share of debt financing.[5] Second, we relate these traditional measures to banker's assessments and then we relate borrower and loan contract characteristics to the status of relational lender.

Next, we report banker's own assessment of the existence of close banking relationships related to traditional indicators widely accepted in empirical work as a proxy measure of this relationship.

Table 2 shows the frequency distribution of duration, number of bank relationships, and share of debt financing in our overall sample. The first implication of the frequency distribution is that the length of relationship is not a perfect predictor of the existence of a close banking relationship. Indeed, we found that 49% of firms maintaining a close relationship banking during less than 11 years. On average, firms maintain a 10 years relationship lending. In addition, only 4.4% [6] of firms maintaining close ties with the bank keep a relationship for more than 19 year. This finding is incompatible with an indicator role for relationship lending. Second, we found that on average the banks provide funds to firms up to 79%. The composition of our sample can explain this result. Moreover, only 14% of firms maintaining close relationship banking receive less funding at 40%, while more than the half receives more than 80% of the required funds. Hence, the share of bank financing could be considered an indicator of relationship lending.

Finally, concerning the number of bank relationships, we noticed that more than 50% of the firms maintaining a close banking relationship are in exclusive relation and that 89% of them are dealing at most with two banks. To summarize, the share of funding and the number of bank relationship could be considered as indicators of the existence of a relationship lending.

3. Empirical determinants of the relationship lending

3.1. Model specification

Extending precedent analysis by relating firm and contract characteristics to the existence of relationship lending within a multivariate framework allows us to derive the setup of the empirical model for our subsequent regression. In fact, the exploration of banker's assessments shows that many close banking relationship attributes can be summarized in three main factors; "Influence on the management," "Good access to information," and "Solvency." But, given that a positive selection

process has taken place over time, theoretical predictions derived might not carry over to such a sample.

The close ties between with borrowers enable banks accumulate valuable private information over time. If the bank uses this information to systematically highlight bad borrowers, the average quality of the portfolio should improve. The building block of this observation is that positive news should reduce forecasting errors, compared to transactional financing. Therefore, borrower's quality improvement is expected. This argument was advanced by Von Thadden (2004). In his article dealing with asymmetric information, bank financing, and implicit contracts, he suggested a correction of Sharpe's analysis (1990) of game theory, widely studied in literature. The study considered the long-term credit and the relationship between banks and firms. The model studies the credits renewed in the presence of information's asymmetry. According to Sharpe (1990), the game has equilibrium in mixed strategies which suits the case of informational locked-in borrowers. Hence, they switch between relational and transactional lender. But low-quality borrowers switch more often than high-quality borrowers. Overall, a positive selection process would result over time. Therefore, we conclude that several factors explain the likelihood of close banking relationship establishment.

We now turn to the multivariate analysis of the determinants of relationship lending. Since the relationship lending statute is binary, we employ probit regressions. Similar to the approach of (Bharath et al., 2008; Degryse et al., 2009; Elsas, 2005; Presbitero & Zazzaro, 2011), we test the following model:

$$Y = f(X \text{ relationship}, X \text{ borrower}, X \text{ contract}) \; and \begin{cases} y = 1 & \text{if there is close banking relationship} \\ y = 0 & \text{else} \end{cases}$$

In this notation, y is the observed binary variable of relational lender; y and Xi are the explanatory variables.

Table 3 summarizes all the variables used.

Table 3. Definition of variable

Variable	Definition	Construction
RL	Banks self-assessment of their bank status as relational lender	Dummy
DURATION	Duration of bank–borrower relationship	Duration in years
NUMBANKS	Number of simultaneous bank relationships	–
SCOPE	Number of credit lines	–
INFO	Bank has a good access to information	Dummy, based on written explanations of relational bank attribution
SOLVENCY	The firm is creditworthy	Dummy, based on written explanations of relational bank attribution
SIZE	Firm size	ln (Sales)
AGE	Firm age	ln (Age)
AAM	Total annual movement of the current account with respect to turnover	TAM/TO
STRUCTURE	Firm capital structure	Equity/Balance sheet
FUNDING	Firm financial structure	Long- and medium-term debt/Equity
LEGAL FORM	Borrower has limited liability	Dummy

3.2. Baseline results

We report results for our specification in Table 4. We begin by the duration of the relationship, most frequently used proxy, since duration is equivalent to the accumulation of private information over time. The estimates of Table 4 suggest that the duration has no effect on the probability to establish a close banking relationship. This result is consistent with our findings when exploring banker's assessments. Indeed, we found that according to banker's explanatory pattern, "Long duration of the relationship," ranks fifth according to the frequency of mention.

In addition, the duration of the banking relationship of approximately 68% of the firms establishing close relationships with their banks do not exceed 11 years. Hence, we confirm Elsas's result. He suggests that the relationship between duration, accumulation of private information, and intensity of the financial relationship should not be monotonous. So, we believe that this variable should be used with caution in empirical work. According to Elsas (2005) the marginal value of additional inside information could decrease and the value of this benefit may fade after a certain period. Besides, Ongena and Smith (2001) found that the probability to end the credit relationship is positively correlated with duration. More particularly, according to Farinha and Santos (2002), micro- and small-businesses maintain short-term banking relationships. The estimated coefficient on number of bank's relationship is negative but insignificant. Our finding is consistent with the feedback of analysis of indicator's frequency distribution. It shows that 55% of firms maintaining close banking relationships are financed by one bank. Our results do not validate the assumptions of Ongena and Smith (2001) and those of Houston and James (2001). They argue that relationship exclusivity allows the establishment of close banking links. But, the exclusivity of the relationship assumes a low level

Table 4. Probit analysis of determinants of the existence of relationship lending

Expl. variables	dF/dx[b] St	z	P>|z|
DURATION[c]	−.004338	−0.59	0.554
NUMBANKS	−.0016971	−1.07	0.284
SOLVENCY[a]	.0940076***	2.66	0.008
AAM	.0092714	0.57	0.569
AGE	.0023886**	2.38	0.017
SIZE	.0040851	0.98	0.329
FUNDING	.0353766*	1.92	0.055
LEGAL FORM[a]	.0287647	1.41	0.159
STRUCTURE	−.0054736	−0.33	0.740
SCOPE	−.0008517	−0.33	0.740
INFO	.0109919**	2.33	0.020
Pseudo R^2			
GOOD RATE CLASSIFICATION 90.00%			
LR $\chi^2(12)$	33.68		
Prob > χ^2	0.001		
Pearson (χ^2)	35.69		
Prob > χ^2	1.000		

Notes: Probit analysis of the existence of relationship lending. The dependent variable RL is based on bank self-assessments. For definitions of regressors see Table 3. P-values are in parentheses.

*Significance at the 10% level.

**Idem., 5%.

***Idem., 1%.

[a]This is the probability that the dependent variable takes the value of 1 following the change in the explanatory variable.

[b]dF/dx is the probability of the dependent variable when the binary explanatory variable changes from 0 to 1.

[c]The same result was found when the period it is calculated by the number of years or its logarithm.

of competition allowing unique access to private information and possibility of credit renegotiation contract terms. According to Elsas (2005), exclusivity of relationship banking is neither a necessary nor a sufficient condition. Indeed, Holmstrom and Tirole (1997) have shown that it takes only a fraction of financed funds by the main bank to avoid the problem of moral hazard. The remaining funds could be collected on the financial market. On the other hand, theoretically this information advantage is based on access to inside information and its accumulation over time. But since the disclosure of this information depends on the company strategy, the close relationship banking institution could take place even in a context of multiple banking relationships.

Turning to the SCOPE variable, measured by the number of credit lines granted by the bank, a widely used proxy for detecting the existence of a close banking relationship, since it reflects the firm involvement and even more private information about the activities of daily operations, we found a non-significant coefficient. This finding contradicts the postulates of relational financing theory. Concerning the characteristics of the company, the coefficient on AGE is positive and significant. Our result is consistent with Elsas's (2005). Indeed, the age of the company is a proxy measure of information asymmetry. Thus, the bank can extrapolate the history of a firm to predict his future behavior. According to Sharpe (1990), the existence of close financial relationship depends on the importance of information asymmetry. Specifically, the degree of asymmetric information depends on the stage of the "lifecycle" Norton (1991). The coefficient on FINANCING variable is positive and significant. So, the high share of debt financing indicates a high probability of establishment of close banking relationship. So, the bank private access to information and reduction of competitive pressure could explain this result.

Finally, we found that "Good access to information" has a positive and significant effect on the probability of establishing a close banking relationship. This result is consistent with the relationship lending theory. Nevertheless, we can't deny the importance of transactional aspect in loan relationship process. Indeed, the more the company is solvent the more it is likely to establish a privileged relation with its bank. We found that the SOLVENCY variable has a positive and significant effect. We can conclude, therefore, that the granting a relational loan depends on the financial stability of the company in addition to the relational aspect. Our results complement the findings of previous studies since relational bank status is based on personal assessments of bank officers.

4. Conclusion

In contrast to the majority of existing empirical studies on relationship lending, our study empirically analyzes determinants of the establishment of close relationship between the bank and the company. Therefore, we focus on the identification issue itself and not consequences. This type of relationship has been extensively studied and approximated by various conventional measures. But few studies that have attempted to put these measures into account and analyzing their relevance. Subsequent to Elsas research work in (2005), we adopted a more direct approach to detect the empirical determinants of a privileged banking relationships through a rich sample of data on credit records and a questionnaire, wherein the banker offers explanations of close ties with the company. Our approach allows challenging traditional measures and taking into account the specificity of the Tunisian context.

We first explored banker's explanations of their own assessments. We found that several factors suggested could be related to "the ease access to information," "the ability to influence the manager," and "solvency of the company." Our results are partly consistent with the postulates of relational financing theory. In fact, while it is obvious for the reasons "ease access to information" and "ability to influence the Manager" due to the social aspect of interactions. The importance of the reason "Business solvency" concludes to the importance of the transactional aspect of a banking relationship. Then, we connected the characteristics of the borrower and the credit agreement, the explanatory factors, and conventional alternative indicators to the existence of close banking relationship. The results show that the relationship duration and the exclusive banking relationship are not determining factors in this type of relationship. So, these proxy measures should be used with

caution in future empirical work. Then, these results were confirmed through a multivariate analysis. Indeed, we found that conventional measures do not have a significant effect on the likelihood of establishing a close banking relationship, whereas the ease of access to information and solvency of the company account for the banker when taking this decision.

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Notes

1. See for example Petersen and Rajan (1994), Berger and Udell (1995), Cole (1998), Elsas and Krahnen (1998), Degryse and Van Cayseele (2000), Lehmann and Neuberger (2001), Bharath, Dahiya, Saunders, and Srinivasan (2008), Behr, Entzian, and Güttler (2011), Dawally and Shao (2014), etc.
2. Ongena and Smith (2001) provide an overview of theoretical explanations for the optimal number of bank relationships of firms as well as an empirical analysis based on multi-country data.
3. Since geographical proximity reduces the cost of collecting information, Elyasiani and Goldberg (2004) and Uchida et al. (2008) expect an improvement of loan terms. Berger and Udell (2002) found that aged firms are located near their banks. While Cole, Goldberg, and White (2004) argue that distance has no effect on loan decision. Degryse and Ongena (2005) found that in Belgium credit rate is negatively related to distance.
4. See Lehmann and Neuberger (2001).
5. Petersen and Rajan (1994). Ongena and Smith (2001), Houston and James (2001)
6. 4.4% = 4/89.

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