

Single Versus Multiple Bank Relationships and Firm Performance: An Econometric Model for some Tunisian Firms

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Abstract

The aim of this paper is to investigate the impact of bank relationships on firm performance for selected Tunisian companies. We used an econometric model based on panel data analysis relative to 130 Tunisian firms from different sectors and with different characteristics for the period of 2000-2007. In our model, performance is measured by return on equity and return on assets which are considered the best indicators of firm's profit. Empirical results show that the number of bank relationships negatively affects the performance of firms. Tunisian companies are encouraged to weave exclusive and long term relationships to benefit from the good conditions of financing.

Keywords: Single and multiple bank relationships, firm performance, Tunisian firms, panel data.

JEL Classification Codes: C35, G21, G32

1. Introduction

The number of bank relationships is crucial for the business strategy of a firm and thus for its performance. However, choosing between single or multiple partners is not a straightforward task because, on the one hand, single relationships are risky and undesirable when a firm needs liquidity especially in a period of crisis and on the other hand, multiple relationships are costly, in particular for micro and small firms.

Modern literature on the number of bank lending relationships is divided on two ranges: the Pros and Cons. For example, Elyasiani and Goldberg. R (2004), Cole and al. (2004), claim that a close and an exclusive relationship increase the performance of companies. With a single partner, the firm enjoys easier access to finance and lower interest rates in the event of financial panics. While being

financed with a limited number of banks, the two parts (banks and firms) obtain the information required about each other more easily which may strengthen their partnership. Diamond (1984) argued that a good relationship reduces the borrowing costs and decreases the informational asymmetry. Multiple bank relationships can provide the same purpose, but at a high cost due to a risk premium. This often leads to credit rationing for the firms and a default risk for the banks. In fact, there is less of a free rider problem in the case of single creditors (Fok and al. 2004). With a single bank relationship, the costs of monitoring are lower and the cost of financing is affordable. A single creditor has a stronger incentive to monitor its borrowers and thus can exert a positive impact on the firm's performance.

As the exclusive relationship has advantages which might ameliorate the performance of the companies; they are also at the origin of some drawbacks which can reduce firm performance. These disadvantages consist of the exploitation by the bank of its position as a monopoly and the only provider of financing for firms especially for micro and small enterprises facing a transitory difficult situation. Sharpe (1990) and Rajan (1992) argued that with a single lending partner, the bank might exploit its bargaining power over the firm and extract rents from loan contracts. This means that micro and small firms with an exclusive lender pay an unaffordable cost of borrowing. In addition, if the bank refuses financing its client, firms might face serious problems of liquidity. Once the company does not find the necessary funds to finance its investment, its performance is seen as deteriorating. This framework occurs in economies characterized by a fragile banking system and an uncertain economic environment. In this case, a multiple bank relationships are desirable. Multiple bank relationships can eliminate problems of monopoly power and can diversify liquidity risk. It can reduce the risk of premature liquidation (Detragiache 2000). Bolton and Scharfstein (1996) suggest that multiple bank relationships might prevent the firm manager from strategic default by holding up the renegotiation process. Carletti et al. (2007) suggest that multiple lending partnerships are beneficial for both firms and banks. Firms ensure the liquidity they need when a bank refuses financing and banks exploit the multiple relationships to diversify their lending risk.

Regarding our study, the question is: what should Tunisian firms choose: a single or a multiple bank relationship? The number of bank relationships and the firm performance seems to be an ambiguous relationship. This dilemma is at the hub of our study.

The aim of this paper is to investigate the impact of the number of bank relationships on firm performance for selected Tunisian firms for the period of 2000-2007. The sample includes 130 enterprises from different sectors, industry, service and trade and with different characteristics (age, size). Performance is measured by the return on assets and the return on equity which are considered as the best indicators of the firm's liability structure. The paper is structured as follows: section two studies the cost advantage analysis of single and multiple bank relationships. Based on some recent literature, we first study advantages of exclusive and multiple bank partners and secondly we determine their disadvantages simultaneously. The third section illustrates the methodology and data of our empirical model, section four analyzed the results of the panel data regression and section five concludes.

2. A Cost Advantage Analysis of the Number of Bank Relationships

The recent literature that deals with the number of bank relationships and firm performance is divided into two categories. The first one defends the single bank partner and the second one is for multiple bank relationships. In this section we summarize the advantage and disadvantages of single and multiple bank relationships. The theoretical background will be the center of our empirical model.

2.1. Advantage of Single Versus Multiple Bank Relationships

The existing literature has widely discussed the importance of an exclusive bank relationship¹. Raghavendra (2000) and Harhöff and Körting (1998) argued that it is more beneficial for a firm to weave its lending relationships with an exclusive bank rather than with multiple partners. With a single relationship, the quality of information between enterprise and bank is better shared and the two economic agents benefit from comparative informational advantages. On the one hand the bank has good information about its client which may reduce the cost of credit (Non-performing loans, credit risk) and on the other hand, the firm earn positive profit related to the reduced costs of borrowing. With transparent information in a single relationship, a convivial atmosphere can be created between bank and enterprise. According to Degryse and Ongena (2001), a firm with limited banking partners is more effective than one firm with multiple liaisons. The empirical study of De Bodt and al. (2005) showed that there is a positive causality between the number of bank relationships, the availability of credit and the performance of firms. With a single financing lender, the interest rate is competitive, the cost of credit is low and consequently the profit is high (Peterson and Rajan, 1994). The firm with a strong bank relationship has the privilege of the access to credit at a low cost especially in a period of crisis².

The existing literature has also widely discussed the role of multiple bank relationships and the performance of firms. Generally speaking, a firm builds multiple bank partners in order to avoid any problem of bank distress and to avoid high financing cost imposed by some banks. Thus, the firm can choose between banks that have the most attractive financial services. In this case, the firm ensures the access to other sources of financing and the banks seek to diversify the risk of credit. For this reason, there are rarely firms that have an exclusive bank relationship. Ongena and Smith (2000) in a survey including 1079 firms across 20 European countries find that the majority of firms (85%) use more than one bank. They find that firms in countries with the French legal system, such as France, Italy, Spain and Portugal, have on average more than 10 different bank relationships³.

Generally speaking, two theoretical justifications explain multiple banking relationships:

- For the companies of good quality, multiple banking relationships constitute a solution to escape from hold-up problems.
- For the companies of bad quality, multiple banking relationships are an effective means to access other sources of financing often at a higher cost.

Empirical studies prove that it is beneficial for companies of good quality and reputation to choose exclusive banking relationships. On the contrary, for bad quality firms (bad reputation and firms having financial problems) multiple bank relationships is seen as more beneficial for them.

2.2. Disadvantage of Single Versus Multiple Bank Relationships

As it is argued before, exclusive bank relationships lead to the creation of an atmosphere of confidence between the two parts. This confidence can guarantee future financing to the companies because banks have already enough information on its debtors. However, this confidence can be exploited by enterprises for two reasons. First, in a period of crisis, firms take some risks to avoid the cost of credit lending. Second, in a competitive environment, firms take more risks to compensate the loss of competition and to strengthen its position in the market. Fama (1985) argued that broadly, an exclusive bank relationship encourages firms to take more risk because they know in advance that they will be financed in the case of financial difficulties⁴. An excess of risk taking by these firms may deteriorate their performance and increase their fragility.

Another problem with single bank relationships is the risk of illiquidity. A firm with an exclusive partner can be exposed to the risk of insufficiency of financial liquidity in the event of

¹ Bellouma and Omri (2005), Padilla and Pagano M (2000)

² Hoshi, Kashyap, and Sharsftein. (1990), argued that in a period of crisis the risk of illiquidity and the credit rationing is reduced as confidence has built between the two institutions

³ This observation has also been found in D'Auria, Foglia and Reedtz (1999).

⁴ Peterson and Rajan. (1994), Jimenez and Saurina. (2004),

difficulties and in case of banking crises. No bank is ready to finance this company immediately for problems of adverse selection, (Sharpe, 1990) and Detragiache 2000).

Concerning multiple bank partners, the major problem is the short duration of the relationship. In that small period, banks and firms have little information about each other; there is no strong confidence between the two parts. It is argued that multiple relationships is considered as a “strategy” adopted by both companies and banks in the same time. The firm’s strategy consists of having several partners to ensure its financings (multiple bank relationships). The bank’s strategy however consists of the diversification of its customers (multiple enterprise relationships) and the reducing cost of the probability of failure of its principle partner (credit risk). In this case, this strategy could have a harmful effect on bank and enterprise simultaneously and could enhance the asymmetry of information between them. The adverse selection and moral risk will result from the increasing costs of search for information which increases the costs of financing (interest rate). In the same way, the asymmetry of information risks makes the credit market inefficient (Diamond 1984).

3. Econometric Model for the Case of Tunisia

In the previous section, we enumerated the costs and benefits of bank-firm relationships (single and multiple). The question that rises for our case study is: which relationship increases the welfare of Tunisian firms? To resolve this question, two assumptions will be analysed:

H 1: the number of the bank relationship decreases the firm performance.

H 2: the number of the bank relationship increases the firm performance.

3.1. Data and Methodology

To determine the effect of the number of bank relationships on firm performance, we analyzed data of 130 Tunisian enterprises⁵ of different size, sector, and age for the period of 2000-2007. For each company, some data was collected from their balance sheet (the annual statements from where we draw some variables) and others were collected following a questionnaire. The panel is composed as follows: 66.92% of firms operating in the trade sector, 26.92% in the service sector and 6.15% in the industry sector. To analyse the link between the number of bank relationships and the firm performance, we use the panel data technique. This method makes it possible to control the heterogeneity of observations in their individual dimensions.

The econometric model is written in the following form:

$$ROA = \alpha_0 + \beta_1 SIZE_{i,t} + \beta_2 AGE_{i,t} + \beta_3 SECT_{i,t} + \beta_4 SHORTIR_{i,t} + \beta_5 STABL_{i,t}$$

$$ROE + \beta_6 CNCN_{i,t} + \beta_7 MLTPL_{i,t} + \beta_8 NBANK_{i,t} + \beta_9 LONGIR_{i,t} + \varepsilon_{i,t}$$

ROA (return on assets) and *ROE* (return on equity) measure the performance of the firm,

Age: is the age of the firm measured by the difference of the year of study and the creation date of the firm,

SIZE: is the size of the firm measured by the natural logarithm of the total assets,

SHORTIR: measure the short-term interest rate,

LONGIR: measure the long-term interest rate,

MLTPL refer to a multiple bank relationship, it is a dummy variable takes 1 if the company is financed by two banks or more and 0 if not,

NBANK refer to the number of banks that finance the company,

SECTR is a dummy variable take 1 if the company operates in industry, 2 if it is exerted in the service, 3 if it operates in the trade.

CNCN is the banking concentration; it is measured by the degree of concentration of HHI.

STABL is the banking stability measured by the level of credit risk.

⁵ It should be noted that financial institutions were excluded from our sample because of their particular financial behaviour.

3.2. Descriptive Statistics

Table 1 shows that on average, the return on assets of our sample is 3.37% and 7.32% for the return on equity. The average number of bank relationships is 1.91; this means that each company weaves more than one bank liaison. Tunisian companies multiply their partners on average at a rate of 54.71. The average age of our sample is almost 14 years. More precisely, companies are old on average 13.91 year old. This age allows them to have a better capacity of negotiation and good experience.

The Tunisian banking system records a weak concentration with a mean level of 7.21%, whereas average stability is at a rate of 11.04%.

Table N° 1: Descriptive statistics

Variables	Nbre of observ	Mean	Std. Dev	Minimum	Maximum
Roa	1040	0.0337	0.0361	-0.3060	0.3399
Roe	1040	0.0732	0.4010	-2.4262	12.20782
Nbank	1040	1.9163	1.1150	1	9
Size	1040	4.840	7.1097	-0.1815	21.112
Age	1040	13.919	13.0503	0	82
Shortir	1040	0.0940	0.0099	0.0800	0.11
Longir	1040	0.0935	0.0321	0.0110	0.115
Cncn	1040	0.7215	0.0095	0.7090	0.7425
Stbl	1040	0.1104	0.0019	0.1064	0.1135
Mltpl	1040	0.5471	0.4980	0	1
Sect	1040	0.7738	0.6237	0	3

The correlation matrix is intended to check the degree of correlation between the various variables of study. So as to avoid the problems of multi-collinearity. Table 2 indicates that correlation between various variables is weak.

Table N°2: Correlation Matrix

	Roa	Roe	Nbank	Size	Age	shortir	Longir	Cncn	Stbl	mltpl	Sect
Roa	1										
Roe	0.2879	1									
Nbank	0.1012	0.1229	1								
Size	0.2816	0.1040	0.3046	1							
Age	0.2998	0.0686	0.2135	0.2962	1						
Shortir	-0.019	-0.0022	-0.0595	-0.003	-0.154	1					
Longir	-0.006	0.0119	0.0012	-0.001	-0.025	0.2330	1				
Cncn	-0.015	-0.0178	-0.0364	-0.001	-0.027	-0.050	-0.148	1			
Stbl	-0.017	0.0053	-0.0552	0.0005	-0.053	0.1515	-0.044	-0.107	1		
Mltpl	0.1383	0.0493	0.1446	0.3125	0.3638	0.0036	0.0002	-0.008	-0.011	1	
Sect	0.173	0.0486	0.0888	0.1345	0.4331	0.0086	0.0010	-0.005	0.0132	0.2278	1

4. Empirical Results and Interpretations

In our model, fixed and random effect estimations were used. The Hausman and the Breusch-Pagan tests show us which method to use for the regression. The results of the various tests as well as the result of regression are provided in table N°3.

Table 3: Result of estimate random effect of the (dependent variable (ROA), (ROE) :

Variables	Model 1 (Return on assets= ROA), (EA)		Model 2 (Return on equity = ROE), (EA)	
	Coefficients	(z- statistic)	Coefficients	(z- statistic)
Nbank	-0.0026* (0.074)	-1.79	-0.0727*** (0.000)	-3.90
Size	0.0010** (0.031)	2.16	0.0072** (0.032)	2.14
Age	0.0004* (0.067)	1.89	0.0001 (0.939)	0.08
Shortir	0.034* (0.009)	3.17	0.0928* (0.051)	1.98
Longir	-0.0147 (0.595)	-0.53	-0.1240 (0.783)	-0.28
Cncn	0.0362 (0.636)	0.47	0.3112 (0.807)	0.24
Stbl	0.7335* (0.084)	1.93	1.0091* (0.000)	3.43
Mltpl	-0.0048*** (0.008)	-3.44	-0.1297* (0.004)	-2.88
Sect	-0.0003 (0.933)	-0.08	-0.0002 (0.993)	-0.01
R ² w	0.0105		0.0047	
R ² b	0.1480		0.1415	
Fisher test	16.41*** (0.0000)		10.55*** (0.0000)	
Hausman	11.51 (0.1744)		3.97 (0.8601)	
Breusch-Pagan (LM)	1131.49*** (0.0000)		14.73*** (0.0001)	
Number of observ	1040		1040	

The test of Chow relating the effect of the number of bank relationships on firm performance is significant for our model. This test validates the individual behaviour of Tunisian companies. Moreover, the statistics of the Breush Pagan (LM) test are significant at the level of 1%. In addition, the Hausman test is significant. While pressing on the estimators *Betewen* and *Within* ($R^2w < R^2b$), we apply the random effect specification.

The results of our regression indicate a negative and significant correlation at the level of 10% between the number of bank relationships (NBANK) and the performance of firms. The increase of the number of the bank partners leads to an increase in the information costs and transactions costs. As a result, these costs increase the cost of credit which affects negatively the firm performance.

From another point of view, the number of banks informs us about the level of competition within the banking system. A higher level of competition incites banks towards the financing of riskier projects. This strategy often leads to a failure of the project and a default risk for the banks. These results are converged with those found by Fogila et al. (1998).

The negative link between the number of bank relationships and firm performance shows that it is better for Tunisian firms to have a reduced number of bank partners in order to reduce different costs (coordination, credit, search of information and transaction costs). Within the framework of an exclusive partner, the firm often obtains credit with good conditions. So companies which have number of banking relations are more powerful. This conclusion leads us to accept *the assumption N°1: the number of the banks affects negatively the performance of the firms.*

The variable (MLTPL) confirms the negative correlation between the number of the bank relationships and the performance of Tunisian companies. This variable is correlated negatively and significantly with a level of 1% with financial and economic profitability.

As for the impact of the interest rates on profit, our results are similar with those found by Chen and Wen (2006) for short-term interest rates; whereas they are divergent with regards to long run effect. The variable short-term interest rate (SHORTIR) is correlated negatively and significantly with the performance of companies. It is important to mention that the capital structure of the Tunisian companies is dominated by short-term credits. Generally, the cost of short term debt is lower compared to long term credit. Once the cost of debt decreases, the value of the firm increase as its performance increases.

The variable long-term interest rate (LONGIR) exerts a positive and non significant effect on the performance of companies. Once the duration of credit increases, the financial expenses increase. These charges decrease the firm performance.

The size of the firm positively and significantly affects the performance of the firms at the level of 5%. Our results are similar with those of Bardos (1990) admitting the positive relationship between the size and the firm performance. It sought to explain the decreasing relationship of the cost of debt when the size increases. Financing at a lower cost should contribute to the improvement of the performance of the firms.

The variable age (AGE), acts in a positive and significant way at a level of 10%. The reputation of a company is able to influence its performance. The oldest companies have notoriety and a more rational management that allow them to obtain a good negotiation of the credit contracts. The oldest firms have a long data history reflecting their situations and their capacities of honouring engagements. Once information relating to the financial situation is joined, the company can reach various sources of direct and indirect financing. So the investment will be supported and the performance improved. The older the company the more its reputation is improved. This ensures financing at a lower cost which can positively affect its performance.

Contrary to the age of the firm which is positively and significantly correlated with the firm performance, the variable sector (SECT) is correlated negatively and not significantly.

In addition to the characteristics of the firm, those of the banking system (CNCN and STBL) seem to have an impact of the performance of the firms. These two variables are correlated positively with the dependent variable. Generally speaking, a stable banking sector increases the confidence between banks and enterprises, improves the quality of information and access to finance become easier than an unstable system.

The results show the banking concentration remains insignificant. A less concentrated banking system enhances the competition between banks, reduces the cost of credit and thus improves the firm performance. Banking competition reduces the lending interest rate and increases the deposit interest rate. This situation is beneficial for firms which may allow them to invest and to enhance their effectiveness.

To conclude, the number of bank relationships negatively affects the performance of Tunisian firms. This performance is measured by the ROA. Tunisian firms are encouraged to weave exclusive and long term relationship to benefit from the good conditions of financing. These results lead to accept the assumption N°1: the number of bank relationships negatively affects firm performance.

5. Conclusion

On the basis of data relative to 130 Tunisian companies for the period of 2000-2007, this paper aims to analyse the effect of the number of the bank relationships on the performance of firms. We have used an econometric model based on panel data analysis. The results of the regression indicate a negative and significant correlation at a level of 10% between the number of bank relationships (NBANK) and the firm performance. This performance is measured by the return on assets (ROA) and return on equity (ROE).

The variable (MLTPL) confirms the negative link between the number of bank relationships and the performance of Tunisian companies. This variable is correlated negatively and significantly with a level of 1% with financial and economic profitability.

As for the effects of interest rates on financial and economic profitability, our results are similar to those found by Chen and Wen (2006) for the short-term interest rates and diverge with the long term rate. The variable short-term interest rate (SHORTIR) is correlated negatively and significantly with the performance of the companies. However, the variable long-term interest rate (LONGIR) exerts a positive and non significant effect on firm performance.

The size of the firm positively and significantly affects firm performance (ROA). Our results are similar with those of Bardos (1990) admitting the positive relationship between the size and firm performance. In addition, the variable age (AGE), exerts a positive and significant effect to the level of 10%. The reputation of the company is able to influence its performance.

By admitting the negative effect of the number of the bank relationship, the Tunisian firms are encouraged to weave exclusive and long term relationships to profit from its advantages. These results support the assumption: *H1 the number of the banking relations decreases the performance of the firms.*

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of the Central Bank of Bahrain.

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