

The Determinants of the Number of Bank Relationships for Tunisian Firms: A Panel Data Analysis

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Abstract

The aim of this paper is to analyze the determinants of the number of bank relationships for Tunisian firms. We used a financial and accounting data relating to 130 companies during the period of 2000-2007. Econometric model based on panel data analysis shows that Tunisian companies establish the number of their bank relationships according to their own characteristics and those of the banking system.

Keywords: Bank relationships, banking concentration and stability, firm characteristics, Tunisian firms, panel data.

1. Introduction

The importance of the firms and their role as economic agents in the economy has been a topic of interest for researchers and policy makers for a number of years (Schumacher [1973], Acs and Audresht [1993]...). The recent surge in information and communication technology (ICT) and the deregulation of the financial markets in mid-1990s led to the modernization of the relationship between banks and enterprises. Nowadays, despite innovations in financial markets and the appearance of new financial institutions, traditional banks remain the most important providers of external finance to firms. Three questions of general concern have been raised: What is the nature of the bank enterprise relationships? How enterprises establish their bank relationships? What are the determinants of the number of banking relationships?

Several theoretical and empirical studies focus on the effect of bank relationships on the cost of credit and on the performance of the firms [Fok et al. (2004), Agarwel.R and Elston (2000)...]. Whereas there are few studies that treat the determinants of the number of bank relationships. A lot of importance is attached to this issue to understand how firms choose between a single bank relationship

and the strategy of multiple bank relationships. Broadly, based to its assets, its wealth and its environment, the firm can choose the number of banking relationships it wants. Nevertheless, several gaps persist in determining the number of bank relationships. Does an enterprise has to hold only its principal characteristics to choose the number of bank? Or must it take into viewpoint the situation of the banking system? Banking literature illustrates two arguments related to this issue. The first one focuses on the characteristics of the firm as determinants of the number of bank relationships¹ and the second one introduces the institutional and economic context of a country into the modelling of the determinants of the number of bank relationships². In the same way, other studies stress the situation of the banking system (competition and stability) as variables that can affect the number of banks [Ongena and Smith (2000)]. On the basis of data relating to 130 Tunisian firms during the period 2000-2007, and by using the technique of panel data analysis, the aim of this paper is to investigate the determinants of the number of bank relationships in Tunisia. The rest of the paper is structured as follows: section two studies the theoretical background of the determinants of bank relationships, section three present assumptions of our model, section four use an empiric model based on panel data analysis and section five conclude.

2. The Determinants of the Number of Bank Relationships: A Theoretical Study

The literature on the determinants of the number of bank relationships is divided in two ranges: the first is related to the characteristics the firm (size, age, quality of its services) and the second one on the nature of the banking system.

2.1. Characteristics of the Firm as a Determinant of the Bank Relationships

Broadly, three ingredients characterize a firm: its size, its age and the quality of its services.

2.1.1. The Size of the Firm

The size of a company is considered as the first determinant of the number of the bank relationships. Three theoretical justifications were presented to justify the relationship between the size of a firm and the number of banks. Firstly, taking into account the financing needs, the size of the firm is perceived as the most significant indicator of the choice in the number of bank relationships. This justifies the choice of a high number of banks for large companies. The multinational firm needs a significant number of banks to guarantee the necessary financing for their investments. Larger firms typically have a more hierarchical organizational structure than small firms. According to Ongena and Smith (2000), the management of the large firms requires a significant variety in the sources of financing. Secondly, having a significant number of the banks is necessarily associated with a switching *cost*. The passage of a single relationship to another multiple makes support the firm several costs of which are mainly; costs of information, coordination, transmission, costs of financing and sometimes the costs of absence of necessary financing. Within the framework of an exclusive relationship, the companies is likely obliged to pay costs and are able to maintain this relationship. In the multiple bank relationships, these costs will be multiplied by the number of the banks. Within this framework of analysis, only large companies can fill these requirements whereas SMEs remain unable. Thirdly, the number of banks is explained by the purpose to diversify the sources of financing for the companies and by a diversification of risk for the banks. Thus, the size of the firm appears like a moderating variable in this relationship. With reference to a firm's dimensions, those of a big size prefer to multiply their relations for reasons of market ability (informational monopoly) and problems of banking illiquidity. Whereas SMEs, seek to have exclusive and long term relations to guarantee a later financing.

¹ This argument was developed by Refait.C (2003), Ziane. Y (2004), Degryse and Van Cayseele (2000) De Bodt, Lopez and Statnik (2005).

² Detragiache and al (2000).

From a banking point of view, banks prefer in certain cases diversification in order to concentrate credit. This is explained by the fear of a significant risk of default in the case of financial difficulties encountered by the «principal» company towards which the bank has concentrated the most significant share of its credit. On this level, the size of the firm intervenes like an indicator of power.

2.1.2. The Age of the Firm

To acquire an optimal size, companies must often pass by a cycle of life distributed between various stages. Indeed, companies do not suddenly become large, but they acquire an optimal size after many years of existence. This reciprocity and this coherence between the age and the size of the firm, makes it possible to regard the cycle of life as a significant determinant in the number of bank relationship it has. The literature based on this subject shows that “young” companies choose the concentration of their relationship, whereas after a few years of their existence, they start to develop their linkage³.

Broadly, the strategy of concentrating banking relationship can be explained by the firm or by the Bank. In the first years of their existence, companies tend to concentrate their relations because of their lack of experience and notoriety [Demoly and Thirion (2001)]. To stabilize and to study the market, these companies initially prefer to weave exclusive relationship. These confer a strong probability of being financed later under favourable conditions. The priority for these companies is to ensure necessary funds for their projects. According to Farinha and Santos (2002), Ongena and Smith (2000), the concentration of bank relationships increases the availability of credit.

2.1.3. Quality of the Firm

Quality is referring to the capacity of a firm to respect engagements toward its partners (customers, banks, enterprises, government, etc). It is also related to the quality of services that offer and to the quality of its corporate governance. The quality of a company constitutes a major determinant of the number of its bank relationships. This means that according to the quality of the company that the number of banks will be fixed.

According to Bodt and al (2005), multiple bank relationships are regarded as a signal of a good quality firm⁴. Firms with good quality multiply their relationship for several reasons: first to escape from the informational opacity exerted by the principal bank and to diversify their source of financing, second to limit the problem of credit rationing, third to avoid the problem of illiquidity (Detragiache et al. 2000), and finally to reduce costs of information asymmetries.

For reasons relating to the cost of banking financing, some companies are directed towards an exclusive banking relationships [Fama (1985), Peterson and Rajan (1994)]. By weaving one link, the costs of search for information ex-ante and those of control ex post are decrease. The exclusive and long term relationship is likely to create a good reputation for the company and provide privilege and availability of financing at a lower cost. However, it can also be a danger for firm because with a single bank relationship, firm can see its investments blocked at times of financial difficulties (problem of liquidity). In this case, finding another sources of baking financing become complicated.

Concerning bad quality company, banking theory shows that it is more beneficial for these firms to concentrate their banking relations. This is in order to improve their reputation towards their banks and consequently, to stimulate their investments and to support their performances⁵. Generally, a bad quality company seeks to be financed with a lower cost. With this intention, it is encouraged to

³ See Farinha and Santos (2002), and Ongena and Smith (2000) for more details.

⁴ The ability of covering costs of the moving from a single relationship to multiple of relationships is an indicator of the good quality of the firm. For each bank relationship, the company pays various costs (costs of coordination, costs of transaction, and costs of monitoring...); these costs are multiplied by the number of banks, if the company wishes multiply their relationship.

⁵ Sharpe (1990) and Rajan (1992), agree that exclusive banking relationships can be non optimal. In a single relationship, the banks can have monopoly information with regard to future credit distribution. They also show that competition on the credit market can reduce the *holdup* problem.

weave an exclusive relationship. This exclusiveness link makes it possible to reduce the costs of searching for information and those of control. To switch from a single relationship to a multiple connections, companies support various costs proportional to the number of their partners. Indeed, the firms with bad qualities remain unable to achieve these conditions. This mean that is more advantageous for them to weave exclusive relationship.

To conclude one can argue that bad quality companies present an ambiguity in the choice of the number of the bank relationships. The problem posed is as follows: is it *beneficial for companies with bad quality to resort to multiply or to concentrate their relations?*

2.2. The Characteristics of the Banking System as Determinants of the Number of Bank Relationships

How some characteristics of the banking system affect the firm's decision of choosing the number of bank relationships? To respond to this question, we present the stability and the concentration of the banking system as a first factor determining the number of banking relationships. Then, we analyze the fiscal, accounting and legal system of the country as the second factor.

2.2.1. Concentration-Stability Versus Concentration Fragility

According to Beck et al. (2006), the literature based on the relationship between concentration and banking stability is ambiguous. There are two contradictories relationships: concentration-stability and concentration-fragility. Concerning the former liaison, several theoretical and empirical studies show that a competitive banking system is more sensitive to the financial crisis than a concentrated system. Allen and Cole (2004). Beck et al. (2006), suggest that it is easier to control a small number of banks in a concentrated banking system. This control will be complicated in the case of a competitive banking system marked by the presence of several banks. Therefore the banking supervision is more effective and the risk of contagion and the systemic crises can be reduced. Another justification of the assumption between concentration and stability finds its roots in the reduction of banking profitability following strong competition impelled by the importance of the number of banks. This weak profitability encourages banks to more risk taking with the aim of being more profitable. This confirms that the more concentrated banking systems, the more its profitability increases. Once banking profitability improves, the probability of adopting behaviour of risk taking is reduced (Hellmann et al. (2000), Allen et al. (2000)).

Contrary to the first linkage (concentration-stability), the relationship between concentration and fragility stipulates that the more a banking system is concentrated the more it is fragile. The study of Caminal and Matutes (2000) shows that strong competition makes it possible to reduce credit rationing and increase the distribution of credit⁶. Another argument presented by Mishkin (1999), shows that a more concentrated banking system will be rewarded by government subsidies. This makes it possible to create problems of moral risk and encourages banks to take risk, which increases banking fragility. A competitive credit market can reduce credit interest rates. A reduction in the debtor interest rates encourages the companies to be involved in debt and to weave several banking relationship. Lower cost financing can stimulate investment and company profitability [Koskela and Stenbecka (2000)]. Moreover, a strong decentralization of the banking system can lead to keen competition between banks. Caminal and Matutes (2000) showed that banking competition makes it possible to reduce credit rationing. A company, if it is not rationed, tends to multiply its banking relationships to ensure the necessary financing for its projects.

⁶ Koskela and Stenbecka (2000) show that banking competition makes it possible to lower interest rates and stimulates investment without increasing the risk of bankrupting of borrowers.

2.2.2. Creditor Rights; Legal Accounting and Fiscal System

The protection of creditor rights and the legal, accounting and financial system interpose as determinants of the number of bank relationships. According to Ongena and Smith (2000), firms maintain several bank relationships in a country having an inefficient fiscal and legal system and a weak protection of creditor rights. On the contrary, the average number of bank relationships is reduced in countries with a reinforcement of creditor's rights and an effective legal system.

2.2.2.1. The Protection of Creditor Rights

A strict regulation of creditor rights improves the credit market efficiency and reduces its volatility and its sensitivity to exogenous shocks [(Galindo and Micco (2001)]. An effective protection of creditor rights often interpreted by the requirement of guarantees reduces the intention of risk taking [Padilla and Requejo (2000)]. Once, the risk taking is reduced, the default risk decreases. In a credit relationship, three parts are required to be joined together: two are at the origin of the constitution of the contract (the lender and the borrower) and a third part intervenes when the borrower refuse to pay the credit (the Court of Justice). The requirement of adequate guarantees reduces information asymmetries and consequently facilitates the evaluation of the level of risk which makes it possible to reduce the probability of default. On the credit market, we specify the bank as creditor. The protection of the creditor rights leads to increase the confidence of the credit institutions towards its borrowers. Therefore, the quantity of the credit distributed increases with a lower cost.

Within this same framework of analysis, a particular contribution to the determinants of external finance and creditor rights was provided by the studies of LaPorta. R, Lopez. F, Shleifer and Vishny. R (1997). By using data of 49 countries, La Porta and al. (1997), found that countries with weak protection of their creditor rights have a very narrow capital market. In particular, the continental countries except France are characterized by a less effective protection of creditor rights like by a less developed capital market. This explains the strong multiple bank relationships of French companies. According to L.L.S.V (1998), the effectiveness of a financial system depends on the legal environment in which they take place. The protection of creditor rights constitutes a significant determinant of the development of capital markets. Moreover, in a credit relationship and in the presence of informational asymmetries, the recourse to collateral loans constitutes a means of protection of creditor rights. In this direction, the permanent tangibles assets constitute the principal guarantees of the credit. At this level, only large companies can fulfil this condition. Whereas SMEs remain unable to provide the necessary guarantees to obtain the credit desired. This incapacity goes up with the low value of permanent assets.

In conclusion, firms maintain several relationships in the countries with weak protection of the creditor rights. This confirms the results founded by Ongena and Smith (2000). In addition to the protection of creditor rights, the legal, accounting and financial system can be regarded as another determinant of the number of bank relationships.

2.2.2.2. The Legal, Accounting and Fiscal System

The legal environment and the accounting/taxation relationship in each country can influence the choice of the number of bank relationships. Generally speaking, the legal system in the continental model is dominated by the codified law. The law formulates detailed accounting rules which can be used for the development of accounting standards. Whereas, in the Anglo-Saxon countries, the legal system is dominated by the jurisprudence called the "common law". The rules are defined by private professional organizations which establish the standards. This means that the Anglo-Saxon accounting system is a procedure which reflects the faithful state and the right of the presentation of financial states to the investors and the creditors. Consequently, the investors can make good decisions and creditors can effectively evaluate the risk levels of their debtors.

In the Anglo-Saxon countries, the demand for a credit by a firm is accompanied by a file which generally includes its annual statements (annual report and accounting statement system, detailed balance sheet). This shows that information is well disseminated and it is available for researchers, investors, creditors and public organizations. Regarding bad firms, information given to the bank

reveal its bad results. Consequently, the cost of credit become high and the access to banking financing become difficult. This model motivates bad enterprises to enhance their management and to ameliorate the quality of their services. It also encourages good quality enterprises to keep their services in the best range.

On the contrary, the continental model is characterized by a limited publication of financial statements of firms [Alan. R (1995)] and dominated by the principles of prudence. The lack of information could increase the cost of financial services and lead to the moral hazard principle. This situation could also lead to a close connection between accounting and taxation. This relationship exerts a harmful effect on the decisional utility of accounting information and could be at the origin of a falsification of financial statements. With this intention, bad company presents fake accounts releasing good results which attract investors and credit institutions to accept their applications for credit. In this case, good quality and bad quality firms are in the same situation which is dangerous for the economy as a whole. To conclude, the harmful effect of taxation on accounting, limit the publication of financial statements and consequently leads to imperfect information and weak protection of creditor rights which explain the recourse of companies adopting the continental model to multiply their relationships.

3. Assumptions

Recent studies show the absence of consensus on the factors that influence the firm's choice of the number of bank relationships. Several empirical papers focused their research on the characteristics of companies as principal determinants of the number of banking relationships. The French example was studied by Refait.C (2003), which focuses the determinants of the number of bank relationships to the characteristics of the company: size, leverage, the level of risk measured, by the standard deviation of the growth rate of sales turnover, liquidity and profitability. A similar paper was developed by Ziane. Y (2004) using a data relating to 244 French companies. Variables used to the banking system are, duration of banking relationships, guarantees, interest rates, ratings, and variables reflecting characteristics of firms are size, age, leverage, profitability, the score, sector, type of market, number of share. In Belgium, many papers were developed by Degryse and Van Cayseele (2000), De Bodt, Lopez and Statnik (2005). These authors presented credit rationing as a determinant of the number of bank relationships. They also showed that SMEs and bad quality companies are exposed moreover for the credit rationing. The study of Degryse and Van Cayseele (2000) analysed the quality of the company and the informational asymmetry as determinants of the number of bank relationships in Belgium. The concluded that the good company tends to concentrate its relations, whereas bad quality firm resort to multiply its relationship. Detragiache et al. (1999), observed that Italian companies tend to maintain several relationships, whereas American companies choose to concentrate their liaisons. With this intention, they developed a theory relating to the choice of the number banks to the dependency on the economic and institutional context in which they operate.

The study of Ongena and Smith (2000), based on 20 countries and 1079 companies constitutes an innovation for the question of the determinants of number of bank relationship. They introduced the following variables into their model: the efficiency of the tax and legal system, creditor rights, concentration and stability of banking system. Their results indicate a higher number of bank relationships in a country with an inefficient tax and legal system as well as weak protection of the creditor rights. In the same way, the companies weave several relationships within the framework of a competitive and stable banking system.

Based on these researches, three hypotheses are revealed to be used for the Tunisian context:

- H1:** companies decide their number of bank relationships by holding account of only their characteristics (size, age, risk, leverage, tangibility, and sector).
- H2:** companies decide their number of bank relationships by holding account of the characteristics of the banking system (stability, competition and concentration).

H3: companies decide on the number of their bank relationships by holding account of both their own characteristics and those of the banking system.

4. Determinants of the Number of Bank Relationships: An Empirical Test

4.1. Data and Methodology

Our sample is made up of 130 companies of various sizes, regions and sectors⁷ (industry, service and trade). In our sample, we have annual firms statements collected from audit cabinets. Quantitative variables are drawn directly from financial statements of the companies whereas those described as qualitative are obtained following a distribution of a questionnaire to the surveyed companies. As an example we indicate the variable “number of bank relationships” which was collected by the means of a questionnaire for the period of 2000 to 2004. Over the period 2005-2007, accounting information was improved and firms’ statements become available in their websites.

It should be noted that the sample size can be larger, however out of the 187 surveyed companies, only 130 have answered. So, the rate of respond is about 69.51%.

4.2. The Model

Such as many academic papers⁸, we will choose the model of Ongena and Smith (2000) as a model of reference because it appears as the most synthetic. However, for restriction and lack of data availability, variables will be replaced by others in order to be coherent in the Tunisian context.

The econometric model can be written as shown below:

$$NBANK_{i,t} = \alpha_0 + \beta_1 TAILLE_{i,t} + \beta_2 AGE_{i,t} + \beta_3 RISQ_{i,t} + \beta_4 LEVR_{i,t} + \beta_5 SECT_{i,t} + \beta_6 IMBCORP + \beta_7 STABL_{i,t} + \beta_8 CONCNT_{i,t} + \varepsilon_i$$

The number of bank relationships constitutes our dependent variable (*NBANK*). It is measured by the number of banks with which the company ties relations. With regard to the explanatory variables, several characteristics of the firms were retained such as the determinants of the number of banking relationships. It is about the size (*SIZE*). This variable is measured by the total assets. The age of the firm is measured by the difference between the current date and the date of creation of the company (*AGE*). The sector of the company influences the number of its banking relationship. To measure this variable we used a dummy variable which takes 1 if the company operates in industry, 2 if it takes place in the services and 3 if it is exerted in the trade. In the same way we retained the level of risk of the company as a determinant of its bank relationships (*RISQ*). It is measured by the standard deviation of the growth rate of sales turnover. The variable, leverage is measured by total of the long-term debts compared to the total assets (*LEVR*). Tangible influences the decision of the choice of the number of the banks. (*IMBCORP*).

In addition to the characteristics of firms those of banking system can influence the choice of the number of bank relationships. Among these variables we retained the stability and concentration of the banking system as the most significant. Concentration (*CONCNT*) is measured by the concentration index (*IHH*). Whereas the stability (*STABL*) is measured by the level of credit risk as the most significant risk in Tunisia.

4.3. Results and Interpretations

Table 1: Classification of our sample according to the age of the firms

AGE	% of firm
AGE ≤ 20 ans	33.84

⁷ The financial institutions are excluded from our sample.

⁸ For example, Detragiache and (2000)

Table 1: Classification of our sample according to the age of the firms - continuous

20 < AGE ≤ 50 ans	53.33
AGE > 50 ans	13.33

The majority of the companies in our sample are of average age. Out of 130 companies, 70 belong to the interval age [20, 50], whereas 33.84 % of our sample are less than 20 years of age. Following this study we conclude that the average age as of our sample is 30 years (30.16).

Table 2: Classification of our sample according to the sector

Sector	% of firm
Industry	66.92
Service	26.92
Tarde	6.15

66.92 % of the companies of our sample operate in industry. The sector of services is in the second place. 35 companies among 130 are exerted in the sector of the services. A minority of the companies of our sample (6.15 %) take place in trade.

Table 3: Classification of our sample according to the number of the bank relationships

N° of Bank Relationship	% of firm
N ≤ 3 relations	76.15
3 < N ≤ 5 relations	20
N > 5 relations	3.85

Numerous companies of our sample (76.15) weave less than three relationships. These imply a weak of the multiple bank linkage in Tunisia in the profit of exclusive liaison. Out of 130 companies, 99 hold a number of relationships less than three years.

20% of the surveyed companies have a number of relationships ranging between [3, 5]. Whereas five companies out of 130 hold more than 5 banking relationships to a percentage of 3.85 %. It should be noted that the average number of banking relationship in Tunisia lies between two and three relationships. (2.504).

Table 4: Fixed effect regression: the determinants of the number of bank relationships: the dependant variable is the number of bank

Variable	Coefficient	t-Statistic	Prob.
C	1.252004	0.207217	0.8360
AGE?	0.003345	0.701972	0.4834
SECT?	-0.064402	-0.514453	0.6074
TAILLE?	-2.47E-09	-2.173043	0.0308**
LEVR?	1.02E-09	2.318474	0.0213**
IMBCRP?	3.98E-09	1.646900	0.0951***
RISQ?	-1.23E-10	-1.057076	0.2916
CONCNT?	4.14E-09	11.19601	0.0000*
STBL?	-7.58E-09	-5.071583	0.0000*
R2		0.1351	
Adjusted R2		0.1090	
Durbin- Watson		1.2975	

* Sig at 10%, ** sig at 5%, ***sig at 1%

Our model is significant at 13.51%. In other terms the independent variables make it possible to explain our dependent variable at 13.51%. This tells us to seek other variables determinants of the number of the bank relationships.

The variables of leverage, tangibility and concentration exert a positive and significant effect on the number of the bank relationships. Whereas the age of the firm is correlated positively and is not significant.

Let's starting by interpreting variables that have a positive effect on the number of bank relationships. The age of the firm exerts a positive and a significant effect on the number of bank relationships. As the firm becomes older, the number of its relationship increases. This is explained by the need for the funds to increase the value of market. Companies in the cycle of extension need more than liquidity. However, only one relationship cannot guarantee the necessary funds. What pushes these last to tie other relationships with other banks. Nevertheless, we should not omit that a company with the last stapes of its life cycle seek to maintain stables relationships.

The value of tangibility is correlated positively and significantly with the number of banking relationships. In a lending relationship, the tangibility of each firm can be retained as a guarantee on the other hand of credit perceived. The more tangibility is significant, more companies multiply their relationship. This is justified by the capacity of the latter to present guarantees to obtain the credit desired.

With regard to the variable of banking concentration, and contrary to the results found by Ongena and Smith (2000), our results present a positive and significant correlation between banking concentration and the number of bank relationships. The low number of the Tunisian banks led to a low level of competition.

For the variables which exert negatively on the number of banks, the size of the company exerts a negative and significant effect on the number of bank relationships. The majority of the companies in our sample are SMEs, and according to the literature, small sizes are characterized by a weak number of bank liaisons. These last are not able to pay the costs of switching from a single relationship to a multiple one. Consequently they prefer to weave exclusive relationship to profit from its advantages.

The level of risk has negative effect and no signification on the number of bank relationship, contrary to the study of Remakes and Ongena and Smith (2000), where the higher number of bank relationships is associated with a high level of risk. This enables us to conclude that the Tunisian companies have a low level of risk.

The number of banks has reduced with the variable of banking system stability. According to Ongena and Smith (2000), the more a banking system is stable the more a company ties many bank relationships. In our study banking stability exerts a negative effect on the number of banks. It should be noted that the stability of the banking system is measured by the level of credit risk. Such as the majority of emergent countries, the Tunisian banking system suffers from a high level of nonperforming and a low financial intensity. Banks that face a significant level of credit risk refuse to distribute credit. This reduces the probability of higher number of banking relationships. In this regard, our results are corroborated with those found by Ongena and Smith (2000). According to these two authors and in a stable banking system, companies weave several bank relationships.

To summarize, we can say that the Tunisian companies determine their number of bank relationships by holding into account their characteristic and the characteristics of the banking system. This enables us to accept our assumption N° 3 " *Tunisian companies decide the number of their banking relationships by holding into account their own characteristics and those of the banking system too*".

5. Conclusion

Based on statistical data related to the Tunisian firms, our paper aims to analyse the relationship between firm characteristics, those of banking system, and the number of banks which finance the company.

The descriptive study of our sample shows that the age of the majority of the companies with an average age of 30 years is situated on the interval [20, 50]. The trade sector is the most important because 66.92% of companies exercise their activities in this sector. Our study suggests a weak of bank relationships of Tunisian companies. Our sample shows that 76.15% of firms hold less than three relations.

According to the empirical results, the Tunisian companies, of our sample, establish the number of their bank relationships according to their own characteristics and those of the banking system. Among the variables representing the characteristics of the firm and which influence the choice of the number of banks are: the sector, the size and the level of risk which present a negative correlation with the dependent variable. The number of bank relationship increases with the value of tangibility, leverage and the age of the firm. Our study shows that the concentration and the banking stability influence the number of bank relationships. Our results are in conformity with those found by Ongena and Smith (2000) regarding the effect of banking stability and they are divergent on the effects of banking concentration.

Our study is not without some limitations. The low number of companies (130 companies), constitutes the principal critics. This is due to the rejection of managers to answer to our questionnaire⁹.

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.

References

- [1] Acs Z. and D.B. Audresht, 1993. "Small Firms and Entrepreneurship an East-West Perspective", Cambridge University Press, 1993.
- [2] Agarwal, R. and J.A. Elston, 2001. "Bank firm relationships, financing and firm performance in Germany", *Economics Letters*, 72, pp. 225 – 232.
- [3] Alan. R, 1995." Diluted Bankruptcy Reform Act Doesn't Pack Much Wallop" *Corporate Legal Times*, 1995.
- [4] Allen. F and Gale. D, 1995. "A welfare comparison of intermediaries and financial markets in Germany and USA" *European Economic Review*, 39 n° 2 mars 1995.
- [5] Beck, T., Demirgüç-Kunt, A., Levine, R. 2006. Bank Concentration, Competition, and Crises: First Results. *Journal of Banking and Finance*, Vol. 30, 1581-1603.
- [6] Caminal and Matutes, 2002. "Market power and banking failure", *International Journal of Industrial Organisation* 20 pp 1341-1341.
- [7] De Bodt E., F. Lobeze and J.-C. Statnik, 2004. "Credit rationing, customer relationship and the number of banks – an empirical analysis", *European Financial Management*, vol. XI, p. 195-228.
- [8] Demoly E, Thirion B, 2001. "Les cinq premières années des nouvelles entreprises", INSEE Première, n°815, December.
- [9] Detragiache E., P. Garella and L. Guiso, 2000. "Multiple versus Single Banking relationships: Theory and Evidence", *The Journal of Finance*, 55, n°3, juin, 1133-1161.
- [10] Farinha and Santos, 2002. "Switching from single to multiple bank lending relationships: determinants and implications", *Journal of Financial Intermediation*, Vol. 11, 2002, pp. 124–51.

⁹ Especially questions regarding the number of bank relationship, credit perceived and interest rate, some managers consider it as confidential.

- [11] Fok, R.C.W., Chang Y.C. and W.T. Lee, 2004. "Bank Relationships and their Effects on Firm Performance around the Asian Financial Crisis: Evidence from Taiwan". *Financial Management* 33, 89-112
- [12] Galindo, A., and A. Micco, 2001. "Creditor Protection and Financial Cycles." *Research Department Working Paper 443. Washington, DC, United States: Inter-American Development Bank, Research Department.*
- [13] Hellmann, 2000. "Liberalization, moral hazard in banking and prudential regulation: are capital requirement enough"? *American Economic Review* 90, pp 147-165.
- [14] Koskela, E., and R. Stenbecka, 2000. "Is There a Trade-off between Bank Competition and Financial Fragility"?, *Journal of Banking and Finance*, 1853-1873.
- [15] La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 1997. "Legal Determinants of External Finance." *Journal of Finance* 52(3): 1131-1150.
- [16] La Porta, R., F. Lopez-de-Silanes, A. Shleifer and R. Vishny, 1998. "Law and Finance." *Journal of Political Economy* 106(6): 1113-1155.
- [17] Mishkin, 1999. "Financial consolidation: dangers and opportunities", *Journal of banking and finance* 23 pp 675- 691.
- [18] Padilla, A.J and Pagano M, 2000. "Sharing default information as a borrow discipline device" *European Economic Review*, Vol 44, pp. 1951-1980.
- [19] Rajan, R, 1992. "Insiders and Outsiders: The Choice between Informed and Arm's -length Debt", *Journal of Finance*, 47, 1367-1406.
- [20] Refait. C, 2003. "La multibancarité des entreprises: choix du nombre des banques et choix du banque principale" *Revue économique*. Vol 54 N° 3 pp 649 – 662
- [21] Schumacher, E. F, 1973. "Small Is Beautiful: Economics As If People Mattered: 25 Years Later..." *Hartley & Marks Publishers* ISBN 0-88179-169-5
- [22] Ziane.Y, 2003. "Number of bank and credit relationships empirical results from French small business data", *European Review of Economics and Finance*, vol. II, p. 32-48.