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Capital Structure in Mena Region: A Panel Data Analysis

Amira Nouira [α] & Meryem Bellouma [σ]

Abstract- **In this paper we make an attempt to provide some insight into the capital structure choice of the MENA region for the period 2006-2015. We develop a dynamic panel data model that explicitly takes into account the determinants of capital structure choice. It has been concluded that factors such as size, profitability, asset tangibility and rating have significant impact on the leverage structure by firms in the MENA region context.**

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I. Introduction

The study of the structure of the capital has constituted one of the main debates about the finance of a firm. Modigliani and Miller (1958) were the first to lead a true reflexion on these themes. These authors have shown that in the presence of perfect financial markets and under some hypotheses, the value of the firm is independent of the structure of its capital.

Questioning the assumptions of the neutrality of the structure of the capital showed that the capital structure is influenced by several factors, including taxation which pushed Modigliani and Miller (1963) to conclude that the value of the firm is an increasing function of its level of debt. They also maintain that resorting to debt results in a tax credit procreated by the tax deductibility of interest charges. However, the excessive appeal to debt can procreate costs of bankruptcy. In that case, optimum financial structure results from arbitration between the tax advantage of the debt and the costs of a potential bankruptcy.

However, this arbitration does not exist anymore by including the taxation of the individuals. In this context Miller (1977)comes back to the initial conclusions of Modigliani and Miller(1958) and supports again the idea of the neutrality of the capital structure.

The discussion about capital structure has continued and given rise to the emergence of new theories which deal with the topic of capital structure. Leaving the model of agency, the optimum of the capital structure results from a level of target debt which allows to arbitrate between the tax benefits of debts and the minimization of the costs of agency of equity capital, and the costs of financial distress such as the costs of bankruptcies as well as the increase of the costs of agency of debts. That is The Trade-Off Theory.

In addition, the introduction of the signaling of financial decisions effects feeds more research on the effect of the asymmetry of information in the analysis of financing modalities. Based on the argument of signaling, Myers (1984) suggests that firms prefer the internal financing and take precedence in the choice of the financing sources.

They first favour self-financing, then debt and finally the increase of capital (Mayer and Majluf on 1984). This hierarchy depends on the objective of the firm leader. It is the pecking order theory (P.O.T).This theory of hierarchy of the sources of financing therefore rejects the hypothesis of the existence of an optimum capital structure.

A third theoretical frame, which refers to the climate of the market to determine the capital structure of a firm, is the Market Timing theory. According to this new frame of analysis, business companies issue titles when the conditions of the market are favourable, otherwise buy them back or get into debt. So, Baker and Wurgler (2002) conclude that the capital structure is the result of the accumulation of decisions taken previously according to current stock exchange context.

The validity or rejection of these explicative theories of the decisions of financing constitutes today, a debate of empirical order. Indeed, empirical studies concerning the determiners of the capital structure are characterised by the fact that there is not a total structural theoretical model.

However, they introduce a succession of corresponding hypotheses with different theories in the field as those we have mentioned before. This leads to a big number of possible determiners, which effects on the debt can vary from one theory to another.

The present article has as objective to give theoretical and empirical valuation of the determiners of behaviors of the firms of the MENA region in the choice of their financial structure. In order to do that, we are going to undertake in a first stage literature review relating to the determiners of financial structure. In a second stage, we are going to introduce followed methodology, hypotheses and choice of variables. Then, we are going to introduce the empirical results. Finally, we will end this article with a general conclusion.

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II. Theoretical Literature Review

Following basic jobs of Modigliani and Miller (1958, 1963) on the structure of the capital of firms, different theories have emerged to release notably the hypothesis of perfect market. Two big theories distinguish themselves: the (trade-off theory) and the (pecking order theory). The former is based on the notion of arbitration between the potential earnings of the debt and the costs which are linked. The latter however, is based on the hypothesis that the firm follows a hierarchy of financing according to their need in external funds. Referring to the climate of the financial market, another theory has emerged appeared to explain the financial structure of a firm.

a) Modigliani and Miller (1958) theory

The article of Modigliani and Miller (1958) was the first to found establish the frame of an analysis of the structure of the capital of the firm. They maintain that, in a world without tax, without cost of transaction, without cost of agency and under the hypothesis of the efficiency of markets, the value of the firm is not affected by the choice of a structure of financing.

Their model assumes hypothesis that, in the presence of a perfect market where the information between the economic agents is symmetrical, all forms of financing of the firm are identical. Thus the neutrality of the capital structure. Fama and Miller (1972) and Miller (1977) also confirmed the independence of the decisions of financing and those of investments.

The hypothesis of Modigliani and Miller (1958), was proved by other empirical studies. Indeed, Song (2009) proved, over the period between 1983-1997, that the American firms value does not improve long and short –term debts because of the efficiency of the bond market.

However, the existence of imperfections on the market such as the problems of opposing selection and of moral vagary, the conflicts of agency…., have created obstacles to the access of a firm to the external financing (Vermoesen and al., 2013).

So, with the appearance of the theories of the determiners of financial structures of the firm, the hypothesis of independence was rejected.

b) The Trade-Off Theory

With reference to the notion of arbitration, The theory of optimum ratio of debt registered following jobs of Modigliani and Miller (1958), and taking into account the different decisive factors such as taxation (Modigliani and Miller, on 1963) as well as the costs of bankruptcy (Myers, 1984) and the costs of agency (Jensen and Meckling, 1976; Jensen, 1986). In this context the optimum ratio of debt results from thearbitration between the tax savings and the cost of failure.

i. *Tax and the maximum leverage ratio*

A consideration of the firm tax, pushed Modigliani and Miller (1963) to admit that the value of a firm with debt is equal to the value of a debt free augmented by the current value of economy of tax linked to the deductibility of the expenses of interest: firms tend to resort financing exclusively by debts.

According to Faccio and Xu (2013) taxation is an important of determiner the politics of financing. Its influence is significant. Fama and French (1998) find that the effect of the deduction of the expenses of interest on the value of the firm is negative, contradicting therefore, the predictions of Modigliani and Miller (1963). However, Wu and Yue (2009) tested a sample of 2182 Chinese firms to study the effect of an endogenous variation of the rate of taxation on the decision of financing. They found a positive relation between the debt and the rate of tax. Similarly, Buettner and al. (2009) studied a panel of multinational German firms over a period of seven years (1996-2003) and proved a positive relation between the effects of taxation and local and external debt.

Nevertheless, when studying the determiners of the ratio of debt in France, in Germany and the United Kingdom, Antoniou and al. (2002), did not assert a significant effect of the tax on debts. Ang and Megginson (1990) came to the same conclusions and showed that taxation does not have a decisive influence on the debt

ii. *Bankrupcy and optimal capital structure*

Modigliani and Miller (1963) maintain that with consideration of the taxation, and notably of the deductibility of the interest charges of the result liable to tax, the value of the indebted firm is always superior to that of the not debt business company, which encourages firms to resort exclusively to debt as a means of financing. Undoubtedly, this exclusive appeal to the debt augments the probability of defect.

Ross (1977) showed that the value of the society augments with its lever and the importance of the costs of bankruptcy. He put forward that the debt of a firm is going to draw away costs linked to the risk of fault. It is direct costs (social costs) and indirect costs (loss of client and confidence).

Harris and Raviv (1990) prove that the financing by debt assures that the leaders are encouraged to make profitable decisions and not their own function of utility, and it is to minimize their probability of fault. Tarazi (2013) also noticed that the cost of financial distress is not significant on the leverage.

iii. *Conflict of interest and capital structure*

Jobs resulting of Alchian and Demsetz (1972), Jensen and Meckling (1976) and Fama (1980) were at the origin of the agency theory. They highlight the conflicts by contrasting the shareholders to the leaders concerning the separation between the property and the

control of firms. This theory is interested in the study of a contractual relation which links the shareholders called the principal to the leaders called agents. Indeed, the latter have different functions of utility and each of them acts in order to maximize their utility.

Seeing that the relation of agency is most often of a controversial nature, it can generate specific costs called the costs of agency (Jensen and Meckling (1976) and Jensen (1986)). These costs are hired on one hand by the shareholders regarding the leaders (costs of agency of equity capital) these costs are procreated by the control which the shareholders have to perform on the leaders to line up their interests. On the other hand, the costs procreated by the creditors regarding the shareholders (agency costs of debt), which are generated by the exercised control of the creditors to limit the expropriation behaviour of the shareholders and leaders.

The debt appears to be tool to reduce the costs of agency of the equity capital. However, this appeal to debt causes agency costs of debts.

Setayesh and al. (2012) studied the determiners of the capital structure according to the theory of agency. They proved that the strategically mechanisms of the firm, including the concentration of property and the independence of members of the administrative council, do not have a significant effect on the leverage of the studied firm. However, they showed a positive and a significant relation between the costs of agency and the leverage. The Results also reveal that the ratio of assets returns, remuneration and Tobin's Q have a significant effect on the level of debt.

c) The Pecking Order Theory

Basedon the consideration of the asymmetry information, the theory of the financing organized into a hierarchy finds its origins in jobs of Donaldson (1961) and developed by Myers (1984) and Myers and Majluf (1984). According to this theory, firms take precedence in the choice of the sources of financing. This choice depends on the objective of the leader of the firm. If the leader acts in the interest of the shareholders, he is, therefore, going to adopt a decreasing financial hierarchy begun by self-financing, then debt and finally capital increase (Mayer and Majluf, 1984). In case the leader acts in his own interest, the leader favors self-financing first, then the debt and the increase of capital as a last resort.

Several recent theoretical and empirical developments, tried to prove the hypothesis of hierarchy of financing. Fattouh and al. (2008) show, through an empirical study on a sample of American firms, that the least cost effective firms, turn to the debt, given that they are unable to self-finance.

d) The Market Timing Theory

The Market Timing Theory assumes that the modality of the choices of financing depends on the market climate. In addition, firms issue titles only when the stock prices are high and / or in favorable market conditions and buy them back by issuing debts in the opposite case. The context of this theory is initially introduced by Baker and Wurgler (2002). They conclude, in their research work, that the structure of the capital results from the successive will of "Timer" on the market and not from a conscious choice of a target ratio and a sustainable financial structure due to the emission of actions.

III. Methodology and Database

a) The sample

Our study will be undertaken on a sample of firms of the MENA countries. The sample is composed of 216 unquoted and quoted firms. Banks, insurance companies, leasing companies, closed-end or variable capital or venture capital Investment companies, firms of factoring and newly quoted firms, all were excluded from our study taking account of the peculiarities of their debt politics. Indeed, the determination of cost financing of debt should be adapted in these particular cases. We eliminated also some companies for which we recorded a lack of data because of the absence of reference documents. For each of the firms kept in our sample, there is data concerning a period of 10 years (2006-2015). Database includes financial statements.

The collection of data, the financial statements are available on DATASTREAM

b) The variables and hypothesis choices

i. *Dependent variable: The debt ratio*

According to literature, the ratio of debt can be measured by several methods. The total ratio debt (Hovakimian and al., 2001), the short, medium and long-term ratio (Titman and Wessels, 1988). As part of our analysis, we defined the debt ratio by dividing the total debt assets (Degryse and al., 2012).

ii. *Explanatory variables*

Size of the firm (SIZE): The Size is one of the essential attributes that can affect the capital structure of a firm. According to the financial theory, there are two contradictory effects of the size of the firm on the debt.

Starting by the arbitration theory, the size is considered to be proxy variable of the cost of bankruptcy (Rajan Et Zingales, 1995; Booth and al., 2001; Huang and Song, 2006; Jong and Nguyen, 2008; Alves and Ferreira, 2011; Latridis and Zaghmour, 2013) Empirical studies have shown that by taking account of the existence of economies of scale in terms of bankruptcy costs, the large firms have tendency to have a level of debt more important than the small enterprises. Indeed, the larger, the firm is the more it is able to diversify and reduce the volatility of cash flows and, therefore, a low risk of failure.

Lim (2012) showed that the size of the firm is positively linked to the debt ratio of the Chinese financial institutions. He also noted that the effect of this variable on the capital structure is similar for the other industries and that the State doesn't have an influence on the choices of the financing model. In that case, there is a positive relation between the size and the level of debt.

According to the signal theory, a reverse relation is determined between the size and debt. The size is used as an inverse measure of the information got by external investors. In fact, it reflects for the large firms, the access to the markets of capitals and their preference to issuing more financial assets. On the contrary, the small enterprises prefer the internal financing because they are more sensitive to the asymmetry of information. In this context, the debt level is a decreasing function of size (Titman and Wessel, 1988; Rajan and Zingales, 1995; Ozkan, 2001; Kouki, 2012).

Fethi and al. (2014) showed that the effect of the variable size of firms in developing countries and firms quoted in the Stock Exchange of Teheran, on the structure of the capital is different.

In this study, we have measured the variable size by the turnover logarithm. We assume that there is a positive relationship between the size of the business and the level of debt (hypothesis 1).

Profitability (PROF): Profitability has an important influence on the capital structure. However, this influence is sometimes contradictory. In view of the theory of the optimal debt ratio (Trade-OFF), the more profitable the firm is, the more is resorts to debt financing so as to benefit from debt-related tax savings. Therefore, a positive correlation between profitability and the level of debt is provided (Fama and French, 2002).

On the other hand, according to the pecking order theory, the effect of the variable profitability on debt is reversed. This negative correlation highlights the fact that leaders prefer to finance themselves first by their own funds in order to control the agency costs resulting from external financing. Several empirical studies have built up this relationship (Dubois, 1985; Titman and Wessels, 1988; Kremp and Stoss, 2001 and Fama and French, 2002).

Booth and al. (2001) have verified this significant relationship for all of their data set from 10 developing countries. As for the developed countries, Titman and Wessels (1988) have also confirmed this relationship.

Fattouh and al.(2008) concluded that there is a negative effect of profitability on indebtedness that is due to the fact that profitable enterprises are able to self-finance themselves and, therefore, are not forced into debt. In fact, the level of profitability of a company is considered as a signal given to the lenders on the reliability of the company in debt. The negative impact of profitability on the debt ratio was recently confirmed by Lim (2012).

According to Rajan and Zingales (1995) and Booth and al. (2001), we can measure this variable by the operating surplus ratio on total assets. For this purpose, we assume the following hypothesis: Profitability negatively affects the debt level (hypothesis 2).

Tangibility of Assets (TANG): The major financing theories anticipate a positive correlation between the tangibility of assets and the level of debt. In the context of agency theory, this relationship is due to the fact that companies with sufficient tangible assets are less susceptible to the risk of moral hazard and therefore to agency costs (Jensen and Meckling, 1976).In this perspective, tangible assets constitute guarantees that reduce the risk of the lender and decrease the risk of bankrupcy. Several empirical work on the relationship between the asset structure and debt have led to similar results (Bradlyand al, 1984; Titman and Wessel, 1988; Rajan, 1995; Baker and Wurgler, 2002; Dawood et al, 2012 and Mateev et al, 2013), confirming the predictions of agency and compromise theories.

Achy (2009), Chang and al. (2008) showed that the companies that hold more tangible assets are less sensitive to information asymmetries, and prefer the use of debt to finance themselves. On the other hand, Latridis and Zaghmour (2013) concluded that there is an inverse relationship between tangible assets and the debt ratio. They argue that companies, with a high proportion of tangible assets in their balance sheet, have adequate sources of capital that minimize in their turn the use of external financing.

We measure this variable by the ratio of fixed assets to total assets and we assume that the tangibility of assets has a favorable effect on the debt ratio (hypothesis 3).

Growth opportunities (GROW): According to financing theories, growth opportunities have two contradictory effects on the level of debt. In the context of agency theory and compromise, interest conflicts between shareholders and creditors generate agency costs related to a relatively high debt. High-growth companies will fund their projects by issuing shares in order to reduce their costs. Based on this hypothesis, a negative relationship between growth opportunity and debt has been confirmed in a number of studies such as Jensen and Meckling (1976), Myers (1977), Titman and Wessels (1988), Barclay and al (1995), Rajan and Zingales (1995), Barclay and Smith (1999), Graham (2000), Heshmati (2001), Booth and al. (2001), Hovakimian and al. (2004).

Baker and Wurgler (2002) showed that companies are less indebted during periods marked by good market valuation, especially when the opportunity

for growth (measured by Market to Book) is high. However, in accordance with hierarchical preferences theory, companies with strong growth experience an increase in their need for external financing, and they are able to cope with financing problems, generating a favorable effect on the leverage (Drobetz and Wanzenried, 2006; Chen, 2004 and Palacin Sanchez and al., 2013).

Growth opportunities are measured by the market value ratio of shares + carrying value of debts)/ accounting value of the total assets. This measure was used by Lee and O'Neill (2003) and Ghosh and al. (2007).We assume that: growth opportunities have a negative effect on the debt ratio (hypothesis 4).

The risk of Bankruptcy (FAIL): The theories of hierarchical financing and compromise anticipate a negative relationship between the risk and the level of debt. Ross, Leland and Pyle (1977); Leary and Roberts (2005) and Huang and Song (2006) say that the greater more the risk of a business is, the higher probability of failure is, the use of debt as a means of financing is low.

We measure this variable by the interest ratio of loans and debts/ gross operating profit and we assume that, the risk of bankruptcy negatively affects the debt ratio (hypothesis 5).

Credit Rating (RATE): Credit rating is the opinion of the rating agency on the willingness and ability of an issuer to ensure the one-time payment of liabilities for a debt obligation. It is, therefore, a crucial element, affecting the cost and the measure of access to credit and also contributing to form the financial structure of the companies.

Kisgen (2006) was a pioneer in introducing the assumption that credit rating is taken into consideration by the leaders when making decisions about the capital structure. He says that credit rating is one of the major factors of the funding choice. This is the assumption of the capital structure linked to the credit ratings noted CR-CS. The choice of this hypothesis results from the fact that Kisgen observe that generally firms facing a probable change in their ratings will decrease their borrowing net compared to their own net funds by comparing them to a number of reference firms that do not have extreme credit ratings (low degree or high degree).In 2009, Kisgen developed his research by examining the effect of real credit rating change on the business financing decision. He confirmed that the costs of the company's capital are different for different levels of credit rating.

Kemper and Rao (2013), reached in contradictory results to the CR-CS hypothesis. They found a non-significant relationship between the rating variable and the debt level. However, they pointed out that this does not necessarily mean that leaders should ignore the informational role of ratings in determining the capital structure of their firms.

With the hypothesis of Kisgen (CR-CS), Drobetz and Heller (2014), say that the changes in debt rates of the quoted U.S. companies correlate with the scores awarded by the rating agencies. However, this hypothesis is rejected by a sample of German companies because of its financial regime which is dominated by banks.

Credit rating is therefore a signal of quality and investment decision. This variable is a mute variable that takes the value 1 if the enterprise is noted and 0 if not, and we assume that the financial rating has a positive effect on the debt ratio (hypothesis 6).

Table 1 below summarizes the measures taken from the various independent variables as well as their expected signs.

Table 1: Selected Variables

Explanatory Variables	Size	Log (marketcapitalization)	+
	Profitability	Operating surplus/Total assets	-
	Tangibility of Assets	Tangible capital asset/Total assets	+
	Opportunities for Growth	Turnover(n) – Turnover (n-1) / Turnover(n-1)	-
	Risk of Failure	Interest of loans/operating surplus	-
	Rating	1 : if the enterprise is noted 0 : if not	+

Table 2: Descriptive statistics

Continuous variables					
	Average	Standard deviation	Minimum	Maximum	Observations
DEBT	.159507	.1860276	0	2.15529	
SIZE	2.732269	1.294209	.2227165	9.19034	
TANG	.2880485	.2727431	-.0040929	3.404869	
PROF	.0589422	.1320061	-1.741608	3.857143	
GROW	.1733524	1.329412	-.9987168	56.15306	
FAIL	.0155841	.0827724	-.5261261	2.053459	
Dichotomous variables					
	Modality			Frequency	Percentage
EXICO	1:enterprise is noted			1.01	16.64
	0:entreprise notnoted			5.06	83.36

The debt ratio varies between a minimum value of 0 and a maximum value of about 2.15 with an average of 0.15. These results show that the level of debt is widely dispersed. Regarding the risk of bankruptcy, we observe that the ratio of interest loans and debts/Operating surplus is in the order of 1%. As for the profitability of the assets of our sample, it admits an average of 5%.

c) Model

The model to be estimated for analyzing the determinants of the capital structure is available in the following format.

Our regression model is based on panel data, which has the specificity of treating both a dimension for individuals (firm) and another for time. It is often interesting to identify the effect associated to each individual if it is common or specific and therefore see if it is fixed or random.

d) Model estimation

Before starting the fixed-effect or random-effect model estimation, it is necessary to verify the existence of the individual effects. To do this, we apply a Fischer test that tells us about the existence of a specific or a common effect in our data.

Based on the results of the Fisher test, we can see that the P-value of the equation tested is less than 5% (Prob> F = 0.0000). Thus, we reject the null hypothesis. And we, therefore, affirm the existence of the specific effects.

Next, we apply another specification test (Hausman test) that is used to discriminate between the fixed and the random effects.From the results of the Hausman test, the probability of accepting of the null hypothesis is less than 5% Pro > Chi2 = 0.0000.

This implies that the fixed-effect model is better than the random-effect model. So, we retain the fixed-effect model for estimating our regression model.

Before testing our equations, a more extensive and bivariate analysis is necessary to ensure the reasonable degree of association between the different explanatory variables.

So, it's suitable to set the matrix correlations aimed to test the possibility of the presence of multicollinearity problem between the independent variables. Indeed, the absence of this problem in our sample is perceived as a fundamental condition to carry out a linear regression.

To verify the absence of this problem in our base sample, we calculate the Pearson correlation coefficients as well as the "Variance Inflation factor" VIF[1](table 4).

The Pearson correlation matrix examination (table 3) shows that no critical correlation can be found between the independent variables (we exclude the qualitative variables).

In fact, according to Kevin (1992), to decide on a serious problem of colinearity between the independent variables, r must be ≥ 0.7 In addition, according to table (3), we note that the values of VIF are less than 10, the limit suggested by Neter and al. (1989). Based on these results, we can conclude that there is no problem with multicollinearity.

[1] VIF** Variance inflation factor allows to control the multicollinearity of the explanatory variables, linear independence means that a VIF equal to 1. Colinearity means a VIF superior to 10.

Table 3: Pearson and VIF correlation matrix.

	DEBT	SIZE	TANG	PROF	GROW	FAIL	RATE	VIF
DEBT	1							1.04
SIZE	-0.0603	1						1.04
TANG	0.2091	-0.0240	1					1.01
PROF	0.2069	0.0779	0.0772	1				1.01
GROW	0.0241	0.0028	-0.0256	-0.0132	1			1.00
FAIL	0.0056	0.1887	-0.0341	-0.0066	0.0130	1		1.00
RATE	0.0279	0.0115	-0.0389	-0.0001	0.0185	0.0429	1	1.04

IV. The Results

After the assertion, provided above, concerning the existence of fixed individual effects it is necessary to ensure the errors terms properties. It is, in fact, to verify the hypotheses of homoscedasticity and correlation.

So, we start by testing the heteroscedasticity through the Breusch-Pagan test. As part of a heteroscedasticity test, the null hypothesis is the homoscedasticity, which will be the case when the variance of the errors of each observation is constant. This test gave us a statistic of Fischer that is significant (Pob> F = 0.000). This leads us to the rejection of the null hypothesis and consequently of the confirmation of the presence of an intra individual heteroscedasticity problem.

In this case, it is appropriate to use the generalized least squares method (FGLS) that allows correction.

However, in order to implement this method, first it is necessary to identify the form of the heteroscedasticity, for this, a modified Wald test was run on Stata. This test checks if there is a problem of inter individual heteroscedasticity. Assuming the null hypothesis, the test supposes that the variance of errors is the same for all individuals and the statistic follows a chi-square law of degree of freedom N. From the value of the P-value associated with the chi-square test, we cannot accept the null hypothesis. The rejection of this hypothesis does not allow to further specify the structure of the heteroscedasticity. And we remain with the previous conclusion of heteroscedasticity without any additional specification. Then, to detect a possible dependence of errors, we carried out the intra individual autocorrelation test of Wooldrigde (2002).

The results of this test (table) confirm the presence of an autocorrelation of the errors of order 1. (Prob> F is less than 0.05).

In summary, we conclude the presence of heteroscedasticity and autocorrelation problems. In panel data, it is reasonable to resort to the Feasible Generalized Least Square (FGLS) method to overcome these problems. Therefore, we will interpret the results of the FGLS estimation of our regression model.

Contrary to the hypothesis of Modigliani and Miller (1958) and Miller (1977), most of the variables significantly explain the level of indebtedness. The hypothesis of neutrality is, therefore, rejected.

It appears from the table that the FGLS estimate shows two non-significant variables. It' is the growth of assets (GROW) and the risk of bankruptcy (FAIL). In contrast, the variables size (SIZE), the tangibility of the Asset (TANG), the profitability (PROF) and the financial notation (RATE) are significant. The results of this estimate show that some variables keep their positive (RATE, TANG) or negative (PROF) effect, while other variables have changed their sign (SIZE).

The estimation of our regression model, including the size of the company as a debt level, show that this variable, has a significant (5%) and a negative effect (see table 4). Hypothesis1 is, therefore, rejected. This result is contradictory to the results of other authors who suggest that large firms, with more ease in accessing capital markets, become more indebted (Ang and al., 1982; Booth and al., 2001).

The negative sign can be explained by the fact that, and according to the predictions of the signal theory, large companies are less indebted. This result is verified by the fact that the investment climate in the MENA region is characterized by a strong information asymmetry. So, investors are uncertain about decisions.

Kouki (2012) has verified this relationship as part of the market timing theory and says that large companies prefer to finance themselves by issuing shares when market conditions are favourable.

With regard to profitability, the table shows that the effect of this variable on the level of indebtedness is significantly negative at the threshold of 1%. This result, which is similar to that obtained by Yang and al. (2009) in the context of Taiwan, attests to the idea that the most profitable companies finance their activities by their

internal own funds to avoid problems related to external financing, which is consistent with the theory of the hierarchy of funding. This result clearly confirms hypothesis 2 that leaders prefer to finance themselves first by private equity, in order to control agency costs resulting from external financing, which takes us to confirm the existence of agency problems between the various partners of the company in the MENA region and their limited access to foreign capital.

In accordance with what has been set (hypothesis 3), the tangibility variable of assets has a positive and significant effect (1%) on the debt ratio (see table 4). Indeed, the finance decision of a company depends on its ability to provide guarantees. The More guarantees it has, more it gets into debt, which is fully aligned with the theoretical predictions of compromise theories and hierarchical funding preferences.

Concerning credit scoring, the regression model estimation shows that the coefficient relative to this variable is positive and significant. Like the Kisgen (2009) study, and in accordance with hypothesis 6, this result highlights the considerable importance of this variable and its favourable effect on the structure of the capital. Indeed, the credit rating is an indicator of the leverage effect. The companies noted tend to become more indebted compared to the non-noted companies.

In an environment that is characterised by non-transparency, credit ratings are an essential factor of the capital structure. Creditors give more importance to the rating for the financing of the company.

Table 4: Estimate result

Variables	Coefficients	Student's paired t test probability
Constant	.1168813	0.000 ***
SIZE	-.0042437	0.050**
PROF	-.3195352	0.000***
TANG	.1679082	0.000***
GROW	.0079086	0.195
FAIL	.0095458	0.738
RATE	.0140877	0.076 *
Breusch-Pagan Test for Heteroskedasticity	Prob>F : 0.000	
Modified Wald test for group wise heteroskedasticity	Prob>chi2 : 0.000	
Wooldridge Test for Autocorrelation	Prob>F : 0.000	

** significantat 10% level ** significantat 5% level *** significantat 1% level*

V. Conclusion

In this article, we were interested in studying the capital structure of the MENA region countries. In other words, the main purpose of this article is to detect factors influencing investment decisions and extending the scope of knowledge about the financial structure of a new institutional framework, that of enterprises in developing countries

So, the scope and predictions of the theories of modern finance are tested on a panel of companies in the MENA area established beforehand for this purpose. The results of the variable representing the tangible assets show that the guarantees are required for funds allocation. That is in line with the agency theory predictions. So, the value of the assets plays a key role in determining the financial leverage of the companies of our sample, contrary to this paper that predicts that the tangibility of the assets must take less importance in the countries with banking guidance.

The predictions of the funding hierarchy theory are empirically validated. Indeed, the negative correlation of the variable "profit" highlights the fact that highly profitable firms prefer to finance themselves through their own internal funds. From our empirical results, credit ratings directly affect the debt. This implies that credit ratings are taken into account in a formal way by the leaders when making funding decisions.

Other results confirm the theoretical predictions as well as our hypothesis.

However, the effect of some variables is not approved of. The differences are due to the institutional differences and to the nature of the financial markets.

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