THE OWNERSHIP STRUCTURE, THE BOARD OF DIRECTORS AND THE CORPORATE PERFORMANCE: COMPLEMENTARITY OR SUBSTITUTABILITY? EVIDENCE FROM COMPANIES LISTED ON ABU DHABI STOCK EXCHANGE

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Abstract

This study investigates the interrelations between the ownership structure, the board of directors and the performance of the companies using annual data for 33 companies listed on Abu Dhabi Stock Exchange during the period 2007 - 2009.
The system of the simultaneous equations shows important interrelations between the managerial ownership and board of directors' characteristics. The managerial ownership appears substitutable to the blockholders ownership, institutional ownership and the board size while it is complementary to the board duality. Our results show also that the board duality and the financial policy of the company are substitutable, while the blockholders ownership, the institutional and the board size are complementary governance mechanisms. Our empirical results show also that the relationship between the managerial ownership and the corporate performance is not significant and that the managerial ownership is endogenous and it depends, among others, on the corporate performance. Moreover, the blockholders ownership, the institutional ownership and the board size have all negative impacts on the performance, while the board duality, the age and the firm size guarantee a better performance of the company.

Keywords: Ownership Structure, Board of Directors, Corporate Performance, Panel Data

JEL Classification: C33, G32, G34

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1 Introduction

The separation between the ownership and the control of the company creates conflicts of interests between the managers and the shareholders (Berle and Means, 1932). The shareholders are interested in maximizing the value of their company while the managers seek to increase the consumption of both pecuniary and non pecuniary advantages. The financial literature specifies a certain number of governance mechanisms which could help the companies to reduce the agency problems within the company and to align the interests of the managers on those of the shareholders. These mechanisms comprise the managerial ownership (Jensen and Meckling, 1976), the blockholders ownership **(**Agrawal and Mandelker, 1990), the institutional ownership (Brickley, Lease and Smith, 1988), the board of directors (Fama and Jensen, 1983), the managerial compensation (Mehran, 1995), the control market (Jensen and Ruback, 1983), the labor market (Fama, 1980) and the product market (Hart, 1983).

Several researches study the relationship between the managerial ownership and the performance of the company. Jensen and Meckling (1976) affirm that this relationship is linear and that the high managerial ownership could reduce the agency problems within the company. Other authors affirm that the relationship between the managerial ownership and the performance of the company is nonlinear (Morck, Shleifer and Vishny, 1988; Shorts and Keasy, 1999). It takes the form of the alignment of the interests to the managerial entrenchment. While, according to Himmelberg, Hubbard and Palia (1999)**,** Cho (1998) and Demsetz and Villalonga (2001), the managerial ownership is an endogenous variable and depends, among others, on the performance of the company.

The impact of the characteristics of the board of directors was also the subject of several studies. Fama and Jensen (1983) affirm that the separation between the positions of the Chief Executive Officer and the chairman of the board of directors improves the performance of the companies. Jensen (1993) and

Yermack (1996) suggest that the small boards of directors are more effective and control better the managerial discretion. Fama (1980) suppose that the high presence of the external members in the board of directors ensures a better performance of the companies.

The actual study continues in the same spirit of the prior researches by studying the interrelationships between the managerial ownership and the characteristics of the board of directors as well as their simultaneous impacts on the performance of the companies. In our analysis, we use panel data of 33 companies traded on Abu Dhabi Stock Exchange during the period 2007-2009. To my knowledge, there are only two empirical analyses conducted on the corporate governance of UAE companies. The first analysis was conducted by Moustafa (2005) on the impact of the separation between the ownership and the control on the UAE firm performance and the second analysis was conducted by Aljifri and Moustafa (2007) on the impact of the corporate governance mechanisms on the UAE firm performance. In both analyses, the researchers used cross-sectional data. In our analysis, we will include more variables not included in the above researches like the different types of ownership (managerial, blockholders and institutional) and we will use panel data which will allow us to control for the firm heterogeneity.

To study the interrelationships between the managerial ownership and the characteristics of the board of directors, we use a system of simultaneous equations. The panel data regressions are used to study the simultaneous impacts of both the managerial ownership and the characteristics of the board of directors on the corporate performance. Our empirical results show the presence of the important interrelationships between the managerial ownership and the characteristics of the board of directors. More particularly, the managerial ownership is found substitutable to the blockholders ownership, the institutional ownership and the board size while it is complementary to the board duality. Our results show also that the board duality and the financial policy of the company are substitutable, while the blockholders ownership, the institutional and the board size are complementary governance mechanisms. These empirical results help the companies to manage optimally the various mechanisms of governance in order to reduce the agency problem. Our empirical results show also that the relationship between the managerial ownership and the corporate performance is not significant and that the managerial ownership is endogenous and it depends, among others, on the corporate performance. Moreover, the blockholders ownership, the institutional ownership and the board size have all negative impacts on the performance, while the board duality, the age and the firm size guarantee a better performance of the company.

The remainder of the paper is organized as follows: Section 2 contains the literature revue on the ownership structure, the board of directors and the corporate performance. Section 3 presents the corporate governance system in UAE. Section 4 focuses on data and the empirical methodology. Section 5 presents the empirical results and finally the conclusion in section 6.

2 Literature Revue

2.1 The ownership structure and the performance of the companies

The ownership structure is defined by the distribution of equity with regard to votes and capital but also by the identity of the equity owners. These structures are of major importance in corporate governance because they determine the incentives of managers and thereby the economic efficiency of the corporations they manage (Jensen and Meckling, 1976). The analysis of the relationship between the ownership structure and the performance of the companies needs the distinction between the three different types of shareholders, such as: the managerial ownership (2.1.1.), the blockholders ownership (2.1.2.) and the institutional ownership (2.1.3).

2.1.1 The managerial ownership

The relationship between the managerial ownership and the corporate performance constitutes a persistent topic in the corporate governance literature. In fact, the managerial ownership was analyzed from different divergent points of view, considering the article of Jensen and Meckling (1976), on one side, and the articles of Fama and Jensen (1983) and of Morck, Shleifer and Vishny (1988) on the other.

On the one side, a high managerial ownership ensures an important convergence of the managerial interests on those of the shareholders. If the managers hold important percentages of ownership in their companies, they would be more concerned by the effects of their behavior on their wealth. The convergence of interests' hypothesis confirms that a high managerial ownership is associated to a high value of the firm (Jensen and Meckling, 1976). In consequence, the managerial ownership is able to reduce the expropriation of the shareholders' wealth by the managers. The convergence of interests' hypothesis was criticized by Fama and Jensen (1983) who affirm that the managerial ownership can, at the opposite, influence negatively the agency relationship and can be a source of agency costs.

On the other side, the managerial entrenchment hypothesis affirms that a high managerial ownership increases the power of the managers in making decisions not maximizing the value of firm the company but improving their own wealth and their job security (Morck, Shleifer and Vishny, 1988).

The empirical results of the relationship between the managerial ownership and the value of the firm diverge. In fact, Demsetz and Lehn (1985), Holderness and Sheehan (1988) and Demestz et Villalogna (2001) do not find any significant relationship between the level of the managerial ownership and the value of the company. Whereas Morck, Shleifer and Vishny (1988), McConnel and Servaes (1990) find a non linear relationship between Q of Tobin and the managerial ownership. The nonlinear relationship is explained by the result of the coexistence of two contradictory hypotheses: "the convergence of the interests" and "the managerial entrenchment". Many other researches extend the previous analysis and adopt more complicated functional forms, for instance Hermalin and Weisbach (1991) find an inverse W-shaped relationship, Cui and Mak (2002) report a W-shaped relationship, whereas Davies, Hillier, and McColgan (2005) use a quintic structure that leads to more inflection points in the managerial ownership-performance curve.

At the opposite of all the previous studies which consider the managerial ownership as an exogenous variable, Cho (1998) and Himmelberg, Hubbard and Palia (1999) affirm that the managerial ownership is an endogenous variable and it depends on many characteristics of the companies such as: the size, the research and development expenditure, the cash-flows.

Another aspect of research was conducted regarding the impact of the managerial ownership and the corporate performance arguing that when the managerial ownership is large, the reputation hypothesis may operate. Acharya and Bisin (2009) suggest that the managers holding a large ownership are more interested in their reputation so they commit themselves to not expropriate from the shareholders' wealth and limit their incentives to not seek for private benefits.

In the context of UAE, the results of Moustafa (2005) reveal that the owner–controlled UAE firms have better performance than the management–controlled ones and support the expectations of the agency theory. According to Moustafa (2005), these results might be justified by either the moral hazard problem (the condition under which the owners cannot be sure if the managers have put their maximal efforts) and/or the adverse selection problem (the condition under which the owners cannot be sure if the managers accurately represent their ability to do the work for which they are being paid) in the manager-controlled UAE firms.

2.1.2 The blockholders ownership

The block holders are defined as the large stockholders who won at least 5 % from the shares of the company. In the financial literature, there is no consensus on the relationship between the blockholders and the performance of the company either on terms of positive or negative signs, or on the direction of causality between the two variables.

In the agency theory literature, the relationship between the ownership concentration and the performance of the company is positive. The blockholders have more power and stronger incentives in controlling efficiently the managers and the more concentrated structures are associated to less governance problems arising from the separation between the ownership and control (Shleifer and Vishny, 1986; Denis, Denis and Sarin, 1995; Agrawal and Mandelker, 1992).

At the opposite of all the previous researches, Demsetz (1983) and Demsetz and Lehn (1985) affirm that the ownership structure of the company is endogenous and it is the results of an optimal shareholder value maximizing process.

Despite the number of the researches, the theoretical relationship between the ownership structure and the performance of the company is still ambiguous, the blockholders may get private benefits of the control in detriment of the other shareholders and may lead to the entrenchment of the managers and expropriate the wealth of the minority shareholders because of their privileged access to inside information and their high risk aversion compared to the diversified shareholders (Morck, Shleifer and Vishny, 1988).

2.1.3 The institutional ownership

In the analysis of the relationship between the institutional ownership and the corporate performance, Pound (1988) proposes three hypotheses: the efficient monitoring hypothesis, the conflict of interest hypothesis and the strategic alignment hypothesis. According to the efficient monitoring hypothesis, the institutional ownership has a positive impact on the performance because of the greater expertise of the institutional investors and their ability in monitoring the manager at lower cost. According to the conflict of interest hypothesis, the institutional investors have business relationships with the firm in which they are shareholders. Therefore, the institutional owners are less likely to monitor the manager more efficiently. According to the strategic alignment hypothesis, the institutional owners and the managers have a mutual advantageous cooperation which may reduce the beneficial effect on the value of the firm. In consequence, both conflict of interest and strategic alignment hypotheses predict a negative relationship between the institutional ownership and the performance of the firm.

In the same research framework, Brickley, Lease and Smith (1988) classify the institutional investors into two groups: the pressure-resistant and the pressure-sensitive institutional investors. For the pressure- resistant institutional investors, they have only investment relationship with the firm in which they are owners like the brokerage house, the

investment companies and the mutual funds. In contrast, the pressure sensitive institutional investors have both investment and business relationship with the firm in which they are owner like the banks and the insurance companies.

In the financial literature, the impact of the institutional investors on the performance of the firm is still ambiguous. From one side, Cornett, Marcus, Saunders and Tehranian (2007) find a positive relationship between the institutional ownership and the performance of the firm. From the other side, Limpahayom and Polwitoon (2004) found a non monotonic relationship between the bank ownership and the performance of the firm in Thailand. Their empirical results show that the low bank ownership increases the value of the firm while the high level of bank ownership reduces the value of the firm.

In the context of UAE, Ajifri and Moustafa (2007) find a negative, but insignificant, relationship between the institutional investor and the performance. This result does not support the "efficient monitoring hypothesis" and by consequence, the institutional investors are not able to control efficiently the opportunistic managerial behavior.

2.2 The board of directors and the performance of the companies

In the agency theory, the board of directors constitutes a primary mechanism managing the conflict of interests between the managers and the shareholders (Jensen and Meckling, 1976). Williamson (1988) considers that the board of directors should establish a mechanism ensuring the security of transactions between the company and the shareholders from one side and between the company and the managers from the other. Consequently, the characteristics of the board of directors are of a great importance in the corporate governance. Among these characteristics, we consider the board's duality (2.2.1.) and the board's size (2.2.2.).

2.2.1 The board's duality

The board's duality is usually deemed to occur when the Chief Executive Officer (CEO) of the company is also its chairman. In the corporate governance literature, two theories (the agency theory and the theory of the normal succession) are presented to explain the separation between the chairman of the board of directors and the CEO.

The agency theory argues that the firms separate between the chairman and the CEO to control the agency costs. In fact, Fama and Jensen (1983) suggest that the separation between the decisions positions (initiation and implementation of investment projects) and the control positions (ratification and monitoring of investments) reduces the agency costs and improves the corporate performance. In consequence, the highest level in the control structure (the chairman) should not be held simultaneously by the highest level of the decision structure (the CEO). If the CEO is at the same time the chairman of the board, he would have a great influence on the board and especially on fixing his compensation. The contribution of Fama and Jensen (1983) confirms that the effective separation between the management and the control requires the separation between two people holding the two positions. According to Fama and Jensen (1983), when the CEO holds the position of the chairman, it constitutes the most dangerous situation for the shareholders. Such CEOs are more likely to act against the shareholders' wealth. Jensen (1993) believes that the CEO should not be simultaneously the chairman of the board otherwise he would have enormous power within the company and would likely reduce the control effectiveness.

The normal succession theory suggests that the separation between the CEO and the chairman of the board of directors emerges as a part of the normal succession process. The new CEO must therefore pass through a probation period during which the directors assess his/her performance and determine whether he/she is ready or not to hold the position of the chairman. Davidson, Worrell and Cheng (1990) add that in this case, the separation between the CEO and the chairman does not lead to a better performance.

Other group of researchers finds that the board duality leads to a better performance (Rechner and Dalton, 1991; Pi and Timme, 1993; Fosberg and Nelson, 1999). From their side, Brickley, Coles and Jarrell (1997) confirm that the separation between the CEO and the chairman does not necessarily lead to a better performance. According to them, the board duality improves and facilitates the decision-making process.

2.2.2 The board's size

The impact of the board size on the corporate performance is still ambiguous even when in the corporate governance literature; most studies show that the small size of the board of directors enhances the performance of the firm (Jensen, 1993; Yermack, 1996; Hermalin and Weisbach, 2003). It is obviously true that the additional directors can improve the control system but, conversely, they can slow the process of the decision making. Jensen (1993) argues that the board is at the top of the internal control system and the ultimate consequence of its dysfunction is the failure of the firm. According to Jensen (1993), the smaller board improves the corporate performance and to control easier the managers, the number of directors should not exceed seven or eight. Yermack (1996) and Hermalin and Weisbach (2003) find a negative relationship between the size of the board of directors and the corporate performance confirming that the small boards operate more effectively.

Contrary to the above researches, Pearce and Zahra (1992) and Dwivedi and Jain (2005) conclude that the board size has a positive impact on the performance. In fact, large boards could provide the diversity that would help the firms to secure critical resources and reduce environmental uncertainties.

In the context of UAE, the empirical results of Aljifri and Moustafa (2007) reveal that the board size has a negative impact, but insignificant, on the performance of the firm. This result suggests that the UAE firms, on average, do not select their board members optimally which may lead to a lack of coordination, communication, and cause decision making problems.

3 Corporate governance in UAE

The corporate Governance does not have a single formal definition but it "is most often viewed as both the structure and the relationships which determine corporate direction and performance. The board of directors is typically central to corporate governance. Its relationship to the other primary participants, typically shareholders and management, is critical. Additional participants include employees, customers, suppliers, and creditors. The corporate governance framework also depends on the legal, regulatory, institutional and ethical environment of the community"[9].

In UAE, a code of corporate governance was issued by the "Security and Commodities Authority" (SCA) in 2007 and it has been superseded and amended by the "Ministry of Economy's Decision No. 518 of 2009". The code requires companies and institutions that have securities listed in any securities market in UAE (either in Dubai or in Abu Dhabi) and members of their boards of directors to adopt corporate governance rules that aim to:

1- Specify clearly the duties of the board of directors;
2- Describe the responsibilities of the chairman of the board of directors;
3- Explain the roles of the board of directors members;
4- Determine the charges of the audit, the nomination and the remuneration committees;
5- Fix the remuneration of the board members
6- Create an internal control system within their company;
7- Encourage the companies to adopt the principles of good corporate governance, to publish their corporate governance report and make them available to all the shareholders;
8- Establish an effective framework for the protection of shareholder rights; and
9- Strengthen transparency within the company.

To advance corporate governance reform in UAE and to promote the economic development, two organizations were created: the Hawkamah (the Institute for Corporate Governance) in Dubai and the Center for Corporate Governance in Abu Dhabi. Both organizations encourage and assist the private and the public sectors to adopt the highest standards and practices of corporate governance.

4 Data and Methodology

4.1 Sample constitution

The objective of our paper is to analyze the interrelations between the ownership structure, the board of directors and the performance of the companies listed on Abu Dhabi Stock Exchange (ADX) using data over the period 2007-2009. The data was hand collected and the choice of the companies was based on the availability of data. The number of the companies included in our analysis is 33. The banks and the financial institutions were excluded from our analysis because of their specific regulations and their supervision under the central bank.

4.2 Hypotheses

In our first hypothesis, we will test simultaneously the impact of both the ownership structure and the board of directors on the performance of the firm. We assume that the performance of the firms determined by both the ownership structure and the characteristics of the board of directors.

In our second hypothesis, we will test the relationship between the ownership structure and the board of directors. According to the managerial entrenchment theory, the manager seeks to dominate the board and more particularly to hold the chairman position and to increase the size of the board in the objective of creating communication problems within the board and decreasing its control efficiency.

4.3 Variables choice

In our model, the managerial ownership is measured by the part of the capital held the Chief Executive Officer (CEO). The blockholders ownership is the part of capital held by the external shareholders having more than 5% of the capital of the firm and who are different from the managers and the institutional shareholders. The institutional ownership is measured by the pat of capital held by the institutions. To measure the firm's ownership concentration, we use the Herfindahl index of the firm's ownership structure and it is calculated as the sum of squared percentage of shares held by the largest three shareholders.

[9] http://www.corpgov.net/library/definitions.html

Table 1. The ownership variables

Variables	Notation	Measure	Potential impact on the Performance
Managerial ownership	MO	The part of the capital held by the manager	Non monotonic
Blockholders ownership	BO	The part of the capital held by external shareholders having more than 5%	Positive
Institutional ownership	IO	The part of the capital held by the institutional shareholders	Positive
Herfindahl index	HI	The sum of squared percentage of shares held by the largest three shareholders.	Positive

The Board duality is a dummy variable that takes the value of 1 if the CEO is at the same time the chairman of the board of directors and 0 otherwise.

The board size is the number of the members of the board. According to the above ministerial resolution, one-third of the board members shall be independent.

Unfortunately, in our analysis, we are not able to collect the data about the board composition since the companies start disclosing their corporate governance report only in 2009.

Table 2. The board variables

Variables	Notation	Measure	Potential impact on the Performance
Board duality	BD	1 if the CEO is the chairman of the board, 0 otherwise	Positive
Board size	BS	The number of the directors in the board	Negative

Other factors other than ownership structure may also affect the firm's performance. To take them into account, we introduce a set of control variables. Dummy variables for industries are used to control the difference between the sectors. Also, the capital structure variable which is defined as total debt to total assets, the firm size which is defined as the logarithm of total assets.

The firm's performance is measured by the Return On Equity (ROE) which gives an idea about how the company is efficient in utilizing its equity base to generate profit.

Table 3. The Firm's variables

Variables	Notation	Measure	Potential impact on the Performance
Sector	DUM	Dummy variable: i=1,2,…7	-
Debt	DEBT	total debts/total assets	Negative
Size	SIZE	Log (total assets)	Positive
Performance	ROE	Net income/ shareholder's equity	-

4.4 Econometrical models:

The first hypothesis is tested through a system of five simultaneous equations to check if there are significant interrelations between the following variables: the managerial ownership, the blockholder ownership, the institutional ownership, the board duality, the number of directors, the firm's debt, the firm's age and the firm's sector.

$$MO_{i,t} = \beta_0 + \beta_1 BO_{i,t} + \beta_2 IO_{i,t} + \beta_3 BD_{i,t} + \beta_4 BS_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 ROE_{i,t} + \varepsilon_{i,t} \quad (1)$$

In the first equation of the system, we expect that the managerial ownership to depend not only on the levels of the other corporate governance mechanisms such us the ownership variables and the board of directors' characteristics but also on the other factors such as the debt of the company, its size and its performance. The debt and the size may affect

negatively the managerial ownership while the performance may affect it positively.

$$BO_{i,t} = \beta_0 + \beta_1 MO_{i,t} + \beta_2 IO_{i,t} + \beta_3 BD_{i,t} + \beta_4 BS_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 ROE_{i,t} + \varepsilon_{i,t} \quad (2)$$

In the second equation of the system, we expect that the blockholders ownership depends on the ownership structure, the board of directors' characteristics, the debt level, the size of the company and its performance.

$$IO_{i,t} = \beta_0 + \beta_1 MO_{i,t} + \beta_2 BO_{i,t} + \beta_3 BD_{i,t} + \beta_4 BS_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 ROE_{i,t} + \varepsilon_{i,t} \quad (3)$$

In the third equation of the system, we expect that the institutional ownership depends on the ownership structure, the board of directors' characteristics, the debt level, the size of the company and its performance.

$$BD_{i,t} = \beta_0 + \beta_1 MO_{i,t} + \beta_2 BO_{i,t} + \beta_3 IO_{i,t} + \beta_4 BS_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 ROE_{i,t} + \varepsilon_{i,t} \quad (4)$$

In the fourth equation of the system, we estimate that the board duality depends on the ownership structure of the company, the size of the board, the debt level, the size of the company and its performance.

$$BS_{i,t} = \beta_0 + \beta_1 MO_{i,t} + \beta_2 BO_{i,t} + \beta_3 IO_{i,t} + \beta_4 BD_{i,t} + \beta_5 DEBT_{i,t} + \beta_6 SIZE_{i,t} + \beta_7 ROE_{i,t} + \varepsilon_{i,t} \quad (5)$$

In the fifth equation of the system, we expect that the size of the board depends on the ownership structure, the board duality, the debt level, the size of the company and its performance.

We test our second hypothesis by relating the ROE to the ownership structure of the firm, the characteristics of the board of directors, the debt, the age and the size of the company. In our analysis, we expect that the relationship between the managerial ownership and the performance of the firm is nonlinear and our model will be in a quadratic form as follow:

$$ROE = \alpha_0 + \alpha_1 MO + \alpha_2 MO^2 + \alpha_3 BO + \alpha_4 IO + \alpha_5 BD + \alpha_6 BS + \alpha_7 DEBT + \alpha_8 AGE + + \varepsilon_\alpha \quad (6)$$

5 Empirical Results

5.1 Descriptive statistics

The table 4 below reports descriptive statistics for the variables used in the study of the relationship between the ownership structure, the board of directors and the corporate performance. The average of the managerial ownership is 4.11%. The blockholders ownership has an average of 6.49% while the institutional ownership has the highest average of 48.72%. The typical company in the sample has 8 directors and only 10% of the companies have a CEO who is also chairman of the board of directors. The average of the debt ratio is 52.86%. The average company in the sample has total assets of AED 28,289,464. The return on equity has an average of 71.87%.

Table 4. Descriptive statistics

Variables	Mean	Min	Max	Std. Dev
MO	0.0411	0.00	0.7521	0.1396
BO	0.0649	0.00	0.4270	0.1048
IO	0.4872	0.05	0.9992	0.2813
HI	0.2666	0.02	1	0.2606
BD	0.10	-	-	-
BS	8.11	3.00	17.0000	2.6025
DEBT	0.5286	0.01	0.9100	0.2625
SIZE	17.1580	9.00	22.0000	4.0924
ROE	0.7187	-0.18	0.6300	0.2648

The table 5 below reports the average by sector of the different ownership variables. The highest average of the managerial ownership is in the health care sector with a value of 38.98%, while the managers hold 0% of ownership in the: telecommunication, the industrial, the energy and the real state. The highest average of the blockholders ownership is the consumer sector with a value of 10.53% while the blockholders have 0% of ownership in the: telecommunication and the real state. The highest average of institutional ownership is in the telecommunication sector with a value of 81.78% and

the institutional investors hold ownership in all the sectors.

Table 5 Ownership Structure by Sector

Sector	Number of the firms	Managerial	Blockholder	Institutional
Telecommunication	4	0.0000	0.0000	0.8178
Construction	10	0.0234	0.0759	0.6111
Consumer	8	0.0429	0.1053	0.3925
Health care	2	0.3898	0.0230	0.2311
Industrial	4	0.0000	0.1048	0.3208
Energy	3	0.0000	0.0254	0.4373
Real state	2	0.0000	0.0000	0.2484

The table 6 below shows the degree of the ownership concentration by sector. The highest ownership concentration is in the telecommunication sector while the lowest is in the real state sector. As shown above by the table 5, the ownership in both sectors is hold only by the institutional investors.

Table 6. Ownership Concentration by Sector: Cumulative percentage of shares controlled by different types of shareholders

Sector	Definition	C1	C2	C3	HI
Sector 1	Telecommunication	0.8178	0.8178	0.8178	0.70
Sector 2	Construction	0.5272	0.5998	0.6057	0.41
Sector 3	Consumer	0.3439	0.4415	0.4904	0.15
Sector 4	Health care	0.1777	0.3371	0.4742	0.09
Sector 5	Industrial	0.3221	0.3835	0.4115	0.12
Sector 6	Energy	0.3446	0.3570	0.4595	0.29
Sector 7	Real state	0.1470	0.2087	0.2387	0.03

Notes: C1- percentage holding of largest shareholders, C2- combined percentage holdings of 2 largest shareholders, C3- combined percentage holdings of 3 largest shareholders.

5.2 Regression results

5.2.1 The interrelations between the ownership structure and the board of directors

The results of our simultaneous equation analysis are reported in the appendix 2. In the first regression, the blockholders and the institutional ownerships are negatively related to the managerial ownership and both coefficients are significant at a level of 1%. These results show that the managers are not interested in investing in the high controlled firms to escape from the performance pressure. However another interpretation is that the blockholders and the institutional ownership are substitutable governance mechanisms to the managerial ownership in reducing the agency costs. The coefficient of the board duality is positive and significant at 10%, this result shows that the board duality is complementary to the managerial ownership while the coefficient of the board size is negative and significant at 10%, this confirms that the managerial ownership and the board size are substitutable. The debt level is negatively but not significantly related to the managerial ownership corroborating the results of Stulz (1988) and confirming that bankruptcy risk associated to the high level of debt discourages more and more the managers to hold large parts in the capital of their companies. The size has a positive and significant impact on the managerial ownership. According to Himmelberg et al. (1999), the large firms are likely to employ more skilled managers, who are consequently wealthier and suggesting by consequence a higher level of the managerial ownership. The performance of the company is positively and significantly related to the managerial ownership corroborating the results of Cho (1998) and affirming that the managers are interested in increasing their ownership in the high profitable companies.

In the second equation, the blockholders ownership seems to be substitutable, as mentioned above, to the managerial ownership, as well as to the institutional ownership (the coefficients of the two variables are all negative and significant at 1%). The board of directors has a positive and significant (at 1%) impact on the blockholders ownership showing that the blockholders may prefer investing their money in the companies where the CEO is at the same time the chairman of the board to get benefit from a higher performance. However, the board size has a negative and significant (at 1%) impact on the blockholders ownership. This result could be explained by the fact that the smaller board are always more efficient in controlling the managers (Yermack, 1996). Besides, the empirical results of Aljifri and Moustafa (2007) show that the firms in UAE, on average, do not select their board members optimally, which may lead to a lack of coordination,

communication, and cause decision making problems. The debt has a negative but not a significant impact on the blockholders ownership, this result shows that the blockholders don't prefer investing their money in the high leveraged companies. However, another interpretation is that the blockholders and the financial policy are substitutable in controlling the manager. The size and the performance of the company are positively and significantly related to the blockholders ownership, this result shows that the blockholders do prefer participate in the capital of the large and the profitable companies.

In the third regression, the institutional ownership is substitutable to both the blockholders ownership as well as to the managerial ownership. This result is already shown in the two previous regressions and confirms more and more that the three types of the ownership are substitutable corporate mechanisms in reducing the agency costs and the managerial opportunism. The boards of directors' characteristics (the board duality and the board size), the debt and the performance of the company do not have any significant impact on the level of the institutional ownership. The size of the company affects positively and significantly the institutional ownership. We have already observed this result from the table 5 where the institutional stockholders hold, obviously, almost all the capital of the Telecommunication and the Construction industries.

In the fourth regression, the results show that the board duality is negatively but not significantly related to the managerial ownership. The negative relationship between the managerial ownership and the board duality indicate that the probability of the CEO to be a chairman decreases with any increase in the managerial ownership. This may be interpreted as good governance in companies with high level of managerial ownership. In these companies, the managers are much more interested in good governance than holding the position of the chairman. In the same regression, the coefficient of the blockholders ownership is positive and significant at 5%. This result shows that the board duality is more common when the blockholders are present in the ownership structure, therefore, the board duality could be considered as a good signal that attracts the blockholders, since it leads to a better performance (Rechner and Dalton, 1991; Pi and Timme, 1993; Fosberg and Nelson, 1999). The debt is negatively and significantly (at a level of 10%) to the board duality. This result shows that the companies with higher debt are more likely to differentiate between the CEO and the chairman of the board. Therefore, the board duality and the financial policy are considered as two substitutable governance mechanisms in controlling the managerial behavior. The coefficient of the performance of the company is positive and significant at a level of 10%. This result shows that the companies with higher performance are more likely to impose the board duality in the purpose to get benefit from the improvement and the facilitation of the decision-making process. In the same regression, neither the size of the board nor the size of the company does have any impact or influence on the leadership of the board.

In the fifth regression, all the ownership variables (managerial ownership, blockholders ownership and the institutional ownership) are positively and significantly (at a level of 1%) related to the board size. This result shows that the companies with a higher level of managerial ownership tend to have larger board. This result could be explained by the fact that the large board is, in general, better in monitoring the managerial behavior (Zahra and Pearce, 1989). Therefore, the board size, the blockholders ownership and the institutional ownership are complementary governance mechanisms in controlling the manager. In the same regression, the size and the performance of the company are both negatively and significantly related to the board size. This result shows that the smaller and the less profitable companies prefer to have larger board to get benefit from the experience of the different directors.

Overall, we can conclude from the above analysis, that the managerial ownership, the blockholders ownership and the institutional are three substitutable mechanisms of governance. They are all complementary to the board duality and to the board size as well.

5.2.2 The impact of the ownership structure and the board of directors on the performance of the firm

The panel data estimation of the equation (6) confirms the presence of individual effects. The test of Hausman shows that there is a systematic difference between the fixed effect and the random effect coefficients. The Variance Inflation Factor and Durbin-Watson tests reject the respective presence of multicollinearity and autocorrelation problems. However, the test of Breush-Pagen confirms the presence of the heteroscedasticity problem. To correct this problem, we divide all the variables of the equation by the variable size of the company.

The regression results (see appendix 3) show that the relationship between the managerial ownership and the performance of the firm is not significant. The coefficients of the managerial ownership and the managerial ownership square are both not significant. The first coefficient is negative while the second is positive. Our results do not corroborate the results of the earlier studies of the relationship between the managerial ownership and the performance of the firm (Morck et al., 1988; Short and Keasy, 1999). In fact, the earlier empirical results of our simultaneous equations show that the managerial ownership is endogenous and the performance of the firm is one, among others, of its determinants. This result corroborates the results of

Cho (1998) and Himmelberg, Hubbard and Palia (1999) who affirm that the managerial ownership is an endogenous variable and it depends on many characteristics of the companies.

The coefficient of the blockholders ownership is negative and significant at a level of 5%. This result shows that the presence of blockholders in the ownership structure of the company does not always ensure a good performance. In the contrary, the blockholders lead to a poor performance. This result could be explained by the managerial entrenchment theory arguing that the blockholders are not always considered as an efficient internal monitoring mechanism. In the contrary, the blockholders may enjoy private benefits of the control, in detriment of the other shareholders, and expropriate the wealth of the minority shareholders because of their privileged access to inside information and their high risk aversion compared to the diversified shareholders (Morck, Shleifer and Vishny, 1988).

The coefficient of the institutional ownership is negative and significant at 5%. This result shows that the institutional shareholders do not always participate in the improvement of the corporate performance. Our result contradicts the results of many prior researches (Brickley, Lease and Smith, 1988; McConnel and Servaes, 1990; Agrawal and Mandelker, 1992). Our empirical result corroborates the results of Ajifri and Moustafa (2007) who find, in the context of UAE, a negative relationship between the institutional investor and the performance and confirming that the institutional investors are not able to control efficiently the opportunistic managerial behavior.

The coefficient of the board duality is positive and significant at 10%. This result shows that the separation between the positions of the CEO and the chairman of the board of directors does not lead to the improvement of the corporate performance. Our result corroborates the results of Rechner and Dalton (1991), Pi and Timme (1993), Fosberg and Nelson (1999) and Brickley, Coles and Jarrel (1997) who show that the companies separating between the positions of the CEO and the chairman of the Board of Directors do not have necessarily a better performance.

The coefficient of the board size is negative and significant at a level of 10%. This result approves that the boards with a small size are more effective in the control of the managerial discretion. Our result corroborates the results of Jensen (1993) and Yermack (1996) confirming that that the small boards operate more efficiently and are more likely to replace the poor managers.

The debt variable coefficient is positive and significant at 10%. Our result corroborates the result of Jensen (1986) and shows that the debt is used to finance the profitable investments and to resolve the conflicts of interest between the managers and the shareholders. The coefficient of the firm age is positive and significant at 1%. This result shows that, in general, the larger firms do better. This result could be explained by the fact that when the companies become older, they gain more experience in dealing with the different problems. The coefficient of the size is positive and significant at 1%. In general, the larger companies attract always more attention and pressure to respond to the shareholder's demand.

Conclusion

In this paper, we are interested in identifying the interrelationships between the ownership structure and the characteristics of the board of directors as well as their impacts on the corporate performance.

The results of the simultaneous equations system show many important interrelationships between the ownership structure and the characteristics of the board of directors. Indeed, the managerial ownership is substitutable to the blockholders ownership, the institutional ownership and the board size while it is complementary to the board duality. Our results show also that the board duality and the financial policy of the company are substitutable, while the blockholders ownership, the institutional and the board size are complementary governance mechanisms. These empirical results help the companies to manage optimally the various mechanisms of governance in order to reduce the agency problem.

Our empirical results show also that the relationship between the managerial ownership and the corporate performance is not significant and that the managerial ownership is endogenous and it depends, among others, on the corporate performance. Moreover, the blockholders ownership, the institutional ownership and the board size have all negative impacts on the performance, while the board duality, the age and the firm size guarantee a better performance of the company.

One of the limits of this study is the omission of the other governance variables such as the compensation of the manager or the external governance mechanisms (control market, labor market, and product market) which could be inserted in the equation of the performance or in the simultaneous equations system. Indeed, the managerial compensation and the external governance mechanisms could help the companies in reducing the agency problems and limiting the use of other control mechanisms.

This study could be the object of later researches by taking companies from the same industry such as the banks or the insurance companies. This could improve the comprehension of the interrelationships between the various governance mechanisms.

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Appendix 1

Correlation Coefficients

	MO	BO	IO	BS	BD	DEBT	SIZE	ROE
MO	1.0000							
BO	-0.0430	1.0000						
IO	-0.3482	-0.4440	1.0000					
BS	-0.0332	-0.4922	0.1668	1.0000				
BD	-0.0579	0.1882	0.1368	-0.0924	1.0000			
DEBT	0.0585	-0.1037	-0.0754	0.0765	-0.1987	1.0000		
SIZE	0.2271	0.3636	0.0576	-0.3499	0.2362	0.0691	1.0000	
ROE	0.0293	-0.0801	0.0612	-0.1889	0.1105	0.1674	0.1519	1.0000

Appendix 2

The independent variables	The dependent variables				
	MO	BO	IO	BD	BS
	Coefficient *t- student*	Coefficient *t- student*	Coefficient *t- student*	Coefficient *t- student*	Coefficient *t- student*
CONSTANT	-0.2444 (-1.35)	0.1046 (1.96)*	0.2455 (1.38)	-0.3197 (-1.55)	1.7165 (1.88)*
MO		-0.3859 (-6.89)***	-0.8917 (-9.32)***	-0.0351 (-0.14)	5.4126 (2.74)***
BO	-1.2388 *(-8.86)***		-1.1214 (-8.00)***	0.95322 (2.48)**	11.6030 (3.73)***
IO	-0.7276 *(-9.08)***	-0.2592 (-8.85)***		0.1481 (1.08)	4.1256 (4.37)***
BD	0.0906 *(2.27)**	0.0867 (3.48)***	0.1159 (1.49)		-0.0671 (-0.09)
BS	-0.0116 *(-2.27)**	-0.0109 (-3.60)***	-0.0024 (-0.25)	0.0138 (1.13)	
DEBT	-0.5136 *(-1.07)*	-0.0249 (-0.81)	-0.0859 (-1.72)	-0.2393 (-2.03)*	0.9689 (0.97)
SIZE	0.0328 *(3.32)****	0.0273 (4.97)***	0.0277 (2.55)**	0.0269 (1.16)	-0.7127 (-4.14)***
ROE	0.1063 *(2.17)**	0.1214 (2.13)**	0.0144 (0.14)	0.3671 (1.64)*	-3.1468 (-1.69)*
R^2	35.39	57.21	48.29	16.07	32.63
Prob > chi 2	0.0000	0.0000	0.0000	0.0322	0.0000

*Significant at a level of 10%, **Significant at a level of 5%, ***Significant at a level of 1%.

Appendix 3

ROE	Fixed Effects		Random Effects	
	Coefficient	*t- student*	Coefficient	*t- student*
CONSTANT	0.0666	1.07	0.2610	1.58
MO	1.0666	1.73	-0.1432	-1.28
MO^2	-3.0433	-2.51**	0.0187	1.03
BO	-0.6724	-1.92	-0.6112	-2.36**
IO	-0.4002	-2.18**	-0.1699	-2.15**
BD	0.8888	2.65***	0.0844	2.26*
BS	-0.0499	-1.51	-0.0202	-2.30*
DEBT	-0.2892	-2.25*	0.0864	2.21*
AGE	0.0136	1.79	0.0017	2.06*
	R^2	19.60	R^2	16.45
	Prob > F	0.0211	Prob> chi 2	0.0281

*Significant at a level of 10%, **Significant at a level of 5%, ***Significant at a level of 1%.