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Abstract

The question we address in this paper is: what is the role played by corporate governance in mitigating financial statement fraud in emerging markets? To answer this question, we investigate the link between corporate financial statement fraud and Board of Directors on a sample of 64 Tunisian firms, with 32 fraud firms matched by 32 no fraud similar (control) companies. Since our dependent variable is binary (fraud versus no fraud), we use a logistic regression to explain how the probability of fraud can be determined by governance variables. Our main results show that there is a significant difference in governance variables between fraudulent and control firms. Moreover, we confirm the importance of governance variables in explaining the probability of fraud since we find that firms with a board of directors dominated by family members and with tenure of outside directors are more likely to commit fraud in financial statement.

ملخص

السؤال المطروح في هذه الورقة هو : ما هو الدور الذي تلعبه حوكمة الشركات في التخفيف من الغش في البيان المالي في الأسواق الناشئة؟ للإجابة على هذا السؤال، قمنا بالتحقيق في الصلة بين الشركات التى تقوم بتزوير البيانات المالية ، ومجالس الإدارة على عينة من 64 شركات تونسية، مع32 شركة غاشة و تقابلها 32 حالة مماثلة من الشركات الغير غاشة (مراقبة). وبما ان المتغير التابع لنا هو ثنائي (الغش مقابل عدم الغش) ، فقد استخدامنا الانحدار اللوجستي لشرح الكيفية التي يمكن أن تحدد احتمال التزوير وفقا لمتغيرات الحوكمة. النتائج الرئيسية لدينا تبين أن هناك فرقا كبيرا في متغيرات الحوكمة بين الشركات الاحتيالية والمسيطرة. وعلاوة على ذلك، فإننا نؤكد على أهمية متغيرات الحوكمة في شرح احتمال التزوير. فقد وجدنا أن الشركات التي لديها مجالس إدارة تهيمن عليها أفراد الأسرة مع وجود اعضاء غير اقرباء هي أكثر عرضة لارتكاب الاحتيال في البيان المالي.

1. Introduction

The intentional manipulation of accounting numbers used to be a subject of interest in accounting and finance literature since long time, but it has gained much attention in recent years because of the revelations about financial fraud at many successful firms. This phenomenon is most often referred to as "earnings management". However, financial statement fraud is seen as an "extreme form of earnings management". Dechow and Skinner (2000, p.239) distinguish "aggressive accounting", that falls within Generally Accepted Accounting Principles (GAAP), from "fraudulent accounting", which violates GAAP standards.

The collapse of many companies, starting with of Enron in 2001 and ending with Lehman Bothers in 2009, damaged seriously the confidence in accounting numbers and the ability of financial markets to price financial assets correctly. The reason is certainly what was mentioned by Tillman and Indergaard (2007) in their Report to the Institute for Fraud Prevention: the propagation of corruption and accounting scandals from "fly-by-night" companies to highly-trusted and familiar organizations. According to Rezaee (2005), the market capitalization losses caused by the frauds in financial statements reported by WorlCom, Enron, Qwest, Tyco, and Global Crossing are estimated at $460 billion.

Today, with the bankruptcy of the big companies such as Enron and Lehman Brothers, the public increasingly question the quality of accounting numbers divulged by firms. The Enron scandal had an immediate effect on the financial reality, because it didn't entail only the bankruptcy of the company, but it also caused the disappearance of one of the biggest consulting firms: Arthur Anderson.

The negative consequence of fraud in accounting numbers was not limited to developed markets, but touched emerging markets like Tunisia, where there was the bankruptcy of Batam, the example of success of the privatization initiative until 2002.

Four causal factors were identified behind attempts to manipulate earnings: (1) capital markets pressure; (2) composition of boards of directors; (3) forms of executive compensation; and (4) insider trading.

We choose to investigate the second factor in the Tunisian context. Our choice is not only motivated by the irrelevance of the other factors in emerging markets, but also because of the lack of data on such factors.

Prior studies measuring the impact of corporate governance mechanisms have focussed on global-type issues such as the impact of governance on firm performance and firm value (Denis and McConnell 2003). However, governance mechanisms can also be used to examine the quality of the firm's financial reporting, for example, the propensity of the firm to manage earnings (Xie, Davidson and Dadalt 2003) or the occurrence of financial statement fraud (Beasley 1996; Uzun, Szewezyk and Varma 2004).

The first studies tested the effect of corporate board composition on earnings management of American firms. Klein (2002) shows that the more "independent" boards are, the less likely are earnings management. Dechow, Sloan, and Sweeney (1996) found that earnings manipulations are associated with boards of directors dominated by management and duality of the CEO. Agrawal and Chadha (2005) and Uzun et al (2004) found that a high percentage of outside directors negatively influence the frauds. In the British context, Dahya and Mcconnell (2005) conclude that a high percentage of outside directors allow good decisions, especially to discipline the agent.

However, more recent literature focused on the importance of family members (Ghazali and Weetman 2006) or ties (Melis 2005). Luan and Tang (2007) were right to mention that the problem is not of external or internal, but rather independent or dependent. To the best of our

knowledge, the question of fraud in corporate financial statements was not addressed in MENA countries. Our research will try to fill this gap by investigating the link between financial statement fraud and corporate governance characteristics, and especially the Board of Directors in the Tunisian context.

The question we address in this research is: what is the role played by corporate governance in mitigating financial statement fraud in emerging markets?

To answer this question, we investigate the link between corporate financial statement fraud and Board of Directors on a sample of 64 Tunisian firms, with 32 fraud firms matched by 32 no fraud similar (control) companies. Since our dependent variable is binary (fraud versus no fraud), we use a logistic regression to explain how the probability of fraud can be determined by governance variables.

Our main results show that there is a significant difference in governance variables between fraudulent and control firms. Moreover, we confirm the importance of governance variables in explaining the probability of fraud since we find that firms with a board of directors dominated by family members and with tenure of outside directors are more likely to commit fraud in financial statement.

The remaining of this paper is organized as follow: Section Two develops the theoretical framework underlying our investigation, Section Three presents the data and research design, Section Four provides the empirical analysis, and Section Five contains some concluding remarks.

2. Theoretical Framework and Hypotheses Development

2.1 Fraud: from the science of crime to the accounting science

The current literature investigating the concept of "fraud" builds on the work of Sutherland (1924, 1942). This author was particularly interested in fraud committed by the elite business executives against stockholders, known as "white-collar crime"[1]. This psychological vision was later developed by Cressey (1953) and named "fraud triangle", which consists of three variables: perceived financial needs, perceived opportunity and finally rationalization (1953).

At the beginning of the 1980s, the concept of a "fraud triangle" was transferred from criminology to accounting by Albrecht, Howe and Romney (1984). Albrecht et al identified the factors that led to occupational fraud and abuse. Based on the concept of Cressey (Fraud triangle), three elements must be present for a fraud to be committed: a situational pressure, a perceived opportunity to commit and conceal the dishonest act situation (Albrecht et al 1984).

Later, the statement on auditing Standards N°99: considerations of fraud in a financial statement, issued by the AICPA (2002), adopted much of Albrecht's work on the Fraud Triangle by incorporating the risk factors associated with three variables of the fraud concept: (1) the pressure: the pressure to meet the forecasts of the analysts, (2) the opportunity such as a week internal control, and (3) the rationalization such as a stock option.

Although the concept of "fraud" presents much confusion with the concept of "earning management", several differences exist between these two concepts:

- The actors: The fraud results either from an active behaviour of the manager or from a passive behaviour while the earning management is at manager discretion.
- The purpose: The earning management is an "aggressive accounting", which can give an accurate image about the situation of the company or misleads the partners in error. In

[1] Sutherland (1949).

both cases, it falls within Generally Accepted Accounting Principles (GAAP). However, the fraud or "fraudulent accounting" violates GAAP standards.

Nevertheless, there is a strong link between the two concepts. Dechow, Sloan and Sweeney (1996) tried to identify the causes and the consequences of the earning manipulation. They showed that firms accused of fraud by SEC tend to manage their results. In fact, these companies adopt a particular behaviour in earnings management. The intuition of these authors is that the manipulation engenders later legal costs, which are avoidable in earnings management. Hence, companies accused of violating the standards are those committed to aggressive earnings management.

2.2 Fraud and agency theory

The four causal factors of earnings management and corporate fraud (capital markets pressure, board composition, executive compensation and insider trading) are linked either to market forces or firm characteristics. In this context, the only solution the market can provide for accounting manipulation or corporate fraud is a price decline, which is a second best solution to Shareholders or Stakeholders in general. So, the first best solution should come from the firm and not from the market: good governance. The most discussed mechanism in the literature is the Board of Directors. To assess the role of the board of directors, Zhara and Pearce (1989) recall four theoretical perspectives: legalistic perspective (linked to corporate law), resource dependence perspective (grounded in sociology and organizational theory), class hegemony perspective (rooted in Marxist sociology) and economic and finance perspective (embedded in agency theory). From these perspectives, corporate law and agency theories seem to be suited to analyse corporate fraud by defining the board's role as to monitor and compensate CEO.

Jensen and Meckling (1976) define a relation of agency as being a contract which connects two persons called an agent and principal. The principal entrusts to the agent the fulfilment of a work on its place and for its own account. The principal–agent relationship involves a transfer of trust and duty to the agent while assuming that the agent is opportunistic and will pursue interests, including executive Fraud, which are in conflict with those of the principal. This potential conflict of interests is often referred to as "the Agency problem" (Davis et al 1997).

The model of man underlying agency theory is that of a rational actor who seeks to maximize his or individual utility (Jensen and Meckling 1976). "Both agents and principals seek to receive as much possible utility with the least possible expenditure" (Davis, Shoorman and Donaldson 1997). Owners become principals when they contract with executives to manage their firms for them. The managers agree to be agents because they perceive opportunities to increase their own wealth (Davis et al 1997). Generally, both parts should maximize the profits of the firm. Indeed, if the utility functions of both actors coincide, there is no agency problem (Davis et al 1997). However, agency costs are incurred when the interests of both diverge. In that case, several studies were led to know the various sources of conflict of interests and try to encircle them.

To resolve the conflicts between the shareholders and the agents and maintain the contractual relation, two problems must be resolved (Healy and Palepu 2001):

- An agency problem, which comes from the moral hazard and the opportunistic behaviour of the manager in decision-making.
- An information problem, which comes from the information differences and conflicting incentives between mangers and owners.

In decision-making, the shareholder bases his judgement on accounting information, such as the financial statements, which is established by the manager. In such a situation, it will be

interesting to know if the financial statements, prepared by the manager, reflect the real situation of the company and give an accurate and sincere image or not.

A typical solution to the agency problem is to structure executive incentives, such as stock options, in such ways that they align executive behaviour with stockholder goals. Another mechanism for reducing agency problems is the board of directors, who can monitor and discipline the manager and curtail his "opportunistic behaviour".

Since executive compensation is not common in the Tunisian context, we choose to analyse the second solution, which is the Board of Directors, and its impact on the accounting fraud.

2.3 Fraud and board of directors

To protect shareholder interests, minimize agency costs and ensure principal-agent interest alignment, agency theory prescribes various governance mechanisms (Choo and Tan 2007).

According to the literature, the Board of Directors is one of the internal governance mechanisms by which the agency costs are minimised. Fama and Jensen (1983) stipulate that the board has a mission to protect the shareholders' interest because the principal-agent interests may diverge and the agent will maximise his individual utility at the expense of the principal's utility. Young (2000) mentions the fiduciary role of the board of directors, who are supposed to limit the opportunism of the manager.

In fact, the board has many responsibilities such as hiring, compensating, and firing of the CEO and overseeing the firm's business strategy. However, such a responsibility requires access to information. In reality, shareholders suffer from an information gap, which justify the need to a mechanism able to fill in this gap and monitor the manager: the Board of Directors. But, the ability of the board to get information and discipline the manager requires an active behaviour (Eisenhardt 1989).

Indeed, in agency theory, the behaviour of the board members in the process of collecting information is very important so that the board of directors fulfils its obligation. In Fama and Jensen (1983), the effectiveness of the board in carrying out their duties to protect the interests of shareholders (especially minority shareholders) relies on a heavy presence of outside (or non-executive) directors. Consequently, lines of conduct were established in several countries (Cadbury committee report in England in 1992; the Toronto Stock Exchange Corporate Governance Guidelines in Canada in 1994 and the Blue Ribbon Committee Report and Recommendations in the US in 1999), which suppose that the outside directors can make a crucial positive contribution to lead effectively the role exercised by the board (Park et al 2004).

However, the recent scandals such as Enron, HealSouth, Tyco and Worldcom let the investors suspicious towards the quality of the accounting information. After the drastic decline of their stock price, several companies were forced to adhere to the program protecting companies against the bankruptcy (Agrawal and Chadha 2005). The board's characteristics were suggested as a possible reason. Zhara and Pearce (1989) use many explanatory theories to assess the link between the board of directors and firm performance. They classify these attributes into four categories: the board's composition (the size, the outside directors), the characteristics (skill, motivation), the process (number of meetings), and finally the structure (the audit committee).

Among these attributes, the independence of the board of directors was judged by the literature as the most important because only an independent director is able to control the

manager (Weisbach 1988; Beasley 1996)[2]. In addition, along with these financial scandals, the first criticism targeting the board is related to its independence (Agrawal and Chadha 2005). Furthermore, the proposition that the board has to consist of independent directors has received the approval of all the countries (Krivogorsky 2006).

2.4 Fraud in the Tunisian context

In the Tunisian context, the fraud in financial statements is not deeply addressed in Tunisian legislation. Moreover, according to the Report on the Observances of Standards and Codes (2006, 3), the implementation of these texts are weak in practice. The reason suggested is the absence of jurisprudence and decisions made by courts.

Nevertheless, Tunisian law distinguishes between two kinds of fraud:

- Inaccurate Balance sheet and fictitious dividends[3],
- Abuse of assets[4].

In the case of an inaccurate balance sheet, the manager has to present his forgery. However, in the case of abuse of corporate assets, not only the balance sheet is accurate, but it reflects the effects of these frauds. For example, the excessive use of a car for personal reasons allows inflating the depreciations.

These frauds are cumulative in general. It is the case for example of the CEO who makes artificial projects, which benefit a company owned by his daughter. Consequently, not only he increases loads by fictitious loads (inaccurate balance sheet), but makes a wealth transfer from the stockholders of his company to another company in which he is involved.

Specifically, the issue of fraud within a company was addressed in four articles of law:

- In article 27 and article 223 paragraphs 1 and 2 of the trade companies code "code des sociétés commerciales", the lack of inventory, the creation of fictitious stock and the presentation of an inaccurate balance sheet constitute frauds. These deceitful acts give rise to fictitious dividends.
- In article 223 paragraphs 3 and 4 and article 200 of the same code as well as article 297 of the «Code Pénal», any act against the interests of the company, committed for personal reasons or to encourage another company in which they are involved is an act of fraud; for example: conventions made by the manager with the company or the abuse of corporate assets. In these cases, the balance sheet is exact but it hides irregularities either by encouraging another company, or by deceiving corporate assets.

The procedure followed in Tunisian is depicted in Figure 1. The complaints of the shareholders are not presented to a court specialized in adjudicating disputes between the owners and the manager of the company. A whole procedure should be respected to start a lawsuit. Because of their importance and their gravity, the detected frauds are incriminated. Therefore, the complaint should be validated by a public prosecutor before the procedure is initiated (see Figure 1 for the whole steps).

[2] Uzun et al (2004) examined U.S. firms that were accused of fraud in the period 1978 through 2001, using data from the Wall Street Journal. Their major finding is a negative relation between corporate fraud and independent outside directors.

[3] See: Law n° 2000-93 of November 3d year 2000 "Code des sociétés commerciales", article 207.

[4] See: Law n° 2000-93 of November 3d year 2000 "Code des sociétés commerciales", articles 200 and 223 and "Code penal", article 297.

2.5 Hypotheses development

2.5.1. Fraud and Outside directors

The value of the outside directors on the board is explained by three reasons (Gul and Leung 2004):

- They control the manager and reduce the agency costs;
- They build networks of relations with the other external parties of the company;
- Their presence conveys a signal of financial transparency.

Peyer and Perry (2005) show that outside directorships for executives can enhance firm value, which leads firms to employ executives nominated for outside boards. The reason is that an outside director cares about his reputation. Consistent with the reputation hypothesis, vigilant directors gain reputation as good monitors and are rewarded with additional board seats. Lax directors suffer a decline in reputation and bear a personal cost in the form of fewer opportunities to serve on other boards (Fama 1980; Fama and Jensen 1983). Additional incentives to monitor can arise from equity holdings, restricted stock and option awards, and turnover of outside directors (Yermack 2004). The reputation hypothesis holds that outside directors of firms accused of financial misconduct suffer personal losses in the form of damaged reputation. According to this hypothesis, the loss in reputation should be greater in more severe cases of fraud. There is broad agreement that financial fraud leads to significant valuation losses for investors, as has been apparent in numerous recent governance failures. These losses result primarily from reputational costs borne by firms as a consequence of the financial fraud. However, relatively little is known about the reputational costs for outside directors of firms involved in fraud and the penalties suffered by these directors (Fich and Shivdasani 2007).

The reputation hypothesis stipulates that if the firm is accused of being badly managed, the directors are going to loose their reputation. This loss will be much stronger in the cases of frauds. Outside directors are not solicited and hold fewer board seats after serving on boards of companies that experience financial distress (Gilson 1990), that are liquidated (Harford 2003), and that perform poorly (Yermack, 2004). Consequently, the detection of frauds seems to be the major role of the external director. Srinivasan (2005) shows that the external directors of companies whose earnings are manipulated know rotations and occupy fewer places in other boards. Yermack (2004) finds that external directors are well motivated either by the payment or by the presence in other boards. Harford (2003) states that directors whose companies suffered a takeover, are rarely recruited to serve in the boards of other companies. Conyon and Read (2006) found that the directors prefer optimizing their external missions as outside directors more than spending time in the company as internal directors.

All the research shares the same idea that the reputation is very important in the labour market for the directors. Consequently, the external director is more capable of protecting the interests of the shareholders. In the American context, Beasley (1996) finds a negative relation between fraud and the percentage of external directors. Uzun et al (2004) reach the same result during the period between 1978 and 2001. In the same context, Agarwal and Chadha (2004) find a significant and negative relation between the existence of independent directors and the probability to manipulate the earning. In the British context, Dahya and Mc connell (2005) conclude that a high percentage of outside directors allow making good decisions and especially to discipline the agent. In the Chinese context, Chen, Firth, Gao and Rui (2006) found that fraud is negatively associated with a high percentage of outside directors.

The above analysis allows us to announce our first hypothesis as follow:

H1: Firms engaging high percentage of outside directors are less likely to commit fraud.

2.5.2. Fraud and Family members

The academic literature discussed largely the importance of the outside directors to controlling the opportunism of the manager. However, the evidence is anonymous (Agrawal and Knoeber 1996; Vafeas and Theodorou 1998; and Vafeas 2003). Daily and Dalton (1994) mentioned that having an external director is a necessary but not sufficient condition to prevent fraud. Indeed, according to Luan and Tang (2007), we do not discuss the problem of external or internal but rather independent or dependent. In fact, we can appoint external directors whose interests align to those of the manager.

The notion of independence is vague and should be accompanied by other characteristics. In fact, the independence of the director incorporates several dimensions. Being situated in the Italian context, Melis (2005) considers that the scandal of "Parmalat" is not due to the generally admitted accounting principles, but rather to the failure of the company governance. In fact, he wondered why the system of governance was not able to penalize the management team before the emergence of the scandal. Therefore, he tried to explain the failure of "Parmalat" by leaning on the characteristics of the system of governance. The most surprising remark is that more than 30% of the directors have family ties.

In the context of Malaysia, Ghazali and Weetman (2006) found that the existence of directors belonging to the same family constitute a dominant group which allows decisions to be strongly imposed within the board of directors. Haniffa and Cooke (2002) and Wong (2001a) noticed that the existence of family members influences negatively the voluntary disclosure in Malaysia and Hong-Kong. The same result is confirmed by Ghazali and Weetman (2006) who found a significantly negative relation between the members of family and the disclosure.

This analysis supports our second hypothesis:

H2: Firms having family members in their Board of Directors are more likely to commit fraud.

2.5.3. Fraud and tenure of Outside directors

According to the hypothesis of "management friendliness", the directors having served a long lasting in board become friends with the manager which can influence their capacities to control. Over time, these directors become ineffective and even reduce the control exercised (Vafeas 2003). Del Guercio, Dann and Partch (2003) find that the outside directors lose their independence to control the manager by serving in the board for a long duration and consequently, they become less effective as representatives of the shareholders.

Our third hypothesis can be formulated as follow:

H3: a long tenure of the external directors increases the probability of fraud.

2.5.4. Fraud and CEO duality

The board of directors has a big role in the process of recruitment, revocation and evaluation of managers. However, in several companies, the manager chairs at the same time the board of directors (Uzun et al 2004). After Enron scandal, various codes of governance propose the separation of functions to guarantee the independence between the management and the control (Krivogorsky 2006). Every time the manager exercises his influence on the board members, it will be unlikely to reveal the irregularities which the independent directors can detect (Agrawal and Chadha 2005). Indeed, the CEO exercises a significant control over the members through his power by detaining the diary of the board. It is for this reason that the separation of the functions allows a guarantee of the efficiency of the board (Uzun et al 2004).

In the Anglo-Saxon model of corporate governance, the dual appointment of chairman and CEO is seen to give too much power to the individual (Jensen 1993) and this can make it easier to reach a decision that results in fraudulent actions and decisions that are not in the best interests of the minority shareholders. Agrawal and Chadha (2005) found a positive and significant relation between the duality of function of the manager and the probability to manipulate the earning. However, Uzun et al (2004) didn't find any relation between duality and fraud.

Our final hypothesis can be stated as follow:

H4: The duality of CEO and president of the board increases the probability of fraud.

3. Research design

3.1. Fraud detection

In United States, Beasley (1996) limits his study to the frauds related to financial statements. In the same context, a more recent study (Uzun et al 2004) generalized the frauds to those exercised by the manager against the other partners of the company such as the government, the suppliers, the customers, the employees. They even considered pollution as being a fraudulent act. This choice is motivated by the fact that any action aiming at threatening the interests of the shareholders constitutes a fraud. For contextual reasons, we are going to limit our study to frauds connected directly to financial statements.

On the ground, a firm can be classified either as fraudulent or non fraudulent. To detect fraudulent companies, Pincus et al (1988) and Beasley (1996) used data collected from the Security Exchange Commission, respecting these steps:

- Reviews of 1933 and 1934 securities Acts filings;
- The market surveillance programs of the AMEX, the NYSE and the National Association of Securities Dealers;
- Public complaints, tips, referrals from other law enforcement agencies, and the financial press.

Involving Tunisian context, we couldn't use data from the stock market regarding its thinness. With only 51 listed companies, we don't have enough fraudulent cases to conduct research. So, we had to find another way. Following Helland and Sykuta (2005), we looked for data from the trials of the court system. Furthermore, using class action lawsuits to identify financial misconduct offers some advantages. First of all, we cannot ignore the increase in the number of trials (Dunbar et al 1995). Secondly, the court protects the interests of the shareholders by requiring the payment of the damages. Therefore, unlike the market forces which penalize the company in case of fraud through price fall or takeover, the court indemnifies the shareholders in case it proves the failure and the negligence of the manager.

Helland and Sykuta (2005) used all the trials even those that the court did not approve fraud of the manager[5]. However, in our case, we are going to consider only the trials giving proof to shareholders. Indeed, it is difficult to know the amicable settlements which could happen between the shareholders and the manager. Furthermore, the trial could have been rejected not because the manager was innocent but rather because there was a defect of shape. To gather the maximum information, we took all the trials which consider the manager guilty:

[5] They considered four possible cases:
Dismissed cases
Settled cases
Tried cases
Plaintiff wins

- In the phase of investigation by the public prosecutor. We collected the complaints in which the manager is accused of fraud (abuse of corporate assets, inaccurate balance sheets, and fictitious dividends) from the register of the Court of First Instance since 1995 through 2007.
- In the judgements of the Court of First Instance: a perusal was made in the Court of First Instance by collecting judgements from 2000 to 2007.
- In the judgements of the Court of Appeal: the perusal of the judgements which date from 2000 to 2007.
- In the decisions of the Supreme Court: the perusal of the judgements which date from 2000 to 2007.

3.2 The Model specification

Following Beasley (1996), Agrawal and Chadha (2005) and Uzun et al (2004), the fraud is a dummy variable; taking the value 1 if the firm is fraudulent and the value 0 if not. So our sample is balanced between fraudulent and non fraudulent companies. However, we always consider that the percentage of the fraudulent companies is lower than 50% in the sum total of companies (Beasley 1996). Consequently, the process of choice of the no fraud firms is not random. Maddala (1991) mentions that the logistic analysis is most appropriate when we are in front of two populations having uneven proportions. He mentions that the coefficients of the explanatory variables are not affected by this problem. Only the constant of the model is affected. The correction of the constant is only interesting when it is about a logistic analysis aiming at developing a predictive model of the fraud (Palepu 1986). Therefore, it is not important to correct the constant because our objective is to present an explanatory model and not a predictive one.

Consequently, the model is based on a logistic regression to test our hypotheses.

The following logit cross sectional regression model is used to test the hypothesized relation between board of director independence and the occurrence of financial statement fraud:

$$Fraud = \beta 0 + \beta 1\ Outside + \beta 2\ Family + \beta 3\ Duality + \beta 4\ Out\ tenure + \beta 5\ Growth + \beta 6\ Debt + \varepsilon$$

Where *Outside* is the percentage of the board who are non-employee directors, *Family* is the percentage of the members belonging to the same family, *Duality* is a dummy variable with a value of one if the chairperson of the boards holds the managerial positions of CEO or president and a value of zero otherwise*, Out tenure* represents the average tenure of outside directors on the boards, *Growth* is growth rate of sales between N-1 and N*, Debt* is the ration debt to total assets and ε is an error term.

4. Data and Descriptive Statistics

The question we address in this research is: what is the role played by corporate governance in mitigating financial statement fraud in emerging markets?

To answer this question, we investigate the link between corporate financial statement fraud and the board of directors on a sample of Tunisian firms. We present successively the sample selection and the variables measurement.

4.1 Sample selection

Since our dependent variable is binary, we consider two types of companies, those which committed fraud and those which did not. We shall present respectively the approach adopted to select each group. We collect data on a sample of 64 Tunisian firms, equally balanced between 32 fraudulent matched with 32 non fraudulent firms.

4.1.1 Fraud firms selection

We collect 55 judgments of the fraudulent companies from the major First Instance Courts in Tunisia (Tunis, Ben Arous, Ariana and Manouba), the Court of Appeal and the Supreme Court over the period 2000 to 2007. This phase allowed us to identify companies which suffer from mismanagement or from an inaccuracy as well as to reveal the year of the fraud. We eliminate 16 companies for different reasons: eight went bankrupt, five changed their name and three are financial institutions. After visiting the 39 remaining companies, we were able to collect information both on the characteristics of the Board of Directors and the accounting data on only 32, the seven others refused to give information especially on accounting data for reasons connected to the competition. Table 1 presents the sample and the time period of our data.

To collect the data, we use the judgements from the courts to identify the fraudulent company and the year. To gather information on the firm' accounting statements and the Board of Directors, we visit directly the company. The data relative to the board of directors correspond to the year when the fraud was committed, while the data from accounting statements covers the period which precedes the fraud (one year or two years before).

4.1.2 No-Fraud firm selection

Beasley (1996) retained the below criteria:

- The same stock exchange: the common stocks of a fraud firm and its matched no-fraud firm trade on the same national stock exchange. However, if the fraudulent company is not listed, its matched firm should not be listed.
- The firm size: the matching firm should have a size within ±30% of the current market value of common equity of the fraud firm the year preceding the fraud. Sine in our case, the firms are not listed, we will use the Chen et al (2006), criterion, the total asset.
- The industry: the matching firm should belong to the same industry.
- Time period: the data are collected during the same period for (the fraudulent and its matching firm).

However, Chen et al (2006) mention that a company can be selected as no fraud firm just because it is not yet detected. Certain researchers added another criterion concerning the stability of the performance of the company. The criteria of stability of performance listed in the literature are:

- The follow-up of accruals or discretionary accruals for the no-fraud firm in the three years preceding the committal of the fraud by the fraudulent company (Dechow et al 1996).
- The comparison of accruals with regard to the industry. If total accruals are higher than 1,3 or lower than 0,7 with regard to the average accruals of the industry, the company is removed and replaced by another counterpart (Chen et al 2006).

In our case, the follow-up of the registers which date from 1995 to 2007 and the investigation in the offices of Courts of First Instance of Tunis and Ben Arous allowed us to assure that the counterparts present no case of fraud. Indeed, the registers have the advantage of mentioning briefly the number of investigation, the nature of the problem (for example: accounting fraud etc), the legal text as well as the charged firm.

4.2 Time period

According to the literature, the collecting date is the first year when the fraud was committed (Uzun et al 2004; Chen et al 2006). We follow the same line by collecting our data the year of the fraud. Indeed, in Tunisia, the variability of the characteristics of the board is very weak. Consequently, it would be useless to examine the company during the whole period

witnessing the fraud for variables which, practically, do not change. Therefore, every company belonging to our sample will be only seen once during the year of the fraud.

4.3 The Variables measurement

4.3.1 The dependent Variable

The dependent variable is binary for many studies (Beasley 1996; Helland and Sykuta,2005; Farber 2005; and Chen et al 2006,). It takes 1 if the firm is fraudulent and 0 if not. However, Agrawal and Chadha (2005) use Earnings restatements as a proxy for fraud, while Chapple, Ferguson and Kang define fraud as misappropriation of assets, i.e. the theft of an entity's assets. They use three measures: (a) dichotomous variable, taking the value of 1 if the firm experiences fraud, (b) the total economic loss from fraud reported; or (c) the total economic loss from fraud divided by total assets.

In our case, we opt for a dummy variable taking a value of 1 when a company was alleged to have committed fraud and a value of 0 otherwise. We prefer this measure first because it is the mostly used in the previous studies, and second because we think that the fraud is a binary situation: we are or we are not fraudulent and certainly not in between.

4.3.2 The independent Variables

Four interest variables are selected to approach corporate governance: percentage of outside directors, percentage of family members, duality of CEO and tenure of outside directors. We also choose two other explanatory variables to control for prior-influence: growth of the firm and leverage.

Independence of Boards of Directors

Fama (1980) and Fama and Jensen (1983) pointed out that the mixing of insiders and outsiders in the Board of Directors is crucial for its effectiveness in monitoring the management. Many authors argue that independent directors are better able to monitor managers, which reduce earnings management and the likelihood of financial statement fraud (Beasley 1996; Dechow et al 1996; Klein 2002). Also, recent regulation (Sarbanes-Oxley Act and the recent stock market rules on corporate governance) assume that Firms with outside directors are more effective in monitoring management. Empirically, several researches support the positive effect of outside directors on firm value (Rosenstein and Wyatt 1990), on the reduction of earnings management (Xie et al 2003; Peasnell et al 2005) and on the prevention of financial statement fraud (Beasley 1996; Usun et al 2004; Dunn 2004; Farbe, 2005; and Chen et al 2006).

The Australian Stock Exchange (ASX 2003) defines an independent as a director who is independent of management and free of any business that could materially interfere with or reasonably be perceived to materially interfere with their exercise of independent judgement (Chapple et al 2007)[6]. We measure this variable as the percentage of directors in the board who are non-employee and have no family ties to the management.

CEO duality

Jensen (1993) argues that the CEO cannot perform the chair's monitoring function separate to his or her personal interest. Indeed, separating the chair of the board from the CEO position is an effective monitoring device. Effectively, through his or her power to set the board's agenda, the chair has the ability to exercise significant control over the board. Recent empirical literature gave evidence supporting the association between CEO duality and the likelihood of financial statement fraud (Albrecht, Albrecht, & Albrecht 2004; Farber 2005;

[6] (ASX, 2003) is Corporate Governance Council's Principles of Good Corporate Governance and Best Practice Recommendations.

and Sharma 2004). We expect a positive impact of CEO duality on the probability of fraud. This variable is measured using a dichotomous variable taking the value of 1 if the CEO is also the chair, 0 otherwise.

Family ties

The impact of family ties on fraud was not addressed directly empirically. However, Melis (2005) suggest that the bankruptcy of Parmalat could be family ties. Ghazali and Weetman (2006) document that we assist to strongly imposed decisions when there is a high presence of family members in the board of directors. We expect a positive association between family ties and the probability of fraud. We measure this variable by the percentage of the members of the board belonging to the same family.

Out tenure

Outside directors with longer tenure on the board are more likely to be entrenched with top management, which may increase the probability of fraud. Nevertheless, the years of service of outside directors increase their ability to monitor the management effectively and the prevention of financial statement fraud. Many authors use this variable (Beasley 1996; Ficha and Shivdasanib 2007; and Jia, Ding, Li and Wu 2009) and the results are not consistent. In emerging markets, where the job market is limited, outside directors are more likely to coalesce with the management in order to keep their position. Hence, we expect a positive effect of the out tenure of outside directors on the probability of fraud. This variable is measured by the average tenure of outside directors on the board.

4.3.3 The control variables

To control for prior influence factors that may affect the probability of fraud, we add two other variables: growth and leverage[7].

Firm growth

Usually, the managers of high growth firms have no incentive and do not commit fraud, but under market pressure and to maintain the appearance of consistent growth they may be induced to misstate financial statement (Summers and Sweeney 1998). Loebbecke et al (1989) and Bell et al (1991) mention that if the firm knew a fast growth, the manager would rather falsify financial status for the periods of decline to mislead people by persuading them that the growth is stable. This growth can also affect the composition of the board (Loebbecke, Eining and Willingham 1989; and Bell, Szykowny, Willingham 1991; and Johnson, Harley and Tian 2009). This variable is measured by the annual growth of sales the year preceding the fraud.

Debts ratio

Highly levered companies are more likely to violate their debt covenant contracts. Moreover, the financial difficulties increase the risks of manipulation, and consequently the probability to commit fraud (Chen et al 2006; and Johnson et al 2009). This variable is measured by debt to total assets ratio.

Firm size

According to Jensen and Meckling (1976), large firms have higher agency costs. Moreover, large firms are complex and are exposed to problems of communication and coordination (Daboub, Rasheed, Priem, and Gray 1995). Finney and Lesieur (1982) assert that structural controls are difficult to implement in large firms. In addition, the number of transactions is larger as the size if the firm increases. As a result, the probability of fraud should increases

[7] See Kinney Jr (1986)

with firm size. Table 2 summarizes the code, the definition and the measurement of the variables used in this study.

5. Results and discussion

The objective of our empirical investigation is to test to what extent the governance structure of a Tunisian firm has an impact on the likelihood of committing fraud. We conduct a bivariate analysis, via a mean comparison between fraudulent and non fraudulent companies, and a multivariate analysis through a logistic regression. The results of these analyses will be presented in the following sections

5.1 Results of the descriptive and bivariate analyses

Tables 3 to 5bis display the results. Table 3 presents the descriptive statistics. We can see from that table that the groups differ according to all characteristics, except their total assets. However, in order to confirm these results we test for their statistical significance.

To test for the statistical difference between the two groups, we run mean difference analysis between fraud firms and non fraud firms. Since the test to be used depends on the type of variable measurement (nominal or scale) and the normality of its distribution, we run three analyses. Table 4 shows the results of the normality test, Tables 5 displays the results of the tests of mean difference and finally Table 5bis presents the results of Chi-square of proportion difference.

The results show a significant difference between fraud and non fraud firms for the percentage of family members on the Board, the average tenure of outside directors, the sales growth rate and the debt to asset ratio. No statistical difference was shown for the outside directors and firm size. Overall, the mean comparisons suggest a systematic differences between fraud companies and no-fraud matching companies. The fraud companies have a higher percentage of family members, a longer tenure of outside directors and a higher growth rate.

However, these results should be viewed with caution, when making inferences about the relation between governance attributes and corporate fraud. The pairwise tests implicitly assume that other potentially relevant factors are fixed, which may not be the case. For this reason and before drawing any conclusion, we have to know the sign and the power of the firm's characteristics on the probability of fraud. The next section will give us the answer, using a *logit regression* to test our hypotheses in a multivariate framework.

5.2 Results of the Logit analysis

Table 6 displays the results of the logistic regression for the full sample of fraud and no-fraud companies. The logit regression shows that the presence of family members and tenure of outside directors increase the probability of committing fraud. It also shows a significant impact of growth rate and debt ratio on the probability of fraud. However the outside directors, the CEO duality and the firm size have no impact on the probability of fraud.

Consistent with our hypothesis, the percentage of outside directors is lower for fraud companies than no-fraud companies (H1), but not statistically significant. Consequently, our hypothesis is rejected. This result is in accord with those of Chtourou, Bedard, and Courteau (2001) and Park and Shin (2004), who didn't find a significant relation between board independence and the level of earnings management. They argued this result by the fact that the Canadian labor market for the outsides directors is not enough developed. We can draw the same conclusion for the Tunisian market. Another explanation can be given relative to the availability of the members. Indeed, the outside director is recruited according to his reputation. Consequently, the directorship in the other companies is going to increase what is going to influence his availability and thus, its efficiency (Sarkar, Sarkar and Sen 2006).

The results are consistent with H2, since we found a positive and significant coefficient for the family variable. Hence, firms with a large proportion of the members belonging to the same family commit more fraud. Consequently, this variable is important in the explanation of the fraud and confirms the theoretical reasoning that membership from the same family creates solidarity within the Board and lets the Board of directors' decisions dependent on a particular group.

The tenure of outside directors is also positive and significant (at 1% level). This result confirms the idea that the more the directors keep their position on the board, the higher is the probability of fraud. This situation is particularly true in emerging market, where the position of board member rely more on affiliation and connection than on competence. The absence of job market for directors underpins this situation.

The duality variable was not significant. This result is expected in the Tunisian context, since most of the companies opt for the duality of the functions instead of the separation. This argument is confirmed by the descriptive analysis according to which 75% of companies choose the duality of the two functions.

The results on the control variables are mitigated. The growth variable has the expected sign, but the debt and firm size have an opposite sign. This result can be explained by the Tunisian context where the firms rely heavily on debt. The non significant coefficient for the firm size can be explained by our sample selection, where the matching criterion of fraud firm and no-fraud firm was made according to size.

6. Conclusion

To the best of our knowledge, our paper is the first to address the link between the board of directors' independence and financial statement fraud in MENA countries. We investigate a sample of 64 Tunisian companies.

Our results support the importance of family members and tenure of outside directors in increasing the probability of fraud. We show also that the presence of outside directors is not an efficient mechanism to prevent from financial statement fraud.

Our results give credit to the promulgation of regulation on the role of Boards of Directors (financial security law of 2005) and the adoption of a guide for good governance by informal organizations like IACE (Arab Institute of firms Managers) and ITA (Tunisian Institute of Administrators). Moreover, we show that it is important to look closely at two specific aspects of governance: the family members and the tenure of outside directors.

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Figure 1: The Investigation Procedure and the Judgement Steps in Tunisian Legislation

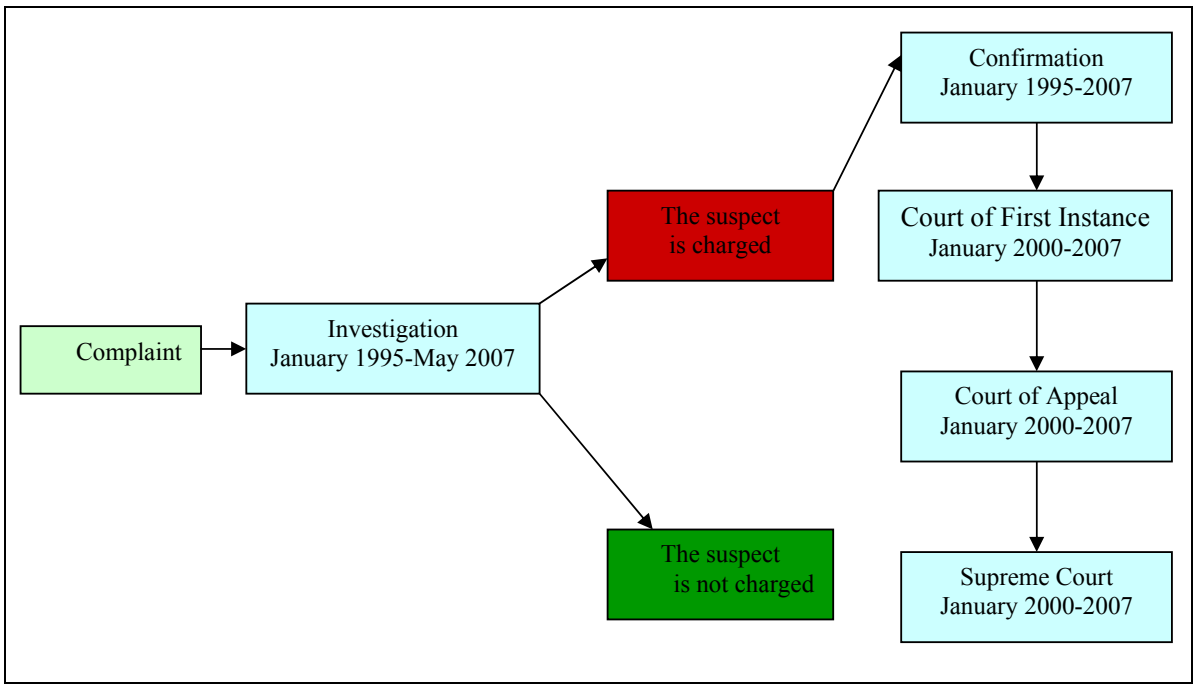

Table 1: Sample Selection by Year and Industry

year Industry	1989	1991	1995	1996	1998	2000	2002	2003	**Total**
Industry	2	1	4	3	2	3	1	2	**18**
Trade					1				**1**
Agriculture			1		1	1			**3**
Health						3		2	**5**
Hotel				2	1		2		**5**
Total	**2**	**1**	**5**	**5**	**5**	**7**	**3**	**4**	**32**

Table 2: Variables Definition

Fraud	*= 1 when the company was alleged to have committed fraud*
	= 0 otherwise
Outside	*= Percentage of the board who are non-employee directors*
Family	*= Percentage of the members belonging to the same family*
Duality	= 1 if *duality of CEO and president of the Board*
	= 0 if not
Out tenure	*= Average tenure of outside directors on the boards*
Growth	*= Sales (N) – Sales (N-1) /Sales (N-1)*
Debt	*= Ratio of debt to total assets*
Size	*= Ln of total assets*

Table 3: Descriptive Statistics

		N	Mean	Std. Deviation	Std. Error Mean
Percentage of Outside directors	1	32	,4191	,33298	,05886
	0	32	,5214	,28938	,05116
Percentage of family members on the Board	1	32	,5755	,34890	,06168
	0	32	,2984	,29888	,05284
Average tenure of outside directors	1	32	4,8594	2,56287	,45306
	0	32	3,7344	1,53971	,27219
Sales growth rate	1	32	,9839	,64579	,11416
	0	32	,4777	,56098	,09917
Debt to asset ratio	1	32	,5549	,28399	,05020
	0	32	,7271	,20564	,03635
size	1	32	12,8359	1,12954	,19968
	0	32	12,7677	1,06533	,18833

Notes: Fraud firm = 1; No fraud firm = 0

Table 4: Normality Kolmogorov-Smirnov Test

	Fraud group n = 32		*No fraud group n = 32*	
	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)	Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)
Percentage non-employee directors	0,922	0,364	0,606	0,856
Percentage of family members on the Board	0,789	0,563	0,9	0,393
Average tenure of outside directors	1,008	0,262	1,214	0,105
Sales growth rate	0,514	0,954	1,284	0,074
Debt to asset ratio	0,857	0,454	1,432	0,033
Ln of total assets	,649	,793	,574	,897

Table 5: Mean Difference Test

Panel A: Independent Samples Test for scale variables

		Levene's Test for Equality of Variances		t-test for Equality of Means						
Variables		**F**	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Diff**	**95% Confidence Interval of the Difference Lower**	**Upper**
Percentage non-employee directors	Equal variances assumed	1,173	,283	-1,312	62	,194	-,10234	,07799	-,25823	,05355
	Equal variances not assumed			-1,312	60,818	,194	-,10234	,07799	-,25829	,05361
Percentage of family members on the Board	Equal variances assumed	1,344	,251	3,411	62	,001	,27703	,08121	,11469	,43938
	Equal variances not assumed			3,411	60,572	,001	,27703	,08121	,11461	,43945
Average tenure of outside directors	Equal variances assumed	5,423	,023	2,129	62	,037	1,12500	,52853	,06848	2,18152
	Equal variances not assumed			2,129	50,799	,038	1,12500	,52853	,06383	2,18617
Sales growth rate	Equal variances assumed	,634	,429	3,348	62	,001	,50622	,15122	,20394	,80850
	Equal variances not assumed			3,348	60,811	,001	,50622	,15122	,20382	,80862
Debt to asset ratio	Equal variances assumed	10,577	,002	-2,777	62	,007	-,17214	,06198	-,29605	-,04824
	Equal variances not assumed			-2,777	56,499	,007	-,17214	,06198	-,29629	-,04800
Ln of total assets	Equal variances assumed	,012	,914	,248	62	,805	,06818	,27448	-,48049	,61686
	Equal variances not assumed			,248	61,789	,805	,06818	,27448	-,48053	,61689

Panel B: Non parametric test for scale variables

	Percentage of Outside directors	**Percentage of family members**	**Average tenure of outside directors**	**Sales growth rate**	**Debt to asset ratio**	**Ln of total assets**
Mann-Whitney U	406,000	288,000	314,000	301,500	335,000	500,000
Wilcoxon W	934,000	816,000	842,000	829,500	863,000	1,028E3
Z	-1,427	-3,032	-2,680	-2,827	-2,377	-,161
Asymp. Sig. (2-tailed)	,154	,002	,007	,005	,017	,872

Notes: a. Grouping Variable: Fraud

Table 5 bis: Chi-Square Tests for Dichotomous Variable (Duality of CEO and president of the Board)

			Duality of CEO and president of the Board		
			0	1	Total
Fraud	0	Count	10	22	32
		% within Fraud	31,2%	68,8%	100,0%
		% within Duality of CEO and president of the Board	62,5%	45,8%	50,0%
	1	Count	6	26	32
		% within Fraud	18,8%	81,2%	100,0%
		% within Duality of CEO and president of the Board	37,5%	54,2%	50,0%
Total		Count	16	48	64
		% within Fraud	25,0%	75,0%	100,0%
		% within Duality of CEO and president of the Board	100,0%	100,0%	100,0%

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1,333[a]	1	,248		
Continuity Correction[b]	,750	1	,386		
Likelihood Ratio	1,344	1	,246		
Fisher's Exact Test				,387	,194
Linear-by-Linear Association	1,312	1	,252		
N of Valid Cases[b]	64				

Notes: Fraud firm = 1; No fraud firm = 0

Table 6: Logistic Regression Results

Coefficients	Independent variable	Predicted relation	Estimated coefficients	Standard errors	Wald	p value
β_0	**Intercept**	**none**				
Board independence						
β_1	***Outside***	**(-)**	-1,248	1,221	1,044	,307
β_2	***Family***	**(+)**	1,819	1,011	3,240	,072
β_3	***Outtenure***	**(+)**	,440	,166	7,053	,008
β_4	***Duality***	**(+)**	-,202	,792	,065	,798
Control variables						
β_5	***Growth***	**(+)**	1,323	,546	5,863	,015
β_6	***Debtratio***	**(+)**	-2,352	1,363	2,979	,084
B_7	***Size***	**(+)**	-,115	,107	1,163	,281

-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
59,489[a]	,367	,489

Notes: Fraud is dichotomous variable taking a value 1 when the company was alleged to have committed fraud and a value of 0 otherwise ; Outside = Percentage of the board who are non-employee directors ; Family = Percentage of the members belonging to the same family Duality = 1 if duality of CEO and president of the Board and 0 if not ; Out tenure = Average tenure of outside directors on the boards; Growth = Sales (N) – Sales (N-1) /Sales (N-1). Debt = Ratio of debt to total assets ; Size = Ln of total assets