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**THE ROLE OF CORPORATE GOVERNANCE
IN FINANCIAL STATEMENT FRAUDS**

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Introduction

According to the KPMG Fraud Survey, published in 2003¹, and to its following developments (2004, 2006, 2008, 2009), the number of frauds the companies had to face constantly increased compared to the previous years. Specifically, from these reports, that consider all the types of fraud that can occur within an organization, it emerges that the financial reporting frauds in 2003 were more than doubled compared to 1998, increasing from 3% up to 7% (the proportion is based on the total types of frauds which can take place in a company). Besides, further surveys on this topic show an increase in fraud occurrence every year.

Following the definition provided by Albrecht *et al.* (2007), fraud and corruption “are cancers that eat away at society’s productivity”, given that they reduce the effectiveness and efficiency of economies². Among all the frauds, financial statement frauds are the most costly, regarding both the amount deceived compared to other frauds and their consequences. In fact, the detection of a financial statement fraud implies the decline of the firm value on the market and the loss of revenues for the company itself. Moreover, the whole market will suffer the reaction of the investors who will start being less trustful towards the market and, as a consequence, the companies will have more difficulties in obtaining the financial resources needed for their development or they can access to these financial resources only at a higher cost (Lev, 2003).

Aiming to find some ways to prevent frauds, researchers have started to analyse the factors that are related to them in order to implement preventive actions and mechanisms to avoid, or at least reduce, the possibility of the fraud occurrence (Albrecht *et al.*, 2007; Bar-Gill and Bebchuck, 2003; Hemray, 2004; Lev, 2003; Rezaee, 2002). Specifically, a large part of the international literature has begun to focus the attention towards the relationship between some mechanisms of corporate governance and the fraud occurrence (Caplan, 1999; Beasley *et al.*, 2000; Young, 2001). The interest is connected to the role of corporate governance mechanisms to solve governance problems and exercise a control function over the different actors of the firm (Dey, 2008). These studies suggest the presence of a link between these two factors. According to this view, Loebbecke *et al.* (1989) point out the importance of the audit committee and board governance mechanisms in decreasing the likelihood of financial statement frauds. Later, Beasley (1996) analyzes the relationship between financial frauds and the board composition, finding

¹ The KPMG Fraud Survey was conducted in the United States on a sample of more than 450 public companies.

² From here on, the term fraud will be used only to indicate financial statement fraud, the only type of fraud considered in this work.

higher percentages of outside directors in no-fraud firms, compared to fraud ones. Similarly, Uzun *et al.* (2004) suggest that the board composition and the structure of a board's oversight committee are correlated with the fraud occurrence. Coherently with this perspective, Beasley *et al.* (2000) find a positive correlation between the differences in the adopted corporate governance mechanisms and frauds committed in different industries.

Many other studies, which will be thoroughly analysed in the following sections, analyze fraud occurrence in relation with some mechanisms of corporate governance. For example, Faber (2005) studies the fraud in relation with board and audit committee characteristics; Dechow *et al.* (1996) in relation with board features; Peng and Roell (2006) and Erickson *et al.* (2006) in relation with executive compensation system).

As previously described, even though many corporate governance mechanisms were taken into consideration to understand their relation with financial statement frauds by different studies in literature over the past years, to our knowledge, no empirical studies considered the whole set of corporate governance mechanisms in relation with financial statement fraud (Corporate Governance Indexes including a numerous variety of governance features were build by some authors to test their impact on performance, see Gompers *et al.*, 2003; Brown and Caylor, 2004; Larcker *et al.*, 2007). Due to these reasons, the base line of this work is the relationship between financial statement frauds and corporate governance as a whole. This relation will be analyzed within the agency theory theoretical framework (Jensen and Meckling, 1976; Fama, 1980; Fama and Jensen, 1983a; Eisenhart, 1989; Demsky, 2003) and within the conflicts of interests problems, arising among different actors of the firms in those realities not characterized by the separation between ownership and management (evidence of different corporate governance systems); in both the two contexts some figures can benefit of information asymmetry to achieve their personal aims (La Porta *et al.*, 1999; Dennis and McConnell, 2003; Dey, 2008). We argue that the agency problems, when strong and made worse by a weak corporate governance of the firm, as well as conflicts among the main stakeholders of a firm, end up in fraudulent behaviours by those who can take advantage of information asymmetry and gain personal benefits from them. Thus, the financial statement fraud is the result of high agency problems and high conflicts of interests not solved by the company.

According to the previous considerations, this research is organized around three main research questions: I) is the relationship between Corporate Governance and Financial Statement Frauds influenced by different corporate governance systems? II) Which is the impact of the corporate governance on financial statement frauds? III) Do the different dimensions of corporate governance have different impact on financial statement frauds?

Some managerial implications can arise from finding an answer to these questions. Specifically, some guidelines can be traced, in order to establish some fraud preventing mechanisms and actions by those stakeholders and policy makers interested in safeguarding their interests and preventing frauds.

The remainder of the work is organized as follows: chapter 1 reviews the literature and provides some definitions on the main topics of the research, to specify, in turn, the constructs used in the empirical analysis; chapter 2 proposes the hypothesis within the developed theoretical framework; chapter 3 describes the sample and the data; chapter 4 explicates the variables and presents the methodology to test the hypothesis; finally, chapter 5 shows the obtained results and the conclusions, pointing out the limits of the work and the further researches on the developed issues.

CHAPTER 1

1. Literature Review

The purpose of this work is to analyse the relationship between the corporate governance and the financial statement frauds. The theoretical framework to explain this relation will be developed with the lens of both the agency theory and the conflict of interests theory, due to the consideration that the typical agency problems and the conflict of interests, evidences of different corporate governance systems, arise, alternatively, in realities characterized in the first case by the separation between owners and managers and in the second case by the presence of a dominant blockholder. In both contexts, an opportunistic behaviour of the management or the controlling shareholder can take place. In many cases, in fact, the evidence demonstrates how financial statement frauds are mainly due to the opportunistic behaviour and the utilization of information asymmetry by these two types of actors to achieve personal benefits.

In the following paragraphs, first the agency problems and the conflict of interests that can arise in a firm are analyzed, then a definition of financial statement fraud is provided and, finally, a corporate governance definition and overview is given.

1.1 Agency theory: managers versus owners

Already in 1933, Berle and Means noticed how the number of shareholders of a company was increasing. More specifically, the Authors pointed out how as much as the number increased as much as their influence within the company decreased due to the fact that professional managers took control. So, where ownership is sufficiently sub-divided, the management can become a self-perpetuating body even though its share in the ownership is negligible (Means, 1931).

The separation between ownership and management in the company, according to the Agency Theory, leads to a misalignment of interests between shareholders (the principal) and the management (the agent) because the formers' aim is to maximize the share value and create value for the company and the latter's main goal is to reinforce their position and their power within the firm, increasing also their remuneration and their personal benefits (Jensen and Meckling, 1976). The owners' interests, in fact, are explicated in the maximum profit compatible with a reasonable

level of risk, distributed earnings deriving from the profit achieved and, finally, stable market conditions. On the other hand, managers are motivated by the pursuit of prestige, power and personal gains (Myers, 1983, Walsh and Seward, 1990).

The separation between ownership and management is a typical evidence of those companies characterized by a dispersed ownership (Berle and Means, 1982), in which the top management wants to gain personal benefits at the expenses of the shareholders, who have just little incentives to monitor managers due to the small portion of firms' shares detained.

Therefore, the agency relationship between owners and managers is characterized by conflicts of interests and information asymmetry (Ricketts, 1987; Seal, 2006).

This misalignment of interests entails the agency costs, which can be defined as the costs of resolving the conflict of interests between managers and shareholders, due to the separation of ownership and control in the corporation (Fama and Jensen, 1983). In this context, the owners have reasons to set up mechanisms to control managerial actions and bound bad managerial behaviour (Jensen and Meckling, 1976), and corporate governance structure should help in that through the mitigation of the agency conflicts (Dey, 2008).

To reduce these costs, different tools were used over the years. In the last decade, the stock options, a type of managerial incentive contract, were considered one of the most useful tools (a deeper analysis of this toll will be given in paragraph 1.4.3). The largest body of US corporate governance literature regarding accounting, in fact, concerns the role of financial accounting and managerial incentive contracts in reducing the agency problems and in aligning the different interests of managers and owners, given that in a large number of American firms ownership and control are separated. These considerations have led many authors to develop the so called Optimal Contracting Theory, which states how the compensation arrangements for managers are formulated to reduce this gap in interests (Jensen and Meckling, 1976; Fama, 1980). Recently, investors and academics have begun to criticize the stock option incentive system because on their opinion it "reflects self-dealing by managers and the inability of corporate governance mechanisms in monitoring executives" (Sautner and Weber, 2006).

Thus, beyond manager compensation systems, other studies have focused on single corporate governance mechanisms effectiveness at reducing agency costs. The Board of Directors is "specifically charged with representing the interests of shareholders" (Denis and McConnell, 2003), thus, beginning with Fama and Jensen's (1983) research, which theorized that the BoD is the most relevant internal control mechanism when effective, numerous studies have concentrated their attention on this firm control body and its effectiveness at decreasing agency problems (see Hermalin and Weisbach, 2002; Giannetti, 2003).

From what we have seen, within the agency theory framework, in a dispersed ownership context, the separation between principal and agent can lead the manager to behave following only his/her interests, when not well controlled (Dey, 2008). This self-interested behaviour can take place through activities useful for the manager, but not optimal for the shareholders, such as the consumption of firm's resources for personal benefits and assets, the avoidance of risky investments and, in the worst case, the manipulation of financial statement figures.

1.2 Agency theory: controlling shareholders versus minority shareholders

In companies where the ownership structure is concentrated, the agency problems, deriving from the separation between ownership and control, do not exist or, at least, they are strongly mitigated by the presence of the large blockholder which has greater incentives to monitor managers' behaviour (La Porta and Lopez-de-Silanes, 1999). In this context, the main problems derive from the conflict of interests between the controlling shareholder and the minority shareholders. The concentrated ownership is characterized by the presence of a large blockholder that has greater influence in firm's decisions than the other shareholders (Shleifer and Vishny, 1986).

Actually, in most of the cases, the large shareholders also manage the company and are active in its governance, eliminating the typical agency problem between the principal and the agent. Thus, in this context, the controlling shareholder's intent to gain private benefits at the expense of minority shareholders and the other stakeholders of the firm generates conflicts of interests between these subjects (Bebchuck and Fried, 2003).

Moreover, the large Blockholder, many times, also owns a percentage of shares in companies connected with the firm in which he or she detains the control, creating the phenomena of the pyramidal group – typical Italian evidence – (Bianco, Bianchi and Enriques, 1996). In these cases, if the reporting requirements imposed as disclosure to the firm are weak, it will become difficult to understand the all amount of ownership detained directly and indirectly by the Blockholder who has as a result an effective higher voting power exercised by the controlling shareholders (Kho *et al.*, 2008).

Thus, this conflict of interests leads to costs for the minority shareholders due to the control that has to be exercised over the large shareholder power. The conflict and its costs should be reduced through the control of other investors, but the main problematic relies on the individuation of these investors: who should be appointed of this duty and, moreover, which should be his/her purpose in monitoring the controlling shareholders is still not clear (Shleifer and Vishny, 1986;

Kho *et al.*, 2008). Because of these reasons, the control over the majority shareholders is not implemented very often.

When the ownership is concentrated, the interests' conflicts and their costs are even stronger whenever the investor protection in the country is poor (Stulz, 2005). Minority shareholders, in fact, in countries with poor protection towards them, lose control on the large shareholder and management behaviour and, as a consequence, become passive actors within company (Kho *et al.*, 2008). When the minority shareholders' protection is poor, in fact, the controlling shareholders can easily extract large private benefits (Johnson *et al.*, 2000). The cost of extracting private benefit increases wherever laws and regulation protection is high, which can be translated as a greater say to minority shareholders, possibility to recover damages from controlling shareholders, and requirements for more disclosure (Stulz, 2008).

Therefore, the relationship between controlling shareholder and minority shareholders is characterized by conflict of interests and information asymmetry (Denis and McConnell, 2003; Thomsen, 2006).

In companies with concentrated ownership, the transparency of financial information is often reduced and the control mechanisms are weak (Fiori, 2003). The transparency is costly, but it makes harder for the controlling shareholders to hide the consumption of personal benefits (Jin and Myers, 2006). The laws on disclosure can be considered as an element of country-level governance useful in reducing the conflict of interests, and the firm-level disclosure should be seen as part of a firm's corporate governance (Kho *et al.*, 2008). Leuz, Nanda e Wysocki (2003) demonstrated that country-level governance has an effect on the information conveyed to investors through accounting numbers. When the transparency is not effective, information asymmetries between majority shareholders and minority shareholders arise (La Porta, Lopez-de-Silanes and Shleifer, 2001).

1.3 Financial Statement Fraud

Some academics consider management fraud and financial statement fraud as synonymous (Elliott and Willingham, 1980; Robertson, 2000), due to the fact that the financial statement fraud implies the involvement of the management both in producing the financial statement and in the responsibility of the financial report process. Instead, considering that financial statement frauds imply the involvement of the management but management frauds do not always involve financial statement records, and it is not always possible to highlight them, we posit that they cannot be considered as synonymous. Thus, in this work, we will follow the literature that makes a clear

distinction between these types of frauds. According to these considerations, financial statement fraud can be considered as “manifestation of the underlying dynamics of management fraud” (O’Gara, 2004).

International literature, practitioners, and official pronouncements have provided a significant number of financial statement fraud definitions. Actually there is no a unique definition of “fraud” or, more specifically, of “financial statement fraud” which is recognised worldwide, neither from a legal point of view. Most of the definitions, given over the years, derive from official documents produced by authoritative bodies, practitioners and academics. The definition provided by the Association of Certified Fraud Examiners states that financial statement fraud is “the intentional, deliberate, misstatement or omission of material facts, or accounting data which is misleading and, when considered with all the information made available, would cause the reader to change or alter his or her judgement or decision”. Following this perspective, in this work we will consider financial statement frauds as voluntary misstatements or omissions of amounts or information in financial statement to deceive financial statement stakeholders, in particular investors and creditors (Rezaee, 2002; Fiori 2003; Tiscini and di Donato, 2005). In fact, most of the time, financial frauds are realized through the intentional elimination of useful and important information, manipulation of the company accounting data or, in the worse cases, through the falsification of documents. All these actions are implemented with the intention of deceiving, misleading or injuring the readers of the financial statement, thus stakeholders of the firm. The users of financial statement are in fact broad and they can be internal (employees, internal auditors, etc.) or external (investors, creditors, external auditors, etc.) to the firm, and, when a financial fraud occurs, they are the main victims of it.

The reason of perpetrating a financial statement fraud can rely on different kind of motives, which can be pursued for the interest of the company itself, such as obtaining credit or additional capital deceiving the other part, maintaining a positive valuation from the market, solving temporary financial difficulties, or can be pursued by the managers for their own interests, such as increasing personal compensation, using company’s assets for personal use or maintaining the current position within the firm (Rezaee, 2002). The opportunity of implementing a financial statement fraud can be instead related to the lack of efficiency and responsibility of the corporate governance system of the firm, which creates an environment that increases the opportunity to engage in manipulation actions.

In studying frauds, the focus can be on the likelihood of their occurrence or on the impact. We will focus on both the occurrence and the impact.

Following the definition of the theoretical construct, financial statement fraud can occur through different implementation practices, such as falsification, alteration or manipulation of financial documents and records, intentional omission or misrepresentations of events or transactions or any other information relevant for the financial statement, deliberate misapplication of accounting principles, policies or procedures, inadequate disclosures concerning accounting principles of accounting records or amounts (Rezaee, 2002). The manipulation can occur by an accounting record, without any effect on cash flows or on the real dimension of the firm, or by real, involving a change in the firm's level of investment or operating activities, both with an intention to impact the reported results (Lev, 2003). Thus, aligned with the study of Beasley, Carcello, Hermanson and Lapides (2000), we considered the following financial statement fraud techniques in our analysis:

- Improper revenue recognition: creation of fictitious revenue transactions such as premature revenue recognition, improper cut-off sales, unauthorized shipments sham sales;
- Overstatement of assets: capitalization of expenses as assets, usage of higher market value to increase the value of the asset. Accounts receivables, inventories, property plant and equipment, cash and patents are the asset accounts most common to be misstated;
- Understatement of Expenses/Liabilities: underestimation of pension liabilities, insufficient allowance of bad debt expenses, inadequate loss loan reserve, not adjusting in securities for decrease in the market value, failing in accrue warranties or commission liability, improper deferral of expenses;
- Misappropriation of assets: registration of fictitious assets or asset not owned;
- Inappropriate disclosure: it occurs whenever there is not a financial statement line item effect due to improper or omitted disclosure on the items or on the related-party transactions, changes in accounting principles less transparent;
- Other miscellaneous techniques: they can impact on equity account records, related-party transactions, misclassification of gains.

Financial statement frauds are not easy to be detected due to their way of implementation: there are no evident and typical operations or characteristics that can indicate the presence of a fraud. They are usually masquerade through normal accounting records and transactions, and they can be detected only through deeper controls and analysis. According to Rezaee (2002), a high-quality financial report can be achieved when there is a well-balanced functioning system of corporate governance, which includes six groups: the Board, the audit committee, the top management team (CEO, CFO, and controllers), the internal auditors, the external auditors and the governing

bodies. Thus, when a fraud occurs, serious concerns raise about the role of these corporate governance bodies, because usually the responsibility of detecting and preventing frauds is attributed in a first glimpse to them. The main problems in preventing and detecting frauds through these bodies rely on the fact that, most of the time, they are involved in the fraud itself and they are part of the fraudulent action. This fact is particularly true for the management, more times than for the other bodies.

The problems generated by frauds rely mainly on the absence of trust of the investors toward the market, generated by the lack of quality and fairness in the financial information provided by the companies, thus making the market less efficient. Cases of fraudulent financial reporting impact on the credibility of the market, on the financial statement process, and pose questions on the role of management, auditors, regulators and analysts in it. This fact lead to a major problem in the market: if investors start dismissing the confidence of the market itself, all the firms, thus the whole economy, will suffer because the market is the main way to be financed for the firms. That's why, fraud, which increased considerably in number in the last two decades, have become more and more studied over the recent past both by academics and practitioners.

It is not possible to define the exact cost of financial fraud, mainly for two reasons: first, only a few frauds are discovered, and, second, most of the time, companies do not reveal the fraud discover in order to preserve their image and reputation (Rezaee, 2002). Another relevant indirect cost of fraud relies on the change of management that occurs after the detection of the fraud. The top management figures, generally involved in the fraud, are replaced with new top management, which implies the lost of experienced people, their replacement and the time for the new management to get involved in the firm.

1.4 Corporate Governance

1.4.1 Corporate Governance definition

A wide number of studies take into consideration the corporate governance of the companies or, at least, some aspects of it. Cycles of corporate governance are related to corporate failure and to board and executive negligence revealed when a long period of economic expansion is replaced by a recession, thus cycles of systemic governance failure occur when economic prosperity is followed by a crises (Clarke, 2007). For this reason, in order to have a clear framework in which the work will be developed, we have to provide a definition of corporate governance.

Both academics and institutional bodies provided definitions of corporate governance over the

years. The UK Report of the Committee on the Financial Aspects of Corporate Governance defines corporate governance as “the system by which companies are directed and controlled” (Cadbury, 1992). In 2000, still Cadbury, in another report, gives a broader definition: “Corporate governance is concerned with holding the balance between economic and social goals and between individual and communal goals. The governance framework is there to encourage the efficient use of resources and equally to require accountability for the stewardship of those resources. The aim is to align as nearly as possible the interest of individuals, corporations and society”.

Over the years, other more specific definitions were provided by different academic authors. Following Denis and McConnell (2003), corporate governance can be defined as “the set of mechanisms – both institutional and market-based – that induce the self-interested controllers of a company to make decisions that maximize the value of the company to its owners”. In other words, “Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment” (Shleifer and Vishny, 1997). Along this path of contributes, Larcker *et al.* (2007) define corporate governance as “the set of mechanisms that influence the decisions made by managers when there is a separation of ownership and control” and Rezaee (2002) considers corporate governance as the set of legal and institutional mechanisms having the aim to protect the shareholders’ interests and to reduce the agency costs due to the separation between ownership and control.

A deeper analysis shows that these definitions of corporate governance are strictly connected to the Anglo-American reality, characterized mainly by the dispersion of ownership among many different subjects. From a performance measurement perspective, the primary goal of a firm in this kind of system is to create value for the shareholders (the so called *Shareholders’ approach*, according to Rappaport, 1986) and all the other stakeholders involved in the company environment are not considered as the recipients of the value creation and do not benefit of any kind of protection. These definitions threshold the boundary of the corporate governance actions within the agency theory context, where the main problem relies on the conflict between managers and shareholders due to the separation of ownership and control.

Nevertheless, the actors in “the corporate governance game” (Demskey, 2003) cannot be limited at just shareholders and managers. We should take into consideration also auditors, boards of directors, investors, policy makers and even others in order to study and analyse the different realities that occur worldwide. All these actors have a role in the company and interact together, generating relationship and linkages among themselves. This implies a wider definition of corporate governance, which takes into account all the actors of the firm. Especially in non

Anglo-American countries, relations with main stakeholders are particularly meaningful for companies and the firm is seen as an entity - useful to the whole society - which has to operate considering all the interests of the stakeholders involved in the firm itself (the so called *Stakeholders' approach*, according to Freeman, 1984). Moreover, the recent scandal cases showed how different stakeholders were involved actively or passively in frauds. Because of these reasons, in this work, following the contribute offered by Hanson and Song (2006), we consider the corporate governance as a “bundle” of internal and external mechanisms, aiming to reduce the interests' misalignments among the firm and the different stakeholders who have relationships with the firm itself.

1.4.2 Corporate Governance Systems

Before proceeding in our work, we should give a clear overview about the characteristics of the different corporate governance systems to better understand which governance mechanism should be used in each system to reach a higher efficiency. In fact, according to Franks and Mayer (1996) and Shleifer and Vishny (1997), the efficiency of these mechanisms in solving corporate agency problems depends mostly on the type of corporate governance system adopted by the firm.

In turn, the system of corporate governance adopted by the firms depends on different variables. Among all, the most important ones rely on the national, regional and cultural differences, the ownership structure, the industry and the market environment, the size and the structure of the firm, the CEO tenure, attributes and background (Huse, 2005).

The question that many authors tried to answer is which corporate governance system is most efficient. Actually, there is no unique point of view on this issue and probably there are different “perfect” systems depending on the context in which the firm operates. Clarke (2007) states that “the saga of corporate governance crises and reform does not convey the inherent superiority of a system above the others”. Moreover, as said before, corporate governance is a complex concept which includes and impacts on different aspects of the firm, thus depending on which issue is analyzed probably we will have different optimal corporate governance system. To prove that there is no a perfect system of corporate governance among all, we need to consider all the reforms (such as the Sarbanes Oxley Act, OECD guidelines, the corporate national codes and so on) that took place over the years in the different countries in response to financial crisis, failures, crashes and fraud scandals.

In an international scenario, it's possible to affirm there are numerous kinds of corporate

governance systems, but in our analysis, two different types of corporate governance systems will be considered. This does not imply that only two types of corporate governance model exist. The applied simplification of reality will allow defining two different systems referring to the most common characteristics that occur within the firms in different and opposite contexts. Moreover, we highlight that, in general, we cannot bound a corporate governance system and classified it strictly, because in each country and in each context firms present different features. The two models will be identified according to the main features that characterize them and according to previous literature.

The differences in corporate governance systems are mainly due to the dissimilar institutional and cultural contexts in which the firm operates and its corporate governance relationships take place (Daniels and Morck, 1995; Roe, 1993). In fact, there are many different corporate governance systems around the world characterized by different features, each of them with points of strengths and points of weakness.

The international literature conveys on the idea that there is a clear divergence between *outsider* and *insider* systems. The first system is the one predominant in the Anglo-American countries, while the second one is the most diffused in Europe and Asia (Coffee, 2001).

Following this path, the first corporate governance system we take into account refers to the so called “market-oriented” or *outsider* system, characterized by a dispersed ownership in which the shareholders are passive actors with no active control over the management decisions and actions. In fact, the individual shareholder will have no, or at least a little, incentives to monitor and control the managers’ activities. The owners nominate the Board of Directors to provide these functions. Actually the BoD components, who hire the managers, are divided into executive and non executives. The latter should exercise the control function. Moreover, in this kind of systems, the market exercises a control function as well: the likelihood of takeovers is a strong constraint for the managers who know that in case of a merger, the possibility to lose their jobs, and the related benefits, is very high. In this system, the role of disclosure is the necessary condition for the proper market functioning (Kojima, 1998; Rajan, Zingales, 2000). In fact, companies are usually financed mainly by equity and the most relevant shareholders can be identified in institutions, mutual funds and pension funds (Nestor and Thompson, 2000), while the bank finance is usually a short-term form of financing. The company management often dominates the Boards, that have the responsibility to monitor the company, and that is the main reason why, nowadays, independent directors have been introduced, to assure the respect of the board’s functions and duties. Following Barker’s contribution (2009), we will refer, conventionally, to

this kind of model as the “Shareholder Model” or “Shareholder System”, due to the fact that this kind of system is strongly oriented towards the shareholders and the main goal relies on delivery value to them (Clarke, 2007). Thus, being oriented strongly toward the market, too, the impact of shocks in the market is much greater.

In this corporate governance system, the stakeholders involved in the company environment do not benefit of any kind of protection. Thus, in this context, the main corporate governance problem relies on the conflict of interests between managers and shareholders, reflecting the agency issues arising from dispersed company ownership, which is solved, through some mechanisms such as the managerial compensation system, the market for managers and the market for corporate control. The weakness of the system relies on the short terminism and inadequate governance procedures that have often left US manufacturing industry stranded causing periodic stock market crises and occasional crashes that generated relevant losses (Clarke, 2007).

The characteristics of this system can be found in the so called “common law countries”, thus especially in US and UK companies, typical representations of the liberal market economies, due to the fact that the investors’ behaviour in those contexts relies mainly on the diversification of the equity participation in individual companies (Barker, 2009). This does not imply that all the American and English companies accomplish these characteristics. Due to this reason, we will consider in our analysis only the companies belonging to US and responding to the previously described characteristics.

Beyond the Anglo-American reality, a wide number of other corporate governance systems exist varying considerably across Europe³ and across other countries in the world, reflecting the differences in the financial and legal systems, and in corporate ownership structures (Abdesselam, Cieply and Le Nadant, 2007).

The European and Asian models are usually grouped together in a type of system, so called *bank-oriented* system or *insider* system –, in which the relationship among the main stakeholders are very strong the corporate mission relies on creating value for all those stakeholders.

Worldwide countries show a rich diversity in corporate governance that reflects the differences in culture, history, financial traditions, ownership structure and legal environment. Compared to the common law systems, analyzed before, the civil law countries present a stable and crossed

³ Concerning the great diversity of national corporate governance across Europe, a good collection of country studies can be found in Isaksson and Skog (1994).

ownership structure, implying a weak discipline of management by securities market (Clarke, 2007). In fact, as some authors pointed out through their researches, in most of these countries ownership and control are in the hand of cohesive groups of insiders that know each other and who have long-term stable relationships with the firm through investments, family interests, industrial concerns and so on; in this scenario, the insider groups control the management closely and the agency problem typical of the outsider systems is not evident here (La Porta *et al.*, 1999; Nestor and Thompson, 2000). In this context the majority shareholders in fact are in a dominant position and most of the time they are also members of the Board of Directors, thus they collude strongly with the management. A common characteristic for all these countries is the low level of disclosure required by the law; this fact is linked to the main problem relying in these systems: the protection of minority shareholders who were the most affected subjects during the financial scandals occurred in Europe in the past. We will analyse deeply this issue in the following paragraphs.

In our opinion, it is not appropriate to include in just one model all the different features belonging to each single corporate governance model, which cannot be classified as outsider system, because each country impacts differently on the governance model adopted by the firm. The formal differences, in fact, reflect the history of individual nations (OECD, 2005). Thus, we adopt the common convention in this study in order to analyse and test empirically the hypothesis, keeping in mind that this is a simplification of the corporate governance models. Considering the variety of corporate governance features around the world, in this part of the work, we will focus the attention on three countries (Germany, France and Italy) with common aspects and different characteristics at the same time, that could represent the main corporate governance features in different countries around the world in order to point out as many as possible points of strengths and weakness of corporate governance in the civil law countries.

Germany

Concerning the German corporate governance system, its main characteristics rely on the presence of a large blockholder, on a close relationship between the owners and the management, on a limited role played by the stock market and on the influence exercised by banks and employees within the firm, through their presence in the Supervisory Board, composed mainly by the representatives of the main stakeholders (Beyer and Hassel, 2002). The connections between banks and firms are based on strong, long-term and intensive relationship. Banks generally hold both debt and equity positions in the largest German corporations. This contributes to a relatively high degree of ownership concentration (Edwards and Fischer, 1994). The concentration of

ownership is historically high because banks played an active role in the German industrialization and they still own large portion of shares in the companies (Abdesselam *et al.*, 2007). Due to this reasons, the non-competitive credit market, with the consequent increase in the cost of debt, and the high level of debt compared to the equity detained by the firms seem to appear the main problems of this system (Gros, Reviglio and Torrisi, 2001). Thus, the banks act as suppliers of credit, shareowners and proxy holders for the voting rights of their customers through their membership in the Board (Clarke, 2007). The financial market is quite illiquid and characterized by a low transparency. Moreover, the employees elect their representatives on the Supervisory Board, having a control power over the management and influencing firms' management and decisions (Baums, 1999). The main duty of the Supervisory Board is to protect and guarantee the interests of all those subjects interested in the wealth of the firm. In this country, the BoDs of the firm seems to be effective in controlling the managers thanks to the interests of the stakeholders and the workers represented in the BoD (Gedajlovic and Shapiro, 1998) and the independent non-executive directors importance and role have become firmly established in the last years. Aglietta and Reberieux (2005) underline the fact that this system is designed to integrate in the firms the shareholders, the management, the creditors and the employees, generating a monitoring on corporate performance by the stakeholders of the firm. Thus, in this context, the main problematic will be the conciliation of all the stakeholders' interests.

The accounting scandals occurred in recent years propelled legal reforms to increase the control and the transparency and to extend the role of the Supervisory Board, enhancing the protection of outsider investors, who traditionally did not have a significant influence on the corporate governance of the firm (Clarke, 2007; Goncharov *et al.*, 2006).

France

France, together with Italy, is the European country with the smallest ownership by financial institutions. In this county, in fact, the cross participation among the firms is the most common reality, generating as a consequence a high concentration of ownership in the hand of one or few investors owning the absolute majority of the company (Clarke, 2007). Companies present a close relationship with the public sector, which usually plays a significant role as a relevant shareholder. In fact, even though a great process of privatization occurred in the past years, the Government still exercises a relevant influence through ownership position in many important French industries (Gedajlovic and Shapiro, 1998). Moreover, cross-ownerships among firms are frequent (Goldenstain, 1996). Firms are often family firms, characterised by the presence of a concentrated ownership. Thus, as in the German context, in France corporate governance is

regulated more by the corporate law than by the financial market. Even in France the BoD usually represents the different stakeholders in large corporations (Jenkinson and Majer, 1992). On Boards, the role of non-executive directors is muted, as business tends to be dominated by the *President Directeur General*, who combines the functions of the chair and CEO (Clarke, 2007). The financial market is not as developed as in the Anglo-American countries and this fact leads the firms to use more debt resources than equity resources. Another reason to the illiquidity of the market can be found in the strong relationship between the majority shareholders and the main stakeholders of the firm, generating a network oriented system which, on one hand, creates stability for the firm, but, on the other hand, excludes those who are not in the network, thus the minority shareholders (La Porta *et al.*, 1999). Fukao's researches (1995) underline that the shareholders' power is generally higher in France and Germany than in common law countries, such as United States and UK.

Italy

Looking at the Italian evidence, Melis (2004) summarises the Italian corporate reality stating "weak managers, strong blockholders and unprotected minority shareholders". The blockholders are typically families or groups associated with such families, often through pyramidal group structure, allowing the investor at the top of the pyramid to control a large set of asset with few shares (Bianco and Casavola, 1999). Thus, the industrial context is characterized mainly by the presence of family businesses, associated with a high ownership concentration, and strong relationships between the firms, or it should be better to say the "families who own the firms", and the banks. The concentrated ownership is also managing the company in most of the case (Airoldi and Forestieri, 1998; Bianco and Casavola, 1996), and the control structure is characterized by the dominance of the main shareholder (Biancha *et al.*, 1997). The State represents a strong stakeholder and it can influence deeply the firm management, especially in the large firms, even when it does not own a significant portion of shares in a firm. According to the study conducted by Faccio and Lang (2002), the 70,71% of the Italian firms is ultimately held by families. In this context, the natural consequence is that financial market is poorly developed, due to the concentrated ownership and to the strong relationship that firms have with banks (Melis, 1999). Moreover, these kinds of relationship are often based on informal and personal connections between the owners of the company and the banks' management.

The main critical point in this type of corporate governance system relies on the protection of those shareholders who have just a little portion of shares (minority shareholders) and cannot exercise their interests easily, neither control the management. In this context, the information has

to be guaranteed in order to make the firm transparent and delimitate the power of the large shareholder who owns and manages the firm (Fiori and Tiscini, 2005). Despite this, Zingales (1994) finds that the amount of voting shares in Italy is so much larger than in other countries because of the inexistence of a law, which protects the rights of the minority shareholders, giving whoever controls the company greater incentive to dilute minority shareholder rights.

In this scenario, the presence of a blockholder precludes third part to be involved in the company and that's the main reasons for the illiquidity of the financial market (Clarke, 2007).

From what we have seen, the different systems across the world, of which Germany, France and Italy are only a few examples, present common characteristics, a lot different from the Shareholder model's features previously taken into account.

Because it is not possible to build a model which includes all the different corporate governance systems, we suggest to consider on one hand the Shareholder model and, on the other hand, a model that we will conventionally call "Blockholder model", still following the Barker's contribution (2009), which is a model in which the main characteristic relies on the presence of a concentrated ownership and the typical evidence is the conflict between majority shareholders and minority shareholders.

In sum, the Blockholder model is characterized by a concentrated ownership, where the main shareholders are single shareholders, such as banks or families in most of the cases. European firms, in particular, present a concentrated ownership where the controller is a family in two-thirds of the cases (Faccio and Lang, 2002). In these firms "the agency problem between owners and managers does not exist, because large shareholders have both interest in profit maximization and control over the assets of the firm to have their interest respected" (Shleifer and Vishny, 1997). In fact, it is reasonable to presume that greater overlap between ownership and control should lead to a decrease in the conflicts of interest (Denis and McConnell, 2003). Moreover, literature is align on the idea that the dominant shareholder has the incentive to monitor managers considering that he has a claim on all residual profit (Alchian and Demsets, 1972) and he has also the possibility to monitor manager due to the fact that the BoDs of firms with dominant shareholders usually reflect the main shareholders (Fama and Jensen, 1983; Tosi and Gomez-Mejia, 1989; Argyres and Mayer, 2007), who actually have more power and control over the firm management and can defend better their interests. In contrast, the minority shareholders, having just a little portion of shares, do have neither the ability nor the incentive to monitor the agents or the other owners of the firm (Gedajlovic and Shapiro, 1998).

Jensen and Meckling (1976) point out that investors with a large portion of shares have a strong

interest to maximize firm's value and collect information to oversee the manager, thus the traditional agency problem is avoided. In these types of governance systems, the market is not very liquid and the main consequence is that companies usually detain a large portion of debt compared to equity. Due to this reason, banks represent one of the most relevant stakeholders, when not shareholders. Another important consequence is that the role of information in these corporate governance systems is not as relevant as in the Shareholder systems. Instead, relations with main stakeholders are particularly meaningful for companies in this kind of systems. In these models, the most critical point is the protection of the firm's stakeholders mainly due to the misalignment of interests between the large shareholders and those who have keen interest in the company because of the resources, financial or human, invested in it. Moreover, a particular situation concerns minority shareholders, who have no, or at least just a little, power within the firm and have to struggle to exert their influence. Blockholdings, in fact, create potential difficulties for minority shareholders, especially if there is an absence of regulatory or legal concerning the safeguards of minority shareholders (Barker, 2009). In the worst cases, the blockholder can behave following its own interests and using their voting power to extract corporate resources at the expense of minority shareholders (Barclay, 1991), stealing from the companies in different ways, such as excessive compensation, transfer pricing, taking corporate opportunities, self-serving financial transactions and outright theft of corporate assets (Djankov *et al.*, 2005).

Thus the concentrated ownership seems to lead to an "equity agency conflict" between the dominant shareholders and the minority shareholders (La Porta *et al.*, 1998; Denis and McConnell, 2003), instead of a typical agency problem.

Empirical studies demonstrated that this kind of model is more common in those countries so called "civil-law countries" characterized by a low protection towards minority shareholders, than in the so called "common-law countries" such as the Anglo-American countries (La Porta *et al.*, 1999). Thus, the law has an important role also in defining the type of governance system adopted by the firm (Clark, 1986). In fact, according to La Porta *et al.* (1999), when there is a poor investor protection, the ownership concentration becomes the substitute for legal protection. The idea behind this statement is that if the law does not protect the owners from the controllers, the owners will seek to be controllers (Denis and McConnell, 2003).

Thus, as mentioned before, in the Blockholder model the main problem is to avoid private benefits for majority shareholders at the expense of minority shareholders. Companies accomplish these corporate governance systems rely more on the application of codes of good corporate governance and relationships with main stakeholders rather than external control

mechanisms.

In order to have a clear situation of the analysis we conduct, we want to point out that the classification we do about corporate governance model is a theoretical classification based on empirical evidence: the majority of companies operating in common law countries present a ownership structure which leads to a Shareholder model, while in civil law countries the majority of companies present a ownership structure which leads to a Blockholder model. This does not imply that there are no firm with a Blockholder model in common law countries or no firms with a Shareholder model in civil law countries.

1.4.3 Corporate Governance Mechanisms

Corporate governance mechanisms are “the means by which managers are disciplined to act in the investors’ interest” (Bushman, 2001). In order to accomplish this goal, corporate governance adopts mechanisms that have the aim to facilitate the value creation of the firm (Cuervo, 2002), reducing the conflicts among the different actors of the company, and enhancing the efficiency of the decision-making process. In practice, these mechanisms are viewed as instruments to solve the corporate governance problems (Fama, 1980; Fama, Jensen, 1983b). Moreover, these mechanisms, embedded in the different subjects involved in the firm’s management (such as managers, accountants, legal-regulatory system, external auditors, and so on), should play a role in ensuring that financial statements will be produced with integrity and will correctly report the financial position of the company. Their aim explains why the attention on corporate governance mechanisms increases when crises occur in corporate governance systems (Clarke, 2007).

The literature usually distinguishes between internal and external mechanisms. The first ones are related to the firm itself, such as the Board of Directors monitoring, the managers’ incentive system, the equity ownership structure or the control exercised by the internal and external auditors. The external mechanisms are those that come from the external context, such as the market for corporate control, the takeover phenomena, the market for products and services, the market for managers, the laws and regulators (Jensen, 1986; Bushman, 2001; Cremers and Nair, 2005). According to Jensen (1993), in the late 80s, the era of the control market came to an end due to the scandals and the numerous bankruptcies and insider trading phenomena occurred during that period. Thus, after that time, the focus switched on the internal control mechanisms, with particular attention to the Board of Directors, seen as the new tool to preserve the organizational assets. Due to these reasons, in this dissertation, considering the time period in which we test our

hypothesis (1992-2005), we will focus on the internal corporate governance mechanisms that should make the corporate governance of a firm effective and should avoid the fraud occurrence.

Among the internal control mechanisms used by a company, the Board of Directors is recognised by many authors as the predominant and central body with the role of solving the agency conflicts (Daily, Dalton and Cannella, 2003). Hermalin and Weisbach (2003) defined the Board as the economic institution that helps to solve the agency problems and, although it satisfies many regulatory requirements, it exists primarily because of the conflict of interests it helps to address. Stiles and Taylor (2002), considering that the Board is the link between the shareholders and the managers, affirm “it acts as a control mechanisms to reduce the potential divergence of interests between the shareholders and the corporate management. Non executive members of the Board, in particular, because of their supposed independence, provide an important balance to the power of the CEO and his/her executive team”. In other words, they are seen as those who can play the monitoring role inside Boards, even though their incentives are still not clear (Hermalin and Weisbach, 2003). Thus, in concrete, the Board has both internal (leadership and guidance of the company) and external (towards investors and the other stakeholders) responsibilities.

From a specific control point of view, the main duty of the Board is to monitor the managers ensuring fair and reliable accountability. In doing this, particular relevance has to be given to the Board’s chairman, who, in theory, should be separated from the CEO, in order to avoid the concentration of power which would occur if they are embedded in the same person (Cadbury Report, 1992). The role of the Chairman of the BoD is to run board meetings and oversee the process of hiring, evaluating and compensating the CEO. It seems pretty obvious that when there is the duality of the CEO, he or she cannot act without any personal interest. Therefore, to be effective the CEO position should be separated from the Chairman one (Jensen, 1993).

In recent years, much attention has been given to the features (size, composition and structure) that the Board should have to be “optimal”, more efficient and achieve best results. But some authors pointed out also the importance of the individual and social characteristics of the Board members such as the skills, the experience and the judgements of the single directors, and the harmony and the working style of the Board itself, to assure the effectiveness of the body (McNulty, Roberts and Stiles, 2003, Demb and Neubauer, 1992). It is important to consider also these qualitative elements given that each Board operates in different environments and under different pressures, so not only quantitative elements will affect the Board operations, decisions and performance. Jensen (1993) underlines in his studies the importance of the culture and the behaviour of the Board member, pointing out the high probability of Board failure when too much politeness and courtesy is expressed at the expense of fairness in boardrooms. Coherently, the

international literature underlines how difficult it is to measure these elements and evaluate them and their outcomes (Pye and Pettigrew, 2005). Due to these reasons, most of the researches in this field have analyzed the quantitative aspects, such as the size, the structure, the CEO duality, the directors' share ownership and the independence of the Board's members (Finkelstein and Mooney, 2003; Johnson, Daily and Ellstrand, 1996).

Many of the failures, according to the literature, can be attributed to the unawareness of the Boards concerning the management's operations, as well as their lack in assuring the rights of the shareholders (Clarke, 2007). There is an information problem among the members, often generated by the fact that the CEO determines the agenda and the information given to the Board, generating in this way an information asymmetry issue (Walsh and Seward, 1990). Thus, the restricted information that the members have is often not sufficient to control and monitor the management actions. When a fraud occurred, often a very low level of formal procedure of accountability given to the Board is discovered, without any consideration for the risk assessment, while the internal control of the Board has a key role in the management of the risk significant also in terms of protection of shareholders' interest. This fact is considered by literature as one of the most serious problems for the Boards effectiveness that led to the downfall of many firms (Breedon, 2003). Some authors also point out the importance of having Board members with financial expertises in order to better understand the information given to the Board and better planning the future actions in the interest of the company in order to enhance its value (Jensen, 1993; Agrawal and Chada, 2005).

In order to have an efficient Board, there must be a clear separation between the roles of the Board, that has to direct and control, overseeing the process of disclosure and communications too, and the role of the management, that is to conduct the day by day activities of the firm. The main problem, in practice, relies on this distinction of roles, which is not always implemented (OECD, 2004). While institutions have given clear guidelines concerning the relationship between the Board and the management, no precise definitions have been provided regarding the relationship between the Board and the CEO, with whom the Boards often interact, in many cases with problems and contrasts. Hermalin and Weisbach (2003) point out that "the major conflict of interest within the boardroom is between the CEO and the directors" due to the fact that the CEO wants to "held" the Board to assure his job, while the directors have some incentives to control the CEO actions and replace him if necessary. Thus, the independence of the Boards, according to these authors, depends on the bargaining game between the Board and the CEO. On the same path, Aguilera (2005) states that CEOs often "use their control of Boards not only to prevent and

challenge their position, but also aggregate to themselves an increasing share of wealth generated by the company, both in terms of rapidly inflating salaries and massively growing stock options”. The main problem of the Board effectiveness relies on the level of its activities, which is often very low and determined by the willing of the CEO (Carter and Lorsch, 2004), has happened in the WorldCom case in which the CEO used to set the Board’s agenda and the Board’s time and scope of the meeting, while the main duty of the Board should be to control the CEO and management operations, preventing and detecting inappropriate behaviours and actions. The most significant example of Board failure can be found in the Enron case: “the Enron Board failed to safeguard Enron shareholders by allowing Enron to engage in high risk accounting, inappropriate conflict of interest transactions, extensive undisclosed off-the-books activities, and excessive executive compensation” (Clarke, 2007). Moreover, the independence of the Enron Board and also of the external auditor was not real: the first one because of financial ties between the firm and some Board members and the second one due to the consulting services that the external auditor Andersen used to provide to the firm. More criticisms on this issue derive from the managerial theorists who declare that the control is effectively in the hand of the managers who dominate the Boards of Directors (Herman, 1981) and that the Boards do not seek to get the best deal for their shareholders, but they are aligned with the prevailing practices adopted by the other Boards, justifying in this way their behaviour (Bebchuk and Fried, 2005).

In the system characterized by the separation between ownership and control, usually the Board includes three different committees: Audit committee, Remuneration Committee and Nomination Committee. The first one’s main duty is to monitor the fairness and the integrity of the financial reports and communications of the firm, reviewing also the judgements contained in them, and to monitor the internal financial controls and the independence of the external auditor. Thus the Audit Committee has a relevant role in the fraud prevention and detection and it should function actively as a corporate governance mechanism. The Remuneration Committee, having the duty of deciding the remuneration of the CEO and of the other executive members and managers, should be composed only by non-executive directors, in order to avoid involvement of those members who have personal interests in this decision. Finally, the Nomination Committee, being the body that has to identify and nominate candidates to the Board, should be composed by members who are independent and thus don’t have relationships or personal ties which could affect their decisions.

The effective use of these committees, when achieved, makes the Boards active and efficient. Unfortunately, for non-executive directors there are no strong incentives, beside their own reputation, to challenge the executive ones or to introduce rules that will limit the managerial

autonomy (Useem, 1984). In contrast, there are disincentives for them deriving from the social pressure to maintain managerial autonomy and authority for the elite of corporate leaders (Wei Shen, 2005). Lorsch and MacIver (1989) seem to be of the same opinion stating that outside directors have limited time, knowledge and expertise in the company and they often lack any group cohesion, but feel a need to fit into the values of the board they joined. Being part of the corporate governance issues, much more attention to them has been given by literature in recent years, looking also at their role, especially the Audit's one, in the fraud occurrence (Carcello *et al.*, 2005).

In particular, the issue of the independence of the Board's members has been investigated with great attention, considering the independent status of the directors as a good indicator of the Board's effectiveness (Hermalin and Weishbach, 2002; Kaplan and Minton, 1994). According to the UK Combined Code (2003), "a non-executive director is considered independent when the board determines that the director is independent in character and judgement and there are no relationships or circumstances which could affect, or appear to affect, the director's judgement". Many European commissions, considering that no precise laws on Board duties and features exist, have started to issue Codes of Best Practice to indicate the appropriate Board characteristics to achieve a good corporate governance level. The UK Code of Best Practice, for example, recommends that boards of UK firms include at least three independent directors and it also indicates that the role of chairman and CEO is to be held by different persons. Also the number of members in the Board has been investigated, generally in relation with the performance. On this issue the literature is almost aligned on the idea that there is an inverse relationship between the number of members of the Board and the performance of the firm (Mak and Yuanto, 2002; Eisenberg *et al.*, 1998; Carline *et al.*, 2002).

Concerning the equity ownership structure, it is seen as a mechanism which can enhance the firm value when the ownership is held greatly by the managers (Carline *et al.*, 2002), but there is no unique alignment of opinion in the literature about the impact of it on the firm performance and results. Some authors, in fact, do not find any relation between the amount the concentration of ownership held of manager and firm value (Claessens *et al.*, 1998).

As previously mentioned, in order to align the interests of the managers to those of the shareholders, the Optimal contracting Theory has found in the stock options a perfect tool to achieve this goal, claiming that the equity-based compensation would have lead to better managers' performance. Consequently, the Board of Directors (BoD) would fix them trying to create optimal incentives for the executives, presuming that greater overlap between owners and control should decrease the conflicts of interests and enhance the firm value (Denis and

McConnell, 2003). The stock options are seen as the tool to make the contract between the firm and the managers optimal, even because this instrument would shift the risk from shareholders to managers (Arrow, 1963a; Eisenhardt, 1989). O'Connor Jr., Priem, Coombs, and Gilley (2005) claim that stock options to CEOs and managers are considered a corporate governance mechanism which brings CEOs and managers to act and take decisions "consistent with long term shareholder wealth maximization" (Betty & Zajac, 1994). The contrasting theory is represented by the Managerial Power Approach, which claims that the higher the power of managers and the weaker the corporate governance structure, the higher is the managers' self-dealing behaviour in influencing their remuneration system and amount in favour to them.

Along this perspective, Kadan and Yang (2005), analyzing the relationship between the incentive provision and the managers' attitude to misreport, show that lowering the exercise price of stock option enhances the likelihood of misreporting. Moreover, Baglioni and Colombo (2004), analyzing the optimal level of incentive system to align the opposite interests of the two actors of the firm, find out that the incentive alignment function is a strictly convex function, demonstrating the difficulties in fixing the level of stock based compensation in order to achieve the alignment. Other empirical evidences on the incentive system are given by the studies of Johnson, Ryan Jr. and Tian (2007), where a positive relation between the likelihood of frauds and the amount of incentives from unrestricted stockholdings is found. Same results are achieved by Erickson *et al.* (2006), who find out that in fraud firms executives had a high level of stock options, larger than those belonging to firms in which the fraud had not occurred. Robinson and Sartore (2008) in their research underline how the magnitude of fraud committed by the manager is greater when he/she owns a larger stock amount of the company.

Proceeding within this debate, some authors analyze the role of corporate governance in relation with the compensation mechanism. For example, following Core and Guay (1998) proposition, which claims "CEOs earn greater compensation when governance structures are less effective", it is clear how a good and well-structured corporate governance is required in order to make the stock option instrument valid for its aim. So, incentive systems could be a useful tool to reduce agency problems and could be an effective instrument to better firm's performance if the firm governance acts coherently with them. Nevertheless, it seems evident that stock options alone cannot reduce the interests' misalignment between principal and agent.

Thus, from what we have discussed about the compensation of managers, we have seen there is no common opinion on this issue. But the largest part of the literature agrees on the idea that executive compensation has been completely and frequently out of control, leading more than to the achievement of the results to the failure of the firm for fraudulent behaviour committed by the

managers (Clarke, 2007). Clearly, this has been possible through the managerial power that played a key role in defining the executive pay (Bebchuk and Fried, 2003). Bebchuk and Grinstein (2005) underline that among the arguments used to justify the huge increase of the CEO compensation there was the justification that in competitive advantages managers need rewards as incentive to perform better, while there is little evidence that rewards are linked to their performance. According to Clarke (2007), the executive reward issue will remain an open debate in the issue about the Boards accountability and CEO's influence over the Boards.

Having seen how the corporate governance system of a firm depends on the country in which the firm operates, it also seems easily understandable how the use of these mechanisms depends on the referring cultural and historical context in which the firm operates, depending directly on the adopted corporate governance system (Frank, Mayer and Rossi, 2009; Franks and Mayer, 1996; Shleifer and Vishny, 1997).

The Shareholder model systems, relying on the assumptions of the market efficiency and the rational behaviour of investors (Jensen, 1986; Simon, 1955), prefers the market for corporate control, the market for managers, and the manager incentive system to all the other mechanisms. On the contrary, in the Blockholder model systems, where in general the financial markets are not highly developed, companies usually rely mostly on large shareholder and BoD control and code of ethics (Cuervo, 2002).

As previously said, these mechanisms, embedded in the different subjects involved in the firm's management (such as managers, accountants, external auditors, Board of Directors, etc.), should play a role in reducing the corporate governance problems and ensuring the integrity and the fairness of the financial position of the company reported in the financial statement. Thus, financial accounting information provides direct input to control mechanisms, and, consequently, we can say that financial accounting information should mitigate agency problems when reported correctly (Bushman, 2001).

If corporate governance mechanisms have the aim to minimize the agency conflicts among the different actors of the firm, according to Dey (2008) "the demand for these control mechanisms is likely to be higher for firms with greater need for oversight, or higher degrees of agency conflicts".

The largest part of prior studies has examined whether different corporate governance mechanisms and structures affect the firm's performance (Cheng et al., 2006; Yermack, 1996;

Klein, 1998), the management's decisions or other organizational aspects of the firm⁴. At the same time, an increasing number of studies focus their attention on the relation between some corporate governance mechanisms and fraud occurrence, considering the aim of these mechanisms, starting from Loebbecke *et al.* (1989) work, in which the Authors point out the importance of the audit committee and board governance mechanisms in decreasing the likelihood of financial fraud.

Following these contributions and other studies, which will be analyzed more accurately later, we argue that if the control mechanisms are weak and the interests' conflicts are high, the probability of fraud occurrence will increase due to the "freedom" held by managers.

Thus, the aim of this work is to understand which of these corporate governance mechanisms, when weak, can contribute to the financial statement fraud occurrence and magnitude, instead of solving the corporate governance problems, as they should do.

1.4.4 "Good" and "Bad" Governance

One of the main problems in studying corporate governance topics relies on the definition of *good* and *bad* corporate governance. The OECD develops a definition which considers the relationships between the context and the benefits of a *good* corporate governance: "*Good* corporate governance should provide proper incentives for the board and the management to pursue objectives that are in the interest of the company and its shareholders and should facilitate effective monitoring" (OECD, 2004). The ASX – the Australian Security Exchange – provides a definition of corporate governance in which it is clear that good standards of corporate governance lead to higher performance and better accountability: "Corporate governance is the system by which companies are directed and managed. It influences how the objectives of the company are set and achieved, how risk is monitored and assessed, and how performance is optimised. *Good* corporate governance structures encourage companies to create value and provide accountability and control systems commensurate with the risk involved" (2003).

The problem that researchers face is not only to define what is "corporate governance", as previously mentioned, but also, what is "good" and what is "bad" corporate governance (Clarke, 2007). According to the UK Modern Company Law Review (2000) "the beneficial impact of corporate governance codes is as much a means of guarding against wealth subtraction as the

⁴ For deep reviews on corporate governance literature refer to Shleifer and Vishny (1997), Bushman and Smith (2001), Dennis and McConnell (2003).

promotion of wealth creation”, thus in this study we will try to find out the way in which corporate governance mechanisms could accomplish this aim.

Literature has provided evidences thanks to the numerous researches of what can be considered as *good* or *bad* for the firm, concerning the governance theme in relation with performance (Gompers *et al.*, 2003; Bebchuk and Cohen, 2005), earning restatement (Farber, 2005; Larcker, 2007), abnormal accruals (Larcker *et al.*, 2004; Larcker *et al.*, 2007) and other aspects. These relations were analysed considering single mechanisms of corporate governance and defining them as *good* or *bad* referring to the previous literature and the empirical evidence, which had already pointed out the strengths and the weakness of the governance systems.

Taking into consideration single mechanisms of governance, here we want to give a definition of what is usually considered as *good* and *bad* governance for the largest part of the literature.

Referring to the Board of Directors, taken that there are no specific requirements on it, not even by the so called “red flag” indicators described in the American SAS No.53, considering that this body should assure a good relationship with the shareholders and with the management, prior researches suggest as *good* governance characteristics the following features:

- Small size: boards are more efficient when their size is small (Lipton and Lorsh, 1992; Jensen, 1993; Yermack, 1996). The authors state and give empirical evidence that keeping boards small can help improve their performance. If the number of the member is high, the Board will lose its efficiency and it will be easier for the CEO to control. Lipton and Lorsh suggest limiting the number of Board member to ten, with an optimal of eight or nine (1992). The idea is that when the Board is too big it becomes a pure symbolic body;
- Young and not busy directors: old and busy directors are less efficient in the monitoring function (Core *et al.*, 1999; Ferris and Pritchard, 2003);
- No CEO duality: the main part of the literature agrees on the fact that if there is no CEO duality the independence of the board is preserved (Yermack, 1996; Sharma, 2004); few authors, instead, state that having the CEO duality facilitate the communication between the Board and the management and establish a stronger and clearer leadership (Brickley *et al.*, 1997);
- Not very long CEO and chairman tenure: a long staying in the same company can lead these top management figure to behave and act like the owners of the company; as Hermalin and Weisbach (1988) point out, an established CEO is believed to have more power on the Board and can influence easily its decisions than a new CEO; this power

becomes stronger when the CEO is also the chairman of the Board (Loebbecke *et al.*, 1989; Johnson *et al.*, 2008);

- High number of meetings: the more they meet in one year the more they will be conscious of the company situation and reality, having the change to better decide on the firm's actions to be implemented (Lipton and Lorsch, 1992);
- Independence: given by a high number of independent directors. The independent directors are believed to be better able in monitoring managers and CEO, whose turnover resulted higher in crisis time if the proportion of outside directors was higher than insiders' one (Fama and Jensen, 1983; Weisbach, 1988; Byrd and Hickman, 1992).

Concerning the Audit Committee, generally the *good* governance features rely on:

- High number of meeting: if the audit committee meets many times it can better exercise the control function (Klein, 1998)⁵;
- Presence of a financial expertise: this allows discovering more easily eventual mistakes and misreporting in the financial statement (Agrawal and Knoeber, 1996; Agrawal and Chadha, 2005). To have a complete scenario on this aspect we have to mention that this feature is seen as bad governance by some other authors due to the fact that the presence of a member with financial expertise can lead other members to become less vigilant (Klein, 2002). We agree with the firsts, arguing that a more competent figure can enhance the probability to highlight errors and misreporting;
- Independence: given by the higher number of independent directors in the Audit Committee compared to the total number of members. The independence of the Audit Committee can assure a better and fair control over the management operations (Uzun *et al.*, 1994).

Regarding the external auditor, factors of *good* governance are considered:

- Independence: the external auditors' duty is to enhance the credibility of the financial statement of the firm so their independence from the firm is a fundamental requirement (Frankel, Johnson and Nelson, 2002);
- Good reputation: it is seen as warranty for the audit quality (Agrawal and Chadha, 2005).

Finally, other main mechanisms seen as *good* governance have to be taken into consideration:

- No interlocking directorship: we did not find any previous study on fraud which considers this aspect of Board members, but according to the ISS, a director should not seats in

⁵ In the empirical analysis we do not take into account this governance variable due to the lack of data referred to it.

more than 5 additional Boards. Thus, the interlocking directorship is not seen as a *good* element of corporate governance;

- Presence of large outside blockholders: they should have greater incentive to monitor manager (Schleifer and Vishny, 1997; Holderness and Sheehan, 1988).

In our dissertation having or not a blockholder in the ownership structure is not considered as a *good* or *bad* sign of corporate governance: taking into account the difference between Blockholder model and Shareholder model, the ownership structure becomes an independent variable which identifies the type of corporate governance model.

As previously mentioned, the debate on compensation mix is still open and discordant. We follow the literature that considers the option incentives' intensity positively correlated with the bad behaviour and performance of the managers (Erickson *et al.*, 2006; Peng and Roell, 2006). Bruner, McKee and Santore (2005) in their study find that equity-based compensation creates the incentive to commit managerial fraud; thus, following this path of research, the low level of option incentives is considered a *good* governance factor.

The presence of a good and efficient corporate governance system helps to provide the necessary confidence in the investors toward the financial market that is a necessary condition to decrease the cost of capital and, in turn, to improve the efficient use of the resources by the companies (OECD, 2004a).

Unfortunately, as we have seen from this brief overview of the main corporate governance mechanisms, sometimes literature presents different and opposite points of view about what can be considered as *good* and *bad* governance. Thus, this constitutes a critical point of our work, given that no clear rules are established on this topic and each personal judgement can be contradicted by different opinions and points of view. Further researches are needed on this issue to give a clear overview on the *good* and *bad* corporate governance aspects.

CHAPTER 2

2 Theoretical framework and hypotheses: Agency Theory and Conflict of Interests, Financial Statement Fraud and Corporate Governance

2.1 Corporate Governance systems and financial statement fraud

A variety of studies in literature have focused their attention on the causes that generate financial statement frauds and have at least a role in the fraud occurrence. With this perspective, legislation always introduced new laws and rules after corporate failures to eliminate or at least reduce the weakness in corporate governance (Clarke, 2007).

Moving from the Shareholder corporate governance model context, acting in the agency theory framework and considering the traditional tools used to reduce these costs, some authors addressed the main cause of fraudulent financial reports to the intent of the managers in maintaining their position and their power inside the company. This leads to a continuous cheating on the financial documents in order to maintain the appearance of high profits and value of the firm (Johnson *et al.*, 2006; Robinson and Sartore, 2008). If we analyse more deeply this behaviour adopted by managers in the scandal cases, it is possible to verify how all these managers detained a large amount of stock options of the firm that could have been exercised in advance of negative performance information. The problem occurring in most of the cases is that corporate executive incentive systems are often based on short-term earnings targets. If executive compensation and job performance depend on these criteria, executives will be more predisposed to manage earnings in order to show them in line with the market expectations. Moreover outside auditors, on several occasions, did not sanction these alleged frauds in order to maintain their client, if valuable, as empirical evidence showed in the past.

We understand that the explanation to the largest body of literature on firm belonging to the Shareholder model concerning the role of incentive systems of fraud occurrence can be found in the importance given to the managers' contract in these companies (Bushman, 2001), characterized mainly by a dispersed ownership in which the single shareholders can not exercise active control over the management. In fact, the individual shareholder will have no, or at least only a few, incentives to monitor and control the managers' activities, thus the contract has the

function to optimize the relation between owners and managers and make the latter acting in the shareholders' interests, solving the managers versus owners agency problem. These features are the typical ones of the corporate governance model that we have identified as Shareholder model (or system).

Besides the incentive system, other control mechanisms have been studied in relation with fraud. For example, Bazerman, Morgan and Loewenstein (1997) and Bazerman, Loewenstein and Moore (2002) investigate the importance of auditor independence concerning the scandals; Beasley *et al.* (2000) study the importance of Board of Directors composition in avoiding frauds⁶.

Moreover, in the Shareholders corporate governance model, there is another critical issue concerning the relationship between the principal (the owners) and the agent (the managers): the agent may possess private information about the true profit of the company and may falsify that information in his reports to the principal (Crocker and Slemrod, 2007).

On the contrary, in contexts not characterized by the dispersion of ownership, but characterized by a concentrated ownership, identified previously as Blockholder systems, the governance system affects differently the behaviour of the managers and of the shareholders.

In fact, in these contexts, the recent financial statement fraud scandals which occurred, such as Parmalat, Cirio, Bibop, etc., involved companies all characterized by features like concentrated ownership, high financial debt leverage and a strong power exercised by the main shareholders who effectively managed the firm. In these frauds, the main evidence that can be highlighted relies on the appropriation of personal benefits by a restricted group of people acting in the firm, despite of the minority shareholders' interests, who have no, or at least a very reduced, possibility to influence and monitor the firm's management and majority shareholders' decisions (Fiori and Tiscini, 2005). Within this reality, instead of a conflict between the manager and the owner who delegate the former in the company's management, firms are characterized by problems regarding conflict of interests between the controlling shareholders, who act with an opportunistic behaviour diverting corporate wealth to themselves, reflected in the diplomatically named "private benefits of control" (Djankov, La Porta, Lopez-de-Silanes and Shleifer, 2005), and the other firm's stakeholders.

The *Federation des Experts Comptables Europeens* (FEE), concerning the corporate failure occurred, published a report where the role of auditing, the integrity of management, and the role of external auditors are analysed in relation with the fraudulent financial reporting, stating that

⁶ For a deeper analysis on the analyzed mechanism see paragraph 1.4.3

these bodies should improve in transparency and fairness in order to give back to the investors the confidence in capital markets (FEE Report, 2003).

In sum, the evidences seem to suggest that companies belonging to different corporate governance models have to face different conflicts of interests' problems and that usually shareholder systems rely more on managerial compensation and market for corporate control to solve the conflicts of interests. On the contrary, the Blockholder systems rely more on the control exercised by the largest shareholder to align the managers and owners' behaviours and the lack of a well-functioning market for corporate control is compensated by the adoption of codes of good corporate governance (Cuervo, 2002). We question whether the different corporate governance models have also a different role on financial statement frauds, or, in other terms, if the adopted governance model is linked to the fraud occurrence and magnitude. Empirical researches have tested the relation between the accounting fraud model and the firm's corporate governance system, pointing out that in the Shareholder model context the fraud is typically due to "performance stress" motivation, while in the Blockholder system is due to "excessive power" exercised by controlling shareholders (Tiscini and di Donato, 2005).

Starting from this path of researches, we argue that the likelihood of committing a fraud and the magnitude of the occurred fraud will be higher for companies belonging to the Blockholder corporate governance models, due to the fact that the conflict of interests arising in these contexts can lead to higher level of fraudulent behaviour committed by those who can benefit of information asymmetry. We posit that the information asymmetry and the excess of power detained by controlling shareholders "allow" these subjects to easily elude controls and achieve personal gains, committing frauds in the worst cases. The controlling shareholder, in fact, has more freedom to act than the one held by managers in firms adopting the Shareholder model, in which even though the control mechanisms are inefficient, they still exist. Moreover, in most of the cases, the largest shareholders, who often manage the company, consider the firm as their own property and act without caring about the other stakeholders' interests and the wealth of the company. In sum, following only their personal benefits and goals, the presence of large shareholders enhances the likelihood of fraud. If a company is effectively controlled and managed by a restricted number of shareholders, they collude to achieve their goals and can more easily avoid the control bodies, even because frequently they are members in them. To our knowledge, no other empirical studies tested the relation between occurrence and magnitude financial statement fraud and corporate governance systems. This leads to the following hypothesis:

HP1: Compared to Shareholder models, Blockholder corporate governance models lead to a higher level of likelihood of occurrence and to a higher level of magnitude of financial statement fraud.

In order to fill the gap in the literature, the aim of the work is to see which is the different impact of the two analysed models of corporate governance on financial statement fraud, and, relying on the different conflict of interests' problems they have to face, (controlling for the dissimilar institutional and cultural context in which they developed, the national specificities), we expect a positive relation between the Blockholder corporate governance system and the financial statement fraud.

2.2 Corporate Governance quality and financial statement fraud

Having overviewed the corporate governance system's role on the magnitude of financial statement fraud, now we question which is the role of the whole corporate governance on the occurrence and the level of the fraud. The literature focusing on the relation between corporate governance and fraud, as seen before, takes into account only a limited sample of the different corporate governance dimensions per time. Rezaee (2002), among the conditions and circumstances that enhance the likelihood of fraud, points out the lack of vigilant corporate governance, the lack of vigilant oversight board and audit committee, the absence of an effective control structure, the strong emphasis on earnings, the presence of a dominant group or single person who take business decisions, the existence of unusual related-party transactions, the significant turnover in accounting personnel, and, finally, the frequent disputes with independent auditors. These mechanisms, on our opinion, should be analyzed at the same time in order to have an overview of all the governance aspects of the company and to be able to understand the role of corporate governance on frauds. At the same time, each single mechanism can be unrelated to the fraud, but, together with other elements, it can have an impact on the fraud occurrence and/or its level. Thus, considering only a single mechanism can lead to incorrect or distorted conclusions. The purpose of this work is to focus on the role of the corporate governance system as a whole on financial fraud occurrence, relation that, to our knowledge, has not been examined yet, and also on the fraud magnitude, relation that, as well, to our knowledge, has not been investigated yet. We take into account the overall corporate governance structure that a firm has in order to understand whether there is a link with the financial statement fraud occurrence or not, and, if so, which is the impact of governance on fraud magnitude. We argue, in fact, that testing single

mechanisms as representative of the overall corporate governance can be reductive. All the mechanisms, in fact, act together, given that they are linked to each others.

Moreover, considering also some set of mechanisms related to some corporate governance bodies (such as the Board or the Audit) can be misleading as well, also because the selection of a group of corporate governance mechanisms introduces subjectivity in the research.

Considering the function that corporate governance should have on solving the agency problems, thanks to the control it exercises on the executive bodies of the company (Dey, 2008), we posit that a *good* level of governance of the firm should lead to better behaviour of those actors who could take advantage of the information asymmetry and gain personal benefits at the expenditure of those who have no direct control and management power in the firm. If the opportunistic behaviour of the manager or of the controlling shareholder have the chance to take place and produces a fraud occurrence, we argue that the level of the fraud will be higher when the governance system of the firms is weak. In fact, in this case, the fraudulent behaviours can be implemented more easily due to the absence of adequate governance mechanisms and procedures to control them. This leads to the following hypothesis:

HP2: The lower the corporate governance quality of a firm, the higher the financial statement fraud occurrence and level will be.

We expect a negative relation between the corporate governance quality, measured by a Corporate Governance Index, which is hypothesized as “good”, and the level of financial statement frauds. In other words, if the Corporate Governance Index is low, the likelihood of fraud and the magnitude of fraud will be higher, and *vice versa*. We expect that the overall corporate governance, seen as a synthesis of all the mechanisms, has a positive impact on financial statement fraud, reducing its level.

We will rely on the traditional assumption of “good” and “bad” corporate governance indications provided by “ISS Corporate Governance: Best Practice User Guide and Glossary” (2003) and by the existing literature, as previously presented, to determine the value of the corporate governance index.

2.3 Corporate Governance mechanisms and financial statement fraud

Given that the corporate governance, as the synthesis of all its mechanisms, has a role on the financial statement fraud, as we expect, we want to investigate on the governance aspects that greatly impact on the fraud occurrence and level. In fact, the financial statement fraud prevention should be done mainly through the adequate controls operated by the control bodies of the firm, such as the Board of Directors, the Audit Committee, the top management, the internal and the external auditors. The phenomenon of financial statement frauds all over the world demonstrates that, despite the different system of corporate governance behind the firms, their occurrence depends on the lack or inefficiency of the governance system in general (Laganà, 2004). Besides these considerations, from the COSO Report of 1999, it emerged that for example in the US firms accused of financial statement fraud, more than 80% occurred with the participation of the top management team, in particular with the approval or, at least, the knowledge of the CEO and/or the CFO and/or the controllers (Rezaee, 2002). Thus, we should try to understand which mechanisms behind the firms' controls did not function, allowing the managers to implement the fraudulent behaviour.

Recently, as a consequence of these facts, the widespread failure in financial reporting has largely been blamed on weak internal controls (Agraval *et al.*, 2005). Even though it is not easy and always possible, the prevention of frauds can be at least implemented through some mechanisms, such as the existence of a vigilant corporate governance, the presence and application of a corporate code conduct, the adoption of an efficient control structure, and an effective auditor's function (Tiscini and di Donato, 2005). Considering the costs deriving from fraudulent financial reporting, the investments in these mechanisms to prevent frauds seem to be necessary and convenient to the company. Thus, the focus has to be shifted towards the analysis of the effectiveness and the efficiency of these mechanisms in achieving this goal, taking into consideration the context and the environment in which the firm operates.

Thus, the monitoring function appears from this literature one of the most critical aspect to be taken into consideration in studying the relationship between the corporate governance and the fraud incidence. Due to this reason, single corporate governance mechanisms have been analyzed by literature in relation with the fraud occurrence.

Robinson and Sartore (2008) state that, despite what the Sarbanes Oxley Act claims, owners could prefer less ex-post monitoring in order to avoid fraud detection with the aim of not decreasing firm's value and reputation. In the same study, they provide evidences that the increase of the penalties for managers who commit frauds leads to a lower magnitude of fraud itself, but, at the same time, while rising penalties will act to prevent frauds, this impact is mitigated by the owners' choices concerning the monitoring.

Many authors provided evidence that performance-based compensation plans give to managers the incentive to misreport the firm's real results. Bruner, McKee and Sartore (2005) demonstrate that increasing the level of equity in compensations causes the enhancement of the amount of fraud. In following studies, these Authors (2008) state that the amount of fraud is positively correlated with the level of equity detained by the managers, but, at the same time it is also negatively correlated to the probability of the fraud detection. From their study, it appears clear that the ex-post monitoring has also an important role in the fraud occurrence. On the same path, Burns and Kedia (2005) find strong evidence that higher incentives from stock options are associated with a higher propensity to misreport and also with a higher magnitude of misreporting. Coherently Bergstresser and Philippon (2006), examining whether increases in accruals are related to increases in stock-based CEO compensation, empirically demonstrate that the use of discretionary accruals to manipulate earnings are higher when CEO compensation is highly tied to the firm's stock price. Caplan (1999), considering the relation between incentives to managers and auditors' efforts to detect frauds, finds out that executives with high level of stock-based compensation are more predisposed to commit frauds when the controls by the auditors are weak or inefficient. The problem relied mainly on the pressure exercised by the market on the expected results. In fact, in order to satisfy the expectations of the investors and, consequently, to achieve the bonuses and higher gains from the stock options mechanisms, the practice of creative accounting by managers increases.

Bazerman, Morgan and Loewenstein (1997) and Bazerman, Loewenstein and Moore (2002), investigating the importance of auditor independence concerning the scandals occurred at the beginning of 2000s, argue that "the very idea of auditor independence under current arrangements is a myth, that auditors' information processing and judgments are biased away from the public interest simply because close affinity with the client renders the desired independence psychologically impossible". After the scandals, the importance of the auditor's duty has been particularly underlined, due to the fact that the audit firms have been accused to not have controlled properly over the firm. Fairchild (2006) points out that the probability of fraud decreases when the auditor's ability and empathy are higher.

Considering the role of the internal auditing, some American researchers focused the attention also on the changes in the internal auditing during the time of the major US scandals, such as Enron and WorldCom. For example, Carcello, Hermanson and Raghunandan, (2005) find empirical evidence of the increase of the budget allocated after the scandals' occurrence to this body of the firm. Moreover, they also find an increase in the auditing number of meetings. This perspective was previously adopted by Beasley (1996), who points out that auditors have to

provide reasonable assurance about the detection of the financial statement fraud. These considerations lead to the enhancement of internal controls through the internal mechanisms, probably not so effective in monitoring the managers' behavior in the past years.

A relevant number of studies has also focused its attention on the Board effectiveness at reducing agency costs. More recently, the relationship between the Board features and the fraud occurrence have started to be analysed, moving from Fama and Jensen (1983) research, in which the Authors theorize that the Board of Directors is the most relevant control mechanism when effective. One of the first contributions on these studies is given by Loebbecke *et al.* (1989), who highlight the importance of audit committee and board governance mechanisms in decreasing the likelihood of financial fraud. These Authors, in fact, observe how when the two mentioned control mechanisms are weak, the probability of fraud is higher. Later, Beasley (1996) shows how firms with Boards composed mainly by outside directors, both in the audit committee and in the Board, are less likely to commit fraud. Still considering the importance of Board composition, literature has provided evidence of the positive relationship between the duality of the CEO (CEO is also the Chairman of the Board) and likelihood of financial frauds (Sharma, 2004). In the same study, Sharma points out that no-fraud firms have a higher percentage of outside members in their board compared to the fraud firms. At the same conclusions Uzun, Szewczyk and Varma (2004) arrive by in their work. On the same path, Dechow (1996) observes how fraud firms are more likely to have the founder serving as CEO and also a greater frequency of the CEO serving as Chairman of the Board. Furthermore, Beasley, Carcello, Hermanson and Lapides (2000), analysing at one time many corporate mechanisms for fraud companies, find out that fraud firms have less independent audit committees, less independent boards, and less internal audit support, compared to non fraud firms. More in general, they observe that where controls over the top management are weak, a significant condition exists that could allow fraudulent financial reporting to occur.

Still considering the concept of the independence, we want also to point out the importance of the external auditors' independence: when non audit services are sold by the external auditor to the firm, this can potentially hurt the quality of the audit and affect the audit output, allowing the firm to have not fair and true financial reporting. To mitigate the problem deriving from this kind of situation, the reputational capital of the auditor can play an important role: the auditor firm will not accept illegal behaviour in exchange of non audit service to be delivered to not damage its reputation (Agrawal *et al.*, 2005). According to Fairchild (2006), the auditor retention can also increase the probability of fraud detection or, at least, reduce the level of the fraud.

It seems evident how also the Board of Directors' features and actions can have a great impact on the likelihood of financial statement fraud.

Thus, the impact of various measures of governance on the fraud occurrence has been studied in many researches, but, to our knowledge, no research has focused its attention on the impact of the governance mechanisms on the level of the frauds. We argue that the corporate governance mechanisms cannot be analyzed singularly. Some mechanisms, that are apparently unrelated, can be connected, directly or indirectly and, on our opinion, they can impact differently on the fraud occurrence and on the fraud level. Thus, we argue a deeper and more complex study on how the different corporate governance mechanisms interact is needed, in order to analyse the factors that determine more frequently the fraud occurrence and its magnitude, and, consequently, understand the eventual actions to implement to avoid or, at least, prevent frauds.

Therefore, the third purpose of this work is to provide an analysis of the role of corporate governance mechanisms on financial statement fraud, considering simultaneously all the governance mechanisms particularly relevant according to the reviewed literature (Board of Directors features and rules, CEO and Executives characteristics, the compensation system for top management, the audit committee features, and the external auditors):

HP3: Different corporate governance mechanisms have different impacts on financial statement fraud occurrence and level.

Due to the different results provided by literature on the variety of mechanisms and their impact on frauds and due to the inexistence of literature concerning the relation between governance mechanisms and level of financial statement fraud, we cannot expect a priori a specific sign of the relation of each mechanism on fraud. Moreover, no previous works testing this relationship comprehensive of all the governance mechanisms exist; therefore the results we will get will be completely new and will provide a base for further researches.

Thus, consistent with prior studies on corporate governance (Gompers et al., 2003; Dey, 2008; Larcker, 2007; Brown and Caylor, 2008), we have no expectations on the single governance mechanisms' impact on fraud. Testing this hypothesis, we will be able to understand the impact on the financial statement fraud occurrence and magnitude of each mechanism. It is necessary one more time that these mechanisms are viewed not as atomistic elements, but as components of a more complex corporate governance construct.

CHAPTER 3

3. Sample and Data

In order to test the hypothesis previously described, a longitudinal analysis, covering a 14 years period (from 1992 to 2005), is conducted on a sample of 214 listed firms. Of these, 107 represent the “fraud firms” because each of these companies had an occurrence of financial statement fraud during the considered time period. Subsequently, each of the fraud firm is matched with a no-fraud firm, creating a choice-based sample of 107 fraud and 107 no-fraud firms.

Fraud firms

The fraud firm sample includes financial statement fraud cases, occurred, during the period of analysis, in US, France, Germany, Italy, Belgium, United Kingdom, Switzerland, Netherlands, Russia, Ireland, and Sweden.

Financial statement fraud can be implemented through the use of different techniques. On the same path of Beasley, Carcello, Hermanson, and Lapedes (2000), we consider as a financial statement fraud the following techniques, previously described:

- Improper revenue recognition: creation of fictitious revenue transactions, such as premature revenue recognition, improper cut-off sales, unauthorized shipments sham sales;
- Overstatement of assets: capitalization of expenses as assets, usage of higher market value to increase the value of the asset. Accounts receivables, inventories, property plant and equipment, cash and patents are the asset accounts most common to be misstated;
- Understatement of Expenses/Liabilities: underestimation of pension liabilities, insufficient allowance of bad debt expenses, inadequate loss loan reserve, not adjusting in securities for decrease in the market value, failing in accrue warranties or commission liability, improper deferral of expenses;
- Misappropriation of assets: registration of fictitious assets or asset not owned;
- Inappropriate disclosure: it occurs whenever there is not a financial statement line item effect due to improper or omitted disclosure on the items or on the related-party transactions, changes in accounting principles less transparent;

- Other miscellaneous techniques: they can impact on equity account records, related-party transactions and misclassification of gains.

As far as the US fraud firms is concerned, the data are taken from the database of fraud firms provided by the Authors of the “Fraudulent Financial Reporting: 1998-2007 – an analysis of US Public Companies”, a research commissioned by the Committee of Sponsoring Organizations of the Treadway Commission (COSO)⁷. In this study instances of fraudulent financial reporting, alleged by the Securities and Exchange Commission (SEC) in the Accounting and Auditing Enforcement Releases (AAERs), were analyzed⁸. The AAERs is one of the most comprehensive sources of alleged, discovered cases of financial statement fraud in the US. The focus is on AAERs that involve an alleged violation of the Rule 10(b) of the 1934 Securities Exchange Act or Section 17(a) of the 1933 Securities Act, given that these two rules represent the primary antifraud provisions related to financial reporting for US public companies. For the instances of fraudulent financial reporting, the related fraudulently misstated reports were issued between 1990 and 2006. Our analysis is aligned with the COSO research, considering that both exclude the restatements of financial statement due to errors or earning management activities that do not result in a violation of the antifraud rules; thus that cannot be considered examples of fraudulent financial reporting cases.

As far as the European context is concerned, no existing official databases on fraud occurrence and information are provided. Thus, we built up our own database, taking into account the information available on the “Loss and Litigation Report” of November 2005, published by GenRe. This report examines the press articles on detected financial statement frauds and sums up the main information about the type of fraud specifying, in some cases, also the amount deceived through the fraudulent behaviour⁹. The instances contained in this booklet came solely from publicly available information. Moreover, with the aim of finding fraudulent firms, useful to enrich our database, we looked also at some National Authorities in charge of the detection and the sanction of frauds. These Authorities, in fact, in order to give a report about their annual

⁷ COSO sponsored this study to provide a comprehensive analysis of fraudulent financial reporting occurrences investigated by the US Securities and Exchange Commission between January 1998 and December 2007. This study updates the previous report still commissioned by the COSO, concerning the US financial statement fraud occurred between 1987 and 1997.

We thank the Authors of the cited research, Professors Beasley M.S., Carcello J.V., Hermanson D.r., and Neal T.L., for having given the opportunity to use their database and for the support offered to conduct this analysis.

⁸ In details, to develop the database, the Data Collection Team read each single AAERs issued by the SEC between January 1998 and December 2007

⁹ The information provided by this report concern the company, the country where it operates, the subject(s) who detected the fraud, the date of the detection, the kind of fraud, and sometimes the deceived amount. The report is available at the website: http://www.genre.com/sharedfile/pdf/LLR_DO_EU3-en.pdf

activities, publish some documents concerning fraudulent firms. For instance, concerning the Italian context, the information came from the CONSOB Authority; for France from the Autorité des Marchés Financiers (AMF); and for Germany from the documents published by the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin), the German authority for stock exchange markets.

Further information on fraud data has been taken from the Stock Exchanges (e.g. looking at the specific section for “news” and “relevant facts”) of each country.

For each fraud firm, the overstatement, as documented by the SEC (in the AAERs) or the overstatement as reported in the available public documents of the company, was considered, taking into account the magnitude of the fraud and also how the fraud was committed (which accounting records were involved). Acting in this way we have the opportunity to collect not only quantitative information, but also some qualitative information useful to conduct a qualitative descriptive statistic analysis, too.

For the US companies included in the sample, corporate governance data were taken from the Institutional Shareholder Services (ISS) database, from the Standard and Poor’s COMPUSTAT database, and from the single corporate governance reports of the firms, available on their websites.

For all the other companies of the sample, the governance data were taken from the Osiris database and from the Bloomberg website¹⁰, or hand collected from each specific National Authority for the Stock Exchange Market, such as the Borsa Italiana for Italy, the NYSE Euronext for France and Deutsche Börse Group for Germany. Where those data were not provided or insufficient for our analysis, the individual company documents and reports were analysed to complete the fulfilment of the data by hand collection.

Concerning the financial data, the DATASTREAM database was used to collect information for all the firms included in the sample of our analysis.

Some worldly wisdoms have been taken during the data collection and firm selection processes:

¹⁰ www.investing.businessweek.com

1. All data have been selected looking at the year preceding the years in which the fraud occurred, due to the fact that the data in the fraud occurrence year could have been affected by the fraud situation;
2. Any State companies have been included in the sample, due to their particular features, which could affect the results of the work;
3. Any financial institution, insurance firm or bank has been included in the sample, due to their particular businesses and the different kind of financial statement compared to the ones of the companies belonging to all the other types of industries.

The starting sample of fraud companies was composed by a number of firms given by the COSO research database and a number of firms found through the process previously described.

Specifically, COSO database provided 347 fraud firms involved in alleged instances of fraudulent financial reporting during the considered period. These 347 alleged fraud instances are described in 1,335 individual AAERs. From these 347, we took only those for which the amount of the fraud was specified, obtaining a sample of 187 companies. From this smaller sample we excluded the financial institutions, the insurance firms and the, getting 161 fraud firms. Moreover, we eliminated the firms with not enough corporate governance and financial data, obtaining, at the end, 78 from the COSO list of fraudulent firms.

Concerning the other fraud firms, operating mostly in Europe, we had a first sample of 43 companies. Starting from this sample, first of all we eliminated those with no fraud data, getting a 34 firms sample; after that, we excluded the financial institutions, insurance firms and banks, getting a sample of 33 firms. Finally, we eliminated those companies with not enough corporate governance and financial data, arriving at a final list of 29.

Thus, the final sample of fraud firms is composed by 107 companies, belonging to eleven different countries, accused of financial statement fraud in the period of time between 1992 and 2005.

TABLE 1**Summary of Sample Selection Screen**

<i>Selection Criteria</i>	<i>Number of firms</i>
Total firms accused of fraud	390
<i>Less:</i>	
- Firms with not specified fraud amount	169
- Banks, insurances and financial institutions	27
- Firms with not enough corporate governance information	71
- Firms with not enough financial data	16
Final sample of fraud firms	107

Matched Sample

Following the literature described in the previous chapter, each fraud firm is matched with a no-fraud firm (Beasley, 1996; Beasley *et al.*, 2000; Agraval and Chada, 2005). In choosing the no-fraud firm, some criteria of similarity with the fraud firm have been adopted. Specifically, the features taken into account to assure the similarity are:

- *Industry*: the no-fraud firm was selected if its four-digit SIC code was equal to the one of the fraud firm. If no four-digit SIC code match was available, we looked at three-digit SIC code. If even the three-digit SIC code was not possible to match, we looked at the two-digit SIC code¹¹;
- *Size*: the no-fraud firm was selected on the base of the size, measured by the Total Asset (TA) or the amount of Sales (SALES) or the Market Value of the firm given by the market capitalization (MKT CAP). A firm is considered as a matched firm if at least two of the three parameters are within +/- 30% of the value of the same parameters of the fraud company in the year before the fraud occurrence;
- *Time*: a no-fraud firm is considerable as a match of a fraud firm only if it existed at the year preceding the fraud occurrence, committed by its matched fraud firm;
- *Country*: the no-fraud firm was selected among companies belonging to the same country of the fraud firm.

The matching firms were matched with the fraud firms for the described parameters in the year preceding the first known misstated financial statement, in order to have comparable data, not affected by the fraud occurrence (“last clean financial statement”).

For the US matching firms, all the data were taken from Compustat and ExecuComp databases, considering only the firms not subject to AAERs at any time during the sample period.

¹¹ 23 of the 107 fraud firms were matched with no-fraud firms within the same two-digit SIC code.

Concerning the European context, no-fraud firms' data were taken from Datastream database.

<i>Selection Criteria</i>	<i>Number of firms</i>
Total firms accused of fraud	390
<i>Less:</i>	
- Firms with not specified fraud amount	169
- Banks, insurances and financial institutions	27
- Firms with not enough corporate governance information	71
- Firms with not enough financial data	16
Final sample of fraud firms	107
Matched based on:	
- 4 Digit SIC Codes	84
- 3 Digit SIC Codes	0
- 2 Digit SIC Codes	23
Final sample of matched firms	107

CHAPTER 4

4. Methodology

4.1 Dependent variable

Financial statement fraud is the dependent variable (FRAUD).

For the purposes of this study, the term “financial statement fraud”, shortly “fraud”, represents the intentional material misstatement of financial statements or financial disclosures or the perpetration of an illegal act that has a material direct effect on the financial statements or financial disclosures. The term financial statement fraud was distinguished from other causes of materially misleading financial statements, such as unintentional errors and other corporate improprieties that do not necessarily cause material inaccuracies in financial statements. Also restatements due to errors or earning management activities are not included, considering they do not represent any violation to the antifraud securities provisions.

Prior researches, testing the relationship between corporate governance mechanisms and financial frauds, used to consider the dependent variable fraud as a dichotomous variable, equal to 1 when the fraud occurred, 0 otherwise (Beasley, 1996; Erickson *et al*, 2005).

On our opinion, this method can be inappropriate for our analysis due to the fact that different magnitude of the fraud can take place. The dimension of the fraud has to be captured in the analysis, considering that a larger fraud has a greater negative impact on the market and causes higher damages to its “victims”. Including the dimension aspect in the variable FRAUD allows us to measure the impact of corporate governance at the different levels of the fraud, and highlights the governance mechanisms that affect most the largest frauds. Thus, in our analysis, the first step is connected to the calculation – for each firm – of the level of the fraud (LEVEL). This has been determined by the ratio between the amount deceived through the fraud and the total assets of the firm. This method seems to be appropriate to standardize the values of the variable and make them statistically significant and comparable. It is appropriate to specify that when the fraud was not isolated to a single fiscal year, its total amount has been considered.

After the standardization procedure, we create four ranges of fraud (No fraud, Low, Medium and High amount of fraud), representing four level of fraud occurrence. In order to express the fraud through a quantitative ordinal variable, the four ranges are expressed on a scale of numbers and

each firm belongs to one of the fraud ranges, depending on the fraud level committed. In sum, the dependent variable FRAUD is equal to 0, 1, 2 or 3, as follows:

- No Fraud (Range equal to 0): all the firms of the matched sample which did not commit any fraud are coded as 0;
- Low Level of fraud (Range equal to 1): firms with a LEVEL between 0 (non included) and 5% included;
- Medium Level of fraud (Range equal to 2) firms with a LEVEL between 5 (not included) and 30% included;
- High Level of fraud (Range equal to 3), firms with a LEVEL higher than 30%.

Fraud Firms with a Low Level of Fraud (Range = 1)	25
Fraud Firms with a Medium Level of Fraud (Range = 2)	43
Fraud Firms with a High Level of Fraud (Range = 3)	39
Total firms accused of fraud	107

4.2 Independent variables

The corporate governance variables, included in the corporate governance index we built, are the most relevant variables considered by the international literature previously described.

Starting from the ownership structure, a dummy variable (BLOCK) identifies the presence of a blockholder or not in the firm, distinguishing the firms belonging to a Blockholder corporate governance system from those belonging to a Shareholder one. Thus, the variable is coded as 1 if the blockholder exists; 0 otherwise.

Consistently with previous studies (e.g.: Larcker *et al.*, 2007; Chen *et al.*, 2007), we define as “Blockholder” a shareholder, or a cohesive group of shareholders, who owns a percentage of outstanding shares with voting rights higher than 5%.

The variable MNGT OWN is a continuous variable that expresses the percentage of ownership held by the management or by the directors who serve the Board. According to previous literature (Beasley, 1996), this variable controls for the differences in the kind of blockholders holding the majority of the company. In fact, if the ownership is held by management directors, the likelihood of affecting who is chosen to serve on the Board and of influencing who is monitoring the Board itself will be greater. In the past, a part of the literature sustained that the

more shares were held by the management, the stronger the incentive to work fairly in order to enhance the value of the firm (Jensen and Meckling, 1976). Later, some other authors found the opposite evidence, studying this phenomenon: the more shares were detained by the management, the higher the likelihood of fraud occurrence (Loebbecke *et al.*, 1989).

Concerning the Board of Directors, the created variables represent some features and aspects particularly relevant for literature in analysing the relation between corporate governance and fraud. Specifically, the number of Board members (BOD SIZE) indicates how many members are present in the Board; the largest part of the literature agrees with the idea that smaller Board are more efficient in controlling the CEO and management work, while larger Boards are more easily controllable by the CEO (Jensen, 1993; Lipton and Lorsch, 1992). The independence of the Board is measured through the ratio between the number of independent (both grey and outsider) Board members and the total number of Board members (BOD IND). Beasley (1996), Uzun *et al.* (2004), and Larcker *et al.* (2007) find that the higher is the percentage of outside directors, the higher the effectiveness of the Board's monitoring functions. Then, we also take into account the average age of the Board members (BOD AGE) and the number of Board meeting per year (BOD MEET), considering that the higher is the number of meeting per year, the higher the accuracy in their duties (Lipton and Lorsch, 1992; Byrne, 1996). The chairman tenure variable (CHAIRTEN) measures the number of year that the chairman served as chairman. Finally, concerning the Board, we consider the presence of directors that serve also on other Boards, creating a dummy variable (ID) coded as 1 if there is the presence of interlocking directorships, 0 if the interlock does not exists. The variable ID has been created to see whether being a Board member in more than one company can be a factor which impacts on the likelihood and the magnitude of the fraud.

The Audit Committee, the Compensation Committee, and the Nomination Committee are analysed considering them in relation with their independence through three dummy variables (respectively AUD IND, COMP IND and NOM IND) equal to 1 if the majority of the committee is composed by independent directors, 0 otherwise. The audit committee is responsible for overseeing the financial reporting process and assuring the objectivity of the external audit. The compensation committee decides on the amount of the senior officers' compensation and should try to align the incentive schemes of the officers to the firm's goals. Finally, the nomination committee has to assure a fair and useful selection of candidates who would become Board

members (Uzun *et al.*, 1994). Thus, after these considerations, the independence of these committees has to be seen as a key factor for the effective functioning of the Board¹².

Concerning the audit committee, we consider the presence of a financial expert among the Board members, measured by a dummy variable, equal to 1 if there is and 0 otherwise (AUD FINEXP). In fact, according to Agrawal and Chada (2005), members with no experience in accounting or finance are less likely to be able to recognise troubles in financial statements, and, as a consequence, the audit committee becomes less vigilant. We follow the definition of financial expert given by these Authors, considering that the audit member is a financial expert if he/she is a CPA, CFA or has a corporate financial management experience.

Concerning the CEO figure, we create some variables that represent some features and the main aspects that could impact on the firm corporate governance efficiency. First, we consider the possibility of the presence of the CEO duality, when the CEO is also the chairman of the Board. This phenomenon is measured with a dummy variable (CEO DUAL), equal to 1 in presence of the CEO duality, 0 otherwise. According to Jensen (1993), the role of the chairman should be separated from the role of the CEO, in order to have a Board which is an effective monitoring device and, as appointed by Yermack (1996), the CEO duality is seen as a factor that erodes the independence of the Board.

Moreover, we measure also the CEO tenure through a variable, which considers the number of years that the CEO served as CEO (CEOTEN). This variable is seen as a critical factor in considering the likelihood that the CEO influences both the Board composition and its monitoring functions on the financial statement (Beasley, 1996). In fact, as Hermalin and Weisbach (1988) point out, an established CEO is believed to have more power on the Board and can influence easily its decisions than a new CEO. This power becomes stronger when the CEO is also the chairman of the Board (Loebbecke *et al.*, 1989; Johnson *et al.*, 2008).

Regarding the CEO compensation, we consider the ratio between the value of the stock option granted to CEO and his/her total annual compensation (CEO SO), in order to understand whether the weight of this incentive could affect the fraud occurrence and its magnitude. Moreover, we create a variable (LEV COMP) that puts in relation the variable annual compensation (given by the sum of stock options, bonuses, and all other variable compensations) with the annual salary. This variable represents the leverage between the two different forms of remuneration. To our

¹² The Sarbanes-Oxley Act of 2002, recognizing the importance of the committees independence, requires that all the public companies must have an independent Audit Committee. Moreover, the NYSE, since 1978, has required registrants to have an Audit Committee totally independent and, more recently, has proposed the total independence also for the other two committees.

knowledge, no previous studies on fraud have investigated – with this perspective – the impact of CEO types of remuneration on fraud. All the described variables have the aim to measure the different impacts of the different kind of compensations the CEO receives on the likelihood and magnitude of fraud occurrence.

In relation with the external auditor, following the study of Agrawal and Chada (2005), we consider if the auditor is one of the so called “Big Five” (PriceWaterhouseCoopers, KPMG, Ernst&Young, Deloitte&Touche and Arthur Andersen) or not, creating a dummy variable (BIG5) coded as 1 if the auditor is one of the big five, 0 otherwise. Then, in relation to the independence of the external auditor, seen as a necessary condition to assure the fairness of the financial reporting, we take into account the fees paid by the companies to the auditors, considering the percentage of the non-audit fees on total fees paid to the auditors (NONAUD FEES). We have to underline that, after the Sarbanes-Oxley Act of 2002 and the other laws and regulations born as an answer to the financial scandals (i.e. the UK Combined Code on Corporate Governance of 2003, the Italian Draghi Reform of 1998 and Preda Report of 2002, the 2nd Vienot Report of 1999 for France, the Swiss Code of Best Practice of 2002, the Sweden Code of Best Practice of 2002, the Dutch Corporate Governance Code of 2003, the Belgian Code of Corporate Governance of 2004, the Baums Report of 2001 for Germany and, in general, the OECD Principles of 2004 for other European companies), a key provision, regarding the issue of the external auditor independence, restricted the type of non-audit services that an auditor can offer to its client. To control for this new rule and for the other requirements emitted by these laws, we create a control variable (TIME), explained in the following paragraph.

In order to test the second hypothesis (impact of corporate governance as a whole on financial statement fraud) and the third one (impact of governance dimensions on financial statement fraud), the independent variables, measuring the governance of the firm, are constructed creating a pyramidal set of indexes.

Beginning from the bottom, we identify the traditional corporate governance mechanisms provided by literature, in order to collect a wide number of corporate governance variables related to them. The corporate governance mechanisms taken into account in the indicators choice are the Board of Directors (features and rules), the CEO and Executives characteristics, the compensation system for top management, the audit committee and the external auditors. We remind that the ownership structure in this study is not considered as a governance mechanism, but a variable that determines the type of corporate governance model adopted by the firm.

For each mechanism, a number of indicators (governance variables) is considered, as presented later in the paragraph. These governance indicators are taken relying on the previous literature on frauds. We remind that we took into account only the internal mechanisms, for the reasons previously explained. The bundle of these indicators constitutes our set of individual corporate governance variables.

Considering separately these individual corporate governance variables, we would have a model with too many potentially insignificant governance indices that may distort the finding of a link between certain “core” mechanisms and the fraud. This error in the estimation of the mechanisms’ impact on frauds would happen due to the correlation among the single variables, obtaining spurious inferences (Agraval and Knoeber, 1996; Bowen *et al.*, 2005; Dey, 2008).

In order to avoid this problem, a Principal Components Analysis (PCA) is applied on these variables in order to get distinct governance factors representing each a dimension of the corporate governance that includes all those variables that are highly correlated.

The PCA procedure reduces the individual variables into a smaller number of principal components (artificial variables), which, in our work, are the corporate governance dimensions, that account for most of the variance in the observed variables.

We use the exploratory principal component analysis (PCA), which make as able to identify the underlying dimensions of corporate governance, following the approach adopted by Larcker *et al.* (2007). By applying the PCA, we identify 17 components (the number of components coming out from the PCA is equal to the number of variables inserted in the analysis), which are the artificial variables (also called factors) coming out from the analysis. We retain all the components with an eigenvalue greater than 1, obtaining 7 factors that explain the 64,88% of the total variance in the original set of data.

Here the results of the PCA with the 17 initial components are presented:

TABLE 4**Principal Component Analysis - Principal Components**

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	2.73862	.80146	0.1611	0.1611
Comp2	1.93716	.434322	0.1140	0.2750
Comp3	1.50284	.13202	0.0884	0.3634
Comp4	1.37082	.0571076	0.0806	0.4441
Comp5	1.31371	.168032	0.0773	0.5214
Comp6	1.14568	.125551	0.0674	0.5888
Comp7	1.02013	.104565	0.0600	0.6488
Comp8	.915564	.0920842	0.0539	0.7026
Comp9	.82348	.058928	0.0484	0.7511
Comp10	.764552	.0599516	0.0450	0.7960
Comp11	.704601	.0646082	0.0414	0.8375
Comp12	.639992	.0268245	0.0376	0.8751
Comp13	.613168	.118703	0.0361	0.9112
Comp14	.494465	.0275669	0.0291	0.9403
Comp15	.466898	.0627066	0.0275	0.9677
Comp16	.404192	.260069	0.0238	0.9915
Comp17	.144123	.	0.0085	1.0000

The 7 factors with the eigenvalue higher than the unit are then rotated in order to understand which are the corporate governance variables that determine each of them. The 7 factors represent the underlying dimensions of corporate governance for our selected variables; thus from the PCA we obtained 7 governance dimensions.

To determine which variables are the most relevant for each factor, we look at the eigenvectors of the variables for each component. The higher the eigenvectors, the most the variable explains the factor. We consider only the highest eigenvectors for each variable, which means that each variable has been used as an explanatory variable in only one factor.

TABLE 5
Principal Component Analysis - Eigenvectors

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6	Comp7
CEO DUAL	-0.0024	0.0792	-0.0876	0.5641	-0.0181	-0.2433	0.5197
BOD MEET	0.2548	-0.0255	0.3999	0.0673	-0.3808	-0.2258	-0.0973
ETHIC	0.3259	-0.1221	0.0208	-0.0826	0.3101	-0.0898	-0.0845
AUD IND	0.3312	-0.1667	-0.2343	0.2728	0.1944	0.0061	-0.1400
NOM IND	0.4152	-0.1145	-0.1531	0.1742	0.2426	-0.0998	-0.0932
COMP IND	0.4366	-0.1370	-0.0112	-0.0334	0.2304	0.1087	-0.0329
BOD SIZE	-0.0378	0.1898	0.4063	-0.1766	0.4624	-0.0591	-0.0280
BOD AGE	0.1197	0.2068	0.3143	-0.2516	0.2111	0.0659	0.3179
BOD IND	0.2315	-0.0617	0.1767	-0.1245	-0.1060	0.0005	0.5495
AUD FINEXP	0.3047	0.0308	-0.0905	-0.4367	-0.2837	0.0899	0.1285
CHAIRTEN	0.1510	0.6150	-0.1571	-0.0704	0.0341	-0.0794	-0.1882
CEOTEN	0.1628	0.6138	-0.1554	0.0830	-0.0134	-0.2016	0.0309
ID	-0.2886	0.0298	0.1688	0.1646	0.4440	-0.0261	0.1396
BIG5	0.2195	0.0396	0.1562	0.2618	-0.0898	0.4564	0.2347
NONAUD FEES	-0.0081	0.2739	-0.0560	0.2173	-0.0772	0.5910	-0.0764
CEO SO	0.0415	0.0241	0.3608	0.1722	0.0159	0.3772	-0.2582
LEV COMP	0.1069	0.0443	0.4639	0.2822	-0.2143	-0.3107	-0.2831

As we can see from the table 5, each governance variable is selected as a determinant for a dimension only one time; in other words, it is present in only one factor, more specifically in the factor where it shows the higher eigenvector.

Then, we label each dimension depending on the kind of variables that explain it, creating in this way the aspects of corporate governance. For some factors is easy to define a name because it is explained by variables expected to be correlated, such as the factor1 composed mainly by governance variables reflecting the independence of the Board. For other factors, the naming process is more difficult due to the fact that its relevant indicators can belong to different aspects of corporate governance, such as in the case of our factor 3, which includes both compensation system variables and BoD characteristics variables.

Considering that each dimension captures some governance aspects through variables, we labelled these 7 dimensions as follows:

- Component 1 = BoD Independence Dimension
- Component 2 = Top Management Tenure Dimension
- Component 3 = BoD Decisions Dimension
- Component 4 = CEO Duality Dimension
- Component 5 = BoD and BoD Members Features Dimension
- Component 6 = External Auditor Dimension
- Component 7 = BoD Characteristics Dimension

In the following table, we summarize the variables that determine the 7 components (or dimensions) described above, specifying the name given to each of the 7 dimensions and the governance variables that affect them mostly. The dimensions are used as independent variables in the model to test the hypothesis.

TABLE 6
Corporate Governance Dimensions

Dimension - independent variable -	Dimension name - CG Aspect -	Dimension Components - CG variables determinants -
DIM 1	Board Independence	ETHIC; AUD IND; NOM IND; COMP IND; AUD FINEXP
DIM 2	Top Management Tenure	CHAIRTEN; CEOTEN
DIM 3	Board Decisions	BOD MEET; CEO SO; LEV COMP
DIM 4	CEO Duality	CEO DUAL
DIM 5	Board and Board Members Features	BOD SIZE; ID
DIM 6	External Auditor	BIG5; NONAUD FEES
DIM 7	Board Characteristics	BOD AGE; BOD IND

Once the corporate governance dimensions are obtained, a Corporate Governance Index (CGI) is constructed. It represents the corporate governance as a whole and it is useful to test the incidence of the corporate governance of the firm on the fraud occurrence and level. The CGI has the aim to capture all the corporate governance aspects of a firm.

The main problem in the construction of the Corporate Governance Index relies on the absence of a well-developed theoretical work on the multi-dimensional construct of corporate governance.

The largest body of researches used a single indicator for corporate governance or arbitrary indicators. Considering an individual governance factor as representative of corporate governance appears to us reductive and, moreover, leads to errors in the measurement due to the regression coefficient, which will be inconsistent (Larcker *et al.*, 2007). The same statistical and econometric problems can occur in case a set of indicators are simply summed together to obtain a unique corporate governance index, such as the G-score index built by Gompers *et al.* (2003).

Previous studies built indices to measure the overall corporate governance through different methodologies. For instance, Gompers *et al.* (2003), after having coded 24 governance provisions in binary factors (1=present; 0= not present) and cluster them into five groups (data taken from the Investor Responsibility Research Center – IRRC), created a G-Index summing 24 binary governance factors and obtaining a G-Index for each firm, which could be from 0 to 24. On the same path, Brown and Caylor (2006) built their corporate governance index, called Gov-Score, as the sum of 51 binary governance items, where each is equal to 1 if it represents acceptable

governance, 0 otherwise. Bebchuk *et al.* constructed a governance index, called E-Index (Entrenchment Index), which relies on the G-Index by Gompers *et al.* (2003), varying in the choose of the provisions included in it, but giving the same weight to each provision.

Here we propose a new methodology to build the CGI. First, we classify the corporate governance variables, previously considered, into binary records, following the Browns and Caylor’s (2006) approach, which are coded as 1 if the Institutional Shareholders Services (ISS) or the literature consider the firm’s governance variable minimally acceptable, 0 if not. We determine if a firm’s governance variable is minimally acceptable using the information provided by the “ISS Corporate Governance: Best Practice User Guide and Glossary” (2003) and by previous literature.

Referring to what it has been explained in the paragraph 1.4.4, “Bad and Good Governance” and to what the Best Practice User Guide and Glossary of the ISS states, we propose a summarizing table which shows when a corporate governance variable has been coded as 1, thus as “good” element of corporate governance” and coded as 0 in the opposite case:

TABLE 7		
Variables		
<i>Variable</i>	<i>Definition</i>	<i>Value</i>
BOD SIZE	Small size: boards are more efficient when their size is small (Lipton and Lorsh, 1992; Jensen, 1993; Yermack, 1996). The optimal number according to literature is 8 or 9. The ISS state that the number of Board members should not exceed 15.	The variable is coded as 1 if the number of Board Members is less or equal to 8
BOD IND	The independent directors are believed to be better able in monitoring managers and CEO (Fama and Jensen, 1983; Weisbach, 1988). The ISS state that more than half of the Board should be composed by independent directors.	The variable is coded as 1 if more than half of the Board is composed by independent directors
BOD MEET	High number of Board meetings per year: the more they meet in one year the more they will be conscious of the company situation and reality, having the change to better decide on the firm’s actions to be implemented (Lipton and Lorsch, 1992).	The variable is coded as 1 if the number of Board meeting in a year exceeds 6
BOD AGE	Young and not busy directors: old and busy directors are less efficient in the monitoring function (Core <i>et al.</i> , 1999; Ferris and Pritchard, 2003).	The variable is coded as one if the average age of the Board members is lower than 55 years old

CHAIRTEN	Not very long chairman tenure: a long staying in the same company can lead these top management figures to behave and act like the owners of the company (Loebbecke <i>et al.</i> , 1989; Johnson <i>et al.</i> , 2008).	The variable is coded as 1 if the Chairman tenure is less than 5 years
ID	No ID: The ISS state that a director should not seat in more than 5 additional Boards.	The variable is coded as 1 if there is no interlocking directorship for any member of the Board
AUD IND	Independence: the independence of the Audit Committee can assure a better and fair control over the management operations (Uzun <i>et al.</i> , 1994).	The variable is coded as 1 if the majority of the Audit Committee is composed by independent directors
NOM IND	Independence: the ISS state that the Nomination Committee should be composed only by independent directors	The variable is coded as 1 if the majority of the Nomination Committee is composed by independent directors
COMP IND	Independence: the ISS state that the Compensation Committee should be composed only by independent directors	The variable is coded as 1 if the majority of the Compensation Committee is composed by independent directors
AUD FINEXP	Presence of a financial expertise: this allows discovering more easily eventual mistakes and misreporting in the financial statement (Agraval and Knoeber, 1996; Agraval and Chadha, 2005).	The variable is coded as 1 if in the Audit Committee is present a financial expert
CEO DUAL	No CEO duality: the main part of the literature agrees on the fact that if there is no CEO duality the independence of the board is preserved (Yermack, 1996; Sharma, 2004). The ISS state that the CEO and the Chairman duties should be separated.	The variable is coded as 1 if there is no CEO duality
CEOTEN	Not very long CEO tenure: an established CEO is believed to have more power on the Board and can influence easily its decisions than a new CEO; this power becomes stronger when the CEO is also the chairman of the Board (Hermalin and Weisbach, 1988).	The variable is coded as 1 if the CEO tenure is less than 5 years
CEO SO	Low level of stock options: the equity-based compensation has the consequence of creating the incentive to commit managerial fraud (Bruner, McKee and Santore, 2005)	The variable is coded as 1 if the ratio between the value of the Stock Option granted and the total annual compensation is lower than 30%

LEV COMP	Low level of option incentives: the literature considers the option incentives' intensity positively correlated with the bad behavior and performance of the managers (Erickson <i>et al.</i> , 2006; Peng and Roell, 2006).	The variable is coded as 1 if the compensation leverage is lower or equal to 1
BIG5	Good reputation: it is seen as warranty for the audit quality (Agraval and Chadha, 2005).	The variable is coded as 1 if the external auditor of the firm is one of the so called BIG5 (KPMG, Ernst&Young, PriceWaterhouseCoopers, Deloitte&Touche and Arthur Andersen)
NONAUD FEES	Independence: the external auditors' duty is to enhance the credibility of the financial statement of the firm so their independence from the firm is a fundamental requirement (Frankel, Johnson and Nelson, 2002). The ISS state that the consulting fees to the external auditors should not be more than the audit fees paid to it.	The variable is coded as 1 if the ratio between Non Audit Fees and the Total Fees paid to the external auditor is lower than 50%

Once this classification has been made, the next step consists in the codification of the governance dimensions into binary records. As said before, the governance dimensions coming from the PCA are composed each by a number of individual governance variables. Each dimension, if half or more of the individual governance factors included in it are coded as 1, is coded as 1, meaning that it can be considered a dimension with a governance level minimally acceptable. If less than half of its individual governance factors are coded with 1, the dimension's code is 0, indicating that dimension does not support the minimally acceptable governance standard, indicated by the ISS or by the literature.

The codes' sum of all the dimensions determines the CGI of the firm. Given that the dimensions are 7, the maximum value the CGI can reach is 7. Applying this procedure, we create a corporate governance index that, referring to the governance dimensions and not to the single governance variables, first avoids the correlation problems among the individual variables in testing the relation with frauds, and second represents the overall level of the governance of a firm, not only some aspects of it. The higher is the score of the CGI, the better the governance of the firm.

4.3 Control variables

In order to test our hypothesis, considering all the factors that can have an impact on our dependent variable, we propose the following control variables, supported by prior researches:

- Financial leverage (FINLEV): measured by the Long Term Debt / Equity ratio. The level of long term debt detained by the company can be a factor positively correlated with the fraud

occurrence, exercising a great pressure on the management decisions and actions, and considering that financially distressed firms can be more induced to commit fraud (Erickson *et al.*, 2006);

- Firm Size (SALES): measured by the Sales of the firm. The firm size can affect the governance structure, thus it has to be included as a control variable in order to separate the possible indirect impact on the dependent variable (Larcker *et al.*, 2007);
- Growth (GROWTH): measured by the Sales growth rate. According to Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), one of the most relevant fraud indicators is the occurrence of a rapid company growth, because if the firm has experienced a rapid growth in the latest years, the management will be induced to misstate the financial statement during a turndown to continue to show a stable growth;
- Restatement (RESTAT): this variable controls the presence of a restatement in the financial statement in the year before the fraud, considering that a restatement in the year before the fraud can be a signal of the likelihood of the fraud occurrence in the year later. Thus, RESTAT plays as a dummy variable, equal to 1 if the restatement occurred, 0 otherwise;
- Return On Equity (ROE): it measures the firm's ability to remunerate shareholders, in other words it is a measure of the overall profitability of the firm. Poor performance of the firm is associated with the increase of likelihood of financial statement fraud (Bell *et al.*, 1991)
- Time (TIME): a dummy variable is generated in order to control for the companies committing the fraud before corporate governance reforms applied after financial scandals, in order to take into account the eventual effect generated by the new laws on corporate governance. This variables was created considering both the country and the time: we looked at the main corporate government enforcement reforms (i.e., the US Sarbanes-Oxley Act in 2002, the UK Combined Code on Corporate Governance of 2003, the Italian Draghi Reform of 1998 and Preda Report of 2002, the 2nd Vienot Report of 1999 for France, the Swiss Code of Best Practice of 2002, the Sweden Code of Best Practice of 2002, the Dutch Corporate Governance Code of 2003, the Belgian Code of Corporate Governance of 2004, the Baums Report of 2001 for Germany and, in general, the OECD Principles of 2004 for other European companies) considering the country and the year in which they have been applied. After that, we coded as 1 the variable if the firm committed the fraud in the considered

country after the adoption of the reform, 0 if the fraud occurred before the reform (or in the same year)¹³;

- Country: considering that the sample is composed by firms operating in different countries, different cultural, legal and regulatory environments could affect the fraud occurrence, thus this variables controls for the impact of these structural differences among the firms. We have a sample with firms belonging to 11 different countries, thus we divide them in three groups in order to have only two country variables and, thus, avoid significativity problems in the regression model due to the high number of variables. We create a first group composed by US and UK firms, a second group composed by Italian, French, German and Swiss companies (COUNTRY1), and a third group (COUNTRY2) which includes all the others. The group with the US and UK firms is taken as the baseline variable;
- Industry (IND): given by the two-digit SIC codes. According with prior researches (Ittner *et al.*, 2003; Larcker *et al.*, 2007), cross-sectional differences have to be consider concerning corporate governance studies in order to assess the accounting and economic consequences of these factors that can also affect the fraud occurrence.

We present here a table which summarizes all the variables described above:

¹³ Only 13 firms on 82 accused of fraud are coded as 1, thus committed the fraud after the new laws on corporate governance of their country.

TABLE 8
Variables

<i>Variable</i>	<i>Definition</i>
DEPENDENT VARIABLE	
FRAUD	<p>The percentage of the fraud is expressed through the ratio between the amount deceived with the fraud and the total asset of the firm.</p> <p>Count variable:</p> <ul style="list-style-type: none"> - No Fraud (0): all the firms of the matched sample which didn't commit any fraud are coded as 0; - Low Level of fraud (1): firms with a LEVEL between 0 and 5% included; - Medium Level of fraud (2) firms with a LEVEL between 5 and 30% included; - High Level of fraud (3), firms with a LEVEL higher than 30%
INDEPENDENT VARIABLES	
BLOCK	<p>Blockholder CG Model</p> <p>A blockholder is defined as the cumulative percentage of outstanding common shares held by a single individual or a cohesive group holding at least 5% of the outstanding stocks. The variable is a dummy variable coded as 1 if the Blockholder exists, 0 otherwise</p>
MNGT OWN	<p>Ownership held by directors</p> <p>The cumulative percentage of ownership held by managers or directors who serve on the board</p>
BOD SIZE	<p>Board Dimension</p> <p>The number of Board members</p>
BOD IND	<p>Board Independence</p> <p>Percentage of Board members who are not officers of the firm (ratio between the number of independent members and the total number of Board members)</p>
BOD MEET	<p>Board Meetings</p> <p>Number of Board meeting in a year</p>
BOD AGE	<p>Age of BoD Members</p> <p>Average age of Board members</p>
CHAIRTEN	<p>Chairman Tenure</p> <p>Number of years that the Chairman has served as Chairman</p>
ID	<p>Interlocking Directorship</p> <p>Dummy variable coded as 1 if there is the presence of interlocking directorships (when a director serve also in other Boards), 0 if the interlock does not exists</p>
AUD IND	<p>Audit Committee Independence</p> <p>Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise.</p>
NOM IND	<p>Nomination Committee Independence</p> <p>Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise.</p>
COMP IND	<p>Compensation Committee Independence</p> <p>Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise.</p>
AUD FINEXP	<p>Audit Committee Financial Expert</p> <p>Dummy variable coded as 1 if there is a financial expert (CPA, CFA or a person with corporate financial management experience) in the audit committee; 0 otherwise</p>
CEO DUAL	<p>CEO Duality</p> <p>Dummy variable equal to 1 in presence of the CEO duality; 0 otherwise</p>
CEOTEN	<p>CEO Tenure</p> <p>Number of year that the CEO served as CEO</p>
CEO SO	<p>CEO Stock Option</p> <p>Ratio between the amount of the value of the total stock option granted and the total annual compensation the CEO received</p>
LEV COMP	<p>CEO Compensation Leverage</p> <p>Ratio between the variable compensation (Stock Option, Bonuses and Others) and the annual salary the CEO received</p>
BIG5	<p>External Auditor</p> <p>Dummy variable coded as 1 if the auditor is one of the big five (PriceWaterhouseCoopers, KPMG, Ernst&Young, Deloitte&Touche and Arthur Andersen); 0 otherwise</p>
NONAUD FEES	<p>External Auditor Fees</p> <p>Percentage of the non-audit fees paid to the auditors. Variable given by the ratio between non-audit fees paid and total fees paid to the external auditor</p>

CGI	Corporate Governance Index	Index which expresses how good is the corporate governance level of the firm. It goes from 0 (bad governance) to 7 (good governance)
FIN LEV	Financial Leverage	Ratio between the long term debt, as a proxy of the financial debts, and the common equity of the firm (Long Term Debt / Equity) * 100
SALES GROWTH	Sales Growth	Represents the sum of Total Revenues of the firm Sales growth rate, given by $(Sales_{t-1} - Sales_{t-2}) / Sales_{t-2}$
RESTAT	Restatement	Dummy variable equal to 1 if a restatement occurred the year before the fraud; 0 otherwise
ROE	Profitability	Return on Equity, given by the ratio between the Net Income and the Equity.
TIME	Corporate Governance Reforms	Dummy variable coded as 1 if the fraud company (and thus its matched company) committed the fraud before corporate governance reforms applied after financial scandals
COUNTRY1	Country	Dummy variable coded as 1 if the company is an Italian, French, German or Swiss firm
COUNTRY2	Country	Dummy variable coded as 1 if the company is from Sweden, Russia, Netherlands, Ireland or Belgium
IND	Industry	Identified by the two-digit SIC code

4.4 Descriptive Statistics

Before testing the hypothesis and verifying the relationships between corporate governance and financial statement fraud, we analyse, through some descriptive statistics, the differences between the fraud firms and non-fraud firms, looking at the values of the variables previously described. The following two tables show the values of the variables first for the fraud firms, and then for the matching no-fraud firms:

TABLE 9
Descriptive statistic - Fraud firms

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
BLOCK	107	.5	.502331	0	1	.5
BLOCK OWN	107	.295083	.7006944	0	.5286	.083
BOD MEET	107	6.888889	4.886245	2	31	5
ETHIC	107	.8981481	.3038634	0	1	1
AUD IND	107	.9166667	.2776739	0	1	1
NOM IND	107	.8055556	.3976175	0	1	1
COMP IND	107	.7962963	.4046288	0	1	1
BOD SIZE	107	9.777778	4.210209	4	30	9
BOD AGE	107	55.06655	7.518169	48.9722	67.53	55.2
BOD IND	107	.4876299	.1788455	.0034722	.875	.45
AUD FINEXP	107	.3888889	.4897708	0	1	0
CHAIRTEN	107	7.611111	4.713935	1	32	6
CEOTEN	107	7.12963	4.411312	1	32	6
ID	107	.3611111	.482562	0	1	0
BIG5	107	.6944444	.4627899	0	1	1
NONAUD FEES	107	.4151365	.2499528	0	.9247863	.4562366
CEO SO	107	.3695924	.3250263	0	1.098032	.3320652
LEV COMP	107	5.8336	4.3162	0	3.6402	1.96600
SALES	107	6687923	2.83e+07	1199	2.81e+08	461581.5
ROE	107	6.783141	23.56718	-85.92	86.02	10.84
FIN LEV	107	1.010276	3.076616	-23.39742	16.05151	.7115359
GROWTH	107	1.947994	11.24178	-.9680234	113.7637	.1968891
RESTAT	107	.212963	.4113103	0	1	0
TIME	107	.1296296	.3374615	0	1	0
COUNTRY1	107	.1481481	.356903	0	1	0
COUNTRY2	107	.1018519	.3038634	0	1	0
CGI	107	4.037037	1.20688	0	7	4

TABLE 10
Descriptive statistic - No fraud firms

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
BLOCK	107	.2735849	.4479162	0	1	0
MNGT OWN	107	.3035967	2.503205	0	.60	.109575
BOD MEET	107	7.471698	2.243329	4	15	7
ETHIC	107	.9716981	.1666217	0	1	1
AUD IND	107	1	0	1	1	1
NOM IND	107	.9339623	.2495279	0	1	1
COMP IND	107	.990566	.0971286	0	1	1
BOD SIZE	107	8.264151	3.26978	4	24	8
BOD AGE	107	56.30698	4.854655	45.62	68.2	56.855
BOD IND	107	.6025943	.1651871	0	.875	.65
AUD FINEXP	107	.9245283	.2654058	0	1	1
CHAIRTEN	107	9.95283	8.282376	0	49	7
CEOTEN	107	8.603774	6.826669	0	34	7
ID	107	.0471698	.2130091	0	1	0
BIG5	107	.8490566	.3596944	0	1	1
NON AUDFEES	107	.4426779	.2441495	0	.9847193	.4187965
CEO SO	107	.3165156	.3360389	0	.9886906	.2239093
LEV COMP	107	2.4353	2.4449	0	2.5172	1.4639
SALES	107	2.70e+07	2.55e+08	1987	2.63e+09	373557
ROE	107	12.0305	21.08862	-46.72	108.26	13.555
FIN LEV	107	-.5286736	18.08862	-183.6953	16.72065	.5767825
GROWTH	107	.3061933	1.10078	-.5561261	10.62489	.1283301
RESTAT	107	.0943396	.2936892	0	1	0
TIME	107	.1226415	.3295836	0	1	0
COUNTRY1	107	.1603774	.3686989	0	1	0
COUNTRY2	107	.1037736	.3064154	0	1	0
CGI	107	4.707547	1.120943	2	7	5

Looking at the data provided by the descriptive statistics, we find some evidences particularly relevant for the purpose of this study.

The presence of a Blockholder is more frequent in the fraud firms, showing a median equal to 0.5, compared to the no-fraud firms' one equal to 0. This fact seems to suggest that the existence of a Blockholder could have a role in the fraud occurrence, coherently with what we expect.

Concerning the percentage of ownership detained by the directors, it is slightly higher (median) in the no-fraud firms. This data seems to accomplish the state of Jensen and Meckling (1976), who sustain that the higher the ownership detained by directors, the stronger the incentive to work fairly in order to enhance the value of the firm.

In the fraud firms the median value for the Audit Committee independence is 0, meaning that the majority of the Audit Committee is not composed by independent directors in most of the case. On the contrary, for no-fraud firms we have the opposite situation. Also the financial expert on the Audit Committee is more often present in the no-fraud firms than in the fraud ones. Thus, the audit committee seems to be more efficient and effective in the no-fraud firms.

Concerning the number of Board meetings and members, they are almost aligned, showing only a slight difference: in fact, in the fraud firms the median number of Board meeting is 5, while in the no-fraud firms is 8, and the median number of Board members is 9, while in the no-fraud firms is 8. These data are aligned with previous literature that sustains that most efficient Boards show a lower number of members and a higher number of Board meetings (Lipton and Lorsh, 1992; Yermack, 1996; Jensen, 1993).

The percentage of independent directors in the Board is higher for no-fraud firms (median equal to 0.65 compared to a median of 0.45 for fraud firms), suggesting that the independence of the Board functions as a monitoring factor, in line with the study of Fama and Jensen (1983) and Weisbach (1988) who sustain that independent directors are better able in monitoring managers and CEO.

The CEO remuneration system shows a higher portion of variable type of compensations than fixed type (salary) in fraud firms. In fact, the median value of the CEO stock option in these firms is 0.33 and the leverage compensation median value is 1.96, while for no-fraud firms we have respectively 0.22 and 1.46. These data seem to suggest that the high amount of variable compensation can act as an incentive to commit fraud, in line with the finding of Erickson *et al.* (1996), and Peng and Roell (2006).

Finally, regarding the corporate governance index (CGI), the fraud firms show a median value equal to 4 with a minimum value of 0; the no-fraud firms, instead, show a median value of CGI

equal to 5 and a minimum of 2. These numbers seem to accomplish our hypothesis that sustain that a good corporate governance can reduce the fraud likelihood and magnitude.

4.5 Research Design

The research design of this study is based on the application of the multinomial logistic regression model on a cross-sectional analysis. The multinomial logistic regression is a regression model which generalizes logistic regression by allowing more than two discrete outcomes. It is used to predict the probabilities of the different possible outcomes of a categorically distributed dependent variable, given a set of independent variables (which may be real-valued, binary-valued, categorically-valued, etc.). This model fits perfectly with our analysis due to the fact that the dependent variable, FRAUD, is a categorically distributed variable, where at each value of the variable (0, 1, 2, 3) corresponds a range of value of fraud, increasing in percentage (no fraud, low fraud, medium fraud, high fraud). Thus, the multinomial logistic regression is the type of regression analysis used to understand how a change in the dependent variable affects the jump from one step to the other.

The results of this kind of analysis put in relation the base outcome, which for our study is the level 0 of FRAUD (the fraud did not take place) with each one of the other levels of the variable (1, 2 and 3). In this way, it is possible to determine, running the regression, which are the independent variables that impact on the likelihood of committing the fraud (analysis the results between the base outcome and the outcome of the FRAUD equal to 1), and also the independent variables that affect the level of the fraud (analysis the results between the base outcome and the outcome of the FRAUD equal to 2 and 3).

The multinomial logistic regression has an assumption behind its model. It assumes that data are case specific. In other words, each independent variable has a single value for each case. This assumption is called Independence of Irrelevant Alternatives (IIA), which from a statistic point of view means that the odds ratios are independent of the other alternatives. This independence assumption can be tested with the Hausman's specification test. In practice, it means that if a subset of choice alternatives is irrelevant, it can be omitted from the sample without changing the remaining parameters systematically (Stata website – www.stata.com). If this assumption is not verified, a nested logit or multinomial probit model should be applied.

For all the three hypothesis we apply the multinomial logistic regression model, with different features in each implementation which will be explained in details in the following paragraphs. The analysis is based on a choice-based sample, composed by 50% of firms reporting a fraud

occurrence and 50% of firms with no fraud occurrence. Considering that there are no information on the exact number of listed firms committing frauds within the total population of listed companies, the one-to-one matching process used in our research differs from a pure random sampling approach.

4.5.1 First hypothesis research design

To test the first hypothesis, we use a multinomial logistic regression model on a cross-sectional analysis, which captures the effect of the corporate governance system (Blockholder-based or Shareholder-based) on the likelihood and level of the fraud, controlling for other variables and comparing the fraud firms with the non-fraud firms, through the presence of a matching sample. In this way, we can control for the non-fraud firms and the fraud firms at the same time, not affecting the results concerning the factors that contributed to generate the fraud.

The following multinomial logistic regression model on a cross-sectional analysis has been used to test the hypothesized relation between the corporate governance model and the financial statement fraud level, as described in Hp1:

$$[\text{Mod } \alpha] \quad \text{FRAUD} = f(\text{BLOCK, Control variables}) + u$$

or, written in the explicit way:

$$\begin{aligned} \text{FRAUD}_t = & \alpha + \beta_1 \text{BLOCK}_{t-1} + \beta_2 \text{MNGT OWN}_{t-1} + \beta_3 \text{RESTAT}_{t-1} + \beta_4 \text{ROE}_{t-1} + \beta_5 \text{FIN} \\ & \text{LEV}_{t-1} + \beta_6 \text{SALES}_{t-1} + \beta_7 \text{GROWTH}_{t-1} + \beta_8 \text{TIME}_{t-1} + \beta_9 \text{COUNTRY1}_{t-1} + \\ & \beta_{10} \text{COUNTRY2}_{t-1} + \varepsilon \end{aligned}$$

Where:

- FRAUD = the financial statement fraud expressed through an ordinal scale presenting different level of fraud (No fraud = 0; Low = 1; Medium = 2; and High = 3), depending on the amount of money deceived with the fraud;
- BLOCK = a dummy variable coded as 1 if the adopted corporate governance model is the Blockholder model, 0 if it is the Shareholder one;

- MNGT OWN = the cumulative percentage of ownership held by top management and directors;
- RESTAT = a dummy variable coded as 1 if a restatement occurred in the year before the fraud, 0 otherwise;
- ROE = the Return on Equity of the firm;
- FIN LEV = the financial leverage ratio of the firm;
- SALES = the amount of total revenues of the firm;
- GROWTH = the growth rate of sales expressed by the average percentage change in total sales for two years before the year of the fraud;
- TIME = a dummy variable with a value of 1 when the fraud occurred after the introduction of national reforms;
- COUNTRY1 = a dummy variable coded as 1 for firms belonging to France, Italy, Swiss or Germany, 0 otherwise;
- COUNTRY2 = a dummy variable coded as 1 for firms belonging to Belgium, Netherlands, Russia, Ireland or Sweden, 0 otherwise.

We remind that all the independent variables are measured in the year before the year of the fraud occurrence in order to have reliable data not affected by the fraud situation.

As previously mentioned, to our knowledge, no previous literature tested this relation, thus the aim of testing this hypothesis is to see whether there is a different impact on the fraud occurrence and level between the two models of corporate governance. Relying on the different conflict of interests' problems they have to face (controlling for the dissimilar institutional and cultural context in which they developed, the national specificities), we expect a higher likelihood of fraud occurrence and also a higher level of frauds for those companies belonging to the Blockholder model.

4.5.2 Second hypothesis research design

Even to test the second hypothesis, we use a multinomial logistic regression model on a cross-sectional analysis, considering that the dependent variable is always the financial statement fraud, as previously described. The model captures the effect of the corporate governance as a whole on the likelihood of the fraud occurrence and on the level of the fraud itself, controlling

for other variables and comparing the fraud firms with the no-fraud firms, through the presence of the matching sample. In this way, we can control for the no-fraud firms and the fraud firms at the same time, not affecting the results concerning the factors that contributed to generate the fraud.

The following multinomial logistic regression model on a cross-sectional analysis has been used to test the hypothesized relation between corporate governance as a whole of a firm and the financial statement fraud occurrence and magnitude, as described in Hp2:

$$\text{[Mod } \beta] \quad \text{FRAUD} = f(\text{CGI, Control variables}) + \mathbf{u}$$

or, written in the explicit way:

$$\begin{aligned} \text{FRAUD}_t = & \alpha + \beta_1 \text{CGI}_{t-1} + \beta_2 \text{BLOCK}_{t-1} + \beta_3 \text{MNGT OWN}_{t-1} + \beta_4 \text{RESTAT}_{t-1} + \\ & \beta_5 \text{ROE}_{t-1} + \beta_6 \text{FIN LEV}_{t-1} + \beta_7 \text{SALES}_{t-1} + \beta_8 \text{GROWTH}_{t-1} + \beta_9 \text{TIME}_{t-1} \\ & + \beta_{10} \text{COUNTRY1}_{t-1} + \beta_{11} \text{COUNTRY2}_{t-1} + \varepsilon \end{aligned}$$

Where:

- CGI = the value of the corporate governance index
- FRAUD = the financial statement fraud expressed through an ordinal scale presenting different level of fraud (No fraud = 0; Low = 1; Medium = 2; and Large = 3), depending on the amount of money deceived with the fraud;
- BLOCK = a dummy variable coded as 1 if the adopted corporate governance model is the Blockholder model, 0 if it is the Shareholder one;
- MNGT OWN = the cumulative percentage of ownership held by top management and directors;
- RESTAT = a dummy variable coded as 1 if a restatement occurred in the year before the fraud, 0 otherwise;
- ROE = the Return of Equity of the firm;
- FIN LEV = the financial leverage ratio of the firm;
- SALES = the amount of total revenues of the firm;
- GROWTH = the growth rate of sales expressed by the average percentage change in total sales for two years before the year of the fraud;

- TIME = a dummy variable with a value of 1 when the fraud occurred after the introduction of national reforms;
- COUNTRY1 = a dummy variable coded as 1 for firms belonging to France, Italy, Swiss or Germany, 0 otherwise;
- COUNTRY2 = a dummy variable coded as 1 for firms belonging to Belgium, Netherlands, Russia, Ireland or Sweden, 0 otherwise.

Like in the previous model, also in this case all the independent variables are measured in the year before the year of the fraud occurrence in order to have reliable data not affected by the fraud situation.

We expect a negative relation between the corporate governance as a whole, measured through the Corporate Governance Index built as “good”, and the likelihood of fraud occurrence and also the level of financial statement frauds. In other words, if the Corporate Governance Index is low, the likelihood of fraud will be higher; as well, if the Corporate Governance Index is low, the magnitude of fraud will be higher. Thus, we expect that the overall corporate governance, seen as a synthesis of all the mechanisms, has a positive impact on financial statement fraud, reducing its level.

4.5.3 Third hypothesis research design

Finally, also to test the third hypothesis, we use a multinomial logistic regression model on a cross-sectional analysis, considering that the dependent variable is still the financial statement fraud, an ordinal variable. The model captures the effect of the corporate governance dimensions on the likelihood and on the level of the fraud, controlling for other variables and comparing the fraud firms with the no-fraud firms, through the presence of the matching sample. In this way, we can control for the no-fraud firms and the fraud firms at the same time, not affecting the results concerning the factors that contributed to generate the fraud.

The following multinomial logistic regression model on a cross-sectional analysis has been used to test the hypothesized relation between corporate governance dimensions and the financial statement fraud level, as described in Hp3:

$$[\text{Mod } \gamma] \quad \text{FRAUD} = f(\text{DIMENSIONS, Control variables}) + u$$

or, written in the explicit way:

$$\begin{aligned} \text{FRAUD}_t = & \alpha + \beta_1 \text{DIM1}_{t-1} + \beta_2 \text{DIM2}_{t-1} + \beta_3 \text{DIM3}_{t-1} + \beta_4 \text{DIM4}_{t-1} + \beta_5 \text{DIM5}_{t-1} + \\ & \beta_6 \text{DIM6}_{t-1} + \beta_7 \text{DIM7}_{t-1} + \beta_8 \text{BLOCK}_{t-1} + \beta_9 \text{MNGT OWN}_{t-1} + \beta_{10} \text{RESTAT}_{t-1} + \\ & \beta_{11} \text{ROE}_{t-1} + \beta_{12} \text{FIN LEV}_{t-1} + \beta_{13} \text{SALES}_{t-1} + \beta_{14} \text{GROWTH}_{t-1} + \beta_{15} \text{TIME}_{t-1} + \\ & \beta_{16} \text{COUNTRY1}_{t-1} + \beta_{17} \text{COUNTRY2}_{t-1} + \varepsilon \end{aligned}$$

Where:

- FRAUD = the financial statement fraud expressed through an ordinal scale presenting different level of fraud (No fraud = 0; Low = 1; Medium = 2; and Large = 3), depending on the amount of money received with the fraud;
- DIM1, DIM2, DIM3, DIM4, DIM5, DIM6, DIM7 = components generated through the PCA and previously described (see Table 6);
- BLOCK = a dummy variable coded as 1 if the adopted corporate governance model is the Blockholder model, 0 if it is the Shareholder one;
- MNGT OWN = the cumulative percentage of ownership held by top management and directors;
- ROE = the Return of Equity of the firm;
- FIN LEV = the financial leverage ratio of the firm;
- SALES = the amount of total revenues of the firm;
- GROWTH = the growth rate of sales expressed by the average percentage change in total sales for two years before the year of the fraud;
- TIME = a dummy variable with a value of 1 when the fraud occurred after the introduction of national reforms;
- COUNTRY1 = a dummy variable coded as 1 for firms belonging to France, Italy, Swiss or Germany, 0 otherwise;
- COUNTRY2 = a dummy variable coded as 1 for firms belonging to Belgium, Netherlands, Russia, Ireland or Sweden, 0 otherwise.

Coherently with the previous two models, even in this case all the independent variables are measured in the year before the year of the fraud occurrence in order to have reliable data not affected by the fraud situation.

As previously said, due to the different results provided by literature on the variety of mechanisms and their impact on frauds and due to the inexistence of literature concerning the relation between governance mechanisms and level of financial statement fraud, we cannot expect a priori a specific sign of the relation of each dimension on the fraud.

Thus, consistent with prior studies on corporate governance (Gompers *et al.*, 2003; Dey, 2008; Larcker, 2007; Brown and Caylor, 2008), we have no expectations on the single governance dimensions' impact on fraud. Testing this hypothesis the dimensions which impact more on the financial statement fraud occurrence and magnitude can be found.

CHAPTER 5

5. Results

5.1 Results HP1

The multinomial logistic regression, as said before, has the independence of irrelevant alternatives (IIA) assumption behind its model: the odds ratios have to be independent of the other alternatives. Thus first we run the multinomial logistic regression and then we verify for the independence assumption applying the Hausman's specification test. The test gave positive results on the independence. In practice, it means that the subsets of choice alternatives are independent from each other. Thus the multinomial logistic regression model is reliable.

Thus we use the multinomial logistic regression with the robustness of the standard errors (robust option) in order to obtain robust standard errors for the parameters' estimates, which mitigate the effect of an eventual slight over-dispersion (Cameron and Trivedi, 2010).

The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000). The Wald chi-square statistic is equal to 79.41¹⁴.

Considering the peculiarity of the applied model, we are going to discuss the results dividing them in the 3 different levels of fraud. Thus, first we discuss the results in case of FRAUD equal to 1 (low level of fraud) in relation with the base outcome of the model (FRAUD=0); then we discuss the results in case of FRAUD equal to 2 (medium level of fraud) in relation with the base outcome of the model (FRAUD=0); finally, we discuss the results in case of FRAUD equal to 3 (high level of fraud) in relation with the base outcome of the model (FRAUD=0).

Thus, starting from the results relative to the case of low level of fraud, we find that, consistent with the predictions related to the HP1, the Blockholder corporate governance system shows a significant and positive relation with the level of the fraud ($P > |Z| = 0.000$), verifying the

¹⁴ We do not consider the value of the Pseudo R^2 (0.1555) which is the McFadden's Pseudo R^2 , due to the fact that this statistic differs from the Square R^2 of the OLS (the proportion of variance of the response variable explained by the predictors). The logistic regressions do not have an equivalent of the OLS R^2 and all the other alternatives of R^2 are considered as mere indicators, but the Stata manual itself recommends interpreting this statistic with caution.

hypothesis 1, meaning that belonging to a Blockholder model system, instead that to a Shareholder model, enhances both the likelihood of the fraud occurrence and the amount deceived with the fraud. Thus, the first hypothesis is verified for a low level of fraud.

This is not the only result achieved through this empirical analysis. The results show a significant and negative correlation between the percentage of ownership held by management and directors and the likelihood of fraud occurrence and the level of the fraud ($P > |Z| = 0.059$), in line with the studies of Jensen and Meckling (1976), who sustain that the higher the ownership detained by directors, the stronger the incentive to work fairly in order to enhance the value of the firm. Our results suggest that the presence of ownership detained by directors can be a factor which reduces the likelihood of fraud occurrence and the fraud magnitude, being the directors more motivated to control the top management and the CEO.

The control variable measuring the financial leverage of the company (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.064$), coherently with previous studies which demonstrate that the level of long term debt detained by the company can be a factor positively correlated with the fraud occurrence, exercising a great pressure on the management decisions and actions, and considering that financially distressed firms can be more induced to commit frauds (Erickson *et al.*, 2006).

The growth rate of the firm (GROWTH), is also significant and positively correlated with the fraud ($P > |Z| = 0.052$). This result is aligned with the studies of Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), where the occurrence of rapid company growth is found as one of the most relevant fraud indicators, because if the firm has experienced a rapid growth in the latest years, the management will be induced to misstate the financial statement during a turndown to continue to show a stable growth.

The coefficient of the control variables RESTAT, ROE, SALES, TIME, COUNTRY1 and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level and the likelihood of the fraud in case of low level of fraud (until 5%).

To examine whether operating in particular sectors is associated with the fraud, we checked also for the Industry, but the results did not differ significantly from the ones previously presented. Considering that the model already has many variables, the only effect was a reduction of the statistical significance of the model, and the variable Industry was not significant at all. Specifically, 27 dummy variables have been created, considering that the sample includes firms

operating in 28 different sectors, based on the two-digit SIC codes. After that, we checked again for the industry considering only 7 dummy variables, relying on 8 different industries based on one-digit SIC codes, but no different results were achieved.

TABLE 11
Regression Results HP1

The effect of the Corporate Governance system on the fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{BLOCK}_{t-1} + \beta_2 \text{MNGT OWN}_{t-1} + \beta_3 \text{RESTAT}_{t-1} + \beta_4 \text{ROE}_{t-1} + \beta_5 \text{FIN LEV}_{t-1} + \beta_6 \text{SALES}_{t-1} + \beta_7 \text{GROWTH}_{t-1} + \beta_8 \text{TIME}_{t-1} + \beta_9 \text{COUNTRY1}_{t-1} + \beta_{10} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>1 - low Level of Fraud (FRAUD = 1)</i>							
BLOCK	2.28651	.6053124	3.78	0.000	***	1.10012 3.472901	+
MNGT OWN	-2.762466	1.463106	-1.89	0.059	*	-5.630102 .1051699	-
RESTAT	.529004	.6614014	0.80	0.424		-.7673189 1.825327	+
ROE	-.0062205	.0113409	-0.55	0.583		-.0284482 .0160072	-
FIN LEV	.2094676	.1131973	1.85	0.064	*	-.012395 .4313302	+
SALES	-1.39e-09	1.57e-09	-0.88	0.376		-4.48e-09 1.69e-09	-
GROWTH	.2794954	.1437753	1.94	0.052	*	-.0022989 .5612898	+
TIME	1.419674	1.173625	1.21	0.226		-.8805885 3.719936	-
COUNTRY1	-.898715	1.341352	-0.67	0.503		-3.527717 1.730287	none
COUNTRY2	.6138075	.7271967	0.84	0.399		-.8114718 2.039087	none
_cons	-2.387395	.4498329	-5.31	0.000		-3.269052 -1.505739	
<i>(fraud=0 is the base outcome)</i>							

Considering now the results relative to the level of the fraud equal to a medium level (FRAUD=2), even in this case the first hypothesis is verified: the Blockholder corporate governance system shows a significant and positive relation with the level of the fraud ($P>|Z| = 0.001$), thus belonging to a Blockholder model system, instead of a Shareholder model, seems again to enhance both the likelihood of the fraud occurrence and the amount deceived. Thus, the first hypothesis is verified also for the medium level of fraud.

The results show even for this level of fraud a significant and negative correlation between the percentage of ownership held by management and directors and both the likelihood of fraud occurrence and its level ($P>|Z| = 0.018$), in line, as previously said, with the studies of Jensen and Meckling (1976).

The control variable measuring the profitability of the company (ROE) is significant and negatively correlated with the fraud ($P>|Z| = 0.008$), coherently with previous studies which

demonstrate that a poor performance of the firm is associated with the increase of the likelihood of financial statement fraud (Bell *et al.*, 1991).

The control variable measuring the financial leverage of the company (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.006$), coherently with the previous obtained results and with previous studies (Erickson *et al.*, 2006).

Belonging to Italy, France, Germany or Switzerland seems to be a factor which negatively affects the fraud occurrence and its magnitude, in fact the variable COUNTRY1 is significantly and negatively correlated with the dependent variable ($P > |Z| = 0.001$). We have to keep in mind that the variable COUNTRY1 (as the variable COUNTRY2) is a non ordinal categorical variable built in relation with the US and UK countries, as baseline. Thus, the fact that the variable COUNTRY1 is negatively correlated with the FRAUD means that the companies belonging to one of the countries included in the variable COUNTRY1 (Italy, France, Germany or Switzerland) has a negative impact on the FRAUD variable higher than the one that US and UK companies have on the FRAUD. The reason could be found in the cultural, historical, and institutional differences which characterize these countries.

The coefficient of the control variables RESTAT, SALES, GROWTH, TIME and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level of the likelihood of the fraud in case of medium level of fraud (from 5% to 30%).

To examine whether operating in particular sectors is associated with the fraud level, we checked also for the Industry, but the results did not differ significantly from the ones presented. Considering that the model already has many variables, the only effect was a reduction of the statistical significance of the model, and the variable Industry was not significant at all. Specifically, 27 dummy variables have been created, considering that the sample includes firms operating in 28 different sectors, based on the two-digit SIC codes. After that, we checked again for the industry considering only 7 dummy variables, relying on 8 different industries based on one-digit SIC codes, but no different results were achieved.

TABLE 12

Regression Results HPI

The effect of the Corporate Governance system on the fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{BLOCK}_{t-1} + \beta_2 \text{MNGT OWN}_{t-1} + \beta_3 \text{RESTAT}_{t-1} + \beta_4 \text{ROE}_{t-1} + \beta_5 \text{FIN LEV}_{t-1} + \beta_6 \text{SALES}_{t-1} + \beta_7 \text{GROWTH}_{t-1} + \beta_8 \text{TIME}_{t-1} + \beta_9 \text{COUNTRY1}_{t-1} + \beta_{10} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation	
<i>2 - Medium Level of Fraud (FRAUD = 2)</i>								
BLOCK	1.495301	.4573552	3.27	0.001	**	.5989009 2.3917	+	
MNGT OWN	-.6936721	.2932308	-2.37	0.018	**	-1.268394 -.1189503	-	
RESTAT	.6697167	.6708025	1.00	0.318		-.6450321 1.984465	+	
ROE	-.0275691	.0103514	-2.66	0.008	**	-.0478575 -.0072808	-	
FIN LEV	.0227764	.0083013	2.74	0.006	**	.0065061 .0390467	+	
SALES	-5.72e-10	7.76e-10	-0.74	0.461		-2.09e-09 9.48e-10	-	
GROWTH	.1413409	.1342995	1.05	0.293		-.1218814 .4045631	+	
TIME	-.0718984	.73897	-0.10	0.922		-1.520253 1.376456	-	
COUNTRY1	-2.145638	.6482773	-3.31	0.001	**	-3.416238 -.8750374	none	
COUNTRY2	-1.152613	.8739193	-1.32	0.187		-2.865464 .560237	none	
_cons	-.7663473	.2676504	-2.86	0.004	**	-1.290932 -.2417621		
<i>(fraud=0 is the base outcome)</i>								

Considering now the results relative to the level of the fraud equal to a high level (FRAUD=3), even in this case the first hypothesis is verified: the Blockholder corporate governance system shows a significant and positive relation with the level of the fraud ($P>|Z| = 0.000$). Thus, belonging to a Blockholder model system, instead of to a Shareholder model, seems again to enhance both the likelihood of the fraud occurrence and the amount of the fraud deceived. The first hypothesis is verified for the high level of fraud, too.

The results show even for this level of fraud, a significant and negative correlation between the percentage of ownership held by management and directors and both the likelihood of fraud occurrence and its level ($P>|Z| = 0.002$), in line, as previously said, with the studies of Jensen and Meckling (1976).

The control variable measuring the size of the firm (SALES) is significant and negatively correlated with the fraud ($P>|Z| = 0.095$). The size variable has been included in order to separate a possible indirect impact of this variable on the dependent variable (Larcker et al., 2007). The reason for this result can be found in the idea that the bigger is the company, the lower the willing to commit a fraud, considering its impact on the whole company and on the market, obviously taking into account the impact of the fraud on the firm's reputation. Another reason to

explain the negative impact of this variable on the dependent one can be found in the possibility of higher control procedures in bigger firms compared to those existing in smaller firms.

The growth rate of the firm (GROWTH) is also significant and positively correlated with the fraud ($P > |Z| = 0.078$). This result is in line with the results found for the low level of fraud and with the studies of Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), where it is shown that a rapid growth of the company can induce to misstate the financial statement during a turndown to continue to show a stable growth.

The coefficient of the control variables RESTAT, ROE, FIN LEV, TIME, COUNTRY1 and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level and the likelihood of the fraud in case of high level of fraud (more than 30%).

To examine whether operating in particular sectors is associated with the fraud level, we checked even here for the Industry, but the results did not differ significantly from the ones presented, as in the previous results for the other levels of the fraud.

TABLE 13
Regression Results HPI

The effect of the Corporate Governance system on the fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{BLOCK}_{t-1} + \beta_2 \text{MNGT OWN}_{t-1} + \beta_3 \text{RESTAT}_{t-1} + \beta_4 \text{ROE}_{t-1} + \beta_5 \text{FIN LEV}_{t-1} + \beta_6 \text{SALES}_{t-1} + \beta_7 \text{GROWTH}_{t-1} + \beta_8 \text{TIME}_{t-1} + \beta_9 \text{COUNTRY1}_{t-1} + \beta_{10} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P > z		[95% Conf. Interval]	Predicted Relation
3 - High Level of Fraud (FRAUD = 3)							
BLOCK	1.523744	.4336249	3.51	0.000	***	.6738546 2.373633	+
MNGT OWN	-.7083276	.2325069	-3.05	0.002	**	-1.164033 -.2526224	-
RESTAT	.5930144	.5475498	1.08	0.279		-.4801634 1.666192	+
ROE	-.0019895	.009623	-0.21	0.836		-.0208502 .0168713	-
FIN LEV	.0777055	.0657983	1.18	0.238		-.0512568 .2066677	+
SALES	-1.20e-09	7.21e-10	-1.67	0.095	*	-.0285447 .530258	-
GROWTH	.2508566	.1425543	1.76	0.078	**	-.0285447 .530258	+
TIME	-.6913614	.7019543	-0.98	0.325		-2.067166 .6844437	-
COUNTRY1	.0044726	.6635315	0.01	0.995		-1.296025 1.30497	none
COUNTRY2	.0031269	.6103743	0.01	0.996		-1.193185 1.199439	none
_cons	-1.42678	.315166	-4.53	0.000	***	-2.044494 -.8090657	

(fraud=0 is the base outcome)

In order to summarize the results of the three outputs relative to the three different levels of fraud, we give some brief considerations on them.

The results, in every case of level of fraud, demonstrate that the presence of a Blockholder increases the likelihood of committing a fraud and also the level. Thus, the first hypothesis is verified at all levels of fraud. The control variables help in the analysis of the factors which act as enhancing factors or reducing factors of the fraud occurrence and magnitude. In all the three cases, the percentage of shares owned by the directors acts as a reducing factor on the dependent variable, confirming the previous results achieved by the literature (Jensen and Meckling, 1976). Moreover, it seems that the most relevant and common factors which induce to commit frauds are the pressure of the market and the level of debt detained. The pressure of the market creates expectations on the firms, so the company, in order to accomplish the growth trend achieved in the past, tends to commit frauds to deceive its stakeholders. Thus we can conclude affirming that the higher is the growth rate, the higher the likelihood and level of the fraud occurrence. This is particularly true for the cases of low and high level of fraud. A firm with a great pressure from the market about its growth expectation will commit a low fraud if its situation is not perfectly in line with the expectations, probably hoping to refit the situation the following year. On the opposite, the firm will be induced to commit a high fraud if the overall situation differs enormously from the expectation of the market, knowing that no other legal way could make the firm able to maintain its position on the market.

The level of debt, as well, induces the firms to commit a fraud in order to show positive results or a better financial situation which can reflect an overall more positive situation to reassure the market and the investors. The level of debt seems to affect mostly the likelihood and level of fraud for low and medium voluntary misstatements, while for high level of fraud it does not appear a relevant indicator.

Another relevant element from the results is the profitability of the company which is shown as a deterrent to commit fraud. If the firm has a good profitability, the willing to commit a voluntary misstatement will be reduced. This is true for firms committing a medium level of fraud, but not in the other two cases. An explanation to this can be found in the fact that a high profitability does not reduce the willing in case the fraud is committed by the Blockholder to achieve high personal gains (high level of fraud) and that a high profitability is not the determinant factor to stop the Blockholders to commit fraud when other factors, like the market pressure and the level of debt, affect the company situation.

To summarize all the previously considerations about the first regression, a table is presented.

TABLE 14
Regression Results HP1

The effect of the Corporate Governance system on the fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{BLOCK}_{t-1} + \beta_2 \text{MNGT OWN}_{t-1} + \beta_3 \text{RESTAT}_{t-1} + \beta_4 \text{ROE}_{t-1} + \beta_5 \text{FIN LEV}_{t-1} + \beta_6 \text{SALES}_{t-1} + \beta_7 \text{GROWTH}_{t-1} + \beta_8 \text{TIME}_{t-1} + \beta_9 \text{COUNTRY1}_{t-1} + \beta_{10} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation	
<i>1 - low Level of Fraud (FRAUD = 1)</i>								
BLOCK	2.28651	.6053124	3.78	0.000	***	1.10012 3.472901	+	
MNGT OWN	-2.762466	1.463106	-1.89	0.059	*	-5.630102 .1051699	-	
RESTAT	.529004	.6614014	0.80	0.424		-.7673189 1.825327	+	
ROE	-.0062205	.0113409	-0.55	0.583		-.0284482 .0160072	-	
FIN LEV	.2094676	.1131973	1.85	0.064	*	-.012395 .4313302	+	
SALES	-1.39e-09	1.57e-09	-0.88	0.376		-4.48e-09 1.69e-09	-	
GROWTH	.2794954	.1437753	1.94	0.052	*	-.0022989 .5612898	+	
TIME	1.419674	1.173625	1.21	0.226		-.8805885 3.719936	-	
COUNTRY1	-.898715	1.341352	-0.67	0.503		-3.527717 1.730287	none	
COUNTRY2	.6138075	.7271967	0.84	0.399		-.8114718 2.039087	none	
_cons	-2.387395	.4498329	-5.31	0.000		-3.269052 -1.505739		
<i>2 - Medium Level of Fraud (FRAUD = 2)</i>								
BLOCK	1.495301	.4573552	3.27	0.001	**	.5989009 2.3917	+	
MNGT OWN	-.6936721	.2932308	-2.37	0.018	**	-1.268394 -.1189503	-	
RESTAT	.6697167	.6708025	1.00	0.318		-.6450321 1.984465	+	
ROE	-.0275691	.0103514	-2.66	0.008	**	-.0478575 -.0072808	-	
FIN LEV	.0227764	.0083013	2.74	0.006	**	.0065061 .0390467	+	
SALES	-5.72e-10	7.76e-10	-0.74	0.461		-2.09e-09 9.48e-10	-	
GROWTH	.1413409	.1342995	1.05	0.293		-.1218814 .4045631	+	
TIME	-.0718984	.73897	-0.10	0.922		-1.520253 1.376456	-	
COUNTRY1	-2.145638	.6482773	-3.31	0.001	**	-3.416238 -.8750374	none	
COUNTRY2	-1.152613	.8739193	-1.32	0.187		-2.865464 .560237	none	
_cons	-.7663473	.2676504	-2.86	0.004	**	-1.290932 -.2417621		
<i>3 - High Level of Fraud (FRAUD = 3)</i>								
BLOCK	1.523744	.4336249	3.51	0.000	***	.6738546 2.373633	+	
MNGT OWN	-.7083276	.2325069	-3.05	0.002	**	-1.164033 -.2526224	-	
RESTAT	.5930144	.5475498	1.08	0.279		-.4801634 1.666192	+	
ROE	-.0019895	.009623	-0.21	0.836		-.0208502 .0168713	-	
FIN LEV	.0777055	.0657983	1.18	0.238		-.0512568 .2066677	+	
SALES	-1.20e-09	7.21e-10	-1.67	0.095	*	-.0285447 .530258	-	
GROWTH	.2508566	.1425543	1.76	0.078	**	-.0285447 .530258	+	
TIME	-.6913614	.7019543	-0.98	0.325		-2.067166 .6844437	-	
COUNTRY1	.0044726	.6635315	0.01	0.995		-1.296025 1.30497	none	
COUNTRY2	.0031269	.6103743	0.01	0.996		-1.193185 1.199439	none	
_cons	-1.42678	.315166	-4.53	0.000	***	-2.044494 -.8090657		

(fraud=0 is the base outcome)

Pseudo R ²		0.1555	
Chi square		0.0000	
Number of observations		214	
<i>Statistically significance</i>			
*	low	0.1	0,05<x<=0.1
**	medium	0.05	0.001<x<=0.05
***	high	0.001	x<=0.001

5.2 Results HP2

The multinomial logistic regression, as previously explained, has the independence of irrelevant alternatives (IIA) assumption behind its model, meaning that the odds ratios have to be independent of the other alternatives. Thus, we run the multinomial logistic regression and then we verify for the independence assumption applying the Hausman's specification test. The test gave positive results on the independence. In practice, it means that the subsets of choice alternatives are independent from each other. Thus, the multinomial logistic regression model is reliable also in this analysis.

Even in testing the second hypothesis, we use the multinomial logistic regression with the robustness of the standard errors (robust option), in order to obtain robust standard errors for the parameters' estimates, which mitigate the effect of an eventual slight over-dispersion (Cameron and Trivedi, 2010).

The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000). The Wald chi-square statistic is equal to 96.26¹⁵.

Considering the type of model we apply, we discuss the results dividing them in the 3 different levels of fraud. As before, first we discuss the results in case of FRAUD equal to 1 (low level of fraud) in relation with the base outcome of the model (FRAUD=0); then we discuss the results in case of FRAUD equal to 2 (medium level of fraud) in relation with the base outcome of the model (FRAUD=0); finally, we discuss the results in case of FRAUD equal to 3 (high level of fraud) in relation with the base outcome of the model (FRAUD=0).

¹⁵ We do not consider the value of the Pseudo R²(0.1976) which is the McFadden's Pseudo R², due to the fact that this statistic differs from the Square R² of the OLS (the proportion of variance of the response variable explained by the predictors). The logistic regressions do not have an equivalent of the OLS R² and all the other alternatives of R² are considered as mere indicators, but the Stata manual itself recommends interpreting this statistic with caution.

Thus, starting from the results relative to the case of low level of fraud in relation with the base outcome (FRAUD=0), we find that, consistent with the predictions related to the HP2, the corporate governance as a whole of the firm shows a significant and negative relation with the level of the fraud ($P > |Z| = 0.031$). Keeping in mind that the corporate governance as a whole is measured through the CGI, an index build as “good”, the higher is the value of the index, the better the corporate governance of the firm. In turn, the better is the level of the governance of the firm, the lower the likelihood to have a fraud occurrence and also the level of the fraud. Thus, the second hypothesis is verified in case of low level of fraud (less than 5%).

The variable BLOCK, which here is a control variable (while in the first hypothesis it was the independent variable), shows a significant and positive relation with the level of the fraud ($P > |Z| = 0.000$), confirming what has been found in the first hypothesis results. Belonging to a Blockholder model system, instead that to a Shareholder model, increases both the likelihood of the fraud occurrence and the amount of the fraud deceived.

The variable MNGT OWN is significant and negative correlated with the dependent variable ($P > |Z| = 0.064$), confirming the previous results found testing Hp1 and, as previously said, in line, with the studies of Jensen and Meckling (1976), which point out that the higher the ownership detained by directors the stronger the incentive to work fairly in order to enhance the value of the firm.

The control variable measuring the financial leverage of the company (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.040$), coherently with previous studies which demonstrate that the level of long term debt, detained by the company, can be a factor positively correlated with the fraud occurrence, exercising a great pressure on the management decisions and actions, and considering that financially distressed firms can be more induced to commit fraud (Erickson *et al.*, 2006), and in line with the results found for the first hypothesis.

The growth rate of the firm (GROWTH) results also significant and positively correlated with the fraud ($P > |Z| = 0.055$). This result is aligned with the previous findings and, as previously mentioned, with the studies of Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), who point out that the occurrence of a rapid company growth is one of the most relevant fraud indicators, because if the firm has experienced a rapid growth in the latest years, the management will be induce to misstate the financial statement during a turndown to continue to show a stable growth.

The coefficient of the control variables RESTAT, ROE, SALES, TIME, COUNTRY1 and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level of the likelihood of the fraud when the level of the fraud is low (less than 5%).

To examine whether operating in particular sectors is associated with the fraud level, we checked even in this regression for the Industry, but the results did not differ significantly from the ones presented. Considering that the model already has many variables, the only effect was a reduction of the statistical significance of the model, and the variable Industry was not significant at all. Specifically, 27 dummy variables have been created, considering that the sample includes firms operating in 28 different sectors, based on the two-digit SIC codes. After that, we checked again for the industry, considering only 7 dummy variables, relying on 8 different industries based on one-digit SIC codes, but no different results were achieved.

TABLE 15
Regression Results HP2

The effect of the Corporate Governance on the fraud likelihood and magnitude

$$\text{FRAUD}_t = \alpha + \beta_1 \text{CGI}_{t-1} + \beta_2 \text{BLOCK}_{t-1} + \beta_3 \text{MNGT OWN}_{t-1} + \beta_4 \text{RESTAT}_{t-1} + \beta_5 \text{ROE}_{t-1} + \beta_6 \text{FIN LEV}_{t-1} + \beta_7 \text{SALES}_{t-1} + \beta_8 \text{GROWTH}_{t-1} + \beta_9 \text{TIME}_{t-1} + \beta_{10} \text{COUNTRY1}_{t-1} + \beta_{11} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation	
<i>1 - low Level of Fraud (FRAUD = 1)</i>								
CGI	-.4616854	.214396	-2.15	0.031	**	-.8818938 - .041477	-	
BLOCK	2.461442	.6108266	4.03	0.000	***	1.264244 3.65864	+	
MNGT OWN	-2.814011	1.517923	-1.85	0.064	*	-5.789086 .1610632	-	
RESTAT	.4668858	.7103791	0.66	0.511		-.9254316 1.859203	+	
ROE	-.0068855	.0107472	-0.64	0.522		-.0279495 .0141786	-	
FIN LEV	.2283281	.1114475	2.05	0.040	**	.009895 .4467612	+	
SALES	-1.60e-09	2.37e-09	-0.68	0.498		-6.24e-09 3.03e-09	-	
GROWTH	.2954124	.1542263	1.92	0.055	*	-.0068655 .5976904	+	
TIME	1.145353	1.285481	0.89	0.373		-1.374143 3.664849	-	
COUNTRY1	-.8447193	1.399102	-0.60	0.546		-3.586908 1.8974	none	
COUNTRY2	.4612127	.7013815	0.66	0.511		-.9134697 1.835895	none	
_cons	-.3401406	1.099204	-0.31	0.757		-2.494541 1.81426		

(fraud=0 is the base outcome)

Continuing with the results relative to the case of medium level of fraud in relation still with the base outcome (FRAUD=0), we find that, consistent with the predictions related to the HP2, the corporate governance as a whole has a significant and negative relation with the level of the fraud (P>|Z| = 0.000), verifying the hypothesis 2 even in this case. Thus, we can affirm again that having

a good corporate governance, determined by the effectiveness and efficiency of the different governance aspects of the firm, reduces the possibility to have a fraud occurrence and also its amount. The corporate governance acts as a fraud deterrent. Thus, the second hypothesis is verified in case of medium level of fraud (between 5% and 30%).

The empirical analysis confirms also some of the previous results achieved in testing the first hypothesis. In fact, a significant and positive relation between the Blockholder presence and the level of the fraud ($P > |Z| = 0.000$) comes up; a significant and negative correlation between the percentage of ownership held by management and directors and the level of the fraud ($P > |Z| = 0.021$) still exists; and finally the control variable measuring the financial leverage of the company (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.006$).

Moreover, the control variable measuring the profitability of the company (ROE) is significant and negatively correlated with the fraud ($P > |Z| = 0.007$), coherently with the first hypothesis results and with previous studies (Bell *et al.*, 1991).

The variable COUNTRY1 is significantly and negatively correlated with the dependent variable ($P > |Z| = 0.001$). Keeping in mind that the variable COUNTRY1 (as the variable COUNTRY2) is a non ordinal categorical variable built in relation with the US and UK countries, as baseline, the fact that the variable COUNTRY1 is negatively correlated with the FRAUD means that belonging to one of the countries included in the variable COUNTRY1 (Italy, France, Germany or Switzerland) has a negative impact on the FRAUD variable higher than the one that US and UK companies have on the FRAUD. The reason could be found in the cultural, historical and institutional differences which characterize these countries. This result confirms the findings of the Hp1.

The coefficient of the control variables RESTAT, SALES, GROWTH, TIME, and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level of the occurred fraud in case of medium level of fraud.

Even for this level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results. Being the same regression run in low level of fraud, the only effect was a reduction of the statistical significance of the model.

TABLE 16
Regression Results HP2

The effect of the Corporate Governance on the fraud likelihood and magnitude

$$\text{FRAUD}_t = \alpha + \beta_1 \text{CGI}_{t-1} + \beta_2 \text{BLOCK}_{t-1} + \beta_3 \text{MNGT OWN}_{t-1} + \beta_4 \text{RESTAT}_{t-1} + \beta_5 \text{ROE}_{t-1} + \beta_6 \text{FIN LEV}_{t-1} + \beta_7 \text{SALES}_{t-1} + \beta_8 \text{GROWTH}_{t-1} + \beta_9 \text{TIME}_{t-1} + \beta_{10} \text{COUNTRY1}_{t-1} + \beta_{11} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z		[95% Conf. Interval]	Predicted Relation	
<i>2 - Medium Level of Fraud (FRAUD = 2)</i>								
CGI	-.6674772	.171425	-3.89	0.000	***	-1.003464 - .3314903	-	
BLOCK	1.789057	.4717136	3.79	0.000	***	.8645151 2.713599	+	
MNGT OWN	-.6527979	.2824173	-2.31	0.021	**	-1.206326 -.0992701	-	
RESTAT	.5631513	.7161831	0.79	0.432		-.8405418 1.966844	+	
ROE	-.0307515	.0113662	-2.71	0.007	**	-.0530289 -.0084742	-	
FIN LEV	.0243218	.0088565	2.75	0.006	**	.0069635 .0416801	+	
SALES	-4.72e-10	8.75e-10	-0.54	0.590		-2.19e-09 1.24e-09	-	
GROWTH	.1441895	.1439395	1.00	0.316		-.1379268 .4263058	+	
TIME	-.4203173	.766229	-0.55	0.583		-1.922099 1.081464	-	
COUNTRY1	-2.249354	.7042263	-3.19	0.001	**	-3.629612 -.8690959	none	
COUNTRY2	-1.471958	.9201863	-1.60	0.110		-3.27549 .3315744	none	
_cons	2.139642	.8053742	2.66	0.008	**	.5611374 3.718146		
<i>(fraud=0 is the base outcome)</i>								

Continuing with the results relative to the case of high level of fraud in relation still with the base outcome (FRAUD=0), we find that, consistent with the predictions related to the HP2, the corporate governance as a whole has a significant and negative relation with the level of the fraud ($P>|Z| = 0.000$), verifying the hypothesis 2 even in this case. Thus, we can affirm once again that having a good corporate governance reduces the possibility to have a fraud occurrence and also its amount. The corporate governance acts as a fraud deterrent. Thus, the second hypothesis is verified in case of high level of fraud, too (more than 30%).

In line with the two previous results of the regression, even in case of high level of fraud, the variable BLOCK and MNGT OWN are significant correlated with the dependent variable, respectively positive correlated ($P>|Z| = 0.000$), and negatively correlated ($P>|Z| = 0.003$).

The growth rate of the firm (GROWTH) is also significant and positively correlated with the fraud ($P>|Z| = 0.079$). This result is in line with the studies of Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), where it is shown that a rapid company growth can induce to misstate the financial statement during a turndown to continue to show a stable growth.

The coefficient of the control variables RESTAT, ROE, FIN LEV, SALES, TIME, COUNTRY1 and COUNTRY2 do not appear significantly correlated. Thus, it seems to suggest that these factors do not affect the level and the likelihood of the fraud when the level of the fraud is high (more than 30%).

Even for this last level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results. Being the same regression run in the other two levels of fraud, the only registered effect was a reduction of the statistical significance of the model.

TABLE 17
Regression Results HP2

The effect of the Corporate Governance on the fraud likelihood and magnitude

$$\text{FRAUD}_t = \alpha + \beta_1 \text{CGI}_{t-1} + \beta_2 \text{BLOCK}_{t-1} + \beta_3 \text{MNGT OWN}_{t-1} + \beta_4 \text{RESTAT}_{t-1} + \beta_5 \text{ROE}_{t-1} + \beta_6 \text{FIN LEV}_{t-1} + \beta_7 \text{SALES}_{t-1} + \beta_8 \text{GROWTH}_{t-1} + \beta_9 \text{TIME}_{t-1} + \beta_{10} \text{COUNTRY1}_{t-1} + \beta_{11} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>3 - High Level of Fraud (FRAUD = 3)</i>							
CGI	-.6892808	.1946503	-3.54	0.000	***	-1.070788 - .3077732	-
BLOCK	1.827674	.4534438	4.03	0.000	***	.9389406 2.716408	+
MNGT OWN	-.7151164	.2415463	-2.96	0.003	**	-1.188538 -.2416944	-
RESTAT	.4248202	.5731221	0.74	0.459		-.6984786 1.548119	+
ROE	-.0025404	.0094135	-0.27	0.787		-.0209906 .0159098	-
FIN LEV	.1040493	.0715404	1.45	0.146		-.0361673 .2442659	+
SALES	-1.20e-09	7.40e-10	-1.63	0.104		-2.65e-09 2.46e-10	-
GROWTH	.2682859	.1529532	1.75	0.079	**	-.031497 .5680687	+
TIME	-1.286336	.7958334	-1.62	0.106		-2.846141 .2734684	-
COUNTRY1	.1665213	.7512167	0.22	0.825		-1.305836 1.638879	none
COUNTRY2	-.3077283	.5607489	-0.55	0.583		-1.406776 .7913194	none
_cons	1.52464	.849501	1.79	0.073	**	-.1403512 3.189631	

(fraud=0 is the base outcome)

In order to summarize the results of the three outputs relative to the three different levels of fraud, we provide some brief considerations on them.

The results in every case of level of fraud demonstrate that a good corporate governance of the firm reduces the likelihood of fraud occurrence and its magnitude. Thus, the second hypothesis is verified at all levels of fraud. The control variables help in the analysis of the factors which act as enhancing factors or reducing factors of the fraud occurrence and magnitude. In all the three cases, the presence of a Blockholder increases the likelihood of fraud occurrence and its magnitude confirming the results of the first hypothesis. The percentage of shares owned by the directors acts

as a reducing factor on the dependent variable, confirming the previous results achieved by the literature (Jensen and Meckling, 1976) and also confirming the results found with the first hypothesis.

Moreover, it seems that the most relevant and common factors which induce to commit frauds are almost the same found testing the first hypothesis. In fact, the pressure of the market impacts mostly on the firms' behaviour in cases of low and high level of fraud; the level of debt seems to affect mostly the firms' behaviour in case of low and medium voluntary misstatements, while for high level of fraud it does not appear a relevant indicator.

As well, the profitability of the company acts as a deterrent to commit fraud in case of medium level of fraud, but not in the other two cases, as in the first hypothesis results.

Thus we can conclude that adding the variable corporate governance enhances the analysis on the fraud, because it represents another variable, not correlated with the other variables already included in the model, which explains another factor. In other words, through this analysis, we found another element with a direct impact on the fraud occurrence and level.

To summarize all the previously considerations about the first regression, a table is presented.

TABLE 18
Regression Results HP2

The effect of the Corporate Governance on the fraud likelihood and magnitude

$$\text{FRAUD}_t = \alpha + \beta_1 \text{CGI}_{t-1} + \beta_2 \text{BLOCK}_{t-1} + \beta_3 \text{MNGT OWN}_{t-1} + \beta_4 \text{RESTAT}_{t-1} + \beta_5 \text{ROE}_{t-1} + \beta_6 \text{FIN LEV}_{t-1} + \beta_7 \text{SALES}_{t-1} + \beta_8 \text{GROWTH}_{t-1} + \beta_9 \text{TIME}_{t-1} + \beta_{10} \text{COUNTRY1}_{t-1} + \beta_{11} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>1 - Low Level of Fraud (FRAUD = 1)</i>							
CGI	-.4616854	.214396	-2.15	0.031	**	-.8818938 - .041477	-
BLOCK	2.461442	.6108266	4.03	0.000	***	1.264244 3.65864	+
MNGT OWN	-2.814011	1.517923	-1.85	0.064	*	-5.789086 .1610632	-
RESTAT	.4668858	.7103791	0.66	0.511		-.9254316 1.859203	+
ROE	-.0068855	.0107472	-0.64	0.522		-.0279495 .0141786	-
FIN LEV	.2283281	.1114475	2.05	0.040	**	.009895 .4467612	+
SALES	-1.60e-09	2.37e-09	-0.68	0.498		-6.24e-09 3.03e-09	-
GROWTH	.2954124	.1542263	1.92	0.055	*	-.0068655 .5976904	+
TIME	1.145353	1.285481	0.89	0.373		-1.374143 3.664849	-
COUNTRY1	-.8447193	1.399102	-0.60	0.546		-3.586908 1.8974	none
COUNTRY2	.4612127	.7013815	0.66	0.511		-.9134697 1.835895	none
_cons	-.3401406	1.099204	-0.31	0.757		-2.494541 1.81426	
<i>2 - Medium Level of Fraud (FRAUD = 2)</i>							
CGI	-.6674772	.171425	-3.89	0.000	***	-1.003464 -.3314903	-
BLOCK	1.789057	.4717136	3.79	0.000	***	.8645151 2.713599	+
MNGT OWN	-.6527979	.2824173	-2.31	0.021	**	-1.206326 -.0992701	-
RESTAT	.5631513	.7161831	0.79	0.432		-.8405418 1.966844	+
ROE	-.0307515	.0113662	-2.71	0.007	**	-.0530289 -.0084742	-
FIN LEV	.0243218	.0088565	2.75	0.006	**	.0069635 .0416801	+
SALES	-4.72e-10	8.75e-10	-0.54	0.590		-2.19e-09 1.24e-09	-
GROWTH	.1441895	.1439395	1.00	0.316		-.1379268 .4263058	+
TIME	-.4203173	.766229	-0.55	0.583		-1.922099 1.081464	-
COUNTRY1	-2.249354	.7042263	-3.19	0.001	**	-3.629612 -.8690959	none
COUNTRY2	-1.471958	.9201863	-1.60	0.110		-3.27549 .3315744	none
_cons	2.139642	.8053742	2.66	0.008	**	.5611374 3.718146	
<i>3 - High Level of Fraud (FRAUD = 3)</i>							
CGI	-.6892808	.1946503	-3.54	0.000	***	-1.070788 -.3077732	-
BLOCK	1.827674	.4534438	4.03	0.000	***	.9389406 2.716408	+
MNGT OWN	-.7151164	.2415463	-2.96	0.003	**	-1.188538 -.2416944	-
RESTAT	.4248202	.5731221	0.74	0.459		-.6984786 1.548119	+
ROE	-.0025404	.0094135	-0.27	0.787		-.0209906 .0159098	-
FIN LEV	.1040493	.0715404	1.45	0.146		-.0361673 .2442659	+
SALES	-1.20e-09	7.40e-10	-1.63	0.104		-2.65e-09 2.46e-10	-
GROWTH	.2682859	.1529532	1.75	0.079	**	-.031497 .5680687	+
TIME	-1.286336	.7958334	-1.62	0.106		-2.846141 .2734684	-
COUNTRY1	.1665213	.7512167	0.22	0.825		-1.305836 1.638879	none
COUNTRY2	-.3077283	.5607489	-0.55	0.583		-1.406776 .7913194	none
_cons	1.52464	.849501	1.79	0.073	**	-.1403512 3.189631	

(fraud=0 is the base outcome)

Pseudo R ²		0.1976	
Chi square		0.0000	
Number of observations		214	
<i>Statistically significance</i>			
*	low	0.1	0,05<x<=0.1
**	medium	0.05	0.001<x<=0.05
***	high	0.001	x<=0.001

5.3 Results HP3

The multinomial logistic regression, as mentioned before, has the independence of irrelevant alternatives (IIA) assumption behind its model: the odds ratios have to be independent of the other alternatives. As a first step, we run the multinomial logistic regression and, right after, we verify for the independence assumption applying the Hausman's specification test. The test gave positive results on the independence. In practice, it means that the subsets of choice alternatives are independent from each other. Thus the multinomial logistic regression model is reliable.

We use the multinomial logistic regression with the robustness of the standard errors (robust option) in order to obtain robust standard errors for the parameters' estimates, which mitigate the effect of an eventual slight over-dispersion (Cameron and Trivedi, 2010).

The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000). The Wald chi-square statistic is equal to 166.34¹⁶.

Considering the peculiarity of the applied model, we are going to discuss the results dividing them in the 3 different levels of fraud. Thus, first we discuss the results in case of FRAUD equal to 1 (low level of fraud) in relation with the base outcome of the model (FRAUD=0); then we discuss the results in case of FRAUD equal to 2 (medium level of fraud) in relation with the base outcome of the model (FRAUD=0); finally, we discuss the results in case of FRAUD equal to 3 (high level of fraud) in relation with the base outcome of the model (FRAUD=0).

Thus, starting from the results relative to the case of low level of fraud, we find that 4 dimensions of corporate governance (on 7), generated through the PCA analysis, are significantly correlated with the fraud. Specifically, the DIM1 is negatively correlated ($P>|Z| = 0.000$) with the fraud. The

¹⁶ We do not consider the value of the Pseudo R²(0.3967) which is the McFadden's Pseudo R², due to the fact that this statistic differs from the Square R² of the OLS (the proportion of variance of the response variable explained by the predictors). The logistic regressions do not have an equivalent of the OLS R² and all the other alternatives of R² are considered as mere indicators, but the Stata manual itself recommends interpreting this statistic with caution.

variable DIM1 represents the Board Independence Dimension, which is determined mainly by the governance variables ETHIC, AUD IND, NOM IND, COMP IND, and AUD FINEXP. The fact that it is negatively correlated means that the more the Board is independent, the lower the fraud likelihood and magnitude, supporting the findings of previous studies on the role of the Board independence (Uzun *et al.*, 1994; Kaplan and Minton, 1994; Hermalin and Weishbach, 2002). Moreover, referring to the presence of a financial expert in the Audit Committee, the results are aligned with previous studies (Jensen, 1993; Agrawal and Chada, 2005), considering that this governance variable is included in the Board Independence Dimensions and contributes to the negative correlation with the fraud occurrence and level.

As far as the artificial variable DIM3 is concerned, it is significantly and positively correlated ($P > |Z| = 0.045$) with the dependent variable. The variable DIM3 represents the Board Decisions about the CEO compensation and it is determined by the governance variables BOD MEET, CEO SO and LEV COMP. Thus, confirming previous studies on the same path of research (Erickson *et al.*, 2006; Bruner, McKee and Santore, 2005; Peng and Roell, 2006), this result underlines that the more the amount of stock option and the higher the variable part of compensation of the CEO, the higher the likelihood of the fraud occurrence and its magnitude.

Concerning the artificial variable DIM4, it is significantly and positively correlated ($P > |Z| = 0.042$) with the fraud. The variable DIM4 represents the CEO Duality Dimension and it is determined only by the governance variable CEO DUAL. Thus, confirming previous studies on the same issue (Yermack, 1996; Sharma, 2004), this result points out that when there is CEO duality the likelihood and level of the fraud is higher.

The variable DIM5 is significant and positively correlated ($P > |Z| = 0.006$) with the fraud. This variable represents the Board and Board Members Features, where the most relevant governance variables that determined it are BOD SIZE and ID. The fact that it is positively correlated suggests that the higher is the number of Board members and the number of interlocking directorships in the Board, the higher the likelihood of fraud and its level. The largeness of the board has been seen as a negative factor also from previous literature, which identified the largeness of the Board with its low effectiveness (Lipton and Lorsh, 1992; Jensen, 1993; Yermack, 1996). The presence of interlocking directorships, as well, is seen from the ISS as a negative aspect of corporate governance, thus the results empirically confirm the theory on the topic.

The other 3 dimensions (DIM2, DIM6 and DIM7) do not appear statistically significant.

In sum, the third hypothesis for a low level of fraud give us some highlights on which factors of corporate governance affect most the fraud occurrence and level.

Consistent with the results of the first and second hypothesis, the control variable related to the type of corporate governance system (Blockholder or Shareholder) shows a significant and positive relation with the level of the fraud ($P > |Z| = 0.003$), meaning that belonging to a Blockholder model system, instead that to a Shareholder model, enhances both the likelihood of the fraud occurrence and the amount deceived. The variable of the percentage of ownership held by management and directors presents a significant and negative correlation with the likelihood of fraud occurrence and the level of the fraud itself ($P > |Z| = 0.074$), in line with the studies of Jensen and Meckling (1976 and with the previous findings.

The control variable measuring the financial leverage of the company (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.077$), coherently with previous studies which demonstrate that the level of long term debt, detained by the company, can be a factor positively correlated with the fraud occurrence and magnitude, exercising a great pressure on the management decisions and actions, and considering that financially distressed firms can be more induced to commit frauds (Erickson *et al.*, 2006), and with the findings of the previous hypothesis' results.

The growth rate of the firm (GROWTH), is also significant and positively correlated with the fraud ($P > |Z| = 0.090$). This result is aligne with the studies of Loebbecke *et al.* (1991), Bell *et al.* (1991), Beasley (1996) and Erickson *et al.* (2006), where the occurrence of a rapid company growth is found as one of the most relevant fraud indicators, because if the firm has experienced a rapid growth in the latest years, the management will be induce to misstate the financial statement during a turndown to continue to show a stable growth. The results confirm also the findings of the previous hypothesis' results.

The coefficient of the control variables RESTAT, ROE, SALES, TIME, COUNTRY1 and COUNTRY2 do not appear significantly correlated. Thus, it seems to suggest that these factors do not affect the level and the likelihood of the fraud in case of low level of fraud (until 5%).

To examine whether operating in particular sectors is associated with the fraud level, we checked also for the Industry, but the results did not differ significantly from the ones presented. Considering that the model already has many variables, the only effect was a reduction of the statistically significance of the model, and the variable Industry was not significant at all.

Specifically, 27 dummy variables have been created, considering that the sample includes firms operating in 28 different sectors, based on the two-digit SIC codes. After that, we checked again for the industry looking at only 7 dummy variables, relying on 8 different industries based on one-digit SIC codes, but no different results were achieved.

TABLE 19
Regression Results HP3

The effect of Corporate Governance Dimensions on fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{DIM1}_{t-1} + \beta_2 \text{DIM2}_{t-1} + \beta_3 \text{DIM3}_{t-1} + \beta_4 \text{DIM4}_{t-1} + \beta_5 \text{DIM5}_{t-1} + \beta_6 \text{DIM6}_{t-1} + \beta_7 \text{DIM7}_{t-1} + \beta_8 \text{BLOCK}_{t-1} + \beta_9 \text{MNGT OWN}_{t-1} + \beta_{10} \text{RESTAT}_{t-1} + \beta_{11} \text{ROE}_{t-1} + \beta_{12} \text{FIN LEV}_{t-1} + \beta_{13} \text{SALES}_{t-1} + \beta_{14} \text{GROWTH}_{t-1} + \beta_{15} \text{TIME}_{t-1} + \beta_{16} \text{COUNTRY1}_{t-1} + \beta_{17} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>1 - low Level of Fraud (FRAUD = 1)</i>							
DIM1	-1.222772	.2526516	-4.84	0.000	***	-1.717961 - .7275844	-
DIM2	-.3152572	.3032299	-1.04	0.298		-.9095768 .2790624	-
DIM3	.9045984	.4520253	2.00	0.045	**	.0186451 1.790552	+
DIM4	.7012997	.3445182	2.04	0.042	**	.0260564 1.376543	+
DIM5	.8308868	.303894	2.73	0.006	**	.2352656 1.426508	+
DIM6	-.2856668	.3529778	-0.81	0.418		-.9774906 .4061569	+
DIM7	-.5509121	.3925402	-1.40	0.160		-1.320277 .2184526	-
BLOCK	2.530054	.8629104	2.93	0.003	**	.8387803 4.221327	+
MNGT OWN	-1.655488	.9277085	-1.78	0.074	*	-3.473763 .1627872	-
RESTAT	.2482153	.678569	0.37	0.715		-1.081756 1.578186	+
ROE	.0019507	.0121622	0.16	0.873		-.0218868 .0257882	-
FIN LEV	.2233059	.1260758	1.77	0.077	*	-.0237982 .4704099	+
SALES	-1.24e-09	1.20e-09	-1.03	0.302		-3.58e-09 1.11e-09	-
GROWTH	.1780905	.1051353	1.69	0.090	*	-.027971 .3841519	+
TIME	1.273454	1.319938	0.96	0.335		-1.313576 3.860485	-
COUNTRY1	-2.017404	1.677035	-1.20	0.229		-5.304332 1.269524	none
COUNTRY2	.3893158	.7659069	0.51	0.611		-1.111834 1.890466	none
_cons	-2.193563	.6198733	-3.54	0.000	***	-3.408492 -.9786338	

(fraud=0 is the base outcome)

Continuing with the results relative to the case of medium level of fraud, even here it comes up that the same 4 dimensions of corporate governance, that are significantly correlated with the fraud in case of low level of fraud, are significantly correlated and with the same signs with the dependent variable. Thus, just to remind the results:

- DIM1 is negatively correlated ($P>|Z| = 0.000$) with the fraud. The variable DIM1 is the Board Independence Dimension, which is determined mainly by the governance variables ETHIC, AUD IND, NOM IND, COMP IND, and AUD FINEXP;

- DIM3 is significantly and positively correlated ($P > |Z| = 0.039$) with the fraud. The variable DIM3 represents the Board Decisions concerning the CEO compensation and it is determined by the governance variables BOD MEET, CEO SO and LEV COMP;
- DIM4 is significantly and positively correlated ($P > |Z| = 0.003$) with the fraud. The variable DIM4 represents the CEO Duality Dimension and it is determined only by the governance variable CEO DUAL;
- DIM5 is and positively correlated ($P > |Z| = 0.005$) with the fraud. This variable represents the Board and Board Members Features, and it is determined by governance variables BOD SIZE and ID.

The other 3 dimensions (DIM2, DIM6 and DIM7) do not appear statistically significant.

Thus the results of the third hypothesis for a medium level of fraud confirm the highlights on which factors of corporate governance affect most the fraud occurrence and level found in case of low level of fraud.

The Blockholder corporate governance system shows a significant and positive relation with the level of the fraud ($P > |Z| = 0.002$), as verified in the model used for the hypotheses 1 and 2 and also the previous results related to the low level of fraud. The control variable measuring for the percentage of ownership held by management and directors and the level of the fraud is significant and negative correlated with the fraud ($P > |Z| = 0.059$), confirming again the results and the considerations previously mentioned.

The control variable measuring the profitability of the company (ROE) is significant and negatively correlated with the fraud ($P > |Z| = 0.033$), coherently with previous studies which demonstrate that poor performance of the firm is associated with the increase of likelihood of financial statement fraud (Bell *et al.*, 1991) and coherently also with the findings in case of medium level of fraud we have achieved in the first and second hypotheses.

The control variable measuring for the financial leverage of the firm (FIN LEV) is significant and positively correlated with the fraud ($P > |Z| = 0.000$), confirming the results achieved in the previous regressions for the hypotheses 1 and 2. A high level of financial leverage increases the likelihood of the fraud occurrence and the fraud level, exercising a great pressure on the management decisions and actions, and considering that financially distressed firms can be more induced to commit fraud, in line with the studies of Erickson *et al.* (2006).

The other control variable relevant in this regression is the TIME. This variable controls for those firms committing the fraud after a legislative reform on corporate governance has been actuated in the belonging country. TIME is significant and negatively correlated with the dependent variable ($P > |Z| = 0.100$), meaning that the corporate governance reforms, applied after the major financial scandals in different countries, actually have an impact on the fraud occurrence and magnitude, reducing both the likelihood of the occurrence and the level of the fraud.

The variable COUNTRY1 is significantly and negatively correlated with the dependent variable ($P > |Z| = 0.004$), as resulted in the first and second hypotheses in presence of a medium level of fraud. Keeping in mind that the variable COUNTRY1 (as the variable COUNTRY2) is a non ordinal categorical variable built in relation with the US and UK countries, as baseline, the fact that the variable COUNTRY1 is negatively correlated with the FRAUD means that belonging to one of the countries included in the variable COUNTRY1 (Italy, France, Germany or Switzerland) has a negative impact on the FRAUD variable higher than the one that US and UK companies have on the FRAUD. The reason could be found in the cultural, historical and institutional differences which characterize these countries. This result confirms the findings of the Hp1 and Hp2.

The coefficient of the control variables RESTAT, SALES, GROWTH, TIME, and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level of the occurred fraud in case of medium level of fraud (between 5% and 30%).

Even for this level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results. Being the same regression run in low level of fraud, the only effect was a reduction of the statistical significance of the model.

TABLE 20
Regression Results HP3

The effect of Corporate Governance Dimensions on fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{DIM1}_{t-1} + \beta_2 \text{DIM2}_{t-1} + \beta_3 \text{DIM3}_{t-1} + \beta_4 \text{DIM4}_{t-1} + \beta_5 \text{DIM5}_{t-1} + \beta_6 \text{DIM6}_{t-1} + \beta_7 \text{DIM7}_{t-1} + \beta_8 \text{BLOCK}_{t-1} + \beta_9 \text{MNGT OWN}_{t-1} + \beta_{10} \text{RESTAT}_{t-1} + \beta_{11} \text{ROE}_{t-1} + \beta_{12} \text{FIN LEV}_{t-1} + \beta_{13} \text{SALES}_{t-1} + \beta_{14} \text{GROWTH}_{t-1} + \beta_{15} \text{TIME}_{t-1} + \beta_{16} \text{COUNTRY1}_{t-1} + \beta_{17} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z		[95% Conf. Interval]	Predicted Relation
<i>2 - Medium Level of Fraud (FRAUD = 2)</i>							
DIM1	-1.295951	.2181528	-5.94	0.000	***	-1.723523 - .8683798	-
DIM2	.1539994	.2728747	0.56	0.573		-.3808252 .688824	-
DIM3	.9123902	.4426596	2.06	0.039	**	.0447933 1.779987	+
DIM4	1.171873	.38815	3.02	0.003	**	.4111133 1.932633	+
DIM5	.7466292	.2677725	2.79	0.005	**	.2218047 1.271454	+
DIM6	-.505626	.3367086	-1.50	0.133		-1.165563 .1543108	+
DIM7	.0288106	.3848808	0.07	0.940		-.7255419 .783163	-
BLOCK	1.845959	.5892508	3.13	0.002	**	.6910486 3.000869	+
MNGT OWN	-.5562197	.2943081	-1.89	0.059	**	-1.133053 .0206137	-
RESTAT	.935421	.7383925	1.27	0.205		-.5118017 2.382644	+
ROE	-.0256586	.0120426	-2.13	0.033	**	-.0492618 -.0020555	-
FIN LEV	.0529857	.0112776	4.70	0.000	***	.030882 .0750894	+
SALES	-1.97e-09	6.32e-09	-0.31	0.755		-1.44e-08 1.04e-08	-
GROWTH	.0383083	.118835	0.32	0.747		-.1946041 .2712207	+
TIME	-1.643967	.9986872	-1.65	0.100	*	-3.601358 .3134236	-
COUNTRY1	-2.443525	.852093	-2.87	0.004	**	-4.113597 -.7734539	none
COUNTRY2	-1.637088	1.216133	-1.35	0.178		-4.020665 .7464893	none
_cons	-.4646007	.3993055	-1.16	0.245		-1.247225 .3180237	

(fraud=0 is the base outcome)

Concerning the results relative to the case of high level of fraud, even here it comes up that the same 4 dimensions of corporate governance, that are significantly correlated with the fraud in the first two cases, are significantly correlated and with the same signs with the dependent variable. Thus, just to remind the results and show the level of significance of each variable:

- DIM1 is negatively correlated ($P>|Z| = 0.000$) with the fraud. The variable DIM1 is the Board Independence Dimension, which is determined mainly by the governance variables ETHIC, AUD IND, NOM IND, COMP IND, and AUD FINEXP;
- DIM3 is significantly and positively correlated ($P>|Z| = 0.080$) with the fraud. The variable DIM3 represents the Board Decisions concerning the CEO compensation and it is determined by the governance variables BOD MEET, CEO SO and LEV COMP;

- DIM4 is significantly and positively correlated ($P > |Z| = 0.001$) with the fraud. The variable DIM4 represents the CEO Duality Dimension and it is determined only by the governance variable CEO DUAL;
- DIM5 is and positively correlated ($P > |Z| = 0.020$) with the fraud. This variable represents the Board and Board Members Features, and it is determined by governance variables BOD SIZE and ID.

The other 3 dimensions (DIM2, DIM6 and DIM7) do not appear statistically significant.

Thus, the results of the third hypothesis for a high level of fraud confirm the highlights on which factors of corporate governance affect most the fraud occurrence and level found in case of low and medium level of fraud.

Also the control variables BLOCK, MNGT OWN and FIN LEV are significant and report the same signs found in the previous two cases. More specifically the BLOCK is positive and significant correlated with the dependent variable ($P > |Z| = 0.005$), the MNGT OWN is negatively and significantly correlated with the fraud ($P > |Z| = 0.016$), and the FIN LEV is positive and significant correlated with the dependent variable ($P > |Z| = 0.097$).

The results of this regression give two new highlights on two control variables. The RESTAT variable is significant and positively correlated with the fraud ($P > |Z| = 0.076$), meaning that the restatement occurrence in the previous year of the fraud has an impact on both fraud occurrence and fraud magnitude, increasing the likelihood and the level of the voluntary misstatement, in case of high fraud. This result confirms the idea that restatements can be a red flag for fraud detection and they have to be monitored by the control bodies of the firm.

Even for the medium level of fraud, the control variable TIME is relevant in the regression. TIME is significant and negatively correlated with the dependent variable ($P > |Z| = 0.076$), meaning that the corporate governance reforms, applied after the major financial scandals in different countries, actually have an impact on the fraud occurrence and magnitude, reducing both the likelihood of the occurrence and the level of the fraud.

The coefficient of the control variables ROE, SALES, GROWTH, COUNTRY1 and COUNTRY2 do not appear significantly correlated, thus it seems to suggest that these factors do not affect the level of the likelihood of the fraud when the level of the fraud is high (more than 30%).

Even for this last level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results. Being the same regression run in the other two levels of fraud, the only registered effect was a reduction of the statistical significance of the model.

TABLE 21
Regression Results HP3

The effect of Corporate Governance Dimensions on fraud

$$\text{FRAUD}_t = \alpha + \beta_1 \text{DIM1}_{t-1} + \beta_2 \text{DIM2}_{t-1} + \beta_3 \text{DIM3}_{t-1} + \beta_4 \text{DIM4}_{t-1} + \beta_5 \text{DIM5}_{t-1} + \beta_6 \text{DIM6}_{t-1} + \beta_7 \text{DIM7}_{t-1} + \beta_8 \text{BLOCK}_{t-1} + \beta_9 \text{MNGT OWN}_{t-1} + \beta_{10} \text{RESTAT}_{t-1} + \beta_{11} \text{ROE}_{t-1} + \beta_{12} \text{FIN LEV}_{t-1} + \beta_{13} \text{SALES}_{t-1} + \beta_{14} \text{GROWTH}_{t-1} + \beta_{15} \text{TIME}_{t-1} + \beta_{16} \text{COUNTRY1}_{t-1} + \beta_{17} \text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]		Predicted Relation
<i>3 - High Level of Fraud (FRAUD = 3)</i>								
DIM1	-1.358728	.2267434	-5.99	0.000	***	-1.803137	-.9143191	-
DIM2	.1570821	.2130811	0.74	0.461		-.2605491	.5747133	-
DIM3	.7759135	.4429354	1.75	0.080	*	-.0922239	1.644051	+
DIM4	1.081278	.3236144	3.34	0.001	**	.447005	1.71555	+
DIM5	.7015164	.3024852	2.32	0.020	**	.1086564	1.294376	+
DIM6	-.3398046	.3287145	-1.03	0.301		-.9840731	.3044639	+
DIM7	-.4998664	.3611429	-1.38	0.166		-1.207693	.2079607	-
BLOCK	1.662972	.5976164	2.78	0.005	**	.4916652	2.834278	+
MNGT OWN	-.5826786	.242554	-2.40	0.016	**	-1.058076	-.1072814	-
RESTAT	1.013337	.5714033	1.77	0.076	*	-.1065925	2.133267	+
ROE	.0028037	.0103881	0.27	0.787		-.0175567	.023164	-
FIN LEV	.1284471	.0773989	1.66	0.097	*	-.0232519	.2801461	+
SALES	-1.27e-09	9.87e-10	-1.28	0.200		-3.20e-09	6.69e-10	-
GROWTH	.1529706	.1052105	1.45	0.146		-.0532382	.3591794	+
TIME	-1.773574	.9992282	-1.77	0.076	*	-3.732025	.1848775	-
COUNTRY1	-.6686325	.963893	-0.69	0.488		-2.557828	1.220563	none
COUNTRY2	-.9016163	.807832	-1.12	0.264		-2.484938	.6817054	none
_cons	-1.040758	.4247107	-2.45	0.014	**	-1.873175	-.2083401	

(fraud=0 is the base outcome)

In order to summarize the results of the three outputs relative to the three different levels of fraud, we provide some brief considerations on them.

The results in every case of level of fraud demonstrate that there are some aspects of corporate governance particularly relevant for the fraud occurrence and also for the fraud magnitude. The results suggest taking into account mostly the independence of the Board, element which reduces the likelihood and the level of the fraud. These results are in line with previous findings given by the literature (Beasley, 1996; Uzun *et al.*, 1994; Kaplan and Minton, 1994; Hermalin and Weishbach, 2002). Moreover, also concerning the Board independence, but referring specifically

to the Audit Committee, the presence of a financial expert seems to help at reducing the fraud phenomena, result aligned with previous researches (Jensen, 1993; Agraval and Chada, 2005).

Moreover, Board decisions on CEO compensation type and amount seems to affect, as well, the fraud occurrence and level. The results in the three cases we analysed suggest that these kinds of decisions should be taken considering that a high level of variable compensation and a high level of stock options do not lead the CEO to perform better, but induce him/her to have fraudulent behaviour and gain from them personal benefits. These findings are aligned with the studies of Erickson *et al.* (2006), Bruner, McKee and Santore (2005), and Peng and Roell (2006).

The CEO duality, as demonstrated by previous researches, negatively affects the amount of fraud and the likelihood of fraud occurrence (Yermack, 1996; Sharma, 2004). Thus, the results in three cases confirm the previous findings of the literature.

The fact that the Board size and ID are both positively correlated confirms previous studies: the higher is the number of Board members, the lower the efficiency of the Board (Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996). At the same time, the higher is the number of interlocking directorships in the Board, the higher the likelihood of fraud and its level, an evidence of corporate governance underlined by the Institutional Shareholders Service, which considers the presence of numerous ID within a Board as a negative element of corporate governance. Thus, the results empirically confirm the theory on the topic.

In sum, also the third hypothesis is verified at all levels of the fraud. The control variables help in the analysis of the factors which act as enhancing factors or reducing factors of the fraud occurrence and magnitude. In all the three cases, as in the previous two hypotheses' results, the presence of a Blockholder increases the likelihood of fraud occurrence and its magnitude, confirming the results of the first and second hypotheses. The percentage of shares owned by the directors acts as a reducing factor on the dependent variable, confirming the previous results achieved by the literature (Jensen and Meckling, 1976). The level of debt affects as well the likelihood and magnitude of fraud, increasing them, at all the levels of the fraud, low, medium and high.

As found in the other results relative to the first and the second hypothesis, the profitability of the company acts as a deterrent to commit fraud in case of medium level of fraud, but not in the other two cases.

The two new results achieved testing the third hypothesis are relative to the TIME and RESTAT control variables, which seem to have a role on the fraud, respectively a decreasing effect and an increasing effect. Thus, first we can conclude that the reforms actuated after the major financial scandals actually have a positive effect at reducing fraud occurrence and magnitude in case of medium and high level of fraud. Moreover, we suggest taking into account, during the fraud detection process, the presence of a restatement, because, considering the achieved results, restatements could be considered as a red flag in fraud detection.

Analysing more in depth the principal aspect of corporate governance allows us to understand which factors should be taken particularly into account in order to avoid the fraud occurrence and in case the occurrence is not avoided at least obstacle the amount of fraud that could be deceived.

To summarize all the previously considerations about the first regression, a table is presented.

TABLE 22
Regression Results HP3

The effect of Corporate Governance Dimensions on fraud

$$\text{FRAUD}_t = \alpha + \beta_1\text{DIM1}_{t-1} + \beta_2\text{DIM2}_{t-1} + \beta_3\text{DIM3}_{t-1} + \beta_4\text{DIM4}_{t-1} + \beta_5\text{DIM5}_{t-1} + \beta_6\text{DIM6}_{t-1} + \beta_7\text{DIM7}_{t-1} + \beta_8\text{BLOCK}_{t-1} + \beta_9\text{MNGT OWN}_{t-1} + \beta_{10}\text{RESTAT}_{t-1} + \beta_{11}\text{ROE}_{t-1} + \beta_{12}\text{FIN LEV}_{t-1} + \beta_{13}\text{SALES}_{t-1} + \beta_{14}\text{GROWTH}_{t-1} + \beta_{15}\text{TIME}_{t-1} + \beta_{16}\text{COUNTRY1}_{t-1} + \beta_{17}\text{COUNTRY2}_{t-1} + \varepsilon$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>1 - low Level of Fraud (FRAUD = 1)</i>							
DIM1	-1.222772	.2526516	-4.84	0.000	***	-1.717961 - .7275844	-
DIM2	-.3152572	.3032299	-1.04	0.298		-.9095768 .2790624	-
DIM3	.9045984	.4520253	2.00	0.045	**	.0186451 1.790552	+
DIM4	.7012997	.3445182	2.04	0.042	**	.0260564 1.376543	+
DIM5	.8308868	.303894	2.73	0.006	**	.2352656 1.426508	+
DIM6	-.2856668	.3529778	-0.81	0.418		-.9774906 .4061569	+
DIM7	-.5509121	.3925402	-1.40	0.160		-1.320277 .2184526	-
BLOCK	2.530054	.8629104	2.93	0.003	**	.8387803 4.221327	+
MNGT OWN	-1.655488	.9277085	-1.78	0.074	*	-3.473763 .1627872	-
RESTAT	.2482153	.678569	0.37	0.715		-1.081756 1.578186	+
ROE	.0019507	.0121622	0.16	0.873		-.0218868 .0257882	-
FIN LEV	.2233059	.1260758	1.77	0.077	*	-.0237982 .4704099	+
SALES	-1.24e-09	1.20e-09	-1.03	0.302		-3.58e-09 1.11e-09	-
GROWTH	.1780905	.1051353	1.69	0.090	*	-.027971 .3841519	+
TIME	1.273454	1.319938	0.96	0.335		-1.313576 3.860485	-
COUNTRY1	-2.017404	1.677035	-1.20	0.229		-5.304332 1.269524	none
COUNTRY2	.3893158	.7659069	0.51	0.611		-1.111834 1.890466	none
_cons	-2.193563	.6198733	-3.54	0.000	***	-3.408492 -.9786338	

2 - Medium Level of Fraud (FRAUD = 2)

DIM1		-1.295951	.2181528	-5.94	0.000	***	-1.723523	-.8683798	-
DIM2		.1539994	.2728747	0.56	0.573		-.3808252	.688824	-
DIM3		.9123902	.4426596	2.06	0.039	**	.0447933	1.779987	+
DIM4		1.171873	.38815	3.02	0.003	**	.4111133	1.932633	+
DIM5		.7466292	.2677725	2.79	0.005	**	.2218047	1.271454	+
DIM6		-.505626	.3367086	-1.50	0.133		-1.165563	.1543108	+
DIM7		.0288106	.3848808	0.07	0.940		-.7255419	.783163	-
BLOCK		1.845959	.5892508	3.13	0.002	**	.6910486	3.000869	+
MNGT OWN		-.5562197	.2943081	-1.89	0.059	**	-1.133053	.0206137	-
RESTAT		.935421	.7383925	1.27	0.205		-.5118017	2.382644	+
ROE		-.0256586	.0120426	-2.13	0.033	**	-.0492618	-.0020555	-
FIN LEV		.0529857	.0112776	4.70	0.000	***	.030882	.0750894	+
SALES		-1.97e-09	6.32e-09	-0.31	0.755		-1.44e-08	1.04e-08	-
GROWTH		.0383083	.118835	0.32	0.747		-.1946041	.2712207	+
TIME		-1.643967	.9986872	-1.65	0.100	*	-3.601358	.3134236	-
COUNTRY1		-2.443525	.852093	-2.87	0.004	**	-4.113597	-.7734539	none
COUNTRY2		-1.637088	1.216133	-1.35	0.178		-4.020665	.7464893	none
_cons		-.4646007	.3993055	-1.16	0.245		-1.247225	.3180237	

3 - High Level of Fraud (FRAUD = 3)

DIM1		-1.358728	.2267434	-5.99	0.000	***	-1.803137	-.9143191	-
DIM2		.1570821	.2130811	0.74	0.461		-.2605491	.5747133	-
DIM3		.7759135	.4429354	1.75	0.080	*	-.0922239	1.644051	+
DIM4		1.081278	.3236144	3.34	0.001	**	.447005	1.71555	+
DIM5		.7015164	.3024852	2.32	0.020	**	.1086564	1.294376	+
DIM6		-.3398046	.3287145	-1.03	0.301		-.9840731	.3044639	+
DIM7		-.4998664	.3611429	-1.38	0.166		-1.207693	.2079607	-
BLOCK		1.662972	.5976164	2.78	0.005	**	.4916652	2.834278	+
MNGT OWN		-.5826786	.242554	-2.40	0.016	**	-1.058076	-.1072814	-
RESTAT		1.013337	.5714033	1.77	0.076	*	-.1065925	2.133267	+
ROE		.0028037	.0103881	0.27	0.787		-.0175567	.023164	-
FIN LEV		.1284471	.0773989	1.66	0.097	*	-.0232519	.2801461	+
SALES		-1.27e-09	9.87e-10	-1.28	0.200		-3.20e-09	6.69e-10	-
GROWTH		.1529706	.1052105	1.45	0.146		-.0532382	.3591794	+
TIME		-1.773574	.9992282	-1.77	0.076	*	-3.732025	.1848775	-
COUNTRY1		-.6686325	.963893	-0.69	0.488		-2.557828	1.220563	none
COUNTRY2		-.9016163	.807832	-1.12	0.264		-2.484938	.6817054	none
_cons		-1.040758	.4247107	-2.45	0.014	**	-1.873175	-.2083401	

(fraud=0 is the base outcome)

Pseudo R ²	0.3967
Chi square	0.0000
Number of observations	214

Statistically significance

*	low	0.1	0.05<x<=0.1
**	medium	0.05	0.001<x<=0.05
***	high	0.001	x<=0.001

After having run the regression with the PCA analysis artificial variable, we check also for a multinomial regression without the artificial variables generated by the PCA, but instead with all the 17 governance variables we have considered.

The results show almost the same results, with a detailed level obviously for each variable. The model, as a whole, is statistically significant (p-value for the chi-square equals to 0.0000)¹⁷.

We point out here only the most relevant results:

- The independence of the Board and in particular of two of its committees, the Audit one and the Compensation one, are always negatively correlated with the fraud, confirming the previous results, both on the independence and on the Board decisions on CEO compensation;
- The presence of a financial expert, for all the three levels of fraud, is significantly and positively correlated with the fraud, confirming previous results and considerations;
- The level of stock option of the CEO is positively correlated with the fraud when the fraud is high, confirming previous literature's findings (Erickson *et al.*, 2006);
- The size of the Board is even here positively correlated with the fraud for low and medium level of fraud, confirming that the larger the Board size, the lower its efficiency and effectiveness;
- The presence of interlocking directorships is positively correlated with the fraud occurrence and magnitude for all the three levels of fraud, thus previous results are confirmed;
- The chairman tenure impact negatively on the fraud. This is a new result coming up, thus it can be explained with the fact that the more the chairman seat on the more, the more he/she has knowledge of the firm and has also a greater influence on the board and on the management than a relative new chairman who will rely on the other members of the Board and on the management to get into the firm's environment;
- The presence of a Blockholder, the percentage ownership held by the directors and the level of debt are still the control variable always significant and with the same signs found before;

¹⁷ We do not consider the value of the Pseudo R²(0.4556) which is the McFadden's Pseudo R², due to the fact that this statistic differs from the Square R² of the OLS (the proportion of variance of the response variable explained by the predictors). The logistic regressions do not have an equivalent of the OLS R² and all the other alternatives of R² are considered as mere indicators, but the Stata manual itself recommends interpreting this statistic with caution.

- Even in this regression, the TIME variable for medium and high levels of fraud is significant and negatively correlated with the fraud, thus we can confirm the fact that reforms actually had an impact on firm's behaviour;
- The variable COUNTRY1, as well, is significantly and negatively correlated with the dependent variable, in case of medium level of fraud, confirming the previous findings.

TABLE 23
Regression Results HP3

The effect of Corporate Governance Variables on fraud

$$\begin{aligned} \text{FRAUD}_t = & \alpha + \beta_1 \text{CEO DUAL}_{t-1} + \beta_2 \text{BOD MEET}_{t-1} + \beta_3 \text{ETHIC}_{t-1} + \beta_4 \text{AUD IND}_{t-1} + \beta_5 \text{NOM IND}_{t-1} + \beta_6 \text{COMP} \\ & \text{IND}_{t-1} + \beta_7 \text{BOD SIZE}_{t-1} + \beta_8 \text{BOD AGE}_{t-1} + \beta_9 \text{BOD IND}_{t-1} + \beta_{10} \text{AUD FINEXP}_{t-1} + \beta_{11} \text{CHAIRTEN}_{t-1} \\ & + \beta_{12} \text{CEOTEN}_{t-1} + \beta_{13} \text{ID}_{t-1} + \beta_{14} \text{BIG5}_{t-1} + \beta_{15} \text{AUD FEES}_{t-1} + \beta_{16} \text{CEO SO}_{t-1} + \beta_{17} \text{LEV COMP}_{t-1} + \beta_{18} \text{BLOCK}_{t-1} + \\ & \beta_{19} \text{MNGT OWN}_{t-1} + \beta_{20} \text{RESTAT}_{t-1} + \beta_{21} \text{ROE}_{t-1} + \beta_{22} \text{FIN LEV}_{t-1} + \beta_{23} \text{SALES}_{t-1} + \beta_{24} \text{GROWTH}_{t-1} + \\ & \beta_{25} \text{TIME}_{t-1} + \beta_{26} \text{COUNTRY1}_{t-1} + \beta_{27} \text{COUNTRY2}_{t-1} + \varepsilon \end{aligned}$$

FRAUD	Coef.	Robust Std. Err.	z	P> z 		[95% Conf. Interval]	Predicted Relation
<i>1 - low Level of Fraud (FRAUD = 1)</i>							
CEO DUAL	-.046646	.7241545	-0.06	0.949		-1.465777 1.372857	+
BOD MEET	.1880159	.0891985	2.11	0.035	**	.0131901 .3628417	+
ETHIC	.9307879	2.075404	0.45	0.654		-3.136929 4.998505	-
AUD IND	-18.85386	4.042387	-4.66	0.000	***	-26.7768 -10.93093	-
NOM IND	-.0989601	.8341641	-0.12	0.906		-1.733892 1.535972	-
COMP IND	-3.067222	1.290412	-2.38	0.017	**	-5.596383 -.5380605	-
BOD SIZE	.267796	.0873635	3.07	0.002	***	.0965668 .4390253	+
BOD AGE	-.0327518	.0544497	-0.60	0.548		-.1394712 .0739677	+
BOD IND	-2.897245	1.887584	-1.53	0.125		-6.596842 .8023521	-
AUD FINEXP	-3.677557	.8774258	-4.19	0.000	***	-5.39728 -1.957834	-
CHAIRTEN	-.1839379	.0984268	-1.87	0.062	*	-.3768508 .008975	-
CEOTEN	-.0021077	.1258165	-0.02	0.987		-.2487036 .2444881	+
ID	1.611948	.9623597	1.67	0.094	*	-.2742421 3.498139	+
BIG5	-1.202184	1.113133	-1.08	0.280		-3.383885 .9795176	-
AUD FEES	1.541668	1.427987	1.08	0.280		-1.257135 4.340471	+
CEO SO	.7406211	1.009348	0.73	0.463		-1.237665 2.718907	+
LEV COMP	.000039	.0000222	1.76	0.078	*	-.0000824 4.40e-06	+
BLOCK	2.801798	1.050401	2.67	0.008	**	.7430491 4.860547	+
MNGT OWN	-1.424435	.4882367	-2.92	0.004	**	-2.381362 -.4675089	-
RESTAT	-.025534	.7575696	-0.03	0.973		-1.510343 1.459275	+
ROE	.0081437	.0160707	0.51	0.612		-.0233543 .0396416	-
FIN LEV	.3347093	.1754102	1.91	0.056	*	-.0090884 .6785071	+
SALES	-1.43e-09	1.16e-09	-1.23	0.217		-3.71e-09 8.45e-10	-
GROWTH	.1234318	.0950127	1.30	0.194		-.0627896 .3096532	+
TIME	1.388661	1.668709	0.83	0.405		-1.881949 4.659271	-
COUNTRY1	-1.986001	2.135648	-0.93	0.352		-6.171794 2.199791	none
COUNTRY2	-1.986001	2.135648	-0.93	0.352		-6.171794 2.199791	none
_cons	21.41311	.6198733	-3.54	0.000	***	-3.408492 -.9786338	

2 - Medium Level of Fraud (FRAUD = 2)

CEO DUAL		1.125275	.7596322	1.48	0.139		-.363577	2.614127	+
BOD MEET		.0358774	.0684712	0.52	0.600		-.0983236	.1700784	+
ETHIC		-1.167265	1.815545	-0.64	0.520		-4.725669	2.391138	-
AUD IND		-21.23784	4.355704	-4.88	0.000	***	-29.77486	-12.70081	-
NOM IND		1.423665	.9999894	1.42	0.155		-.5362779	3.383609	-
COMP IND		-3.760168	1.583265	-2.37	0.018	**	-6.86331	-.6570259	-
BOD SIZE		.1814553	.0856454	2.12	0.034	**	.0135935	.3493172	+
BOD AGE		-.0051453	.0523322	-0.10	0.922		-.1077145	.0974238	+
BOD IND		-2.7777	1.740512	-1.60	0.111		-6.189042	.6336417	-
AUD FINEXP		-3.262875	.6917053	-4.72	0.000	***	-4.618593	-1.907158	-
CHAIRTEN		-.1160275	.0930028	-1.25	0.212		-.2983096	.0662545	-
CEOTEN		.0489768	.1072709	0.46	0.648		-.1612702	.2592239	+
ID		2.617309	.9247256	2.83	0.005	**	.8048803	4.429738	+
BIG5		.598127	1.003649	0.60	0.551		-1.36899	2.565244	-
AUD FEES		-.3692742	1.036532	-0.36	0.722		-2.400839	1.662291	+
CEO SO		.4414645	.807613	0.55	0.585		-1.141428	2.024357	+
LEV COMP		2.91e-06	.0000174	0.17	0.867		-.0000313	.0000371	+
BLOCK		1.911385	.6815468	2.80	0.005	**	.5755776	3.247192	+
MNGT OWN		-.6674436	.3541136	-1.88	0.059	*	-1.361493	.0266062	-
RESTAT		1.307477	.8007619	1.63	0.103		-.2619874	2.876942	+
ROE		-.0203482	.0128361	-1.59	0.113		-.0455064	.0048101	-
FIN LEV		.0570001	.0122711	4.65	0.000	***	.0329491	.0810511	+
SALES		-4.28e-09	8.54e-09	-0.50	0.616		-2.10e-08	1.25e-08	-
GROWTH		-.0242686	.1067012	-0.23	0.820		-.2333992	.184862	+
TIME		-2.015903	1.118523	-1.80	0.071	*	-4.208169	.1763622	-
COUNTRY1		-2.730988	.8970862	-3.04	0.002	**	-4.489245	-.9727319	none
COUNTRY2		-1.728576	1.100754	-1.57	0.116		-3.886015	.4288628	none
_cons		24.68152	2.970444	8.31	0.000	***	18.85956	30.50348	

3 - High Level of Fraud (FRAUD = 3)

CEO DUAL		.227779	.7188619	0.32	0.751		-1.181164	1.636722	+
BOD MEET		.0455624	.0600707	0.76	0.448		-.072174	.1632987	+
ETHIC		-.792342	1.976207	-0.40	0.688		-4.665637	3.080953	-
AUD IND		-19.98196	4.150118	-4.81	0.000	***	-28.11605	-11.84788	-
NOM IND		1.144232	.9485394	1.21	0.228		-.714871	3.003335	-
COMP IND		-4.063847	1.272534	-3.19	0.001	**	-6.557968	-1.569726	-
BOD SIZE		.102814	.0860418	1.19	0.232		-.0658249	.2714529	+
BOD AGE		-.0172686	.0511917	-0.34	0.736		-.1176026	.0830654	+
BOD IND		-4.391523	1.783864	-2.46	0.014	**	-7.887833	-.8952128	-
AUD FINEXP		-2.92335	.7032481	-4.16	0.000	***	-4.301691	-1.545009	-
CHAIRTEN		-.1178871	.0857169	-1.38	0.169		-.2858891	.0501148	-
CEOTEN		.0989651	.086139	1.15	0.251		-.0698643	.2677944	+
ID		3.090766	.8648673	3.57	0.000	***	1.395657	4.785875	+
BIG5		-.081852	.8986467	-0.09	0.927		-1.843167	1.679463	-

AUD FEES		-.35816	1.030573	-0.35	0.728		-2.378045	1.661725	+
CEO SO		1.856198	.808817	2.29	0.022	**	.2709455	3.44145	+
LEV COMP		2.60e-06	.0000192	0.14	0.892		-.0000351	.0000403	+
BLOCK		1.966585	.6929844	2.84	0.005	**	.6083601	3.324809	+
MNGT OWN		-.6846775	.2582337	-2.65	0.008	**	-1.190806	-.1785489	-
RESTAT		1.043102	.7196249	1.45	0.147		-.3673367	2.453541	+
ROE		.004933	.0105226	0.47	0.639		-.015691	.0255569	-
FIN LEV		.1542817	.0891792	1.73	0.084	*	-.0205062	.3290697	+
SALES		-2.61e-09	2.44e-09	-1.07	0.285		-7.41e-09	2.18e-09	-
GROWTH		.0956442	.0946658	1.01	0.312		-.0898973	.2811857	+
TIME		-2.179105	1.112255	-1.96	0.050	**	-4.359086	.0008749	-
COUNTRY1		-.6462545	.9882652	-0.65	0.513		-2.583219	1.29071	none
COUNTRY2		-.9648138	1.034524	-0.93	0.351		-2.992443	1.062815	none
_cons		25.18541	2.836102	8.88	0.000	***	19.62675	30.74406	

(fraud=0 is the base outcome)

Pseudo R ²	0.3967
Chi square	0.0000
Number of observations	214

Statistically significance

*	low	0.1	0,05<x<=0.1
**	medium	0.05	0.001<x<=0.05
***	high	0.001	x<=0.001

CHAPTER 6

6. Conclusions and Limitations

6.1 Conclusions

The work we developed on the corporate governance of the firm, aimed to understand which factors mostly affect the fraud occurrence and magnitude.

The analysis provides us with some important results which enhance the literature on this topic and which have also managerial implications. In our opinion, the main contributions of this work rely on the findings about the corporate governance system and also about the main aspects of corporate governance which should be taken into account in managing the firm.

From the analysis it emerged that, as predicted in the first hypothesis, belonging to a Blockholder model system of corporate governance could increase the probabilities to face a fraud occurrence and its magnitude. We confirmed this hypothesis by also testing the other two hypotheses. Matter-of-factly, the presence of the Blockholder always played as an enhancing factor of the fraud. The originality of these findings relies on the fact that no previous works empirically tested this relation. Nevertheless, the obtained result needs some deeper and more accurate remarks: even if the Blockholder model is characterized by the presence of conflict of interests between the majority shareholder and the minority shareholders, belonging to this kind of corporate governance model does not necessarily imply a fraud occurrence. In fact, a lot of firms operate and experience successful growth in this type of context. However, the analysis we conducted suggests that, in order to improve the model, some preventing devices should be implemented to avoid, or at least reduce, the possibility of frauds occurrence. Beside the legislations of each specific country, the firms themselves could focus their attention on some aspects of the corporate governance that can help to increasing the probability of preventing frauds.

Moreover, from the empirical findings we highlight that the corporate governance as a whole has a role at reducing the fraud occurrence and magnitude (evidence provided by the hypothesis 2). After the most relevant financial crises (such as the Asian one of 1997-1998, the actual crisis started in 2007 and still continuing that has affected almost all countries in the world, and, in

addition to those, the speculative bubble of 2000 which led many companies to bankruptcy), academics and practitioners have started to question the role of the corporate governance in the firm, doubting if a good corporate governance could impact positively at reducing the damages produced by the contingency situation. On the crest of the emotions generated by the recent crisis situation, some authors (Erkens, Hung and Matos, 2010) accused and pointed a finger towards the corporate governance of the firms, sustaining that even good corporate governance did not produce any effect and did not lead the companies to perform or behave better. To support their ideas, these Authors presented some significant examples, such as the Lehman Brothers' one that, despite its commonly recognized good corporate governance, experienced one of the most relevant bankruptcies of the last decades. In spite of the empirical evidences, nowadays it seems reasonable to affirm that only with a good level of corporate governance the conflict of interests among the different actors of the firms can be reduced, assuring fairness and control of the management. In other words, a *good* governance is needed to monitor over the management behaviors, as claimed also by the reformers, such as Nell Minow, who states that the “need for corporate governance has never been clearer or more pressing” (The Economist, Oct. 2010).

Investigating more in depth the factors that mostly affect the fraud occurrence and its level, we evidenced the most relevant aspects of corporate governance useful to assure a wealthy management of the company (evidences provided by the hypothesis 3).

The results showed that a particular attention has to be addressed to the Board of Directors and its Committees, more specifically to some issues of the Board.

The independence of the Board seems to be a necessary condition to assure the effectiveness of this body, as pointed out also by previous literature. The problem emerges more and more in the common debate, conducted from both the theoretical and practitioners points of view. For example, recently, The Economist (Oct. 2010) states that companies need “independent directors to keep a watchful eye on managers”, underling the importance of this board feature considering the financial scandals occurred in the last decades.

Also the composition of the Board, concerning the number of Board members and the presence of a financial expert in the audit committee, results relevant to have a good quality of corporate governance. In fact, a high number of members on the Board could have the only effect to lower the effectiveness of this body. At the same time, the presence of a financial expert can assure a better quality of the Board's work and a deeper control on the management's duties. These findings confirm previous studies, where the big size of the Board was pointed out as being a

factor that reduces the Board's efficiency and, on the contrary, the presence of a financial expert has been seen as an enhancing factor of the quality of the Board's controls.

As far as the Board's decisions about the CEO compensation are concerned, the results highlight how these decisions should be taken considering that a high level of stock options and, more in general, a high portion of variable compensation negatively impact on the CEO behaviors, inducing him/her to pursue personal benefits, committing, in the worst cases, frauds. This result is also aligned with the findings of previous literature on the same topic.

In conclusion, we can state that firms should pay attention to some specific aspects of the corporate governance in order to reduce the possibility of facing a fraud or, at least, to reduce the magnitude of the fraud. This statement is valid both for the companies operating in a Blockholder system and companies operating in a Shareholder system of corporate governance, even though firms belonging to a Blockholder model should pay more attention to the aforementioned aspects considering that their likelihood to commit a fraud is higher than the one of the companies belonging to a Shareholder model.

These findings can be considered as an important contribution to the literature on the topic, given the normative indications they provide for academic, who want to further investigate on these issues, and practitioners, who aim to improve the effectiveness of their businesses.

6.2 Limitations and Further Researches

The analysis we conducted can be considered as a first step for literature that investigates the role of corporate governance as a whole on financial statement fraud, because as previously said, to our knowledge, no preceding studies tested the relations we analyzed. Notwithstanding, even if the work presents some significant suggestions for the improvement of the analysis on the fraud occurrence and prevention, some limitations can be traced as a starting point of further researches.

A first limit this work presents relies on the fact that we did not consider the type of Blockholder. In other words, we did not investigate on the nature of the majority owners of the company (management, institutions, pension funds, etc.). Further researches could focus on this aspect to understand if the fraud can be associated with a particular type of Blockholder or not. Specifically, a particular attention should be paid to the situation in which the Blockholder is detained by the directors (that means that no other subject holds a higher portion of shares). This particular aspect should be analyzed more in depth in order to understand what portion of shares, detained by the directors, constitutes a deterrent to commit fraud, as demonstrated by our results, and, on the

contrary, after what level it acts as an enhancing factor of the fraud. This consideration arises looking at the descriptive statistics: the fraud firms, in fact, show a median value of ownership detained by directors equal to 0.08, while the no-fraud firms have a median value of this variable equal to 0.10.

A second limit to our work is connected to the variety of the sample adopted, concerning the nationalities of the firms. In fact, the sample included companies belonging to 11 selected countries. This implies that 11 different cultural and institutional contexts were compared. The choice of these countries was determined by the will of taking into consideration the main realities that reflect the two types of corporate governance systems. Conscious of the numerous differences traceable among these countries, from various points of view, we controlled for the most relevant variables which could reflect these differences, but some aspects, such as the fraud detection policies and the specific legislation of each country, could not be monitored thoroughly. Thus, further researches could focus on single countries, in order to have results referring to a single specific cultural and institutional context. On the contrary, a broader analysis, considering more than 11 countries could be implemented to have a worldwide comparison of results.

A third limit this work presents relies on the fact that the sample on which we tested our hypotheses was composed by 107 fraud firms and 107 no-fraud matched firms, due to the difficulties in finding enough data on the financial statement frauds. Thus, further studies could conduct the analysis on a broader sample.

Finally, our analysis did not specify the techniques used to implement the fraud. So, further researches could analyze if particular kinds of frauds are associated with the presence of a Blockholder.

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