



## Preventing Financial Statement Frauds through Better Corporate Governance

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# PREVENTING FINANCIAL STATEMENT FRAUDS THROUGH BETTER CORPORATE GOVERNANCE

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## Abstract

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Acting within the agency theory theoretical framework, the paper focuses on the role of the corporate governance as a system to monitor and predict the fraud occurrence and magnitude. Specifically, the study examines the impact of the quality of the corporate governance of the firms, for which a fraud was detected, on the fraud occurrence and magnitude. We posit that fraudulent behaviours, by those who can take advantage of information asymmetry and gain personal benefits from them, can occur when strong agency problems emerge and a weak governance exists. Thus, the financial statement fraud can be seen as the result of high agency problems and high conflicts of interests not solved by the company. Starting from a sample of 101 listed companies, for which a fraud was detected, using a principal component analysis, we develop a corporate governance index, which measures the quality of the governance system of the firms. To test the hypothesis, we run a multinomial logistic regression on a cross-sectional analysis, controlling the results with a matched sample of firms that did not experienced any fraud. Empirical evidences seem to confirm the existence of a negative relationship between the quality of the corporate governance system of a firm and both the financial statement fraud occurrence and magnitude, indicating the governance system of the firm as a fraud deterrent for any amount of financial statement fraud. These findings are even stronger for firms characterized by the presence of a blockholder. This study contributes to the governance literature by focusing on the corporate governance quality and its impact on financial statement frauds. Moreover, the analysis suggests that a good level of governance can help companies to mitigate the agency problems and to detect fraudulent behaviours, thus our empirical evidence can guide regulators in developing regulations to avoid the fraud occurrence.

**Keywords:** Corporate Governance, Financial Fraud, Agency Theory

## 1. INTRODUCTION

An increasing number of financial statement frauds have been detected over the last decades. Aiming to find some ways to prevent frauds, researchers have started to analyse the factors that are related to them to implement preventive actions and mechanisms to avoid, or at least reduce, the possibility of the fraud occurrence (Albrecht, Albrecht, and Dolan, 2007; Hemraj, 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 manifestation (Caplan, 1999; Beasley, Carcello, Hermanson, and Lapidés, 2000; Young, 2002). The interest is addressed towards the role of corporate

governance mechanisms in solving governance problems and exercising a control function over the different actors of the firm (Dey, 2008). Numerous scholars have investigated on this relation. For instance, Loebbecke, Eming, and Willingham (1989) point out the importance of the audit committee and board governance mechanisms in decreasing the likelihood of financial statement frauds. Later, Beasley (1996) analyses the relationship between financial frauds and the board composition, finding higher percentages of outside directors in no-fraud firms, compared to fraud ones. Similarly, Uzun, Szewczyk, and Varma, (2004) suggest that the board composition and the structure of a board's oversight committee are related with the fraud occurrence. Coherently with this perspective, Beasley, Carcello, Hermanson, and Lapidés (2000) find, in different

industries, a positive relation between the differences in the adopted corporate governance mechanisms and frauds committed. Furthermore, many other studies analyse the fraud occurrence in relation with some mechanisms of corporate governance: Faber (2005) studies the fraud in relation with some characteristics of the board and the audit committee; Dechow, Sloan, and Sweeney (1996) in relation with the board features; Erickson, Hanlon, and Maydew (2006) and also Ndofor, Wesley and Priem (2015) in relation with the executive compensation system.

Even though many corporate governance mechanisms have been investigated to understand their relation with financial statement frauds, to our knowledge, no empirical studies considered the whole set of corporate governance mechanisms in relation with this aspect. Starting from this gap, the base line of this paper is the relationship between financial statement frauds and corporate governance as a combination of mechanisms aiming at reducing agency conflicts. This relation is analysed within the agency theory theoretical framework (Jensen and Meckling, 1976; Fama, 1980; Fama and Jensen, 1983; Eisenhardt, 1989; Demsky, 2003). To study the conflicts of interests arising among different actors of the firms, we focus on both the insider and the outsider corporate governance systems, typical of different capitalism features, in order to analyse if cross-cultural differences exist with respect to financial statement frauds. Specifically, we argue that strong agency problems, even worsened by a weak corporate governance, end up in fraudulent behaviours implemented by those actors who can take advantage of information asymmetry and gain personal benefits from them. Thus, the financial statement fraud can be explained as the result of high agency problems and high conflicts of interests not solved by the company.

To investigate on this statement, an empirical analysis has been conducted. Firstly, we evaluate the corporate governance of 101 firms, for which a fraud has been detected, building a Corporate Governance Index (CGI), which measures the quality of the corporate governance. This is consistent with previous studies conducted by other scholars (Gompers, Ishii, and Metrick, 2003; Brown and Caylor, 2006; Bauer, Gunster, and Otten, 2004; Larcker, Richardson, and Tuna, 2007; Renders, Gaeremynck, A., and Sercu, 2010), who developed some Corporate Governance Indexes to test their impact on firm's performance. Secondly, we test the relation between the quality of the governance and both the occurrence and the magnitude of the fraud, using a multinomial logistic regression on a cross-sectional analysis and controlling the results with a matched sample of firms that did not experienced any fraud.

The research aims to test a negative relation between the quality of the corporate governance and the fraud (measured by both its occurrence and magnitude), in order to confirm whether a strong level of corporate governance system might help at mitigating the agency problems and at avoiding fraudulent behaviours.

This study contributes to the literature and to the managerial community in two different ways. First of all, it provides a deeper analysis of the corporate governance as a system in relation with frauds, filling the gap of the literature on this topic. Secondly, rather than investigating on the

importance of single elements of corporate governance, the empirical analysis highlights the vision of the corporate governance as a combination of elements useful to discourage frauds and mitigate their impact. This perspective can help both managers and practitioners to focus their attention not on single aspects of the governance, but on the whole system, understanding how the interactions among the various mechanisms could be used to prevent and avoid fraudulent behaviours.

To reach these aims, the paper is organized as follows: first we provide a deep review of the literature about corporate governance and financial statement frauds, proposing the hypothesis within the developed theoretical framework; then we specify the constructs used in the empirical analysis, constructing a Corporate Governance Index (CGI). Later, we present the data, the variables and the econometric model used to test the hypothesis. Finally, in the last section, we conduct the analysis, doing also the robustness checks, and present our results, conclusions, practical implications, and suggestions for future research.

## 2. THEORY AND HYPOTHESES

### 2.1. Corporate Governance and Financial Statement Frauds

The separation between ownership and management is a typical evidence of those companies characterized by a dispersed ownership (Berle and Means, 1932). The agency theory suggests that the separation between ownership and management in the company leads to a misalignment of interests between shareholders (the principal) and the management (the agent) because the formers aim to maximize the share value and create value for the company, while the latter's main goal is to reinforce its position and power within the firm, increasing also its remuneration and personal benefits, at the expenses of the shareholders (Jensen and Meckling, 1976; Seal, 2006). As Means (1931) points out, where ownership is sufficiently sub-divided, the management can become a self-perpetuating body even though its share in the ownership is negligible. Therefore, the agency relationship between owners and managers is characterized by conflicts of interests and information asymmetry, peculiar characteristics of the Anglo-American countries, where firms are more market-oriented (Ricketts, 1987).

If the conflict of interests is not controlled, the self-interested behaviour of the manager can take place through activities or decisions aiming to favour personal interests, such as the consumption of firm's resources and assets, the avoidance of risky investments and, in the worst case, the manipulation of financial statement figures. This result can be worsened by the absence of any control activity operated by the shareholders, who have just little incentives to monitor managers due to the small portion of shares individually detained. Recently, it has also been demonstrated that in case there is a high complexity-based information asymmetry the likelihood of fraud occurrence due to the self-interested behaviour of the manager is even higher (Ndofor, Wesley, and Priem, 2015). Therefore, the owners have interest to set up some mechanisms to control managerial actions and bound bad managerial behaviours (Jensen and Meckling, 1976). Along this perspective,

international literature suggests that the corporate governance structure should help at mitigating the agency conflicts (Dey, 2008).

Considering the different types of agency problems arising worldwide, we follow the contribute of Hanson and Song (2006), who define corporate governance as a bundle of internal and external mechanisms, aiming at reducing the interests' misalignments among the firm and the different stakeholders who have relationships with the firm itself.

The typical "principal-agent" problem is not the only type of conflict of interests that can arise within a firm. In fact, a large part of the literature has focused the attention also on the "principal-principal" agency conflict (Dharwadkar, George, and Brandes, 2000; Young, 2008; Renders and Gaeremynck, 2012), which occurs in firms characterized by the presence of a large blockholder, more common in non-Anglo-American countries. In this context, the larger shareholders can abuse of their majority position to gain private benefits at the expenses of the minority shareholders. Even in this case, the corporate governance structure can help at mitigating the conflict of interests between majority and minority shareholders through some mechanisms that bundle the control and behaviour of the former, avoiding the diverting of company resources and cash flow (Love, 2000).

Moving from the agency theory framework and the conflict of interests' between both managers and owners and principals and principals, some authors address the main cause of fraudulent financial reports to the intent of the managers in maintaining their position and their power inside the company (Johnson, Ryan, and Tian, 2009; Robinson and Sartore, 2011). This leads to a continuous cheating on the financial documents to maintain the appearance of high profits and value of the firm.

Despite the type of corporate governance adopted by the firms, worldwide anecdotal evidences show that the phenomenon of financial statement frauds is strictly related to the lack or the inefficiency of the governance system itself. Thus, along this path of research, past literature has seen in the corporate governance, and specifically in its mechanisms, the tool to solve the agency problems and their consequences (Fama, 1980; Fama and Jensen, 1983). Therefore, the chance of implementing a financial statement fraud can be related to the ineffectiveness and to the lack of responsibility of the corporate governance system of the firm, which creates an environment that increases the opportunity to engage in manipulation actions (Rezaee, 2002). Therefore, when a fraud occurs, serious concerns raise about the role of the governance bodies (the board, the audit committee, the top management team, the internal auditors, and the external auditors) because the responsibility of detecting and preventing frauds is usually attributed - at a first glimpse - to them. Moreover, a recent study shows how the external mechanisms for control, such as external pressure from activist owners, the market for corporate control, and securities analysts, usually considered as fraud deterrent, do increase managers' likelihood of financial fraud (Shy, Connelly, and Hoskisson, 2016). Thus, it seem relevant to focus more on the internal control mechanisms of corporate governance.

Given that considerations, in our opinion, the governance mechanisms forming the governance

system of the firm should be analysed all at the same time in order to provide an overview of all the governance aspects of the company and to highlight the role of corporate governance on frauds. Furthermore, the literature focusing on the relation between corporate governance and frauds, as we have seen, usually takes into account only a limited sample of the different corporate governance mechanisms per time. Actually, each mechanism if considered individually could be unrelated to the fraud, but, together with others, it could have an impact on the fraud occurrence and/or on its magnitude.

All these considerations suggest that the corporate governance, viewed as the synthesis of all its mechanisms, has a role on the financial statement fraud, and lead to the following hypothesis:

*Hypothesis: The lower the corporate governance quality of a firm, the higher the financial statement fraud occurrence and level.*

Considering the function that corporate governance should have on solving the agency problems, (Dey, 2008), we posit that a 'good' level of governance leads to better behaviours 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 on the firm. Moreover, at the same time, we also posit that the level of the fraud will be higher when the governance system of the firm is weak.

## 2.2. The Corporate Governance Variables

Over the last decades, a part of the literature has started to study the impact of the corporate governance on different firm's related aspects, measuring it through indexes. Among the first authors who studied the corporate governance level of a firm, Gompers, Ishii, and Metrick (2003) analysed the role of good governance practices on the firm's value, building a CGI based on 24 rules and finding that firms with higher governance scores reported a higher firm value. Later, Larker, Richardson, and Tuna (2007) and Klapper and Love (2004) analysed how the governance is related with the operating performance in firms belonging to emerging markets. On this aspect, many other country-based studies have been developed over the last years (Black, Jang, and Kim, 2006; Black, Love, and Rachinsky, 2006; Garay and Gonzalez, 2008; Renders and Gaeremynck, 2012).

Following this path of research, this work focuses on the role of the corporate governance system as a combination of mechanisms on financial fraud occurrence and fraud magnitude. In other words, considering that taking into account a single governance mechanism per time could lead to incorrect or distorted conclusions, we call for the building of a CGI, able to summarize all corporate governance variables relying on the traditional governance mechanisms considered by literature. The CGI we propose takes into account the governance mechanisms mentioned by previous studies on frauds: 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 taking into account that the ownership structure in this study is not considered as a governance mechanism, but a variable that determines the type of corporate

governance system adopted by the firm. For each corporate governance mechanism, the most common corporate governance variables were taken into account, considering the features and aspects particularly relevant for the literature in analysing their relation with frauds (see Table 1).

The bundle of these indicators constitutes our set of individual corporate governance variables. Nevertheless, from a statistical point of view, the high number of variables would generate a model with too many potentially insignificant outcomes, distorting the findings 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 (Agrawal and Knoeber, 1996; Bowen, Rajgopal, and Venkatachalam, 2008; Dey, 2008). The creation of an index can solve this problem. In pursuing this aim, and following Brown and Caylor's (2006) approach, as a first step, the identified corporate governance variables have been classified into binary records, 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.

**Table 1.** Principal component analysis variables

<i>Variable</i>	<i>Definition</i>	<i>Value</i>
BODSIZE	Small size: boards are more efficient when their size is small (Lipton and Lorsch, 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, consistently with the empirical evidence showed in the studies of Agrawal and Chada (2005)
BODIND	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
BODMEET	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.
BODAGE	Young and not busy directors: old and busy directors are less efficient in the monitoring function (Core et al., 1999; Ferris et al., 2003).	The variable is coded as one if the average age of the Board members is lower than 55 years old
CHAIRTENURE	Not very long 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 (Loebbecke et al., 1989; Johnson et al., 2009).	The variable is coded as 1 if the Chairman tenure is less than 5 years
BUSYDIR	No busy Directors: The ISS state that a director should not seats in more than 5 additional Boards.	The variable is coded as 1 if a director serves also in other Boards, 0 if the director serves only in the Board of the company
ETHIC	The presence of a Code of Ethic is seen as a sign of good governance (Lo, 2008)	Dummy variable coded as 1 if the company has a Code of Ethic, 0 otherwise
AUDIND	Independence: the independence of the Audit Committee can assure a better and fair control over the management operations (Uzun et al., 2004).	The variable is coded as 1 if the majority of the Audit Committee is composed by independent directors
NOMIND	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
COMPIND	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
AUDFINEXP	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).	The variable is coded as 1 if in the Audit Committee is present a financial expert
CEODUAL	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
CEOTENURE	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, 1998).	The variable is coded as 1 if the CEO tenure is less than 5 years
CEOSO	Low level of stock options: the equity-based compensation has the consequence of creating the incentive to commit managerial fraud (Bruner, McKee and Sartore, 2008)	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%
LEVCOMP	Low level of option incentives: the literature considers the option incentives' intensity positively correlated with the bad behaviour and performance of the managers (Erickson et al., 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 (Agrawal and Chadha, 2005).	The variable is coded as 1 if the external auditor of the firm is one of the BIG5 (KPMG, Ernst & Young, PriceWaterhouseCoopers, Deloitte & Touche and Arthur Andersen)
NONAUDITTOTALE	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 no more that 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%

### 2.3. The Corporate Governance Index

Following the approach adopted by Larcker, Richardson, and Tuna (2007), the exploratory Principal Component Analysis (PCA) is used to identify the underlying dimensions of corporate governance and determine which indicators are associated with each factor. The PCA analysis, being a statistical procedure that uses an orthogonal transformation to convert a set of observations of possibly correlated variables into a set of values of linearly uncorrelated variables called principal components, leads to a smaller number of artificial

variables that account for most of the variance in the observed variables. In our dataset, each of these components represents a dimension of the corporate governance that includes all highly-correlated variables.

According to the Kaiser rule, we dropped all components with eigenvalues under 1.0 - this being the eigenvalue equal to the information accounted for by an average single item. Consequently, we retain all components with an eigenvalue greater than 1.0, obtaining 6 factors that explain the 62,05% of the total variance in the original dataset (Table 2).

**Table 2.** Principal component analysis matrix

<i>Component</i>	<i>Eigenvalue</i>	<i>Difference</i>	<i>Proportion</i>	<i>Cumulative</i>
Comp1	2.77087	.818109	0.1732	0.1732
Comp2	1.95276	.518732	0.1220	0.2952
Comp3	1.43403	.0828737	0.0896	0.3849
Comp4	1.35115	.0511455	0.0844	0.4693
Comp5	1.30001	.181466	0.0813	0.5506
Comp6	1.11854	.124437	0.0699	0.6205
Comp7	.994104	.159305	0.0621	0.6826
Comp8	.834799	.0832703	0.0522	0.7348
Comp9	.751528	.0496787	0.0470	0.7817
Comp10	.70185	.0264415	0.0439	0.8256
Comp11	.675408	.0766171	0.0422	0.8678
Comp12	.598791	.100663	0.0374	0.9052
Comp13	.498128	.0424789	0.0311	0.9364
Comp14	.455649	.0452333	0.0285	0.9649
Comp15	.410416	.258441	0.0257	0.9905
Comp16	.151975	.	0.0095	1.0000

Note: Principal components/correlation: Number of Obs = 202; Number of comp. = 16; Trace = 16;  
Rotation: (unrotated = principal): Rho = 1.0000

Then these factors have been rotated using a varimax rotation that allows the retained factors to be correlated to enhance interpretability of the PCA solution. The 6 factors identified represent the underlying dimensions of corporate governance for our selected variables.

To determine which variables are the most relevant for each factor, we focus on the eigenvectors of the variables for each component:

the higher the eigenvector, the more the variable explains the factor itself. We associate each factor with those variables that have a loading that exceeds 0.40 in absolute value and are statistically different from zero at conventional levels. Each governance variable has been used as being able to explain a single factor. In other terms, each variable is selected as a determinant for the dimension in which it presents the highest eigenvector (Table 3).

**Table 3.** Principal component analysis - rotate components

<i>Variable</i>	<i>Comp1</i>	<i>Comp2</i>	<i>Comp3</i>	<i>Comp4</i>	<i>Comp5</i>	<i>Comp6</i>	<i>Unexplained</i>
CEODUAL			-0.4703				.5003
BODMEET				0.6445			.311
ETHIC	0.4312						.4759
AUDIND	0.4973						.4008
NOMIND	0.5429						.3333
COMPIND	0.4884						.3456
BODSIZE					0.6587		.3633
BODAGE					0.5488		.4785
BODIND	0.4102						.6846
AUDFINEXP			0.6113				.3535
CHAIRTENURE		0.6708					.128
CEOTENURE		0.6790					.1194
BUSYDIR			-0.4320				.4724
BIG5						0.7040	.331
NONAUDITOTALE						0.5886	.4328
LEVCOMP				0.6571			.3422

Considering that each dimension captures some governance aspects, the identified factors have been labelled according to the variables contained in each one (Table 4).

Once the corporate governance dimensions are obtained, the Corporate Governance Index (CGI) is calculated to capture all the aspect of the firm related to the corporate governance. The main

problem in the construction of the CGI relies on the absence of a well-developed theoretical work on the multi-dimensional construct of corporate governance. In our opinion, focusing on a single governance factor, as representative of corporate governance, appears to be reductive and, moreover, leads to errors in the measurement due to the regression coefficient, which will be inconsistent

(Larcker, Richardson, and Tuna, 2007). At the same time, simply adding together a set of indicators is still a limit due to the statistical and econometric problems that can occur in this case.

**Table 4.** Corporate governance dimensions

<i>Dimension - independent variable -</i>	<i>Dimension name - CG Aspect -</i>	<i>Dimension Components - CG variables determinants -</i>
DIM 1	Board Independence	ETHIC; AUDIND; NOMIND; COMPIND; BODIND
DIM 2	Top Management Tenure	CHAIRTURE; CEOTURE
DIM 3	Board Members' Job Characteristics	CEODUAL; AUDFINEXP; BUSYDIR
DIM 4	Board Decisions	BODMEET; LEVCOMP
DIM 5	Board Features	BODSIZE; AVAGEDIR
DIM 6	External Auditor	BIG5; NONAUDITOTALE

Previous studies built indexes to measure the overall corporate governance through different methodologies. For instance, Gompers, Ishii, and Metrick (2003) created a 'G-Index' summing 24 binary governance variables. Thus, the index can assume a value comprises between 0 and 24. Similarly, Brown and Caylor (2006) built their corporate governance index - 'Gov-Score' - as the sum of 51 binary governance items, where each of them is equal to 1 if it represents acceptable governance, 0 otherwise. Finally, Bebchuk and Cohen (2005) constructed a governance index, called Entrenchment Index, which relies on the 'G-Index' by Gompers, Ishii, and Metrick (2003), varying in the choice of the provisions included in it, but giving the same weight to each provision.

In this paper we propose a novel approach to calculate the CGI, building on previous studies. First, we proceed with the classification into binary codes of the governance variables. Then, we codify the governance dimensions into binary records. Thus, each dimension can assume values equal to 1 or 0. The dimension is coded 1 if half or more of the individual governance variables included in it are coded as 1. This means that the dimension has the minimal acceptable governance level required. On the other hand, if the dimension's code is 0, it indicates that dimension does not support the minimally acceptable governance requirements.

The sum of the codes of all the dimensions determines the CGI of the firm. Given that the dimensions are 6, the maximum value of the CGI is 6. With this procedure we are able to identify a CGI that, referring to the governance dimensions and not to the single governance variables, allows to overtake two main limits occurred in other studies. First, it avoids the correlation problems among the individual variables in testing the relation with frauds; second, it represents the overall level of the governance of a firm and not only some aspects of it. In sum, the higher the score of the CGI, the better the governance of the firm.

We expect a negative relationship between the corporate governance quality, measured by the CGI, and the level of financial statement frauds. If the CGI of the firm is low, the quality of the governance will be low, thus the likelihood of fraud and the magnitude of fraud will be higher, and vice-versa.

### 3. METHODOLOGY

#### 3.1. Sample and Data

To test the hypothesis, a longitudinal analysis, covering a 14 years period from 1992 to 2005, has been conducted on a sample of 202 listed firms. Of these, 101 represent the 'fraud firms' because each of these companies faced an occurrence of financial statement fraud during the considered time period. Each of these fraud firms is matched with a no-fraud firm, creating a choice-based sample of 101 fraud and 101 no-fraud firms. The time of the analysis stops voluntary at the year 2005 to avoid to consider the period in which the worldwide financial crisis occurred. In fact, crises usually distort situations and could affect the results hiding or lowering impact of the factors that in normal condition can actually act as fraud deterrent or fraud incentives.

*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.

Following the definition of the theoretical construct, financial statement frauds can occur through different implementation practices (Rezaee, 2002). In our paper, we followed the approach by Beasley, Carcello, Hermanson, and Lapides (2000) to identify the techniques through which a financial statement fraud occurs (Table 5).

**Table 5.** Fraud techniques

<i>Technique</i>	<i>Description</i>
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 less transparent accounting principles;
Other miscellaneous techniques	they can impact on equity account records, related-party transactions and misclassification of gains.

<sup>1</sup> Examples of financial statement frauds are 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.

<sup>2</sup> 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).

As far as the US fraud firms are 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)<sup>3</sup>. This study analyses instances of fraudulent financial reporting, alleged by the Securities and Exchange Commission (SEC) in the Accounting and Auditing Enforcement Releases (AAERs)<sup>4</sup>. Our study 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. Indeed, these cannot be considered examples of fraudulent financial reporting cases.

As far as the non-US firms are concerned, official databases on fraud occurrence and information publicly available do not exist. Thus, we took 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 it summarizes the main information about the type of fraud, specifying also the amount deceived through the fraudulent behaviours. Additional information on fraud data have been taken from the Stock Exchanges and also from the National Authorities in charge of the detection and the sanction of frauds<sup>5</sup>.

For each firm involved in a fraud, the overstatement/understatement, as documented by the SEC (in the AAERs) or, as reported in the available public documents of the company, has been considered to esteem the magnitude of the fraud.

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 public corporate governance reports of the firms. For all the other companies of the sample, the governance data were taken from the Osiris database and from the Bloomberg website, or hand collected from each specific National Authority for the Stock Exchange Market. 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:

1. All data have been selected looking at the year preceding the one in which the fraud occurred, due to the fact that the data in the fraud occurrence year could have been affected by the fraud itself;

2. State companies have been excluded from the sample, due to their particular features, which could affect the results of the work;

3. Financial institutions, insurance firms and banks have been excluded from 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 347 fraud firms taken by the COSO research database, described in 1,335 individual AAERs, and other 43 fraud firms found through the process previously described. Then, we took only those firms for which the amount of the fraud was specified. We excluded financial institutions, insurance firms and banks and, finally, we dropped the firms with not enough corporate governance and financial data, obtaining a final sample of 101 fraud firms, belonging to eleven different countries, accused of financial statement fraud in the period of time between 1992 and 2005.

*No-fraud Firms.* Following the indications given by the literature (Beasley, 1996; Beasley, Carcello, Hermanson, and Lapides, 2000; Agrawal and Chada, 2005), each fraud firm needs to be matched with a non-fraud firm. For the choice of the non-fraud firms, criteria of similarity with the fraud firms have been adopted: (a) industry: the non-fraud firm is selected if its four-digit SIC code is the same of the fraud firm. If no four-digit SIC code match is available, we consider the three-digit SIC code. If even the three-digit SIC code is not possible to match, we look at the two-digit SIC code<sup>7</sup>; (b) size: the non-fraud firm is selected looking at 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; (c) time: a non-fraud firm is considerable as a match of a fraud firm only if it exists at the year preceding the fraud occurrence, committed by its matched fraud firm; (d) country: the non-fraud firm is selected among companies belonging to the same country of the fraud firm.

The matching firms were coupled 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.

<sup>3</sup> COSO sponsored the mentioned 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.

<sup>4</sup> In details, to develop the database, the Data Collection Team read each single AAERs issued by the SEC between January 1998 and December 2007. 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.

<sup>5</sup> 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](http://www.genre.com/sharedfile/pdf/LLR_DO_EU3-en.pdf)

<sup>6</sup> 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.

<sup>7</sup> 23 of the 101 fraud firms were matched with no-fraud firms within the same two-digit SIC code.

Finally, concerning the non-US companies, no-fraud firms' data were taken from Datastream database.

### 3.2. The Dependent Variable

The financial statement fraud (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.

Prior studies used to consider the dependent variable fraud as a dichotomous variable, equal to 1 when the fraud occurred, 0 otherwise (Beasley, 1996; Erickson, Hanlon, and Maydew, 2006). In our analysis, we consider also the magnitude of the fraud, due to the fact that larger frauds have a greater negative impact on the market and cause higher damages to their 'victims'. The dimensional aspect of the variable FRAUD allows us to measure the impact of corporate governance at different levels of the fraud, and highlights the governance mechanisms that affect most the largest frauds. The level of the fraud (LEVEL) is calculated as the ratio between the amount deceived through the fraud and the total assets of the firms. This standardization procedure allows to scale the values of the variables by firm's dimension, making the data comparable. Four ranges of fraud representing four levels of fraud occurrence are created (No fraud, Low, Medium and High fraud). 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 (Table 6).

**Table 6.** Fraud firms - level of fraud

<b>No Fraud</b> (Range = 0)	firms which did not commit any fraud (matched sample)	101
<b>Low Level of Fraud</b> (Range = 1)	firms with a LEVEL between 0 (non included) and 5% included. The limit of 5% was chosen according to the article 2621 of Italian Civil Code	23
<b>Medium Level of Fraud</b> (Range = 2)	firms with a LEVEL between 5 (non included) and 30% included. The limit of 30% is arbitrary due to the fact that there are no existing studies on this topic	41
<b>High Level of Fraud</b> (Range = 3)	firms with a LEVEL higher than 30%	37

### 3.3. Control Variables

Consistently with previous studies (e.g.: Larcker, Richardson, and Tuna, 2007; Chen, Firth, Gao, and Rui, 2006), the ownership structure is considered through a dummy variable (BLOCK), which identifies the presence or not of a blockholder in the firm.

<sup>8</sup> 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.

<sup>9</sup> When the fraud was not isolated to a single fiscal year, its total amount has been considered.

<sup>10</sup> We have also scaled our dependent variable by Total Revenues; main results were not affected.

Thus, the variable is coded as 1 if the blockholder exists, otherwise the variable is coded as 0. The BLOCK control variables can be considered as a proxy of the type of corporate governance system to which the firm belongs: the insider system, typical of non-Anglo-American countries, always implies the existence of a blockholder, while the outsider system, typical of Anglo-American countries, does not. Aligned with previous studies (e.g. Bethel and Liebeskind, 1993), a 'Blockholder' is identified when a single shareholder, or a cohesive group of shareholders, 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 management directors hold the ownership, 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, scholars found support for the idea 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, Eming, and Willingham, 1989).

Moreover, variables strictly linked to the firm's governance and to frauds have been included, as shown in Table 7.

### 3.4. Research Design

To test the hypothesis of research, a multinomial logistic regression on a cross-sectional analysis has been used<sup>11</sup>. This model represents the optimal choice for our analysis due to the fact that the dependent variable, FRAUD, is a categorically distributed variable, where at each value (0, 1, 2, 3) corresponds a range of value of fraud, increasing in percentage (no fraud, low fraud, medium fraud, high fraud). Indeed, the multinomial logistic regression is a type of regression analysis usually used to understand how a change in the dependent variable affects the jump from one step to the other. The results of this 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). As follows, it is possible to determine which are the independent variables that impact on the likelihood of committing the fraud (analysis of the results between the base outcome and the outcome of the FRAUD equal to level 1), and also the independent variables that affect the level of the fraud (analysis of the results between the base outcome and the outcomes of the FRAUD equal to level 2 and 3).

As already mentioned, 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 is no

<sup>11</sup> This regression model 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.).

information on the exact number of listed firms used in our research differs from a pure random committing frauds within the total population of sampling approach. listed companies, the one-to-one matching process

Table 7. Regression variables

Variable		Definition	Source
<b>DEPENDENT VARIABLE</b>			
FRAUD	Financial Statement Fraud	The percentage of the fraud is expressed through the ratio between the amount deceived with the fraud and the total asset of the firm. Count variable: - 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%	
<b>INDEPENDENT VARIABLE</b>			
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)	
<b>CONTROL VARIABLES</b>			
BLOCK	Blockholder CG Model	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	SAM
MGMTOWN	Ownership held by directors	The cumulative percentage of ownership held by managers or directors who serve on the board	SAM
BODSIZE	Board Dimension	The number of Board members	Datastream
BODIND	Board Independence	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)	
BODMEET	Board Meetings	Number of Board meeting in a year	
BODAGE	Age of BoD Members	Average age of Board members	
CHAIRTENURE	Chairman Tenure	Number of years that the Chairman has served as Chairman	
BUSYDIR	Busy Directors	Dummy variable coded as 1 if a director serves also in other Boards, 0 if the director serves only in the Board of the company	
ETHIC	Ethic Code	Dummy variable coded as 1 if the company has a Code of Ethic, 0 otherwise	
AUDIND	Audit Committee Independence	Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise	
NOMIND	Nomination Committee Independence	Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise	
COMPIND	Compensation Committee Independence	Dummy variable coded as 1 if the majority of the committee is composed by independent directors, 0 otherwise	
AUDFINEXP	Audit Committee Financial Expert	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	
CEODUAL	CEO Duality	Dummy variable equal to 1 in presence of the CEO duality; 0 otherwise	
CEOTENURE	CEO Tenure	Number of year that the CEO served as CEO	
CEOSO	CEO Stock Option	Ratio between the amount of the value of the total stock option granted and the total annual compensation the CEO received	
LEVCOMP	CEO Compensation Leverage	Ratio between the variable compensation (Stock Option, Bonuses and Others) and the annual salary the CEO received	
BIG5	External Auditor	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	
NONAUDITTOTALE	External Auditor Fees	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	
FINLEV	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	Datastream
SALES	Sales	Represents the sum of Total Revenues of the firm	Datastream
GROWTH	Growth	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 from Italy, France, Germany or Switzerland	
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	

The model captures the effect of the corporate governance 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 multinomial logistic regression model on a cross-sectional analysis presents the following equation (1):

$$FRAUD_t = \alpha + \beta_1 CGI_{t-1} + \beta_2 BLOCK_{t-1} + \beta_3 MNGT OWN_{t-1} + \beta_4 RESTAT_{t-1} + \beta_5 ROE_{t-1} + \beta_6 FIN LEV_{t-1} + \beta_7 SALES_{t-1} + \beta_8 GROWTH_{t-1} + \beta_9 TIME_{t-1} + \beta_{10} COUNTRY1_{t-1} + \beta_{11} COUNTRY2_{t-1} + \varepsilon_{it} \quad (1)$$

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.

#### 4. EMPIRICAL FINDINGS

After running the multinomial logistic regression, the independence assumption is verified applying the Hausman's specification test<sup>12</sup>. The test gives positive results on the independence, thus the subsets of choice alternatives are independent from each other and the multinomial logistic regression model is reliable. The multinomial logistic regression with the robustness of the standard errors (robust option) is used to obtain robust standard errors for the parameters' estimates, which mitigate the effect of an eventual slight overdispersion (Cameron and Trivedi, 2010). The model is statistically significant (p-value for the chi-squared equals to .0000). The Wald chi-square statistic is equal to 95.40.

We do not consider the value of the Pseudo R2 (0.2038) 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. Considering the peculiarity of the applied model, we discuss the results dividing them into 3 different levels of fraud.

##### 4.1. CGI and Low Level Fraud

Starting from the results relative to the case of low level of fraud (see Table 8) in relation with the base outcome (FRAUD=0), we find that, consistent with the predictions related to the hypothesis, the corporate governance as a system of mechanisms (CGI) shows a significant and negative relation with the level of the fraud ( $\beta = -.57$ ,  $P>|Z| = .030$ ). In other terms, the better the quality of the governance of the firm, the lower the likelihood to have a fraud occurrence and also the magnitude of the fraud. Thus, the hypothesis is verified in case of low level of fraud (less than 5%).

**Table 8.** Regression results (low level of fraud)

<i>Multinomial logistic regression</i>		Number of obs = 202		
		Wald chi2(33) = 95.40		
		Prob > chi2 = 0.0000		
<i>Log pseudolikelihood = -197.59872</i>		Pseudo R2 = 0.2038		
1 - Low level of fraud (FRAUD = 1)				
	<i>Coef.</i>	<i>Std. Err.</i>	<i>z</i>	<i>P&gt; z </i>
CGI	-.5729328*	.2651881	-2.160477	.0307358
BLOCK	1.997786**	.6394511	3.12422	.0017828
MGMTOWN	-3.367391+	1.721964	-1.955552	.0505179
RESTAT	.7923151	.6829476	1.16014	.2459917
ROE	-.008397	.0119548	-.7023951	.4824328
FINLEV	.2140207+	.1109925	1.928245	.0538247
SALES	-1.33e-09	1.62e-09	-.8250204	.40936
GROWTH	.2533063*	.1246731	2.031764	.0421776
TIME	1.285423	1.119239	1.148479	.2507709
COUNTRY1	-.8576279	1.332407	-.6436679	.5197908
COUNTRY2	.4944426	.6859136	.7208527	.4710002
Constant	.1258644	1.200344	.104857	.9164893
FRAUD = 0 is the base outcome				
+ p<.10, * p<.05, ** p<.01, *** p<.001				

The variable BLOCK shows a significant and positive relation with the level of the fraud ( $\beta = 1.99$ ,  $P>|Z| = .001$ ). Thus, the results suggest that the presence of an insider corporate governance system increases both the likelihood of the fraud occurrence and the amount of the fraud deceived. Thus, we can state that conflicts among majority shareholders and minority shareholders seem to lead more easily to fraudulent behaviour, at least in case of low level of fraud.

The variable MNGT OWN is significant and negatively related with the dependent variable ( $\beta = -3.36$ ,  $P>|Z| = .050$ ), confirming the findings of some previous studies (e.g. Jensen and Meckling, 1976). Our results suggest that the presence of ownership detained by directors can be a factor which reduces the likelihood of fraud occurrence and 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 positively related with the fraud ( $\beta = .21$ ) and significant at a 10% significance level ( $P>|Z| = .053$ ). This is coherent with previous studies which demonstrate that the level of long term debt, detained by the company, might be a factor positively related 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).

The growth rate of the firm (GROWTH) results significant and it is positively related to the fraud ( $\beta = .25$ ,  $P>|Z| = .042$ ), too. This result is aligned with the studies of Loebbecke, Eming, and Willingham (1989), Bell and Carcello (2000), Beasley (1996), and Erickson, Hanlon, and Maydew (2006), where it is shown that a rapid growth can induce to misstate the financial statement during a turnaround to continue to meet analysts' forecasts.

The coefficients of the control variables RESTAT, ROE, SALES, TIME, COUNTRY1 and COUNTRY2 do not appear significantly related to the dependent variable, 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.

In order to investigate on possible relations between the fraud occurrence and the sectors of activity, we checked for the Industry, but the results

<sup>12</sup> 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.

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, considering only 7 dummy variables, relying on 8 different industries based on one-digit SIC codes, but no different results were achieved.

#### 4.2. CGI and Medium Level Fraud

Concerning the results connected to the case of medium level of fraud (see Table 9) in relation still with the base outcome (FRAUD=0), we find that the corporate governance as a whole system (CGI) has even in this case a significant and negative relation with the level of the fraud ( $\beta = -.63$ ,  $P>|Z| = .003$ ), verifying the hypothesis once again. Thus, we can affirm that having a 'good' quality of 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. Corporate governance acts as a fraud deterrent.

The empirical analysis confirms also some of the previous considerations: a significant and positive relation between the Blockholder presence (BLOCK) and the level of the fraud ( $\beta = 1.54$ ,  $P>|Z| = .001$ ) comes up; a significant and negative relation between the percentage of ownership held by management and directors and the level of the fraud ( $\beta = -.58$ ,  $P>|Z| = .029$ ) exists; and finally the control variable FIN LEV is significantly and positively related with the fraud ( $\beta = .021$ ,  $P>|Z| = .008$ ), as in the case of low level of fraud.

**Table 9.** Regression results (medium level of fraud)

<i>Multinomial logistic regression</i>		Number of obs =202	
		Wald chi2(33)= 95.40	
		Prob > chi2=0.0000	
<i>Log pseudolikelihood =-197.59872</i>		Pseudo R2=0.2038	
2 - Medium level of fraud (FRAUD = 2)			
	<i>Coef.</i>	<i>Std. Err.</i>	<i>z</i>
CGI	-.6308642**	.2152544	-2.930783
BLOCK	1.542729**	.4760917	3.240404
MGMTOWN	-.5830379*	.2677376	-2.177647
RESTAT	.563751	.7024532	.802546
ROE	-.0301793**	.0111676	-2.702413
FINLEV	.0214917**	.0081156	2.648204
SALES	-6.20e-10	9.07e-10	-.6829572
GROWTH	.1132064	.1187748	.9531178
TIME	-.1397448	.7712317	-.1811969
COUNTRY1	-2.458871***	.7149976	-3.438993
COUNTRY2	-1.414112+	.8508324	-1.662034
Constant	1.934824*	.9560274	2.023816
FRAUD = 0 is the base outcome			
+ p<.10, * p<.05, ** p<.01, *** p<.001			

Moreover, the control variable measuring the profitability of the company (ROE) is significant and it is negatively related with the fraud ( $\beta = -.030$ ,  $P>|Z| = .006$ ), coherently with previous studies (Bell and Carcello, 2000; Rosner, 2003), suggesting that companies with higher profitability do have less incentives to manipulate financial statements and to deceive considerable amounts.

The variable COUNTRY1 is significantly and negatively related with the dependent variable ( $\beta = 2.45$ ,  $P>|Z| = .000$ ). 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 this variable is negatively related 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 of this evidence could be found in the cultural, historical, and institutional differences, which characterize these countries.

The coefficients of the control variables RESTAT, SALES, GROWTH, TIME and COUNTRY2 do not appear significant, 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 the medium level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results and the only effect was a reduction of the statistically significance of the model.

#### 4.3 CGI and High Level Fraud

Finally, in case of high level of fraud (see Table 10) in relation with the base outcome (FRAUD=0), we find that the CGI variable has a significant and negative relation with the level of the fraud ( $\beta = -.82$ ,  $P>|Z| = .000$ ), verifying once again the hypothesis. Thus, we can affirm that the corporate governance acts as a fraud deterrent for any level of financial statement fraud.

**Table 10.** Regression results (high level of fraud)

<i>Multinomial logistic regression</i>		Number of obs =202	
		Wald chi2(33)= 95.40	
		Prob > chi2=0.0000	
<i>Log pseudolikelihood =-197.59872</i>		Pseudo R2=0.2038	
3 - Medium level of fraud (FRAUD = 3)			
	<i>Coef.</i>	<i>Std. Err.</i>	<i>z</i>
CGI	-.8200564***	0.2286174	-3.587025
BLOCK	1.526884**	0.4792357	3.186081
MGMTOWN	-.5618973**	0.2109933	-2.663105
RESTAT	.7137583	0.571748	1.248379
ROE	-.0031187	0.0103325	-0.301833
FINLEV	.0802076	0.0664023	1.207903
SALES	-1.05e-09	7.23E-10	-1.449288
GROWTH	.2234862+	0.123291	1.812672
TIME	-.8849796	0.7644653	-1.157645
COUNTRY1	-.375508	0.7805261	-0.481096
COUNTRY2	-.4133592	0.579607	-0.713172
Constant	1.956557*	0.9600836	2.037903
FRAUD = 0 is the base outcome			
+ p<.10, * p<.05, ** p<.01, *** p<.001			

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 significantly related with the dependent variable, respectively positively related ( $\beta = 1.52$ ,  $P>|Z| = .001$ ), and negatively related ( $\beta = -.56$ ,  $P>|Z| = .007$ ).

The growth rate of the firm (GROWTH) is also positively related to the fraud ( $\beta = .22$ ) and significant at a 10% significance level ( $P>|Z| = .069$ ), in line once again with the results of Loebbecke, Eming, and Willingham (1989), Bell and Carcello (2000),

Beasley (1996), and Erickson, Hanlon, and Maydew (2006). This outcome suggests that the higher the growth experienced by the company in the past years, the higher the incentive for the management to commit a fraud, deceiving great amounts of resources, in order to accomplish the market's expectations of a continuing growth also in case it doesn't last anymore.

The coefficients of the control variables RESTAT, ROE, FIN LEV, SALES, TIME, COUNTRY1, and COUNTRY2 do not appear significant. 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.

Even for high level of fraud, the output of the regression connected to the 27 dummy variables Industry produced no significant results and the only registered effect was a reduction of the statistical significance of the model.

In each case of level of fraud, the results demonstrate that a 'good' quality of corporate governance reduces the likelihood of fraud occurrence and its magnitude. Thus, the hypothesis is verified at all levels of fraud. The control variables help in the analysis of the features that 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. Contrarily, 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 results suggest that the pressure of the market in terms of growth expectations impacts mostly on the firms' behaviour in cases of low and high level of fraud. This is consistent with the suggestions of Kulikova and Satdarova (2016), who state that firms tend to show results in the best light in order to attract investors, financing their growth. 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. Similarly, 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.

## 5. CONCLUSIONS, LIMITATIONS AND FURTHER RESEARCH

### 5.1. Conclusions

The problems generated by frauds mainly rely on the absence of trust of the investors towards the market, generated by the lack of quality and fairness in the financial information provided by the firms, 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 leads to a major problem in the market: if investors start dismissing the confidence of the market itself, all the firms, and consequently the whole economy, will suffer because the market represents the main supplier of capital for firms.

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 discovered 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 itself. The top management figures, generally involved in the fraud, are replaced with new top management, implying the loss of experienced people, and the needed time to replace them and to prepare the management to get involved in the firm. To have an idea of the damages caused by frauds, we can take into account the information provided by Glass Lewis & Co. (2005), who evidence that the lost market capitalization of 30 major fraud scandals between 1997 and 2004 was around \$900 billion, meaning a loss of 77% of the market value of these firms. Reflecting on this data, it appears more than significant to continue to investigate on this phenomenon, its causes and the possible solutions to bundle it.

Taking into account the three conditions of the "fraud triangle" (Cressey, 1953), one of them focuses on the incentives. We can easily point out, looking at previous literature and at our results, that even nowadays the incentive to commit fraud can arise due to the pressure to meet analysts forecasts, the need for external financing or even a poor performance. In fact, aligned with Chen, Cumming, Hou, and Lee (2016), on one hand we can think that the market acts as a monitoring actor, moderating agency problems, but on the other hand, the market can generate pressure to achieve short-term performance targets, exacerbating agency problems. This incentive will be worsened in case the second condition of the fraud triangle, opportunity, occurs at the same time. This factor is associated with the situations that enable fraud to be carried out without the risk of getting caught (Murphy and Dacin, 2011). Thus, a weak corporate governance, implying low or ineffective controls, generates optimal conditions for managers to commit frauds. Indeed, 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. From the empirical findings we highlight that the corporate governance as a whole system has a role at reducing the fraud occurrence and magnitude. These results are also aligned to the recent findings provided by Soltani (2014), who, analyzing six major corporate scandals, demonstrates that among the most relevant causes of the fraud occurrence there were ineffective boards, inefficient corporate governance mechanisms and internal controls, failure of external auditors, dominant CEOs, and managers' greed and a desire for power. Nevertheless, some academics and practitioners, after the major scandals were doubting if a 'good' quality of 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, 2012) accused and pointed a finger towards the corporate governance of the

firms, sustaining that even 'good' corporate governance structures did not produce any effect and did not lead the companies to perform or behave better. To support their ideas, these Authors present some significant examples, such as the Lehman Brothers' one that, despite its commonly recognized good corporate governance structure, experienced one of the most relevant bankruptcies of the last decades. Despite the empirical evidences, nowadays it seems reasonable to affirm that only with a good quality of corporate governance the conflict of interests among the different actors of the firms can be reduced, assuring fairness and control of the management.

The results of this work, innovative in relation to the measurement both of the fraud - not only the occurrence is taken into account but also the magnitude - and the corporate governance, with the construct of a new index measuring the quality of the governance system of the firm, suggest that the governance of the firm acts as a fraud deterrent for any amount of financial statement fraud. In other words, a 'good' governance is needed to monitor over the management behaviors. These considerations seem to be even more valid for those firms characterized by the presence of a blockholder, most common in countries where the insider system of governance is predominant. These evidences are aligned also with the idea of the two-tier structure of the compliance-control (Kulikova and Satdarova, 2016): the internal compliance-control has to be assured by internal corporate rules and regulations. Moreover, the internal compliance-control is accompanied by the external compliance-control, implemented by governments and authorities through mandatory and recommended rules and procedures. Thus, we can conclude that governments should act as a reinforcement of internal corporate governance rules and practices aiming to bundle the discretionary behaviors that could lead to a fraud occurrence.

## 5.2. Limitations and Further Research

The analysis we conducted can be considered a first step for literature that investigates the role of corporate governance as a whole system of mechanisms on financial statement fraud, because as previously said, to our knowledge, no preceding studies tested this relation. 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 of this work 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.).

A second limit 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 have been simultaneously analyzed. The choice of these countries was guided by the will of taking into consideration the main realities that reflect the two types of corporate governance systems, insider system and outsider system. 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. Nevertheless, 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 outcomes.

A third limit of the study relies on the fact that the sample on which we tested our hypothesis was composed by 101 fraud firms and 101 no-fraud matched firms, due to the difficulties in findings enough data on the financial statement fraud amounts specifically. Thus, further studies could conduct the analysis on a broader sample.

Finally, we have to point out that literature sometimes presents different and opposite points of view about what can be considered as 'good' and 'bad' governance. Thus, given that no clear rules are established on this topic and each personal judgement can be contradicted by different opinions, this may constitute a weak point of any research on the quality of the firms' governance.

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