

# Essays in Applied Corporate Economy



**Marco Lertora**

Department of Economics  
University of Genoa

This dissertation is submitted for the degree of  
Doctor of Philosophy  
PhD Program in Economics and Political Economy – XXXV cycle

Supervisors:

Prof. Marco Mazzoli

Prof. Paola Ramassa

April 2023

*Ai miei genitori*

## Declaration

I hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other university. This dissertation is my own work, joint with others as specified in the text.

*Marco Lertora*

## Preface

This work includes the results of broad research carried out during the PhD course in Economics and Political Economy at the University of Genoa.

The aim of my thesis is to apply empirical methods to investigate corporate finance issues. During these years, I have collected a unique dataset on the compensation and tenure of board members in Italy. In this dataset, each board member is represented by a row containing his or her generalities, role, tenure, and compensation, divided into more components: fixed salary, committee fee, benefits, bonus, equity instruments, and severance pay. This dataset is the starting point for my empirical research.

The first chapter investigates the hardly discussed relationship between the two functions of accounting information in financial reporting: 'stewardship' and 'valuation's usefulness. This study explores the current debate on the expandability of the role of the stewardship function within 'decision usefulness' as the purpose of financial reporting. The main contribution of the chapter to the literature is the discovery of the existence of a positive relationship between the two usefulness of accounting information for 'top' board members, while no relationship was found for 'non-top' board members.

The second and third chapters examine the relationship between firm performance and executive pay. In particular, the second chapter addresses this analysis using the 'tournament' model. It considers firm performance as a function of compensation and other firm characteristics. While the third chapter adopts the 'agency theory' model and sets up the reverse models by regressing compensation on firm performance.

Using a wide range of empirical models, the second and third chapters take an innovative approach to studying the relationship between firm performance, executive pay, and other corporate governance indicators. For the first time, this relationship (in both causal directions) is analyzed along two unexplored dimensions: individual directors (rather than the CEO or the board as a whole) and individual components of total compensation (rather than total or cash compensation).

This contributes to the literature by highlighting previously unconsidered variables, such as the different characteristics of different board members and their impact on the performance-pay's and pay-performance's relationships.

Both chapters also contribute to an in-depth study of the sensitivity of pay to performance (and vice versa) in a context characterized by a corporate governance model that is very different from the ones typically studied in the literature.

# Table of contents

|   |     |
|---|-----|
| Chapter I .....   | 7   |
| 1. Introduction .....   | 8   |
| 2. Literature review .....  | 11  |
| 2.1 Theoretical background.....                                     | 11  |
| 2.2 Empirical background .....                                      | 12  |
| 3. Design and research methods .....                                | 17  |
| 3.1 Hypothesis Development.....                                     | 17  |
| 3.2 The models .....  | 20  |
| 3.3 Data Collection and Sample Description .....                    | 24  |
| 4. Descriptive Statistics.....                                      | 25  |
| 5. Results .....  | 27  |
| 5.1 Double usefulness of accounting information .....               | 27  |
| 5.2 Valuation and stewardship usefulness, univariate analysis ..... | 28  |
| 6. Robustness tests .....   | 32  |
| 7. Discussion and conclusions .....                                 | 34  |
| References: .....   | 37  |
| Appendix A .....  | 41  |
| Chapter II.....   | 73  |
| 1. Introduction .....   | 74  |
| 2. Literature review and Hypothesis .....                           | 78  |
| 3. Empirical model.....   | 83  |
| 4. Summary statistics and results.....                              | 91  |
| 5. Robustness tests.....  | 97  |
| 6. Conclusion .....   | 98  |
| References: .....   | 101 |
| Appendix B .....  | 106 |
| Chapter III .....   | 109 |
| 1. Introduction .....   | 110 |
| 2. Literature review and Hypothesis.....                            | 112 |
| 2.1 Agency theory contest.....                                      | 112 |
| 2.2 Pay per performance .....                                       | 113 |
| 2.3 The Italian scenario.....                                       | 115 |
| 2.4 Executive compensation in Italy.....                            | 117 |
| 2.5 Hypothesis.....   | 119 |

|  |     |
|--|-----|
| 3. Data collection and research methods..... | 119 |
| 4. Results.....                              | 125 |
| 5. Robustness tests .....                    | 128 |
| 6. Conclusions.....                          | 130 |
| References: .....                            | 133 |
| Appendix C .....                             | 137 |

# Chapter I

Exploring the association between valuation and stewardship function of accounting information in Italian listed companies: evidence from different board subunits.

# Exploring the link between valuation and stewardship function of accounting information in Italian listed companies: evidence from different board subunits.

## Abstract

This paper aims to empirically investigate the relationship between the valuation usefulness and the stewardship usefulness of financial statements. The interaction between these two functions is highly dependent on the context of analysis. As the empirical literature on this relationship is almost exclusively based on US data, it is not clear whether the positive relationship between the two uses of accounting information found in US studies can be extended to other systems. The recent debate between researchers and the IASB on whether or not to include the stewardship function as a separate financial reporting objective has highlighted the current importance of this issue. This paper, using data from Italian companies adopting IFRS accounting standards, assists the IASB by providing empirical evidence. Moreover, this paper contextualizes this study within a broader agency model than previous studies. Using both qualitative and quantitative criteria, this paper disaggregates the board into sub-units and shows how different individuals with different characteristics and different risk aversions can affect the association between these two functions in both univariate and multivariate contexts. The results show how differences in risk aversion across board subgroups and firms play a crucial role in defining the presence or absence of a positive association between the two functions.

## Summary:

1. Introduction. – 2. Literature review. – 2.1 Theoretical background. – 2.2 Empirical background. – 3. Design and research methods. – 3.1 Hypothesis Development - 3.2 The models – 3.3 Data collection and Sample Description. – 4. Descriptive Statistics. – 5. Results – 5.1 Double usefulness of accounting information. – 5.2 Valuation and stewardship usefulness, univariate analysis – 6. Robustness tests. – 7. Discussion and conclusion.

## 1. Introduction

Financial reporting serves multiple purposes, for this reason is difficult to identify the specific needs that it fulfills. In fact, the accounting information contained in these reports can satisfy different needs depending on who is using them. Different users with different objectives use the same source of accounting information to make a wide range of decisions (Bushman and Smith, 2001; IASB Conceptual Framework, 2018). Financial statements are models that summarise the management of the company and the related economic and financial values generated during both the reported year and elements based on an ongoing concern view. According to the literature, financial reporting is a period' summary of the general accounting system (Mitrovi 2016).

Accounting information is used for both valuation and incentive contracting purposes and is generally defined by IASB and FASB on the basis of its “decision usefulness”. Specifically, it aims to disclose financial information that is useful in supporting a wide range of decisions: information that both enables capital market participants to make investment decisions (valuation function) and plays an important role in determining the incentive contracts of executives (stewardship function). In other words, the valuation function is concerned with providing investors and other users with relevant and reliable information



that enables them to make informed decisions about the value of a company's assets and liabilities. The stewardship function is concerned with providing information that enables investors and other users to evaluate the actions of management and hold them accountable for their decisions.

On the one hand, IASB and FASB argue that the purpose of the valuation function is to "communicate information that helps users evaluate the entity's resources and claims on those resources" and, on the other hand, the purpose of the stewardship function is to "provide information about the entity's stewardship of the economic resources entrusted to it" (Conceptual Framework, 2018).

Both of these roles have been evaluated separately in the accounting literature. However, the empirical literature on the joint relationship of these two functions is still limited and at odds with the theory. Reported earnings have an influence on determining stock prices and inside the contracting executive incentives (Bushman and Smith, 2001). Prior studies<sup>1</sup> argue that valuation-related information is also useful for stewardship purposes.

According to these studies, financial statements that provide reliable information on the management of the company's resources can increase investors' confidence in the company and thus have a positive effect on the company's valuation. This suggests the importance of providing complete and accurate information in financial reporting also for the purpose of evaluating capital providers (which remains the main function of the financial reporting according to FASB and IASB). Furthermore, the relationship between the two functions may suggest the need for a broader renewal of the ethical and social focus of companies and their alignment with the need to adopt social responsibility approaches to support sound corporate governance. Pelger (2020) and others suggest that in the absence of a link between the two functions of accounting reporting, standard setters should consider requiring companies to produce a dual report, one that fulfils the valuation function and another that fulfils the stewardship function. The IASB/FASB Conceptual Framework for 2007-2018 made the decision to drop stewardship and valuation as separate objectives of financial reporting. While this choice of dropping stewardship and accountability as separate objectives of financial reporting may suggest a reduced emphasis on the stewardship function, it is important to recognise that the valuation function is still closely related to stewardship. This is because the quality of financial reporting depends on the integrity and reliability of the information provided by management. Therefore, the stewardship function is inherently linked to the valuation function because of the need to ensure that the information provided is trustworthy and accurate.

The IASB and FASB have reviewed the stewardship function of accounting information on several occasions without taking a firm position. In the 2018 Conceptual Framework, the IASB expands the scope of "usefulness decisions" of accounting information without changing the general objective of providing information that is useful for optimising allocation decisions. According to the IASB, financial information serves several purposes: buying, selling or holding equity and debt instruments and granting or settling loans and other forms of credit, but also exercising rights to vote on or otherwise influence management's actions that affect the use of the entity's economic resources. In relation to the latter claim, Pelger (2020) refers to this particular type of decision use as "stewardship decisions". These include decisions on the remuneration of management, or the reappointment or replacement of management, which are of particular importance to the current owners of a company. Despite the fact that stewardship uses of financial accounting information are taking on more and more importance, the IASB continues to support that stewardship should not be a separate purpose, confirming what was stated in the Conceptual Framework of 1989, because "assessing management's stewardship is not an end in itself: it is an input needed in making resource allocation decisions." (CF2018.BC1.35 (a))<sup>2</sup>.

---

<sup>1</sup> Aust et. Al (2021).

<sup>2</sup> The IASB argued that introducing a separate stewardship report could be confusing (CF2018.BC1.35(b)) without specifying for whom this might be the case and how stewardship as a separate objective might change or confuse the IASB's thinking.

Academics, researchers and industry experts have called on the IASB to place more emphasis on the usefulness of financial reporting in stewardship decisions (IASB, 2018, BC1.35). The IASB, however, rejected this proposal, "stewardship is not an end in itself; it is a necessary input to resource allocation judgements" (IASB, 2018, BC1.35(a)). This stance of the IASB is partly at odds with academic research (Cascino et al., 2014).

For these reasons, this paper aims to contribute to the current debate by presenting empirical evidence on the relationship between the two uses of accounting information, based on a sample of listed companies that prepare their financial reports in accordance with IFRS.

Given the paucity of literature on the subject, it is important to consider the various factors that may influence both functions in order to better understand this relationship. These factors may include the regulatory environment, cultural norms, management motivations and corporate governance model (Kuhner and Pelger, 2015). With the exception of Aust et al. (2021), all papers that empirically examine the relationship between valuation and stewardship function base their conclusions on North American data. The peculiar Anglo-Saxon context limits the applicability of the results to countries with different corporate governance systems and financial markets. Another gap resulting from the use of US data is the lack of empirical studies on the relationship between valuation and stewardship functions based on accounting standards other than US GAAP.

Bushman et al. (2006), O'Connell (2007), Banker et al. (2009) and Anderson et al. (2015) have conducted theoretical and empirical studies on the relationship between the value relevance of financial accounting information and the compensation relevance of CEOs. Their findings suggest a positive relationship between the two roles, indicating that firms with higher quality financial reporting tend to provide stronger incentives for executives.

Given that almost<sup>3</sup> all the empirical analysis conducted on this line of research are based on the United States' sample due to the wide range of data, this paper uses this unusual and unique sample in order to provide a different point of view. The analysis employs hand-collected data on CEO and executive board compensation for the period 2011-2020. All the firms in the final sample adopted IFRS principles<sup>4</sup>.

The corporate governance model in Italy presents several differences compared to the previously observed scenarios, which alter the use of accounting information. For example, according to the literature<sup>5</sup>, in Italy there is a greater association between owners and management than in other countries. In particular, in the monistic US' system, the control function is entrusted to a body appointed by the board of directors, in contrast with the most widespread Italian practice, where a shareholders' meeting appoints both the management and the control bodies. All these unique characteristics make the Italian context an appropriate case study to empirically investigate the association between stewardship and valuation uses of financial accounting information.

All empirical studies analysing the relationship between these two functions use only CEO compensation. Aust et al. (2021) are the first to introduce another board entity, namely non-CEO board members. This paper considers a broader agency model, looking at the board as a whole. The board is divided into subgroups based on qualitative and quantitative characteristics. This research aims to extend the study of

---

<sup>3</sup> The only other case study that investigates the relationship between valuation and compensation purposes of financial accounting information is from Aust, Pelger, and Drefahl (2021), which used a German listed firm sample.

<sup>4</sup> With the entry into force of the European regulation of 2002, Italian listed companies will have to adopt International Accounting Standards (IAS/IFRS) from 2005 onwards. For this reason, this empirical analysis of the relationship between the two purposes is based on an IFRS view of accounting information.

<sup>5</sup> Gandini, Astori, and Cassano (2009) highlight how the Italian model is characterized by a dualistic horizontal model, unlike the dualistic vertical model typical of Germany..

the relationship between stewardship and valuation by considering different subgroups of the board, each with their own individual characteristics and risk aversion.

According to the best practices<sup>6</sup>, this paper employs the same empirical strategy by running three regression models. First regression estimates the valuation earnings coefficients (valuation usefulness). The second regression analyses the compensation coefficient of the accounting earnings (stewardship usefulness). The third and final regression combines the two previous coefficients to understand whether, how, and to what extent these two accounting uses are related. In this way this last regression estimates the univariate analysis of incentive and valuation usefulness. Furthermore, in multivariate analysis, this study examines whether the degree of association is affected when controlling for firm-specific factors such as firm size, firm profitability, board size, tenure and the Gini Index of board compensation.

Both the univariate and multivariate findings are then re-processed for robustness test using others indicator of accounted earnings, firm size and firm profitability.

The results show that the sub-groups converge towards two macro-groups of the board, namely the 'top' and 'non-top' members. Therefore, these results suggest that this distinction impacts on the association, or not, between the two functions.

The next section provides an overview of the objectives of financial accounting information and a synthesis of the theoretical and empirical literature. The third section presents the hypotheses, the research design and the technical decisions that led to the design of the sample data. Section 4 presents a summary commentary on the data collected, in particular the descriptive statistics of the sample, as well as the results of the estimation of the first two equations representing the VEC and the CEC. Section 5 presents and discusses the results obtained from the estimation of both univariate and multivariate models. Section 6 lists the robustness tests carried out. The seventh and last section presents and comments on the conclusions.

## 2. Literature review

### 2.1 Theoretical background

According to Ball (2001) and Holthausen and Watts (2001), accounting information satisfies heterogeneous demands for general financial reporting information to support a wide range of decisions and contractual incentives.

Of all the different functions that the annual report fulfils, the two examined in this paper are valuation and stewardship, and in particular their relationship. Kothari (2001), Barth et al. (2001) and Holthausen and Watts (2001) define the valuation function of financial statements as the usefulness of accounting information in providing financial information that is useful to capital market participants in making investment decisions. This function involves the analysis of an firm's assets, liabilities and equity and provides information about the financial health and performance of the firm and its ability to generate future cash flows. The valuation function is a crucial aspect of financial reporting because it helps investors to assess the prospects of an enterprise and to determine the fair value of its securities.

Gjesdal (1981), Dusan et al. (2021), Barlev and Haddad (2003) define the stewardship function of financial statements as the use of accounting information to provide data useful for determining executive's incentives. The stewardship function of financial reporting is an important aspect of financial reporting because it helps align the interests of managers and shareholders and ensures that executives are held accountable for the management of a company's resources.

---

<sup>6</sup> Contributes from: Barth et al., 1999; Engel, Hayes, and Wang, 2003; Bushman et al., 2006; Banker et al., 2009 Amel-Zadeh, Faase, Li and Meeks, 2020.

One of the earliest contributions to the study of the relationship between the two uses of financial reporting comes from Gjesdal (1981). The first provides support for investor decisions and the second is used as a tool to solve the incentive problem in agency theory. Kim (1995) concludes that a comparison of Blackwell's theorem with the agency model leads to the conclusion that different accounting systems lead to different relationships between these two purposes.

Paul (1992) shows that in the linear agency model with stock-based and accounting-based compensation contracts, accounting signals may be misinterpreted in the capital market system, potentially leading to sub-optimal trading decisions. The author suggests that the stewardship use of accounting information is to quantify and value managerial effort. While, from a valuation perspective, financial reporting information should provide a stochastic proxy that is able to determine part of the firm's value, Lambert (2001) also confirmed the distinction of these two purposes.

Heinle and Hofmann (2011) confirm the association of these two roles by extending the agency setting and by assuming the availability of soft (non-contractable) information. They show that the disclosure of these special information has a positive effect on the valuation side, but a negative effect on the stewardship one.

It's widely accepted in the literature that accounting information plays a different role depending on the decisions made by its users. On the one hand, owners try to optimise incentive contracts in an agency conflict framework; on the other hand, financial analysts use financial statements as fundamental data to make strategic decisions about the stock price in capital markets, thus both individual categories use the same accounting information to make different decisions.

Therefore, in the theoretical literature, the role of accounting information as a proxy for managerial effort used by owners and management at the bargaining table to optimise an executive's incentive compensation has been widely addressed<sup>7</sup>. There is also a large literature on the mechanisms of stock price determination, using the company's earnings disclosure as the underlying fundamentals that can determine the stock price<sup>8</sup>. Nevertheless, there is still a gap in understanding how and in what way these two different uses of financial statements are related, especially from an empirical point of view.

## 2.2 Empirical background

Kuhner and Pelger (2015) conducted an empirical analysis focusing on the relationship between stewardship and valuation usefulness, using an agency model. The results prove that changes in accounting quality parameters, such as relevance and reliability, affect the two different uses of financial accounting information in a similar way. However, the two functions differ in a different environment characterised by different accounting standards. Crucially for this study, Kuhner and Pelger (2015) emphasise that the relationship between the two uses depends on the context, but is strongly influenced by the specific parameters: the corporate governance model adopted, firm characteristics, capital market systems and the environment.

Bushman et al. (2006) and Aust et al. (2021) empirically investigate the association between the two functions of financial reporting. On the one hand, they analyse how earnings reported in financial

---

<sup>7</sup> Contributions include Lambert and Larcker (1987), Banker and Datar (1989), Holmstrom and Milgrom (1991), Bushman and Indjejikian (1993), Sloan (1993), Feltham and Xie (1994), Bushman, Indjejikian, and Smith (1996), Ittner, Larcker, and Rajan (1997), Datar, Kulp, and Lambert (2001), Murphy and Oyer (2002), Bushman and Smith (2001), and Lambert (2001).

<sup>8</sup> Contributions include Kormendi and Lipe (1987), Collins and Kothari (1989), Easton and Zmijewski (1989), Freeman and Tse (1992), Ohlson (1995), Kothari (2001), Barth and Landsman (2010), Hirshleifer, Lim and Hong Teoh (2011), Dechow, Sloan and Zha (2014), Kwame Aveh and Awunyo-Vitor (2017), Rusdiyanto et al (2020), Mulenga and Bhatia (2020), and Grégoire and Martineau (2022).

statements are related to financial market valuations. On the other hand, they examine how the same accounting information is used in determining the contractual incentives of the board of directors (stewardship). These literatures refine the empirical model developed by Paul (1992) by specifying the null hypothesis of no relationship between two objectives. Contrary to the theoretical literature, these empirical studies show that firm and industry-specific valuation and compensation earnings coefficients are significantly positively related.

Bushman et al. (2006) draw their sample from company years with CEO cash compensation data available from the annual Forbes database over a 30-year period from 1970 to 2000, and then divide it into two equal sub-periods of the same duration (1970-85/1986-2000). In their analysis, they start by defining industries on the basis of two-digit Standard Industry Classification (SIC) codes; in this way, they delimit 28 industries so that it is possible to construct an industry-specific valuation coefficient for each industry, controlling for year fixed effects. The empirical approach of Bushman et al. (2006) merges two analyses: one univariate and the other multivariate. The univariate one estimates valuation and compensation earnings coefficients that are firm- and industry-specific. Univariate analysis works in three steps: first, it determines the valuation earnings coefficients by regressing cumulative market adjusted stock returns on earnings; second, it defines the compensation earnings coefficient by regressing CEO cash compensation on earnings while controlling for stock market returns used as a proxy for performance information. The third regression estimates the association between valuation and compensation earning coefficient. The authors use a Pearson and Spearman rank correlation table, where the valuation and stewardship coefficients are estimated at the firm and industry level, indicating the relationship between the valuation and stewardship weights placed on reported earnings. To extend the study and better understand the relationship between the two roles of accounting information, they used multivariate analysis to estimate this relationship, controlling for various public performance information such as growth opportunities, regulation, earnings noise, and others.

This empirical study shows a significant positive firm- and industry-specific relationship both for the whole period and for the two sub-periods. The authors use annual CEO cash compensation as a proxy for compensation measure, defined as annual salary plus bonus according to Core et al. (2003). In their sample, they exclude firm-years in which there is a CEO change. Another exclusion criteria used by the authors depends on the availability of earnings and stock return data on the Compustat and Center for Research in Security Prices (CRSP) databases. Bushman et al. (2006) conduct their empirical study of the compensation earnings coefficient and the valuation earnings coefficient using both firm- and industry-specific frameworks and both level and change settings (over the two subperiods). They define industries based on a two-digit Standard Industrial Classification (SIC) code that have at least 50 observations in each of the two sub-periods; the reason for this restriction is to ensure a reasonable number of degrees of freedom in their industry change analyses. Following these restrictions, their primary sample includes 16,780 firm years, with an average of 12 observations per firm. For the firm-specific estimates of the compensation and valuation earnings coefficients, the authors also require their primary sample firms to have more than 20 annual observations over the sample period; this second sample contains 379 firms with an average of 26 observations per firm. The advantage of firm-level analysis is that it allows controlling for firm characteristics, such as production functions and CEO risk aversion, which may affect the relationship between market performance and executive pay. Previous empirical studies of the relationship between firm performance and executive pay have typically used a firm-level research design. However, the weakness of firm-level analysis is the small number of observations for each estimation. This reduces the degree of freedom in estimating the coefficients on pay and valuation returns. To overcome this challenge, some studies have used industry-specific analysis by aggregating firm data to have a larger number of observations compared to a firm-specific design, with more homogeneity within industries than across industries in the determinants of the weight given to the dual use of accounting information. The cost to pay for better coefficient estimates consists of correlated omitted variables such as individual risk aversion, and the valuation earnings coefficients may be impacted by items that vary cross-sectionally. In order to mitigate this issue, the authors incorporate different control variables in the

multivariate analyses to be able to capture firms' and CEOs' specific-factors that may impact, respectively, compensation and valuation earnings coefficients. In this way, the change analyses in industry contests provide an approach to contrast correlated and omitted variables. The compensation earning coefficient is usually a function of unobservable parameters such as managerial risk aversion and effort aversion. In order to overcome this obstacle, previous studies have adopted ratios of incentive performance measures so that, under certain assumptions, they can override the unobservable variables (e.g., Lambert and Larcker 1987; Frydman and Jenter 2010). However, both Bushman et al. (2006) and Aust et al. (2021) use absolute coefficients in their studies; in this way, the design changes attempt to control for unobservable characteristics that are stable over time within an industry.

Banker et al (2009) use earnings and cash flow as proxies for disclosure information for both earnings and cash flow for US data for ten years of observations (from 1993 to 2003). Their sample consists of 7,076 CEO-year observations and they use a definition of CEO cash compensation consistent with Bushman et al. (2006).

Their empirical approach partially follows Bushman et al. (2006), but with many differences: they use a two-step regression model. First regression estimates value the relevance and CEO's pay sensitivity of two different proxies of financial accounting information: earnings and cash flows. Second regression uses cross-sectional firm-year regressions in order to study the relationship between pay-sensitivity and value relevance coefficients for both earnings and cash flow data. Following this empirical approach, they find significant and positive coefficients that support the assumption of the existence of a connection between compensation relevance and the values of earnings and cash flows. Finally, they provide additional evidence that the relevance of a performance measure plays a significant role in its use for performance evaluation.

In another related study, Gassen (2008) addresses the same objective of analysing the dual use of accounting information using a different approach for a US dataset of companies between 1990 and 2005. In contrast to the value relevance proxy used by Bushman et al. (2006) and Banker et al. (2009), Gassen (2008) uses the impact of distorted accounting information on the stock price in the short run. The second main difference with the previous literature is the stewardship coefficient. The author models a market for stewardship information instead of using a compensation data approach. In his model, the demand side is represented by the relative importance of non-equity stakeholders, while the supply is proxied by conditional conservatism, with reference to the asymmetric timeliness of earnings<sup>9</sup>. Following these steps, Gassen (2008) finds a negative relationship between the valuation relevance of earnings and his stewardship model. However, his concept of stewardship is not in line with the principal-agent setting commonly adopted by academic literature and standard setters, which consider the agency model between owners and managers. It can be argued that his definition of stewardship is more in line with a more general contracting perspective<sup>10</sup> that considers stakeholders other than owners. Precisely for this reason, by using this broader definition of contracting, this finding suggests that information useful for valuation purposes may not necessarily be useful for stewardship purposes, especially if the definition is broader.

Given that there is little empirical research investigating the relationship between valuation and stewardship uses of financial accounting information, and that these existing analyses are based entirely on US data, Aust et al. (2021) decide to investigate this relationship in a different setting: the German one. In contrast to the US studies, they analyse German listed companies that prepare their financial statements in accordance with IAS-IFRS. European listed companies differ from the sample analysed in US studies both in terms of the concept of value relevance used in IFRS, which differs from US GAAP,

---

<sup>9</sup> Shroff et al., (2013) define asymmetric timeliness of earnings as physiological consequence of prudence principle. According to this preparation of the financial statements principle information conveyed by an economic event or shock is recorded in periodic accounting earnings earlier if it conveys bad news and later if it conveys good news.

<sup>10</sup> Watts (2003).

and in terms of stock markets. In particular, European cultures differ not only from the US but also from each other.

Devalle, Onali and Magarini (2010) provide evidence that IFRS adoption has different effects on valuation relevance depending on country characteristics. In particular, in Germany and France, the adoption of IFRS leads to an increase in the value relevance of earnings and a decrease in the value relevance of the book value of equity. In the UK, on the other hand, the adoption of IAS-IFRS leads to an increase in the value relevance of earnings and the book value of equity, while in Italy and Spain the adoption of IFRS leads to a decrease in both measures. They draw these conclusions on the basis of a sample of 3,721 firms and observe a period between 2002 and 2007.

In addition to studies on the value relevance of IFRS, there is a small body of literature dealing with stewardship relevance of accounting information. They analyse the effect of the first round of IFRS adoption on the relationship between accounting values and CEO and executive compensation. Voulgaris et al. (2014) provide evidence on the role of IFRS adoption in reducing the use of accounting information as a basis for evaluating management effort and, therefore, their incentives. They chose to conduct their study using hand-collected data covering 3,000 UK firms over eight years, four years before and four years after IFRS adoption (by analysing the period 2002-2009). These findings support Watts (2006), who states that IFRS accounting information is not the best tool for assessing managerial effort. This is due to the wide discretion provided by these principles rather than rules, especially in fair value measurement. From the European side, there is another interesting empirical study on the relationship between the mandatory adoption of IFRS and the use of accounting information to determine incentive contracts for executives. Ozkan, Singer, and You (2012) analyse the period 2002-2008 by dividing it into two sub-periods: before and after the mandatory adoption of IFRS (2002-2004 and 2006-2008, respectively) and by excluding the years of mandatory adoption of international accounting standards in 2005. The focus of their empirical research is on changes in cash compensation of executives; they do not consider the equity component of cash compensation. Their sample consists of 13,505 executive-year observations for 3,046 firm-years from 892 listed companies from fifteen European countries. The authors use an empirical approach that analyses the relationship at three different levels. First, they examine whether compensation committees base executive contract incentives more on accounting indicators of firm performance after mandatory IFRS adoption. Second, they examine whether there are any changes in the use of accounting performance measures before and after IFRS adoption. The third and final regression attempts to estimate the sensitivity - in particular, any changes in it - of executive pay to stock performance after IFRS adoption. This paper provides evidence that following the transition to IFRS, accounting information has become more relevant in assessing management effort and thus more important in optimising executive incentive contracts, especially with respect to reported earnings.

Returning to the study of the relationship between valuation and stewardship usefulness of financial accounting information, one of the last empirical approaches comes from Germany, conducted by Aust, Pelger and Drefahl (2021). They follow the empirical approach of Bushman et al. (2006) and Banker et al. (2009). In line with studies that emphasise that the relationship between the role of financial accounting information and corporate governance may be affected by the accounting standards adopted, they shift the focus of this analysis from the inflated US environment to German listed firms that, among other things, follow IFRS. In line with previous empirical approaches, they use the relationship between accounting indicators (reported earnings) and executive compensation to assess management effort, and the relationship between reported earnings and stock price as a proxy for the valuation usefulness of the accounting information proxy.

The dataset used in this study consists of two parts: the first part relates to firm financial data collected from commercial databases and used to study accounting profits and financial market information<sup>11</sup>. The

---

<sup>11</sup> Compustat Global and Datastream Worldscope

second database consists of CEO compensation collected by firms. Both types of data cover the period 2006-2013. The compensation data are derived from the annual compensation reports of German listed companies. This dataset distinguishes between the compensation of the chief executive officer (CEO) and the average executive compensation, which is defined as the compensation of the board of directors (excluding the CEO) divided by the total number of board members. The sample consists of 844 firms (159 per year). From this number of firms, the authors excluded: firms applying US GAAP, foreign firms and year-end observations with incomplete or missing data on compensation, share price and reported earnings. In the main sample, the authors also excluded firm-year observations with CEO changes and firm-year observations where they had no information about the CEO compensation. The authors point out that focusing only on CEO's compensation, without considering the average of the whole board, may lead to selection bias. This is due to the fact that companies do not publish the individual compensation of board members. This is because German legislation allows companies to avoid disclosing the individual compensation of board members if the annual general meeting supports this proposal with a qualified majority of 75%, otherwise, it is a mandatory report.

Following Bushman et al. (2006), Aust et al. (2021) employ the two-digit Standard Industrial Classification (SIC) to classify firms' industries.

Aust et al. (2021) examine the relationship between the stewardship and valuation roles of financial reporting in a three-stage regression model. They construct a model that first estimates two separate regressions and then links them to a third regression. First, two regressions estimate the value relevance (VEC) and stewardship relevance (CEC) of reported earnings, while the third regression combines both estimated coefficients to estimate the stewardship valuation (VSC). They employ a dual analysis, one at the industry level and the other at the firm level, both controlling for year fixed effects in their industry-specific regressions. Each regression estimates the relevance of value and stewardship to earnings first individually and then after valuation on stewardship coefficients for each industry and firm with aggregated firm year observations (industry and firm specific). Based on the first regression, the results show a significant and positive valuation earnings coefficient for the measures adopted. The second regression stage also shows a significant and positive relationship between the earnings coefficients and the remuneration measures. Finally, the third and final stage of this model provides evidence of the existence of a significant and positive relationship between stock market return and percentage change in compensation. These results are consistent with Bushman et al. (2006) and show a positive value for the Compensation Earnings Coefficients (CECs). For robustness tests, the authors also conduct a multivariate analysis, controlling for different shareholder types and firm sizes. In these cases, the association between valuation earnings coefficients and stewardship earnings coefficients remains significant and positive, while controlling for free float significantly reduces the valuation-stewardship association. This analysis shows that stewardship and valuation relevance of earnings are significantly and positively related using CEO and board cash and total compensation data from 2006 to 2013. Following the robustness test, the authors converge to say that the significant and positive relationship between the two roles of financial accounting information is maintained even when controlling for free float and firm size.

The contribution by Aust et al. (2021) extends the scarce empirical research literature on the debate about the link between stewardship and valuation and the usefulness of financial accounting information. By analysing a sample of firms reporting under IFRS, they provide support for previous empirical evidence based on US data (Bushman et al., 2006; Banker et al., 2009). Thus, not only do their data help to extend the empirical literature in a geographical setting different from the US, but they also consider the compensation of the entire board and are not limited to CEO compensation data. These two extensions to US studies should provide a more comprehensive view of the relationship between two useful pieces of financial accounting information. Finally, the authors also consider the multivariate setting, including



firm and governance variables to control for the relationship, and show that these factors generally do not alter the association.

### 3. Design and research methods

#### 3.1 Hypothesis Development

A review of the literature<sup>12</sup> has shown that the stewardship and valuation functions of accounting information, and hence their association, are influenced by environmental characteristics. This study aims to determine how and to what extent environmental factors influence this relationship. Walker (2010) and Kuhner and Pelger (2015) describe environmental parameters as economic structures, legal frameworks and administrative structures. With this in mind, this paper extends the empirical literature on the relationship between the two uses of financial accounting information in a different environment compared to the United States (Banker et al., 2009; Bushman et al., 2006) and the German context. (Aust et al. 2021).

As Kuhner and Pelger (2015) and Whittington (2008) show, empirical generalizations drawn from US and German studies may not be applicable to other countries with different capital market systems, corporate governance frameworks, and other context-specific characteristics. The literature largely agrees that the capital market of the Italian economy is less important than that of other economies such as the United States, the United Kingdom, and Germany (Meles and Salerno, 2021; Aktas et al., 2019; Allen and Gale, 2000; La Porta et al., 2002; La Porta et al., 1998). The corporate governance structure is another important difference between the American, German and Italian environments.

While US and UK firms typically adopt a one-tier model, firms in civil law countries (Germany, France, Italy, Spain) typically adopt a two-tier model, where management and control are separated and both are held by members nominated by the owners. Furthermore, the two-tier model can be further classified according to the specific country in which it is implemented. According to Provasi and Riva (2015), Hopt and Leyens (2005), the Italian corporate governance model differs from the German one, although both are classified as two-tier models. Like the Rhenish system, the Italian version of the Latin system is characterised by a major shareholder, typically a family, a credit institution or a public authority, with a high degree of strategic control provided by voting agreements or cross-ownership. The key element of this approach depends on the strategic role of the owner in management. Unlike the German system, the Italian model does not involve partnerships with other stakeholders, such as credit institutions or employees, in strategic decision-making. These last are influential stakeholders but not decisive for the management of the company. On the one hand, banks are only lenders; they support companies in exceptional transactions without playing a strategic role. They influence the decision-making process only indirectly by restricting credit. On the other hand, employees do not play a strategic role for management; they are only protected by trade unions. In essence, Italian workers differ from German workers in that they do not participate in the management of companies and their presence is only institutionalised, as in Anglo-Saxon systems, but unlike the latter, there is the presence of trade unions, which play an antagonistic role vis-à-vis company managers in order to protect the workers. From this point of view, the Italian system is an intermediate model between the Anglo-Saxon and Germanic systems. Another difference between civil law and common law systems is the link between ownership and control of a firm. Typically, in the US environment, public companies mitigate agency costs with a short tenure and an efficient market system characterised by frequent exchanges of information and shares. This is the opposite scenario of insider systems, where executives and firms are linked by a long-term relationship and the capital market is less liquid. In this environment, accounting information may be less important for the incentive compensation of executives and stewardship functions. These structural differences are

---

<sup>12</sup> Kuhner and Pelger (2015) employs an agency model which argue that current owners bear the significant costs associated with the preparation of accounting information, while potential investors do not.

reflected in company's disclosure, which is primarily focused on shareholders or stakeholders. The efficient capital markets and corporate governance structures of the United States place a greater emphasis on shareholders. However, German co-management with banks and employees places more emphasis on stakeholder relationships (Weimer and Pape, 1999; Aguilera and Jackson, 2003; Aceituno, Rodriguez-Ariza, and Garcia-Sanchez, 2012). The Italian corporate governance model is in the middle because, on the one hand, its capital market is not as developed as that of the United States, making its situation more similar to that of Germany, and, on the other hand, the role of owners in Italy is less fragmented and more concentrated in the hands of the majority shareholder than in Germany (Letza, Sun, and Kirkbride; 2004). Currently, the globalisation of financial markets is reducing the distance between corporate governance models, with Anglo-American characteristics becoming increasingly important for European listed companies (Enriques and Volpin, 2007; Salvioni, 2008; Engelen, 2015). The pay sensitivity of CEOs and other board members to performance varies over time (as noted by Blanes, De Fuentes, and Porcuna (2020)).

Differences in corporate governance affect the stewardship function of accounting information, while differences in capital market systems reflect differences in the valuation function of accounting.

As suggested by Aust et al. (2021), after 2005, with the introduction of mandatory adoption of International Financial Reporting Standards (IFRS) for European listed companies, companies increased the number of users of their financial reporting information. A financial statement does not only serve tax purposes or creditor protection; but it is also used by investors and prospective investors.

Accordingly, the use of financial reporting information for valuation and stewardship purposes is growing in Italy.

For this reason, it is difficult *ex ante* to extend the US and German findings to the Italian context by assuming a positive relationship between two uses of accounting information. In the light of previous research, the null hypothesis (H1) regarding the relationship between stewardship and the valuation use of financial accounting information is stated:

*H1. Valuation and stewardship uses of accounting information are associated for CEO compensation.*

The use of financial accounting information for valuation and incentive contracting is influenced not only by country-specific elements, but also by managerial quality. Kuhner and Pelger (2015) provide evidence that manager risk aversion should affect the relationship between stewardship and valuation. When a manager's risk aversion exceeds a certain threshold, reported earnings are less relevant for stewardship purposes and more valuable for valuation purposes. This is because it is more expensive to incentivise risk-averse managers with variable accounting-based pay for performance. Thus, the link between the two uses of accounting information is likely to be less favorable for managers who are more risk-averse.

A large body of literature<sup>13</sup> shows that CEOs differ substantially from other board members, both in terms of risk aversion and in terms of board effort and relative compensation.

Following these evidences and the theoretical approach of Aust et al. (2021), this analysis focuses on board members in general, not only through CEO compensation, but also through executive compensation in general. They approximate differences in managerial characteristics by examining the valuation-stewardship relationship for non-CEO board members.

---

<sup>13</sup> Kaplan and Sorensen (2017) take evidence that CEOs typically assume a different behaviours compared to other board members. In particular, Graham et al. (2013) conducted a survey of 1,180 CEOs and 549 CFOs and found that CEOs are usually more optimists than CFOs. Habib and Hossain (2012) analyze facets of CEO/CFO characteristics and the properties of accounting information. Their findings highlight how different members of the executives follows different interest and this might have impact on financial accounting information.

The hypothesis H2 was set to the null form.

*H2. Valuation and stewardship uses of accounting information are not associated for non-CEO compensation.*

A company's board of directors plays an important role in setting corporate strategy and is responsible for the company's most important decisions. There are three main sub-groups of board members: the chairman and deputy chairman, the chief executive officer, and the directors. These segments may have different perspectives on corporate risk management. This research examines the differences in risk aversion between these groups.

The chairman of the board is usually a former CEO and successful entrepreneur. He (or she) has extensive business experience and often a very conservative risk management philosophy, which leads him (or her) to play a more political, institutional, and representative role. Often, the chairman is more concerned with preserving the company's assets than growing them. As a result, the chairman may be reluctant to take large risks that could jeopardise the company's assets.

The vice-president: The vice-president is often a board member with extensive knowledge of a particular business function, such as finance or marketing. The vice-president is usually more concerned with the expansion of the company than the president. However, while the vice-president may be more willing to take risks than the CEO and the directors, his or her risk aversion remains high.

The CEO is the leader of the company and is responsible for growing the business and creating shareholder value. He (or she) is more risk tolerant than the chairman and vice-chairman. The CEO is often prepared to take significant risks in order to achieve rapid development and create shareholder value. However, the CEO must strike a balance between pursuing development opportunities and managing risk.

Directors are board members who have no operational responsibilities within the organisation. Directors are often selected on the basis of their experience in a particular business area or their familiarity with the industry in which the company operates. Directors may have different perspectives on risk management. However, directors tend to be more risk averse than the CEO and may be unwilling to take large risks.

The different subgroups of the Board have different risk management strategies. Typically, the chairman is more conservative, while the vice-chairman is more focused on expanding the business. The CEO tends to be the most willing to take large risks in order to achieve rapid development and create shareholder value. Directors may have different perspectives on risk management, although they are often more cautious than the CEO. In order to maintain the company's sustainable growth, corporate risk management must strike a balance between these different perspectives<sup>14</sup>.

In contrast to previous studies that have attempted to capture the diversity of board risk aversion by distinguishing between CEOs and non-CEO board members, this study extends the empirical research by dividing the board into more subgroups according to both qualitative and quantitative parameters. First, the board is divided into CEOs, "leaders" and "directors" based on qualitative factors. This division divides the board into three sub-groups based on their respective positions. In addition to the CEO group described above, the "Leaders" category includes non-CEO board members who are either chairmen or vice-chairmen. The 'Directors' category is referred to as the residual category and includes all Board members who do not hold one of the above positions.

In contrast, the second criterion for clustering boards is quantitative in nature: the board is dichotomised into two subgroups: above and below the median. In this study, it was decided to use the median rather

---

<sup>14</sup> Fama and Jensen (1983), Hillman et al. (2000), Hit et al. (2013), Jensen and Meckling (1976) and Murray and O'Neal (2007).

than the arithmetic mean as a position indicator, as the average annual compensation is heavily influenced by what happens at the tail of the distribution.

The association between valuation and stewardship usefulness of accounting information is affected not only by country-specific characteristics, but also by board characteristics that may influence this association. Taking this into account, this paper allows for improved estimates by including an unobserved variable from previous literature: how and to what extent the role of the board of directors may affect the association between stewardship and valuation functions of accounting information. This study extends the analysis of the relationship between the two functions of the annual report by extending the relationship hypothesis to include these additional board classifications. With a higher level of disaggregation, this paper is able to account for the changes in risk aversion within the board and how these might affect the association between the valuation and stewardship functions of the annual report.

The following null hypotheses are formulated based on the grouping of the board:

*H3. Valuation and stewardship uses of accounting information are associated for leaders' compensation.*

*H4. Valuation and stewardship uses of accounting information are not related for directors' compensation.*

*H5. Valuation and stewardship uses of accounting information are associated for above-median members compensation.*

*H6. Valuation and stewardship uses of accounting information are not associated for below-median members compensation.*

All six hypotheses are tested using both univariate and multivariate tests, taking into account the findings of Aust et al. (2021) and Bushman et al. (2006). The multivariate tests are used to control for firm characteristics that could potentially affect the relationship between the two uses of financial accounting information.

### 3.2 The models

This study examines the relationship between the valuation and stewardship uses of accounting information. Following Aust et al. (2021) and Bushman et al. (2006), the empirical approach consists of a three-stage least squares model with two regressions that provide the input for a third regression. The first two regressions estimate valuation earnings coefficients (VECs) and compensation earnings coefficients (CECs) for each firm and aggregate firm-year observations. The third regression combines both estimated coefficients and estimates the valuation on stewardship coefficient (VSC). In order to ensure that the valuation and stewardship coefficients are adequately representative for each firm over the course of the study period, a minimum of five consecutive firm years of data are required for each variable included in the first and second regressions.

In contrast to previous work, this paper uses two different versions of the first two regressions (1.1, 1.2 and 2.1, 2.2). In line with previous research, the first version of regression one (1.1) evaluates the relationship between a change in earnings per share ( $\Delta$ EPS) and stock returns (RET) for each firm.  $\Delta$ EPS defines the percentage change in earnings per share between year  $t$  and  $t-1$ . The coefficient resulting from a one per cent change in EPS on RET is recorded as the valuation earnings coefficient ( $\Delta$ VEC) for each firm. In contrast to previous researches, the second version of regression 1 (1.2) evaluates the direct relationship between accounting earnings (EARN) and stock returns (RET) for each firm. EARN is defined as the accounting earnings of firm  $i$  in year  $t$ . For each firm, the coefficient resulting from a one percent change in EARN on RET is recorded as the valuation earnings coefficient (VEC), i.e. the valuation earnings coefficients of the firms in this second version also provide firm-year aggregated data.

$$\Delta RET_{it} = \beta_0 + \Delta VEC_i * \Delta EPS_{it} + \varepsilon_{it} \quad (1.1)$$

$$RET_{it} = \beta_0 + VEC_i * EPS_{it} + \varepsilon_{it} \quad (1.2)$$

Where:  $i$  is the firm,  $t$  is the fiscal year, and  $RET_{it}$  is the annual cumulative stock return of firm  $i$  during the fiscal year  $t$ <sup>15</sup>.  $\Delta RET_{it}$  and  $\Delta EPS_{it}$  are the percentage changes respectively in stock return and earnings between years  $t$  and  $t - 1$  of firm  $i$ .  $EPS_{it}$  is the accounting earnings of firm  $i$  in the fiscal year  $t$ . Finally,  $\varepsilon_{it}$  it is the error term for regression (1.1 and 1.2).

In line with previous research, regression (1.1) considers the change from one year to the next in order to compare how the sign of the change in accounting profits (positive or negative development) is reflected in the change in stock returns (positive or negative change in the company's capital market valuation) and in the change in CEO (other board subgroups) remuneration (positive or negative change in short-term remuneration). Although regression 1.2 aims to reflect the impact of accounting profits on stock returns (valuation) and board remuneration (stewardship) in absolute terms, it is clear that the impact of accounting profits on stock returns (valuation) and board remuneration (stewardship) is not absolute. It is undeniable that the percentage change in accounting profits has an impact on the sign of financial market valuation and the sign of board incentives, but it is also true that this relationship depends on the absolute value (loss) of accounting profits.

Equations (2.1 and 2.2) define the regressions used to estimate the compensation earnings coefficients, aggregating individually the firm observations, the compensation earnings coefficient ( $CEC_i$ ) measures the relationship between the percentage change in earnings ( $\Delta EPS_{it}$ ) and the percentage change in compensation of: CEOs (H1), other board members non-CEO (H2), Leaders (H3), Directors (H4), and above and below median monthly compensation (H5 and H6 respectively) ( $\Delta COMP_{it}$ ). Equation (2.2) performs the same analysis but in absolute terms of accounting earnings  $EPS_{it}$  and average monthly board sub-group compensation  $COMP_{it}$ .

Similar to regression (1.1), regression (2.1) measures the influence of the sign of the percentage change in accounting profit on the percentage change in pay. The first versions of regressions (1) and (2) evaluate the effect of the sign of the percentage change on the valuation and management functions. Whereas in both regressions, the second variant (1.2 and 2.2) investigates the effect of accounting profits in absolute terms on the valuation of financial markets and incentives (stewardship function).

In line with Bushman et al. (2006) and Aust et al. (2021), this article controls for public information using the proxy of firm  $i$ 's fiscal year  $t$ 's 12-month stock return ( $RET_{it}$ ).

$$\Delta COMP_{it} = \beta_0 + \Delta CEC_i * \Delta EPS_{it} + \beta_1 \Delta RET_{it} + \varepsilon_{it} \quad (2.1)$$

$$COMP_{it} = \beta_0 + CEC_i * EPS_{it} + \beta_2 RET_{it} + \varepsilon_{it} \quad (2.2)$$

Where  $\Delta COMP_{it}$  is the percentage change in the monthly compensation between years  $t$  and  $t - 1$  of firm  $i$ ,  $COMP_{it}$  is the absolute monthly compensation of firm  $i$  during year  $t$ .  $\beta_0$  is the intercept.

$\Delta CEC_i$  is the compensation earnings coefficients of firm  $i$ , it is the regression coefficient of  $\Delta EPS_{it}$ ,  $\Delta CEC_{it}$  it is the percentage change in earnings between years  $t$  and  $t - 1$  of firm  $i$ , and  $CEC_i$  is the compensation earnings coefficient of firm  $i$ , it is the regression coefficient of  $EPS_{it}$ , it is the accounting earnings between year  $t$  and year  $t - 1$  of firm  $i$ .  $\beta_1$  ( $\beta_2$ ) is the coefficient that results from a one percent

---

<sup>15</sup> In line with Bushman et al. (2006) and Aust et al. (2021), this analysis employs the businesses' 12-month stock returns ( $RET_{it}$ ) computed from the start of the fiscal year  $t$  through its conclusion.

change of  $RET_{it}$  on  $\Delta COMP_{it}$  ( $COMP_{it}$ ),  $RET_{it}$  is the 12-month cumulative stock return of firm  $i$ 's fiscal year  $t$ , and  $\varepsilon_{it}$  is the error term for regression (2).

The variables  $\Delta COMP_{it}$  and  $COMP_{it}$  employ either the CEO's, non-CEO members, Leaders', Directors', monthly average compensation, and above' and below' median monthly average compensation.

By executing the first two regressions, it is feasible to examine the coefficients for firm-specific valuation and compensation earnings, which are included as variables in the third regression. The third regression then evaluates the hypotheses and estimates the association between valuation usefulness ( $\Delta VEC_i$  and  $VEC_i$ ) and stewardship usefulness ( $\Delta CEC_i$  and  $CEC_i$ ) for companies as a whole. Based on firm-specific estimates, the resultant coefficient (VSC) reveals the relationship between value and stewardship uses of accounting earnings. This firm-specific aggregation is required in order to have enough variance in the observations for each firm in order to estimate a valuation and compensation earnings coefficient. The third stage of the regression estimates the overall relationship between the two uses of accounting information and depends on the firm-specific coefficients for valuation and compensation earnings estimated in the first two stages. If instead of running the regressions (1.1, 1.2, 2.1, and 2.2) at a firm specific level, a single equation was run for the whole dataset, only one VEC and one CEC would be directly produced, making it impossible to estimate the VSC in the third regression.

Also, for this last step, there are two versions (3.1 and 3.2) to split the change effect and the absolute effect of the coefficients estimated in the first two regressions.

$$\Delta VEC_i = \beta_0 + \Delta VSC_i * \Delta CEC_i + \varepsilon_i \quad (3.1)$$

$$VEC_i = \beta_0 + VSC_i * CEC_i + \varepsilon_i \quad (3.2)$$

Where  $\Delta VEC_i$  and  $VEC_i$  are the valuation earnings coefficients of firm  $i$ ,  $\beta_0$  are the intercepts,  $\Delta VSC_i$  and  $VSC_i$  are the valuation stewardship coefficient,  $\Delta CEC_i$  and  $CEC_i$  are the compensation earning coefficients of firm  $i$  for CEO, non-CEO, leaders, directors, above and below median groups, and  $\varepsilon_i$  are the error terms of regressions (3.1) and (3.2).

The mechanism of this three-stage empirical model works for both negative and positive values of the  $\Delta VEC$  and  $VEC$  (valuation usefulness) and the  $\Delta CEC$  and  $CEC$  (stewardship usefulness). In the case of opposite signs between  $\Delta VEC$  ( $VEC$ ) and  $\Delta CEC$  ( $CEC$ ), the three-level coefficient  $\Delta VSC$  ( $VSC$ ) will be negative. A negative  $\Delta VSC$  ( $VSC$ ) indicates that accounting information is important for either stewardship or valuation purposes, but not both. In other words, a negative  $VEC$  and a positive  $CEC$  correlate with a negative  $VSC$ . In this case, accounting information is valuable for stewardship but not for valuation, and the overall relationship between the two uses is negative, i.e. valuation and stewardship uses react differently to changes in earnings. On the other hand, positive  $VEC$  and negative  $CEC$  result in the same negative  $VSC$ , but accounting information is only relevant from a valuation perspective, not from a stewardship perspective.

If the univariate regression analyses (3.1) and (3.2) reveal (no) connection for CEO, Leaders, and above median subgroup (no-CEO members, directors and below median subgroups), the hypotheses will be supported.

After the univariate analysis, this paper incorporates firm-specific and corporate governance factors in multivariate tests for each of the previous hypotheses. Specifically, interaction terms are included with the regressors  $CEC_i$  and  $\Delta CEC_i$  of equations (3.1) and (3.2). Chronologically, the process consists of estimating equations (1.1, 1.2) and (2.1, 2.2) prior to multivariate regressions, that include an interaction term between  $PROFIT_i$ ,  $SIZE_i$ ,  $TENURE_i$ ,  $GINI_i$  and  $CEC_i$ .  $PROFIT_i$  is a dummy for the firm's

profitability, with a value of 1 if the firm's profitability is greater than the industry-specific median and 0 otherwise.  $DSIZE_i$  is a dummy for the firm's size, taking a value of 1 if the corresponding size variable is greater than the industry-specific median of the size variable and 0 otherwise.  $TENURE_i$  is a dummy for the various board sub-groups' tenure, with a value of 1 if the corresponding firm-specific tenure variable is greater than the industry-specific median and 0 otherwise.  $GINI_i$  is a dummy for the Gini concentration index of the firm-year specific monthly compensation, taking a value of 1 if the corresponding firm-specific GINI variable is greater than the industry-specific median and 0 otherwise.

$$\Delta VEC_i = \beta_0 + \Delta VSC_i * \Delta CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE_i * \Delta CEC_i) + \varepsilon_i \quad (4.1)$$

$$VEC_i = \beta_0 + VSC_i * CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE_i * CEC_i) + \varepsilon_i \quad (4.2)$$

$$\Delta VEC_i = \beta_0 + \Delta VSC_i * \Delta CEC_i + \beta_1 PROFIT_i + \beta_2 (PROFIT_i * \Delta CEC_i) + \varepsilon_i \quad (5.1)$$

$$VEC_i = \beta_0 + VSC_i * CEC_i + \beta_1 PROFIT_i + \beta_2 (PROFIT_i * CEC_i) + \varepsilon_i \quad (5.2)$$

$$\Delta VEC_i = \beta_0 + \Delta VSC_i * \Delta CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE_i * \Delta CEC_i) + \varepsilon_i \quad (6.1)$$

$$VEC_i = \beta_0 + VSC_i * CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE_i * CEC_i) + \varepsilon_i \quad (6.2)$$

$$\Delta VEC_i = \beta_0 + \Delta VSC_i * \Delta CEC_i + \beta_1 GINI_i + \beta_2 (GINI_i * \Delta CEC_i) + \varepsilon_i \quad (7.1)$$

$$VEC_i = \beta_0 + VSC_i * CEC_i + \beta_1 GINI_i + \beta_2 (GINI_i * CEC_i) + \varepsilon_i \quad (7.2)$$

These equations apply an interaction term by multiplying a dummy variable by  $CEC_i$ . A significant interaction coefficient implies that the relationship between the uses of accounting information is different for larger amounts of the interaction variable than for smaller amounts.

This empirical method makes it possible to find out whether the relationship between the two uses of accounting information is affected by size, profitability, concentration of pay and power in the board, and board continuity based on tenure.

Regarding the use of interaction terms between a firm dimension dummy and the  $CEC_i$ , this work considers four different proxies for firm size: the logarithm of total assets (Hitz and Werner (2012) and Satirejit et al. 2015), the logarithm of sales (Dang et al. 2018), the total number of employees (Hashmi et al. 2020), and the size of the board (according to Guest (2009) and Brown and Caylor (2004), larger firms tend to have larger boards).

Second, in equations (5.1) and (5.2), the profitability of the firm is dummyed with the  $CEC_i$ . In line with the literature<sup>16</sup>, this paper considers the mainly five different proxies for firm profitability used to estimate these equations: Return on equity (ROE), Return on investment (ROI), Return on assets (ROA), Earnings per share (EPS) and Earnings before interest, taxes, depreciation and amortisation (EBITDA). Higher profitability index values tend to be more strongly associated with both the value relevance (Almagtome and Abbas, 2020) and pay-performance sensitivity (Hamid, 1995; Frydman and Jenter, 2011) of accounting information.

Thirdly, regressions (6.1) and (6.2) emphasize the role that tenure plays in the association between the two uses of financial reporting information. Livnat (2021) suggests that board tenure refers to the length of time a director has served on a company's board. Longer tenure may imply a higher level of knowledge and skill in the board's decision-making processes, which is sometimes seen as an important signal of stability and cohesion within a firm. The relationship between board tenure and firm performance has produced mixed results, with some studies suggesting that longer tenure may lead to complacency and a lack of fresh perspectives, while others suggest that it may be beneficial in terms of institutional knowledge and effective decision-making.

---

<sup>16</sup> Brigham and Houston (2019), Gitman and Joehnk (2019)

Finally, regressions (7.1) and (7.2) focus on the association between the valuation-stewardship relationship and the concentration of board compensation (Gini concentration index; Kini and Williams, 2012).

When interpreting the results, it is important to bear in mind that this empirical approach consists of evaluating not only the "pure" correlation between the independent and dependent variables, but also the association between the dummy variable and the independent variable, which changes the interpretation of the results. If only the "pure" association is significant, while the interaction association is not, this would indicate that firm-specific characteristics do not have a significant impact. If, on the other hand, both the "pure" and the interaction associations are significant, this suggests that firm characteristics do influence the relationship between valuation and stewardship. Finally, if the "pure" association is not significant but the interaction association is, this suggests that there is a difference between the groups of firms. In other words, there is no correlation for one group and a positive association for the other, indicating that the relationship is sensitive to the dummy variable. Both hypotheses are tested using both univariate (3.1, 3.2) and multivariate (from 4.1 to 7.2) regressions.

Finally, as a robustness test, this paper considers an alternative proxy for reported earnings by replacing EPS ( $\Delta$ EPS) with EBITDA ( $\Delta$ EBITDA) in all previous equations.

### 3.3 Data Collection and Sample Description

The data were collected from two sources: by hand (for the part of the data relating to remuneration and tenure) and from commercial datasets in the form of Eikon Datastream, Worldscope and Amaedus (for the part of the data relating to economic and financial indicators and stock markets).

The executive compensation information was hand-collected from the annual remuneration reports of Italian listed firms. Each board member is represented by a row in the remuneration and tenure dataset. For these kinds of data, each company is observed for at least one (or more) year, and there are as many rows for each company as there were board members in that year. The following information is collected for each member: name and surname, month in charge, position, and compensation data. These data will be aggregated into subgroups, and the row data for each subgroup will be aggregated into the mean of the subgroup unit (both for compensation and tenure). Aggregating the data, of course, results in a loss in the informative content of this detailed information, but it is a necessary cost that allows the board to be standardized among the firm sample. The role of the board member distinguishes between the compensation of the CEO, other non-CEO board members, leaders, and directors, above and below the median sub-group. For each sub-group, the remuneration is defined as the monthly average of its members, weighted for the number of months in which they are in charge.

For the purposes of this analysis, total remuneration is defined as the sum of fixed remuneration, fringe benefits, short-term bonuses and long-term incentives, net of severance payments. The choice to include equity instruments (long-term incentives) in the compensation fulfills two requirements: on the one hand, it makes the results more comparable with those of the US; on the other hand, in line with Aust et al. 2021 and Banker et al. 2009, total compensation behaves similarly to cash compensation. The sample selection is based on companies included in all Italian stock market indices: EXM (ex MTA), STAR, EGM, MIV, in the financial years 2011 to 2020. The total number of company years for these indices between 2011 and 2020 is 2,300 (230 per year). In line with Aust et al. 2021, this study excludes from this number of firm years observations foreign companies, firm year observations with incomplete compensation data for subgroup members, companies applying US GAAP (Generally Accepted Accounting Principles), and firm year observations with missing data (missing information on earnings or stock returns). For the quantitatively defined subgroups above and below the median, it is required



that the board consists of at least two members; otherwise, it is misleading to speak about the median, as in this case the median should be equal to the unique observation. Furthermore, in line with previous studies, companies with less than six years of consecutive data availability or that have not been continuously listed are excluded. This is important because the first two stages of the regression model require at least five years of observations per company. As the first versions of the regressions use changes between years  $t$  and  $t-1$ , observations from at least six consecutive years are required<sup>17</sup>. The third regressions (used both in the main analysis and in the robustness tests) use variables such as: the four size variables (total assets, sales, employees, board size), the five profitability variables (ROE, ROA, ROI, EPS, EBITDA), the tenure variables per each board subgroup (CEO, non-CEO members, Leaders, Directors, Above and Belonging median subgroups), and the Gini concentration index. All these variables have been collected for each Italian listed company during the period 2011-2020. Since the first two regressions, which provide the input data for the third one, summarise a CEC and a VEC for each company, this paper, during the multivariate analysis, uses the median of these variables at the company level and compares it with the industry median (taking the value 1 if the company median is greater than the industry median and zero otherwise). The number of observations depends both on the number of subgroups of individual directors and on whether the analysis is based on variation or absolute values. In Italy, not all boards of listed companies have at least one member from each subgroup. For example, if the role of chairman is held by the CEO and there is no vice-chairman, the subgroup leaders have zero members, and the CEO group has one. In addition, the first versions of all regressions (denoted by equation number .1) must include at least six consecutive years. While the second versions of all regressions (identified by the final equation number .2) must include at least five consecutive years, this is done to provide sufficient degrees of freedom. Obviously, the regressions analysing the impact of the change in the valuation and stewardship coefficients have a smaller number of observations than the regressions analysing the relationship in absolute terms, given the greater need for consecutive years.

#### 4. Descriptive Statistics

Table 1 summarises the main sample with the main descriptive statistics.

-----  
 INSERT TABLE 1 ABOUT HERE  
 -----

It shows the variable name, its description, the number of observations, the mean, and the standard deviation for each variable. The final sample for univariate regression consists of 1,738 CEO-year observations from 2011 to 2020, after excluding observations that did not meet the aforementioned criteria. Not all firms have a representative in each sub-group of the board every year. For example, the board of a company may consist only of the CEOs, non-CEOs and directors. In this case, the company year contains accounting and financial market data as well as compensation and tenure data. However, the company would only compare the subgroups CEO, non-CEO, directors, above and below median, but not Leaders. For the other qualitatively defined subgroups, the number of observations varies from 1,619 for non-CEO, 1,309 for Leaders and 1,615 for Directors.

For the quantitatively defined subgroups', the number of observations varies from 1,712 above the median to 1,608 below the median.

---

<sup>17</sup> These are regression analyses that examine the relationship between stewardship and valuation using changes in accounting profits and compensation.

All variables in Table 1 were evaluated twice, first in the absolute (ln) term and then in the change term. Since some data had a negative value (primarily those regarding profitability and compensation), they were made positive by adding a constant of the same magnitude to the entire sample. This was required so that the logarithm calculation could continue without losing observations with negative amounts.

Each board of directors was divided into two subgroups. A\_Med consists of the median of the board members who have a remuneration above the board median. On the other side, B\_Med consists of the median of the board members with remuneration below the median. The remuneration was then divided by the number of weeks the members of each subgroup held office during year  $t$ .

These data are the starting point for running the first two univariate equations (in both versions).

Each variable included in the first two regressions is then aggregated into firm-specific valuation and compensation earnings coefficients. Hence, all variables included in just regressions (3), (4), (5), (6), or (7) include one observation for each firm.

The number of observations depends on the sub-groups of the board analysed; Table 1 shows that not all companies have at least one (or two for above and below median sub-groups) member for each subgroup, in fact the number of observations varies across the sub-groups analysed. Table 1 shows the absolute amounts of CEO compensation in logarithmic form, the average non-CEO, executive, director and above and below median subgroup total compensation, as well as the percentage change in CEO and other subgroup total compensation in logarithmic form.

Unlike previous analyses, this analysis does not take into account the total number of Board members in a given year. Instead, the size of the Board is determined by calculating a weighted average of the number of weeks during the year that the Board member held the position. This allows greater weight to be given to directors who have been in office for a full year than to those who have only been in office for a few weeks and who therefore have less influence on the company's strategies and, most importantly, have put forth their efforts for a shorter period. The number of weeks a director has been on the board influences his or her level of risk aversion and therefore has a significant impact on the company's performance.

The board of directors (including all sub-groups) in this sample consists of at least one and no more than twenty-six members. The typical size of a board is nine members. This confirms the finding of Merendino and Melvilles (1999) that, other things being equal, Italian boards tend to be more numerous; this is another peculiarity of Italian corporate governance that distinguishes it from the United States and other European countries.

EBITDA is included for robustness tests; it replaces EPS as a proxy for reported earnings in the first two regressions. The analysis of the first two regressions provides input for the regressions that examine the relationship between stewardship and the use of accounting information for valuation purposes from a univariate (equations 3.1 and 3.2) and multivariate (equations 4, 5, 6 and 7) perspective. For subsequent regressions, the order of magnitude of the data sample changes. In the first regressions, each enterprise that met the requirements was aggregated into a single VEC and CEC. Consequently, the other variables considered in the multivariate model must also be aggregated on a firm-specific basis. Contrary to previous work, which calculated a dummy variable that took the value of 1 if the value of the company was higher than the sample average and 0 otherwise, this work takes into account the sector in which the company operates. For each sector, the median of the variables related to size, profitability, tenure and the Gini index of concentration were calculated. For each company, the median of all years (at least five) was calculated. The dummy variable takes the value 1 if the median of company  $i$  exceeds the median of the sector to which company  $i$  belongs, otherwise, it takes the value 0.

Table 1 shows that the average tenure of the CEO, Leaders and directors is similar, while the compensations of the CEO and Leaders are significantly higher than the lowest ones of directors. The Gini index also shows that Italian boards have on average an unequal distribution of remuneration (0.662).

Table 2 summarises the descriptive statistics of the dummy variables used in the main univariate and multivariate studies of the association between the two accounting information functions.

-----  
INSERT TABLE 2 ABOUT HERE  
-----

The variables used in the main multivariate analysis are: ROE as a measure of profitability, total assets and board size as proxies for the firm size dimension, and finally tenure as a measure of governance continuity at the subgroup level and Gini index. Tenure varies consistently as a function of the subgroup whose compensation is analysed in Equation 2. For example, if the compensation considered in equation 2.1 is that of the CEO, then the tenure considered in the multivariate analysis will also be that of the CEO. On the other hand, if the compensation in Equation 2.1 refers to the group above the median, then the tenure used in the multivariate analysis will always be that of the group above the median. Again, the number of observations changes depending on the subset of the board of directors analysed. The variables shown in Table 2 are the inputs used to calculate the third regression and thus the univariate and multivariate analyses of the two accounting information functions. The number of observations for the absolute (percentage change) value of EPS ( $\Delta$ EPS) for: CEO, non-CEO, directors, above and below the median is 191 (183), for leaders 170 (157).

## 5. Results

### 5.1 Double usefulness of accounting information

Tables 3.1 and 3.2 show the firm-specific VECs and CECs for all subgroup members resulting from the first two versions of the two regression stages according to equations (1.1, 1.2) and (2.1, 2.2). Table 3 also shows for both versions the ID, the company name, the industry, the total number of years included in the dataset and the sign of the VSC.

-----  
INSERT TABLES 3.1 AND 3.2 ABOUT HERE  
-----

Table 3.1 shows the average regression coefficients for the whole panel. There are 191 firms with data on average CEO remuneration, average non-CEO board members, directors, average members below and above the median, and 170 leaders (last row). The average value of the VEC coefficient is 0.34 (0.26 in the percentage change analysis). When examining the CEC, it should be noted that an appropriate CEC has been calculated for each subgroup of the Board of Directors. The CECs associated with the salaries of the CEO (0.29), the Leaders (0.21) and the members (above the median) are, on average, the highest (0.28). However, the average CECs are lower for the other groups: directors (0.13), non-CEO members (0.16) and members below the median (0.14). This difference between different measures of CEC as a function of the unit of observation is also shown in table 3.2, which presents CEC and VEC calculated using the percentage change rather than the logarithm of the absolute number. This table

contains 183 observations for all members except leaders, who have 157 observations. As shown in table 3.2, higher CEC values are found for the CEO (0.23), Leaders (0.18) and the average of board members with compensation above the median (0.37), while board subgroups with lower CEC values remain: directors (0.01), board members with compensation below the median (0.04) and non-CEO board members (0.07).

Table 4 summarises the sign of the Valuation Stewardship Coefficient (VSC) for the board members.

-----  
 INSERT TABLE 4 ABOUT HERE  
 -----

This table contains the ID, company name, industry, number of years of observations for each company and the sign of the VSC for each subgroup member for both EPS and  $\Delta$ EPS. The difference between VEC, CEC, VSC and  $\Delta$ VEC,  $\Delta$ CEC,  $\Delta$ VSC is that the first variables are expressed in absolute (logarithmic) terms, while the  $\Delta$  variables contain the annual percentage difference. Therefore, the  $\Delta$  variables contain one observation less than the first variable. As they did not meet the criteria of six consecutive years of observations, which would correspond to five years of observations in terms of changes, they were dropped from the panel for the analysis with changes. The empty rows on the right-hand side of Table 4 show enterprises for which five consecutive years of observations were collected. The percentages of the indications of the connection between VECs and CECs for both absolute and percentage change analyses are shown in Table 4.

A first differentiation of the association between these two functions of accounting information according to the unit for which the analysis is carried out results from this preliminary examination of the sign. In particular, Table 4 reveals that the highest proportions of positive signs of association between valuation and stewardship functions of accounting information fall on the CEO (76% of positive associations), Chairman and Vice Chairman (78% of positive associations), and average members above the median (76%). These favorable connections are also supported by analyzing the corresponding percentage changes of 73%, 64%, and 74%. The proportion of favorable correlations drops for the subgroups of the board defined as directors, average non-CEO board members, and average members below the median: 68%, 49%, and 53%, respectively. Similar to the previous instance, the findings are essentially consistent when variance is analyzed: 66% of favorable connections for the mean of non-CEO board members, 47% for directors, and 51% for board members below the median. These first findings already suggest that, in the Italian context as well, the association between the two roles of accounting information is rather solid and thus provides some evidence for the existence of a board-individual sensitivity relationship between the two uses of accounting information.

## 5.2 Valuation and stewardship usefulness, univariate analysis

Table 5 shows the results for the previous hypotheses (for the third stage of the regression) and the summary statistics for the VECs and CECs. The top part of the table shows the estimated logarithms of the absolute values, while the bottom part shows the estimated changes.

-----  
 INSERT TABLE 5 ABOUT HERE  
 -----

Each row corresponds to a study of the relationship between the use of accounting information for valuation purposes (VEC) and a compensation earnings coefficient (CEC) that varies according to the subgroup analysed. Table 5 represents: the CEO, the average non-CEO board member, the average executive, the average director and the average group compensation above and below the median. There are thus six different versions of the CEC, depending on which subgroup of the board is analysed. Both the VSC and  $\Delta$ VSC regression coefficients have a positive sign, but this association is only significant for CEOs, Leaders and average directors with compensation above the median. This positive association is not significant for non-CEOs, below median's, and directors. Absolute and percentage change analysis support these findings.

With the exception of the chairman and vice-chairman, all board sub-groups have the same number of observations (191 and 183 units for the analysis of absolute and percentage changes for non-leaders and 170 and 157 units, respectively for the analysis of absolute and percentage changes for leaders). This distinction is due to the fact that in some companies the CEO and the Chairman of the Board are the same person (CEO duality). For the purposes of this study, priority was given to the position of the CEO; therefore, these observations were recorded as CEO observations and not as member Leader observations. Table 5 supports the previous hypotheses. It shows a significant correlation between the valuation and stewardship functions of accounting for earnings for the total compensation of the CEO, Chairman and Vice Chairman, as well as for members of the CEO with compensation above the median. On the other hand, non-CEOs, board members with compensation below the median, and directors similarly have a positive but statistically insignificant relationship among the two functions. These results confirm that differences within each board sub-group lead to a significant or no association between stewardship and valuation. These differences can be grouped into two board macro-groups: 'top' directors, i.e. CEOs, Leaders and members above the median, and 'non-top' directors, i.e. directors and members below the median. These two macrogroups have a different impact on the association between the two financial reporting functions<sup>18</sup>.

Tables 6.1 and 6.2 provide further testing of the valuation-stewardship association's sensitivity for the compensation of the CEO (H1), other management board members (H2), Leaders (H3), Directors (H4), and board members dichotomized according to compensation above or below the business median (H5 and H6). Multivariate regressions examine whether the relationship is sensitive to firm variables such as firm size, profitability, tenure, and concentration of board compensation. In line with equations 4.1, 4.2, 5.1, 5.2, 6.1, 6.2, 7.1 and 7.2, this analysis introduces an interaction term between the coefficient on compensation income (CEC) and the dummy for firm characteristics. The dummy takes the value of one if the firm characteristics are above the sector median. The firm characteristics are: firm size (all versions of models 1 and 2), firm profitability (all versions of model 3), tenure (all versions of model 4) and wage concentration (all versions of model 7).

-----  
INSERT TABLES 6.1 AND 6.2 ABOUT HERE  
-----

Table 6.1 shows the multivariate analysis using logarithmic forms of the absolute value of the variables, Table 6.2 illustrates the multivariate analysis using percentage differences. Both tables 6 show the results

---

<sup>18</sup> This confirms Aust et al. (2021) and their (more general) distinction of the board into CEO and non-CEO members and how this distinction affects the significance of the relationship studied.

of the multivariate analysis carried out on the main measures of company size, board size, tenure, and Gini index. The interaction term takes on a value of one if the average of the values observed over the years of the company is greater than the industry median, otherwise it takes on a value of zero. Each multivariate analysis is performed six times, one for each board subgroup: CEO, non-CEO, director, leader, below and above the median, respectively.

In line with the univariate results, the multivariate results also show that CEOs, leaders, and members above the median have homogeneous and opposite results, compared to directors and members below the median, thus reinforcing the findings of the univariate analysis.

Also, in the multivariate analysis for the compensation of CEOs, Leaders, and the average of directors with compensation above the median, the pure relationship continues to be significantly positive (with the exceptions of the interaction with tenure and Gini). This confirms the hypotheses H1, H3, and H5 of a positive association between the two functions. From the 'non-top' side, the pure association between the coefficients of valuation and compensation earnings remains non-significant, in line with hypotheses H2, H3 and H4.

Tables 6.1 and 6.2 show a pure positive and significant relationship between the compensation of top board members and all financial variables related to the company: company size (both total assets and board size) and profitability (ROE). The pure relationship is no longer significant in multivariate models using corporate governance variables such as tenure and the Gini index as interaction terms. The pure relationship remains non-significant for non-top board members.

The interaction term with the asset is significant for all "top" members of the board. This means that in larger companies the association between the two accounting functions is more pronounced for 'top' board members. In other words, the larger the company, the more accounting information plays a role in both stewardship and valuation for 'top' directors. On the other side of the board, for "non-top" members, the absence of a significant association between stewardship and valuation is also confirmed in a multivariate analysis for company size. The intensity of this relationship does not depend on company size, in other words, for non-top members the association between the two financial statement functions is not significant for both large and small companies. These results are confirmed both by the analysis in absolute terms (Table 6.1) and in terms of percentage variation (Table 6.2). Summarising the multivariate results for company size, the previous assumptions of a significant association for 'top' board members and a non-significant association for 'non-top' board members can be accepted.

The interaction term with board size is not significant for the whole board except for directors. This means that board size is not relevant in terms of the relationship between compensation and valuation earning coefficients. In other words, for both macro-subgroups, the relationship is not affected by the board size (except for directors). Only for directors with a larger board size the relationship between incentives and the valuation usefulness of reported earnings is more pronounced. The intensity of this relationship for the whole board does not depend on the size of the company's board; in other words, only for directors does the size of the board influence the significance (or not) of the association; in smaller boards, there is no significant association between stewardship and valuation, whereas for larger boards, this association is significant. These results are confirmed by both the absolute analysis (Table 6.1) and the percentage variation analysis (Table 6.2). Summarizing the multivariate results for board size, the previous assumptions of a significant association for 'top' board members and a non-significant association for members below the median can be accepted. However, the hypothesis of no significant relationship for directors must be rejected for the multivariate analysis with the board dimension variable.

The interaction term with the ROE is non-significant for non-top members and for leaders. This means that for CEOs and above-median members, the relationship between the two uses is more pronounced for the most profitable companies. In other words, for companies with higher profitability the

stewardship function of CEO and above-median members' compensation is more strongly associated with the earnings valuation function, whereas for less profitable companies the association between stewardship and function is less pronounced. On the other side of the board, for "non-top" members and leaders, the absence of a significant association between stewardship and valuation is confirmed in a multivariate analysis of company profitability. Thus, the intensity of this relationship does not depend on firm profitability, in other words, for non-top members and leaders the association between the two financial reporting functions is driven by ROE. Both absolute (Table 6.1) and percentage changes (Table 6.2) analysis confirm these findings. and in terms of percentage variation. Summarising the multivariate results for firm profitability, the previous assumptions of a significant association for 'top' board members and a non-significant association for 'non-top' board members can be accepted. The multivariate analysis of company profitability shows results in line with expectations regarding the risk appetite of the various subgroups, confirming the CEO as the most risk-averse board member, as his remuneration is even more closely associated with the valuation function of the companies with the highest profitability in the industry.

The interaction term with tenure is significant for all 'top' board members and non-CEOs. This means that the longer the tenure of a top member, the more accounting profit is used for both the evaluation and the compensation function. On the other side of the board, for "non-top" members, the absence of a significant relationship between stewardship and valuation is also confirmed in a multivariate analysis for board tenure. In other words, the association between stewardship and the valuation function of financial reporting is not important for boards with less experienced non-top members or for boards with more experienced non-top members. These findings are confirmed by both the absolute analysis (Table 6.1) and the percentage variation analysis (Table 6.2). Summarising the multivariate results for tenure, the previous assumptions of a significant association for 'top' board members and a non-significant association for 'non-top' board members can be accepted. In this case, the empirical evidence indicates that Hypothesis 2 must be rejected, as there is a significant interaction term between the tenure of non-CEO directors and the association between stewardship and valuation. This suggests that further disaggregation of boards is useful and important, and that simply distinguishing between CEOs and non-CEOs does not capture the nuances that a more detailed analysis can capture.

The interaction term with board pay inequality is significant for all 'top' board members. This means that in companies with a higher concentration of remuneration, the association between the two accounting functions is more pronounced for 'top' members of the board. In other words, the less homogeneous the board's distribution of pay, the more accounting information plays a role in both stewardship and valuation for 'top' directors. On the other side of the board, for 'non-top' directors, the absence of a significant relationship between stewardship and valuation is also confirmed in a multivariate analysis for the board pay inequality index. The strength of the relationship does not depend on the Gini index, in other words, for non-top members the association between the two financial statement functions is not significant for both more and less concentrated pay. Both tables 6.1 and 6.2 provide consistent support for these findings. Summarising the multivariate results for Gini, the previous assumptions of a significant association for 'top' board members and a non-significant association for 'non-top' board members can be accepted.

The empirical tests support the theories under investigation. Empirical findings show that the clusterization of board sub-units has an impact on the stewardship-valuation relationship. In particular, a cleavage emerges in the relationship between evaluation and stewardship caused by the role (involvement) of the director within the board. Findings show that the board can be divided into two broad subgroups: 'top' members, such as CEOs, chairmen and members with compensation above the board median, and 'non-top' board members, such as directors and directors with compensation below the median. The results obtained using the 'non-CEO' group are not always consistent when examining the relationship between these two functions. This indicates the need for further disaggregation of the board (qualitative or quantitative).

The hypotheses tested for an association (or lack of association) between evaluation and stewardship use for "top" (non-top) group members can be accepted for both groups. The strength of this association is significantly stronger for "top" directors of companies with total assets, ROE and Gini index above the industry median, but the association remains non-significant in both univariate and multivariate contexts for "non-top" directors. This significant univariate association for "top" members is consistent with existing evidence from the US and Germany for CEOs. Multivariate analysis shows that this relationship is sensitive to company variables. In addition, tests of the six hypotheses show that the association between evaluation use and stewardship depends on the board category, which influences the significance and sign of the association. In particular, the subdivision of the board into six categories allows us to extend the examination of the relationship between the value of accounting profits and the scope of stewardship. The data show that there are two main groups of directors: "top" and "non-top". The first group consists of the highest paid board members, such as CEOs, chairmen and deputy chairmen, as well as board members with compensation above the median. In contrast, the 'non-top' group includes non-executive directors and those whose compensation is below the median. The majority of non-CEO board members belong to this second group, but the discrepancy in the results for the 'non-CEO' group indicates the inadequacy of the 'CEO/non-CEO' distinction and thus the need to use other, more detailed criteria. Such criteria can be either qualitative (office held) or quantitative (above or below the group median), as both subgroups have analogous findings on the impact on the valuation-stewardship relationship.

-----  
INSERT TABLE 7 ABOUT HERE  
-----

Findings show the CEO, Leader and directors have different roles and responsibilities, resulting in different levels of risk aversion, which influences the relationship. Wright et al. (2007) suggest that the proportion of fixed pay, bonuses (short-term incentives) and equity instruments (long-term incentives) influences the degree of risk aversion. For example, Core et al. (1999) claim that the greater the proportion of fixed pay in total compensation, the less risk the CEO is willing to take. CEOs and chairmen are figures with a lower risk aversion than other board members; this is supported by the results in Table 7, which show that the share of fixed compensation in total compensation is significantly lower for CEOs and chairmen than for other board members.

## 6. Robustness tests

Tables 8, 9.1, and 9.2 show the robustness tests of the prior hypothesis.

-----  
INSERT TABLE 8 ABOUT HERE  
-----

Table 8 shows the univariate results for the six hypotheses tested using earnings before interest, tax, depreciation and amortisation instead of EPS in equations 1.1, 1.2, 2.1, 2.2, 3.1 and 3.2. In general, the results are consistent with the assumptions and, consequently, with the forecasts made in the univariate tests using EPS rather than EBITDA. Tables 9.1 and 9.2 show the robustness tests using EBITDA in a multivariate setting.



-----  
INSERT TABLE 9.1 AND 9.2 ABOUT HERE  
-----

Table 9.1 presents the results derived from the absolute values of the logarithms of EBITDA and directors' remuneration, as in the primary study, while Table 9.2 examines the percentage changes in accounting profit and directors' remuneration. The robustness tests in both studies confirm the previous hypotheses and are consistent with the primary analysis. As a result, there is a strong correlation between the two uses of accounting information by 'top' members of the board, both in a univariate and multivariate context. Tests using EBITDA show no significant correlation for 'non-top' directors, both univariate and multivariate.

Empirical studies support the contention that board sub-units cluster, resulting in a disparity in the value and stewardship usefulness of accounting information. This connection is far stronger among "top" board members than among "non-top" board members. Table 10 shows the robustness analyses for the multivariate model.

-----  
INSERT TABLE 10 ABOUT HERE  
-----

Total Asset and ROE are used as proxies in the primary analysis to examine the company's size and profitability; however, other indices are frequently used in the literature to measure these two company characteristics. Table 10 shows the results of the estimations based on the logarithms of the absolute values of the fees and accounting profits, calculated using the equations: 4.2, 5.2, whereas Table 10 shows the analysis of the percentage variations calculated using the equations: 4.1, 5.1. Models 1, 2, 3, and 4 (tables 10.1 and 10.2) depict the firm's profitability using metrics other than the ROE, such as Return of Asset, Return on Investments, Earnings per Share, and Earnings Before Interest, Tax, Depreciation, and Amortization. Robustness analyses on alternative profitability metrics support the primary analysis' findings.

Profitability measured with EBITDA and ROA, like profitability measured with ROE, has a positive and statistically significant association, both in terms of the pure relationship and the relationship with interaction in terms of the CEO's compensation. ROI and EPS, on the other hand, only confirm a "pure" positive and significant relationship while having no effect on the degree of the association with interaction. Table 10 provides evidence in favour of these findings.

For the leaders, the absence of a significant relationship between pure company profitability indicators and other company profitability indicators is confirmed.

All other profitability indicators confirm a significant pure association for board members with higher compensation than the company median, but only EBITDA confirms a significant interaction relationship; the other profitability indicators do not support the iterated association's significance for the most profitable firms.

Models 5 and 6 (Tables 10) calculate the size of a business using indicators other than total assets, such as employee count and total revenue.

The results of the primary analysis are confirmed by robustness tests on alternative firm size measures. Tests on employee numbers and sales confirm what was discovered in the study of the relationship between stewardship and valuation mediated by total assets. The only partial exception is leaders, for whom the positive and significant association between the use of accounting information for incentive

and valuation purposes appears to be confirmed only when the pure association is taken into account, whereas the mediated association is not significant when total turnover is taken into account. However, both the pure and mediated associations remain positive and significant when we consider the number of employees for the leaders as another proxy for the size of the company rather than total assets.

When compared to the main analyses, the multivariate tests of the other parameters used to measure company characteristics through other indices confirm the obtained results and the hypotheses subjected to verification.

In conclusion, the robustness tests confirm the hypotheses regarding the significance of the relationship between the two uses of accounting information for the 'top' directors and confirm the association between the two functions for the 'non-top' directors. The robustness tests confirm the hypotheses in both univariate and multivariate models, thus confirming the results of the main analysis.

## 7. Discussion and conclusions

FASB and the IASB recently proposed dropping stewardship as one of the objectives of financial accounting, because the Boards view stewardship and valuation usefulness as compatible sub-objectives ranking under an overall objective of decision usefulness. However, several contributions provide support for the negative association between valuation and stewardship usefulness of accounting information, by highlighting that valuation usefulness and compensation are alternative objectives of financial accounting.

Theoretical studies support the non-association between the stewardship function and the valuation function of accounting information. As a result, academics have pointed out to standard setters the need to place greater emphasis on the stewardship utility as a separate objective of financial reports.

The few empirical studies to date on the relationship between the valuation and stewardship purposes of accounting information have produced conflicting results. Contrary to their original hypotheses, American studies<sup>19</sup> show a significant relationship between the two functions when only CEO compensation is considered. This relationship is also confirmed in the German context<sup>20</sup>, but there is no significant relationship for non-CEO board members.

Motivated by the scarcity of empirical research<sup>21</sup> on the relationship between valuation and stewardship of accounting information, this paper aims to extend that research in a non-North American context. Secondly, the relationship between these two functions depends on the corporate governance model in which this relationship is observed<sup>22</sup>. Third, for the first time in empirical research examining the relationship between stewardship and valuation function, this paper analyses the individual characteristics of board subgroups (compensation, tenure and compensation inequality). Disclosure of the individual sub-groups of the Board provides important information, as not all Board members have the same responsibilities, experience, skills and risk appetite.

The findings of this empirical study provide support for the hypothesis. Empirical results show that the relationship between valuation usefulness and stewardship usefulness depends on the individual board member and their risk aversion. The role of "top" members of Italian analysis in this relationship is comparable to that of North American's and German' CEOs. This finding indicates that the interaction between the two applications of accounting information appears to be comparable in the United States and the European Union. Reasons for this finding may include the more Anglo-American style of

---

<sup>19</sup> Banker et al., 2009; Bushman et al., 2006

<sup>20</sup> Aust et al., 2021.

<sup>21</sup> Murphy et al. (2013) and O'Connell (2007)

<sup>22</sup> Kuhner and Pelger (2015)

governance adopted by European nations in recent decades (Engelen (2015), Mallin et al. (2015), and Allegrini and Greco (2013)), as well as substantial increases (and more variable based on incentives) in top management compensation (Beck, Friedl and Schäfer, 2020, Kotnik and Saking, 2022).

However, the association between the two uses of accounting information is not always significant. Indeed, it is not significant for "non-top" board members. Thus, the empirical evidence shows that the association between the two uses of accounting earnings is only significant for the compensation of "top" members, while it is not significant for the compensation of "non-top" members. The results thus show that this association depends on the individual characteristics of the board members, in particular their role on the board and their risk aversion. These results provide an explanation for why, on the one hand, the theoretical literature holds that there is no association between the two functions of financial reports, and on the other hand, empirical evidence shows that there is a positive association instead. The old literature tested the hypothesis of no relationship between stewardship and valuation except for CEO compensation. By extending the concept of compensation beyond the CEO to several board subgroups, the results show that this relationship may or may not be significant.

Multivariate analyses demonstrate that the positive and significant association between CEOs, Leaders and above-median' compensation and firm characteristics, particularly the interaction with tenure and concentration of board compensation, is not always stable. Tenure reflects an important governance variable<sup>23</sup> it incorporates experience and has implications for corporate strategy, organizational culture, and firm performance. The results indicate that the valuation/stewardship ratio remains positive for firms with longer-tenured "top" members, whereas this is not the case for firms with shorter-tenured "top" members. In other words, the evaluative use of accounting information appears to be more consistent with the accounting incentives offered to management (the use of stewardship) when tenure are longer. Risk aversion plays a crucial role in bargaining incentives: the less risk-averse an individual is, the more he or she will prefer variable pay to fixed pay. Variable pay is more sensitive to changes in accounting profit than fixed pay. Fixed pay may not be directly affected by the economic performance of the company and is usually considered as salary. On the other hand, variable pay is strongly associated to company performance (both market and accounting measures<sup>24</sup>). Tenure and risk-taking are positively related<sup>25</sup>. The empirical results show that "top" members receive the highest percentage of variable incentives compared to "non-top" members and have longer tenure on average. Both results suggest that "top" members are more risk-taking than "non-top" members, who in fact receive a larger fixed component of total compensation and are thus less tied to firm performance. Multivariate tests of tenure further underline the role of individuals with longer tenures, who are less risk averse and receive a higher variable component. In this case accounting earnings serves both simultaneously a stewardship and a valuation function. Conversely, companies with directors with shorter tenures are more risk-averse and therefore prefer a higher fixed component, in which case accounting profits may alternatively perform either a stewardship or a valuation function, but not both at the same time.

The results of the multivariate analysis using the Gini index confirm the theoretical role of risk propensity in the positive association between valuation and stewardship function. Compensation depends on the bargaining power of individual managers and companies<sup>26</sup>. If a company has a high ratio of compensation concentration, it means that power is unequally distributed within the board, and therefore there will be a single (or a few) manager(s) with high bargaining power. This can be seen as an indicator of the risk of the company, which gives a lot of power to the single manager. Therefore, boards with a more unequal distribution of power and compensation are those with a higher propensity to take risks, and again, as with tenure, a higher propensity to take risks leads to a stronger association between the two functions

---

<sup>23</sup> Livnat et al. (2021), Chen et al. (2014)

<sup>24</sup> In Italy usually variable compensation (short term bonus and long term equity incentives) are anchored to market index and to accounting performance measure such as EBITDA.

<sup>25</sup> Chen et al. (2014)

<sup>26</sup> Kale et al. (2014)

of accounting information. This finding necessitates additional cross-national research to determine how and to what extent tenure and concentration of compensations influence the relationship between the valuation and administrative uses of accounting information.

In other words, both the univariate and the multivariate analyses have shown that the individual characteristics of the board play a decisive role in determining whether the relationship between the valuation function and the stewardship function of the financial statements is significant. The needle hangs on significant associations when the "top" members are considered and on non-significant when the "non-top" members are considered. This is because the more risk-averse individuals require variable compensation that is too expensive to take on more risk, which is consistent with agency theory<sup>27</sup>.

Previous empirical studies use an agency model based on a single agent. This assumption may be too restrictive in a context such as the Italian one, characterized by boards that are on average larger than in other corporate governance models. This article analyses each individual on the board by grouping them into sub-categories based on the role held or the distinction between members above and below the median. Therefore, the definition of 'agent' in this model is extended to the board as a whole and subdivided by taking into account the individual characteristics of each member.

These findings provide an empirical commentary on the recent debate on the IASB's 2018 conceptual framework. Academics, researchers and industry experts have called on the IASB to place more emphasis on the usefulness of financial reporting in stewardship decisions (IASB, 2018, BC1.35). However, in the absence of supporting empirical evidence, the IASB rejected this proposal, stating: "stewardship is not an end in itself; it is a necessary input to resource allocation judgments" (IASB, 2018, BC1.35(a)).

The empirical findings of this analysis show that the stewardship function is not covered by the broader definition of "decision usefulness". Accounting information is useful for both stewardship decisions and valuation decisions only if the remuneration of the company's top management is taken into account. These members usually have a higher proportion of variable remuneration, which means that the valuation and stewardship functions can be two positively associated uses of accounting information. However, this is not the case for 'non-top' directors, for whom the two functions are not associated, as they have a higher proportion of fixed remuneration in their total remuneration. More empirical evidence on how accounting information is actually used and how different uses relate to one another could assist standard-setters in improving the empirical basis for future debates. Developing additional methods to empirically evaluate this relationship, in the spirit of and beyond Gaseen (2008), could be a fruitful endeavour for future accounting research. These approaches could also attempt to capture the relationship between valuation and broader notions of stewardship than those provided in this paper and are limited by the focus on board compensation as the only one proxy of incentive usefulness of accounting earnings. This may cause the IASB to reconsider its current normative stance in the future with more critical eyes.

---

<sup>27</sup> Kaplan and Sorensen (2017); Kuhner and Pelger (2015); Graham et al. (2013); and Chen et al. (2014).

## References:

- Aguilera, R. V., & Jackson, G. (2003). The cross-national diversity of corporate governance: Dimensions and determinants. *Academy of management Review*, 28(3), 447-465.
- Aktas, N., Andries, K., Croci, E., & Ozdakak, A. (2019). Stock market development and the financing role of IPOs in acquisitions. *Journal of Banking & Finance*, 100, 252-273. <https://doi.org/10.1016/j.jbankfin.2018.12.011>
- Allegrini, M., & Greco, G. (2013). Corporate boards, audit committees and voluntary disclosure: Evidence from Italian listed companies. *Journal of Management & Governance*, 17, 187-216. doi: 10.1007/s10997-011-9189-9
- Allen, F., & Gale, D. (2000). Comparing financial systems. MIT press., 78-83.
- Almagtome, A., & Abbas, Z. (2020). Value relevance of financial performance measures: An empirical study. *International Journal of Psychological Research and Studies*.
- Anderson, S. B., Brown, J. L., Hodder, L., & Trinkle, B. S. (2015). The effect of alternative accounting measurement bases on investors' assessments of managers' stewardship. *Accounting, Organizations and Society*, 40, 41-55. <https://doi.org/10.1016/j.aos.2014.12.001>.
- Aust, V., Pelger, C., & Drefahl, C. (2021). Exploring the relationship between valuation and stewardship uses of accounting information: Empirical evidence from German listed firms. *Journal of International Accounting, Auditing and Taxation*, 42, 100404. <https://doi.org/10.1016/j.intaccudtax.2020.100404>.
- Ball, R., Kothari, S. P., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics*, 29(1), 1-51. [https://doi.org/10.1016/S0165-4101\(00\)00012-4](https://doi.org/10.1016/S0165-4101(00)00012-4).
- Banker, R. D., Huang, R., & Natarajan, R. (2009). Incentive contracting and value relevance of earnings and cash flows. *Journal of Accounting Research*, 47(3), 647-678. <https://doi.org/10.1111/j.1475-679X.2009.00335.x>
- Banker, R. D., Huang, R., & Natarajan, R. (2009). Incentive contracting and value relevance of earnings and cash flows. *Journal of Accounting Research*, 47(3), 647-678. <https://doi.org/10.1111/j.1475-679X.2009.00335.x>.
- Barlev, B., & Haddad, J. R. (2003). Fair value accounting and the management of the firm. *Critical Perspectives on Accounting*, 14(4), 383-415
- Barontini, R., & Bozzi, S. (2011). Board compensation and ownership structure: Empirical evidence for Italian listed companies. *Journal of Management & Governance*, 15(2), 235-256. <https://doi.org/10.1007/s10997-010-9136-8>.
- Barth, M. E., Beaver, W. H., & Landsman, W. R. (2001). The relevance of the value relevance literature for financial accounting standard setting: Another view. *Journal of Accounting and Economics*, 31(1-3), 77-104. [https://doi.org/10.1016/S0165-4101\(01\)00028-6](https://doi.org/10.1016/S0165-4101(01)00028-6)
- Beck, D., Friedl, G., & Schäfer, P. (2020). Executive compensation in Germany. *Journal of Business Economics*, 90, 787-824. <https://doi.org/10.1007/s11573-020-00978-y>.
- Bhattacharyya, N., Elston, J. A., & Sbarsi, M. (2014). Executive compensation and agency costs in a family controlled corporate governance structure: The case of Italy. *International Journal of Accounting, Auditing and Performance Evaluation*, 10(2), 150-178. <https://doi.org/10.1504/IJAAPE.2014.060437>.
- Blanes, F., de Fuentes, C., & Porcuna, R. (2020). Executive remuneration determinants: New evidence from meta-analysis. *Economic research-Ekonomska istraživanja*, 33(1), 2844-2866.
- Brigham, E. F., & Houston, J. F. (2019). *Fundamentals of financial management*. Cengage Learning.
- Brown, L. D., & Caylor, M. L. (2004). Corporate Governance and Firm Performance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.586423>
- Brunello, G., Graziano, C., & Parigi, B. (2001). Executive compensation and firm performance in Italy. *International Journal of Industrial Organization*, 19(1-2), 133-161. [https://doi.org/10.1016/S0167-7187\(00\)00097-2](https://doi.org/10.1016/S0167-7187(00)00097-2).
- Bushman, R. M., & Smith, A. J. (2001). Financial accounting information and corporate governance. *Journal of Accounting and Economics*, 32(1-3), 237-333. [https://doi.org/10.1016/S0165-4101\(01\)00027-1](https://doi.org/10.1016/S0165-4101(01)00027-1)
- Bushman, R. M., Engel, E., & Smith, A. J. (2006). An analysis of the relation between the stewardship and valuation roles of earnings. *Journal of Accounting Research*, 44(1), 53-83. <https://doi.org/10.1111/j.1475-679X.2006.00192.x>
- Bushman, R. M., Engel, E., & Smith, A. J. (2006). An analysis of the relation between the stewardship and valuation roles of earnings. *Journal of Accounting Research*, 44(1), 53-83. <https://doi.org/10.1111/j.1475-679X.2006.00192.x>.
- Caglio, A., Dossi, A., & Van der Stede, W. A. (2018). CFO role and CFO compensation: An empirical analysis of their implications. *Journal of Accounting and Public Policy*, 37(4), 265-281. <https://doi.org/10.1016/j.jaccpubpol.2018.07.002>.
- Cascino, S., Clatworthy, M., García Osma, B., & Gassen, J. (2014). Who uses financial reports and for what purpose? Evidence from capital providers. *Accounting in Europe*, 11(2), 185-209. <https://doi.org/10.1080/17449480.2014.910871>.
- Chen, Dong and Zheng, Yudan, CEO Tenure and Risk-Taking (August 10, 2014). *Global Business and Finance Review*, 2014, vol. 19, issue 1, p1-27, Available at SSRN: <https://ssrn.com/abstract=2038064> or <http://dx.doi.org/10.2139/ssrn.2038064>
- Chongyu Dang, Zhichuan (Frank) Li, Chen Yang (2018). Measuring firm size in empirical corporate finance. *Journal of Banking & Finance* Volume 86, January 2018, Pages 159-176
- Collins, D. W., Maydew, E. L., & Weiss, I. S. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics*, 24(1), 39-67. doi: 10.1016/S0165-4101(97)00015-3.

- Core, J. E., Guay, W. R., & Verrecchia, R. E. (2003). Price versus non-price performance measures in optimal CEO compensation contracts. *The Accounting Review*, 78(4), 957–981 <https://www.jstor.org/stable/3203286>.
- Core, J., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of economic literature*, 37(3), 975-1008.
- Devalle, A., Onali, E., & Magarini, R. (2010). Assessing the value relevance of accounting data after the introduction of IFRS in Europe. *Journal of International Financial Management & Accounting*, 21(1), 85-119. <https://doi.org/10.1111/j.1467-646X.2009.01060.x>
- Dusan, A., Gurcharan, S., & Halari, A. (2021). Fair value accounting: Perspective on stewardship function. *Journal of Accounting and Finance*, 21(3), 142-153.
- Engelen, C. (2015). The effects of managerial discretion on moral hazard related behaviour: German evidence on agency costs. *Journal of Management & Governance*, 19, 927–960. <https://doi.org/10.1007/s10997-014-9298-5>.
- Enriques, L., & Volpin, P. (2007). Corporate governance reforms in continental Europe. *Journal of economic perspectives*, 21(1), 117-140.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301-325.
- Fauver, L., & Fuerst, M. E. (2006). Does good corporate governance include employee representation? Evidence from German corporate boards. *Journal of Financial Economics*, 82(3), 673-710. <https://doi.org/10.1016/j.jfineco.2005.09.004>.
- Fear, J., & Kobrak, C. (2021). Making Capitalism Respectable. In *Remembering and Learning from Financial Crises* (pp. 253-269). Palgrave Macmillan. [https://doi.org/10.1007/978-3-030-59733-6\\_16](https://doi.org/10.1007/978-3-030-59733-6_16).
- Friedman, H. L. (2016). Implications of a multi-purpose reporting system on CEO and CFO incentives and risk preferences. *Journal of Management Accounting Research*, 28(3), 101–132. <https://doi.org/10.2308/jmar-51497>
- Frydman, C., & Jenter, D. (2011). CEO compensation. *Annual Review of Financial Economics*, 2, 75-102. <https://doi.org/10.1146/annurev-financial-120209-133958>
- García-Sánchez, I. M., Rodríguez-Ariza, L., & Frías-Aceituno, J. V. (2013). The cultural system and integrated reporting. *International business review*, 22(5), 828-838.
- Gassen, J. (2008). Are stewardship and valuation usefulness compatible or alternative objectives of financial accounting? Available at SSRN 1095215. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1095215](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1095215)
- Gassen, J., & Sellhorn, T. (2006). Applying IFRS in Germany: Determinants and consequences. In *IFRS in a Global World: International and Critical Perspectives on Accounting* (pp.181-200). Emerald Group Publishing Limited. [https://doi.org/10.1016/S1571-0386\(06\)10011-7](https://doi.org/10.1016/S1571-0386(06)10011-7)
- Georgiou, O. (2018). The worth of fair value accounting: Dissonance between users and standard setters. *Contemporary Accounting Research*, 35(2), 668-690. <https://doi.org/10.1111/1911-3846.12330>.
- Gitman, L. J., & Joehnk, M. D. (2019). *Fundamentals of investing*. Pearson.
- Gjesdal, F. (1981). Accounting for stewardship. *Journal of Accounting Research*, 19(2), 371-387. <https://doi.org/10.2307/2490632>
- Graham, J. R., Harvey, C. R., & Puri, M. (2013). Managerial attitudes and corporate actions. *Journal of Financial Economics*, 109(1), 103–121. <https://doi.org/10.1016/j.jfineco.2013.01.010>.
- Hashmi, S.D., Gulzar, S., Ghafoor, Z. et al. Sensitivity of firm size measures to practices of corporate finance: evidence from BRICS. *Futur Bus J* 6, 9 (2020).
- Heinle, M. S., & Hofmann, C. (2011). Soft information and the stewardship value of accounting disclosure. *OR Spectrum*, 33(2), 333-358. <https://doi.org/10.1007/s00291-010-0215-2>
- Hillman, A. J., Cannella Jr, A. A., & Paetzold, R. L. (2000). The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change. *Journal of Management*, 26(2), 249-275.
- Hitt, M. A., Ireland, R. D., & Hoskisson, R. E. (2013). *Strategic management: Concepts and cases: competitiveness and globalization*. Cengage Learning.
- Holthausen, R. W., & Watts, R. L. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics*, 31(1-3), 3-75. [https://doi.org/10.1016/S0165-4101\(01\)00027-4](https://doi.org/10.1016/S0165-4101(01)00027-4)
- HOPT, K. J., & LEYENS, P. C. (2005). WYMEERSCH, Eddy, KANDA, Hideki, e BAUM, Harald (coord.). *Corporate Governance in Context—Corporations, States, and Markets In Europe, Japan, and the US*. International Accounting Standards Board (IASB). (2018). *Conceptual Framework for Financial Reporting*.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Kale, J. R., Reis, E., & Venkateswaran, A. (2014). Pay inequalities and managerial turnover. *Journal of Empirical Finance*, 27, 21-39. doi: 10.1016/j.jempfin.2013.11.002.
- Kaplan, S. N., & Sorensen, M. (2017). Are CEOs different? Characteristics of top managers. National Bureau of Economic Research, working paper No. 23832. <https://www.nber.org/papers/w23832>.
- Kim, S. K. (1995). Efficiency of an information system in an agency model. *Econometrica: Journal of the Econometric Society*, 63(1), 1-34. <https://doi.org/10.2307/2171731>.

- Kini, O., & Williams, R. (2012). Tournament incentives, firm risk, and corporate policies. *Journal of Financial Economics*, 103(2), 350-376. <https://doi.org/10.1016/j.jfineco.2011.09.005>
- Kothari, S. P. (2001). Capital markets research in accounting. *Journal of Accounting and Economics*, 31(1-3), 105-231. [https://doi.org/10.1016/S0165-4101\(01\)00029-8](https://doi.org/10.1016/S0165-4101(01)00029-8)
- Kotnik, P., & Sakiç, M. E. (2022). Executive compensation in Europe: realized gains from stock-based pay. *Journal of Business Research*, 142, 364-376. doi: 10.1080/09692290.2022.2078397
- Kraus, P., & Britzelmaier, B. (2011). Corporate governance and corporate performance: A German perspective. *International Journal of Management Cases*, 13(3), 54-64.
- Kuhner, C., & Pelger, C. (2015). On the relationship of stewardship and valuation-An analytical viewpoint. *Abacus*, 51(3), 379-411. <https://doi.org/10.1111/abac.12053>.
- La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert Vishny. 1998. Law and finance. *Journal of Political Economy* 101:678-709.
- La Porta, Rafael, Florencio López-de-Silanes, Andrei Shleifer, and Robert Vishny. 2002. Investor protection and corporate valuation. *Journal of Finance* 57: 1147-70
- Lambert, R.A. (2001). Contracting theory and accounting. *Journal of Accounting and Economics*, 32(1-3), 3-87. [https://doi.org/10.1016/S0165-4101\(01\)00037-4](https://doi.org/10.1016/S0165-4101(01)00037-4)
- Lambert, R.A., & Larcker, D.F. (1987). An analysis of the use of accounting and market measures of performance in executive compensation contracts. *Journal of Accounting Research*, 25(1), 85-125. <https://doi.org/10.2307/2490746>
- Letza, S., Sun, X., & Kirkbride, J. (2004). Shareholding versus stakeholding: A critical review of corporate governance. *Corporate Governance: An International Review*, 12(3), 242-262.
- Livnat, J., Smith, G., Suslava, K., & Tarlie, M. (2021). Board tenure and firm performance. *Global Finance Journal*, 47, 100535. doi: 10.1016/j.gfj.2020.100535.
- Mallin, C., Melis, A., & Gaia, S. (2015). The remuneration of independent directors in the UK and Italy: An empirical analysis based on agency theory. *International Business Review*, 24(1), 85-95. doi: 10.1016/j.ibusrev.2014.07.006
- Mehran, Hamid. "Executive compensation structure, ownership, and firm performance." *Journal of Financial Economics* 38, no. 2 (1995): 163-184. [https://doi.org/10.1016/0304-405X\(94\)00809-F](https://doi.org/10.1016/0304-405X(94)00809-F).
- Meles, A., Salerno, D., Sampagnaro, G., & Fu, M. (2021). The going-public decision and firm risk. *Journal of Financial Stability*. Advance online publication. <https://doi.org/10.1016/j.jfs.2021.100914>
- Melis, A., & Carta, S. (2010). Does accounting regulation enhance corporate governance? Evidence from the disclosure of share-based remuneration. *Journal of Management & Governance*, 14(2), 187-206. <https://doi.org/10.1007/s10997-008-9073-7>.
- Merendino, A., & Melville, R. (2019). The board of directors and firm performance: empirical evidence from listed companies. *Corporate Governance: The International Journal of Business in Society*, 19, 508-551. <https://doi.org/10.1108/CG-06-2018-0211>
- Mitrović, A. (2016). Financial Statements Analysis: A Study of General Motors. *Journal of Applied Engineering Science*, 14(3), 359-366.
- Murphy, T., O'Connell, V., & Óhógartaigh, C. (2013). Discourses surrounding the evolution of the IASB/FASB conceptual framework: What they reveal about the 'living law' of accounting. *Accounting, Organizations and Society*, 38(1), 72-91. <https://doi.org/10.1016/j.aos.2012.07.003>.
- Murray, A., & O'Neal, D. (2007). CEO and director compensation: A survey of recent research. *Journal of Corporate Finance*, 13(2-3), 193-209.
- O'Connell, V. (2007). Reflections on stewardship reporting. *Accounting Horizons*, 21(2), 215-227. <https://doi.org/10.2308/acch.2007.21.2.215>
- Ozkan, N., Singer, Z., & You, H. (2012). Mandatory IFRS adoption and the contractual usefulness of accounting information in executive compensation. *Journal of Accounting Research*, 50(4), 1077-1107. <https://doi.org/10.1111/j.1475-679X.2012.00453.x>.
- Ozkan, N., Singer, Z.V., & You, H. (2012). Mandatory IFRS adoption and the contractual usefulness of accounting information in executive compensation. *Journal of Accounting Research*, 50(4), 1077-1107. <https://doi.org/10.1111/j.1475-679X.2012.00450.x>
- Paul, J. M. (1992). On the efficiency of stock-based compensation. *Review of Financial Studies*, 5(3), 471-502. <https://doi.org/10.2307/2962135>.
- Pelger, C. (2020). The return of stewardship, reliability and prudence—a commentary on the IASB's new conceptual framework. *Accounting in Europe*, 17(3), 307-318. <https://doi.org/10.1080/17449480.2020.1805748>.
- Provasi, R., & Riva, P. (2015). The updated COSO report 2013. *Journal of Modern Accounting and Auditing*, 11(4), 262-269. Retrieved from [https://www.researchgate.net/profile/Paola\\_Riva/publication/284365917\\_The\\_Updated\\_COSO\\_Report\\_2013/links/56657feb08ae1f3417d00ebf/The-Updated-COSO-Report-2013.pdf](https://www.researchgate.net/profile/Paola_Riva/publication/284365917_The_Updated_COSO_Report_2013/links/56657feb08ae1f3417d00ebf/The-Updated-COSO-Report-2013.pdf).

- Salvioni, D. M. (2008). Market-driven management and corporate governance. *SYMPHONYA Emerging Issues in Management*, (2).
- Satirenjit Kaur Johl, Shireenjit Kaur, and Barry J. Cooper (2015). Board Characteristics and Firm Performance: Evidence from Malaysian Public Listed Firms. *Journal of Economics, Business and Management*, Vol. 3, No. 2, February 2015
- Voulgaris, G., Stathopoulos, K., & Walker, M. (2014). IFRS and the use of accounting-based performance measures in executive pay. *The International Journal of Accounting*, 49(4), 455-478. <https://doi.org/10.1016/j.intacc.2014.09.006>
- Walker, M. (2010). Accounting for varieties of capitalism: The case against a single set of global accounting standards. *The British Accounting Review*, 42(3), 151-163. <https://doi.org/10.1016/j.bar.2010.03.004>
- Weimer, J., & Pape, J. (1999). A taxonomy of systems of corporate governance. *Corporate governance: An international review*, 7(2), 152-166.
- Whittington, G. (2008). Harmonisation or discord? The critical role of the IASB conceptual framework review. *Journal of Accounting and Public Policy*, 27(6), 495-502. <https://doi.org/10.1016/j.jaccpubpol.2008.08.005>.
- Wright, P., Kroll, M., Krug, J. A., & Pettus, M. (2007). Influences of top management team incentives on firm risk taking. *Strategic Management Journal*, 28(1), 81-89. doi: 10.1002/smj.548



## Appendix A

Table 1 – List of variables and summary statistics of first two regressions and preliminary input data for association’s study.

| Variable                | Description  | N.   | Mean   | Std. Dev. |
|-------------------------|--|------|--------|-----------|
| EPS                     | ln of Earing per share   | 1738 | 9,210  | 0,004     |
| $\Delta$ EPS            | % change in Earning per share  | 1738 | -0,004 | 0,019     |
| EBITDA                  | ln of EBITDA   | 1738 | 10,371 | 1,694     |
| $\Delta$ EBITDA         | % change in EBITDA   | 1738 | 0,024  | 0,067     |
| RET                     | ln of 12-months stock returns  | 1738 | 9,229  | 0,033     |
| $\Delta$ RET            | % change in RET  | 1738 | 9,223  | 1,891     |
| Comp_CEO                | ln of tot. monthly CEO’s compensation  | 1738 | 13,914 | 2,032     |
| $\Delta$ Comp_CEO       | % change in Comp_CEO   | 1503 | 0,024  | 0,011     |
| Comp_nonCEO             | ln of tot. monthly non-CEO’s compensation  | 1619 | 13,827 | 0,0898    |
| $\Delta$ Comp_nonCEO    | % change in Comp_nonCEO  | 1405 | -0,001 | 0,072     |
| Comp_Leaders            | ln of tot. monthly Leader’s compensation   | 1309 | 13,852 | 0,075     |
| $\Delta$ Comp_Leaders   | % change in Comp_Leaders   | 1154 | -0,001 | 0,029     |
| Comp_Directors          | ln of tot. monthly Directors’ compensation   | 1615 | 13,821 | 0,010     |
| $\Delta$ Comp_Directors | % change in Comp_Directors   | 1395 | -0,007 | 0,027     |
| Comp_A_Med              | ln of tot. month. above med.’s group comp.   | 1712 | 13,921 | 0,162     |
| $\Delta$ Comp_A_Med     | % change in Comp_A_Med   | 1477 | -0,006 | 0,029     |
| Comp_B_Med              | ln of tot. month. below med.’s group comp.   | 1608 | 13,825 | 0,027     |
| $\Delta$ Comp_B_Med     | % change in Comp_B_Med   | 1393 | -0,007 | 0,027     |
| Total Asset             | ln of total asset  | 1738 | 13,560 | 2,260     |
| Sales                   | ln of total sales  | 1738 | 14,436 | 0,909     |
| Employees               | ln of number of employees  | 1738 | 6,558  | 2,275     |
| BS                      | Number of board’s member weighted by the number of weeks in office during year $t$ | 1738 | 9,543  | 3,158     |
| ROE                     | Return on equity   | 1738 | 9,210  | 0,738     |
| ROA                     | Return of asset  | 1738 | 9,212  | 0,019     |
| ROI                     | Return on investment   | 1738 | 9,112  | 0,021     |
| Tenure_CEO              | ln of consecutive weeks in charge for CEO  | 1738 | 13,819 | 0,021     |
| Tenure_non-CEO          | ln of consecutive weeks in charge for non-CEO                                      | 1619 | 13,816 | 0,12      |
| Tenure_Leaders          | ln of consecutive weeks in charge for leaders                                      | 1309 | 13,817 | 0,321     |
| Tenure_Directors        | ln of consecutive weeks in charge for directors                                    | 1615 | 13,815 | 0,108     |
| Tenure_A_Med            | ln of consecutive weeks in charge for above median group                           | 1712 | 13,817 | 0,23      |

| Variable     | Description  | N.   | Mean   | Std. Dev. |
|--------------|--|------|--------|-----------|
| Tenure_B_Med | ln of consecutive weeks in charge for below median group       | 1608 | 13,816 | 0,119     |
| Gini         | Gini's concentration index of the board's monthly compensation | 1738 | 0,662  | 0,146     |

*Notes:* the percentage change is the difference between year t and t – 1 divided by the value in t – 1

Table 2 – List of variables and summary statistics of multivariate analysis.

|                 |         | Insuran | Auto.  | Banks  | Goods  | Chemic. | Trade  | Cons.<br>prod.<br>services | Constr<br>& Buid. | Food   | Energy | Raw<br>Mat. | Media  | Industr<br>Prod.<br>Servic. | Health | Finance | Public<br>Serv. | Tech.  | Telecom | Travel |       |
|-----------------|---------|---------|--------|--------|--------|---------|--------|----------------------------|-------------------|--------|--------|-------------|--------|-----------------------------|--------|---------|-----------------|--------|---------|--------|-------|
| Total Asset     | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 18.201  | 13.437 | 17.192 | 13.145 | 13.071  | 11.045 | 12.841                     | 14.187            | 12.898 | 16.290 | 11.875      | 12.475 | 12.834                      | 12.539 | 13.857  | 15.660          | 11.707 | 12.630  | 12.997 |       |
|                 | N D=1   | 2       | 4      | 7      | 5      | 1       | 2      | 9                          | 5                 | 4      | 3      | 2           | 5      | 17                          | 4      | 9       | 7               | 7      | 3       | 2      |       |
|                 | Me. D=1 | 17.493  | 12.692 | 15.352 | 11.551 | 12.143  | 10.277 | 11.549                     | 12.560            | 11.402 | 13.262 | 11.723      | 11.592 | 12.040                      | 11.440 | 12.078  | 13.192          | 10.886 | 11.645  | 12.152 |       |
|                 | Me. D=0 | 19.149  | 14.170 | 18.562 | 14.081 | 13.460  | 12.767 | 13.935                     | 15.012            | 13.704 | 17.432 | 12.662      | 13.832 | 14.394                      | 13.452 | 16.477  | 16.377          | 12.728 | 14.816  | 13.816 |       |
| ROE             | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 9.210   | 9.210  | 9.210  | 9.210  | 9.210   | 9.210  | 9.210                      | 9.210             | 9.210  | 9.210  | 9.210       | 9.210  | 9.210                       | 9.210  | 9.210   | 9.210           | 9.210  | 9.210   | 9.210  | 9.210 |
|                 | N D=1   | 2       | 2      | 9      | 5      | 1       | 2      | 9                          | 3                 | 4      | 4      | 1           | 5      | 12                          | 2      | 7       | 6               | 5      | 3       | 1      |       |
|                 | Me. D=1 | 11.053  | 10.132 | 11.513 | 11.512 | 11.514  | 11.513 | 11.513                     | 11.514            | 10.592 | 11.145 | 12.434      | 11.514 | 12.435                      | 12.436 | 11.514  | 10.593          | 13.356 | 11.513  | 13.356 |       |
|                 | Me. D=0 | 7.369   | 8.290  | 7.184  | 8.749  | 7.829   | 6.908  | 6.908                      | 6.448             | 6.908  | 6.908  | 6.908       | 6.908  | 6.448                       | 7.830  | 7.829   | 8.751           | 6.908  | 9.073   | 7.829  |       |
| CEO_tenure      | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 36      | 36     | 24     | 41     | 36      | 24     | 36                         | 43                | 37     | 60     | 36          | 44     | 36                          | 42     | 36      | 31              | 36     | 30      | 36     |       |
|                 | N D=1   | 2       | 2      | 6      | 3      | 1       | 2      | 7                          | 4                 | 3      | 2      | 1           | 4      | 10                          | 4      | 7       | 6               | 6      | 4       | 2      |       |
|                 | Me. D=1 | 50      | 40     | 30     | 55     | 52      | 30     | 56                         | 53                | 42     | 81     | 59          | 55     | 49                          | 57     | 45      | 48              | 52     | 43      | 52     |       |
|                 | Me. D=0 | 29      | 32     | 19     | 35     | 16      | 16     | 16                         | 30                | 24     | 21     | 9           | 24     | 25                          | 21     | 31      | 14              | 16     | 19      | 16     |       |
| no_CEO_ten      | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 38      | 36     | 28     | 32     | 28      | 16     | 38                         | 35                | 30     | 47     | 41          | 34     | 36                          | 37     | 26      | 33              | 30     | 22      | 27     |       |
|                 | N D=1   | 2       | 2      | 6      | 4      | 1       | 1      | 8                          | 4                 | 4      | 2      | 1           | 4      | 12                          | 2      | 6       | 6               | 6      | 3       | 2      |       |
|                 | Me. D=1 | 53      | 40     | 35     | 43     | 40      | 20     | 59                         | 44                | 34     | 63     | 67          | 43     | 49                          | 50     | 33      | 51              | 44     | 32      | 39     |       |
|                 | Me. D=0 | 30      | 32     | 22     | 27     | 12      | 10     | 17                         | 25                | 19     | 16     | 10          | 19     | 25                          | 19     | 22      | 15              | 14     | 14      | 12     |       |
| Leader_Tenure   | N       | 5       | 6      | 14     | 9      | 2       | 4      | 15                         | 8                 | 9      | 5      | 2           | 9      | 30                          | 6      | 12      | 11              | 11     | 6       | 4      |       |
|                 | Med.    | 62      | 58     | 57     | 49     | 57      | 23     | 65                         | 54                | 32     | 65     | 62          | 57     | 67                          | 49     | 49      | 42              | 57     | 32      | 32     |       |
|                 | N D=1   | 2       | 2      | 6      | 4      | 1       | 1      | 7                          | 2                 | 3      | 2      | 1           | 4      | 12                          | 2      | 4       | 4               | 3      | 2       | 2      |       |
|                 | Me. D=1 | 87      | 64     | 72     | 66     | 82      | 29     | 100                        | 68                | 37     | 87     | 102         | 71     | 90                          | 66     | 61      | 65              | 82     | 47      | 47     |       |
|                 | Me. D=0 | 50      | 52     | 45     | 41     | 26      | 15     | 29                         | 38                | 21     | 23     | 16          | 31     | 47                          | 24     | 41      | 19              | 26     | 21      | 15     |       |
| Director_Tenure | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 46      | 43     | 43     | 36     | 42      | 17     | 48                         | 40                | 24     | 48     | 46          | 42     | 50                          | 36     | 36      | 31              | 42     | 24      | 24     |       |
|                 | N D=1   | 1       | 2      | 4      | 3      | 1       | 1      | 6                          | 3                 | 3      | 2      | 1           | 3      | 9                           | 2      | 4       | 5               | 6      | 2       | 1      |       |
|                 | Me. D=1 | 64      | 47     | 53     | 49     | 61      | 21     | 74                         | 50                | 28     | 65     | 76          | 53     | 67                          | 49     | 45      | 48              | 61     | 35      | 35     |       |
|                 | Me. D=0 | 37      | 39     | 33     | 31     | 19      | 11     | 22                         | 28                | 16     | 17     | 12          | 23     | 35                          | 18     | 31      | 14              | 19     | 16      | 11     |       |
| ^_Me_Tenure     | N       | 5       | 6      | 15     | 9      | 2       | 4      | 21                         | 9                 | 9      | 6      | 3           | 10     | 31                          | 6      | 15      | 15              | 14     | 7       | 4      |       |
|                 | Med.    | 36      | 45     | 24     | 41     | 36      | 19     | 48                         | 43                | 36     | 60     | 40          | 44     | 48                          | 39     | 28      | 32              | 36     | 33      | 36     |       |
|                 | N D=1   | 2       | 3      | 7      | 4      | 1       | 2      | 9                          | 4                 | 4      | 3      | 1           | 4      | 14                          | 3      | 7       | 7               | 6      | 3       | 2      |       |
|                 | Me. D=1 | 50      | 49     | 30     | 55     | 52      | 24     | 74                         | 53                | 41     | 81     | 66          | 54     | 65                          | 53     | 35      | 49              | 52     | 48      | 52     |       |
|                 | Me. D=0 | 29      | 40     | 19     | 35     | 16      | 12     | 22                         | 30                | 23     | 21     | 10          | 24     | 34                          | 20     | 24      | 14              | 16     | 21      | 16     |       |

|             |         | Insuran | Auto. | Banks | Goods | Chemic. | Trade | Cons.<br>prod.<br>services | Constr<br>& Buid. | Food  | Energy | Raw<br>Mat. | Media | Industr<br>Prod.<br>Servic. | Health | Finance | Public<br>Serv. | Tech. | Telecom | Travel |
|-------------|---------|---------|-------|-------|-------|---------|-------|----------------------------|-------------------|-------|--------|-------------|-------|-----------------------------|--------|---------|-----------------|-------|---------|--------|
| <_Me_Tenure | N       | 5       | 6     | 15    | 9     | 2       | 4     | 21                         | 9                 | 9     | 6      | 3           | 10    | 31                          | 6      | 15      | 15              | 14    | 7       | 4      |
|             | Med.    | 37      | 36    | 28    | 32    | 26      | 16    | 36                         | 35                | 30    | 48     | 38          | 34    | 38                          | 37     | 26      | 31              | 30    | 22      | 27     |
|             | N D=1   | 2       | 3     | 7     | 4     | 1       | 2     | 9                          | 4                 | 4     | 3      | 1           | 4     | 14                          | 3      | 7       | 7               | 6     | 3       | 2      |
|             | Me. D=1 | 52      | 39    | 35    | 43    | 38      | 20    | 56                         | 44                | 35    | 65     | 63          | 43    | 51                          | 50     | 33      | 48              | 43    | 32      | 39     |
|             | N D=0   | 3       | 3     | 8     | 5     | 1       | 2     | 12                         | 5                 | 5     | 3      | 2           | 6     | 17                          | 3      | 8       | 8               | 8     | 4       | 2      |
| Me. D=0     | 30      | 32      | 22    | 27    | 12    | 10      | 16    | 25                         | 20                | 17    | 10     | 19          | 27    | 19                          | 22     | 14      | 13              | 14    | 12      |        |
| Gini        | N       | 5       | 6     | 15    | 9     | 2       | 4     | 21                         | 9                 | 9     | 6      | 3           | 10    | 31                          | 6      | 15      | 15              | 14    | 7       | 4      |
|             | Med.    | 0.645   | 0.718 | 0.670 | 0.646 | 0.592   | 0.626 | 0.729                      | 0.684             | 0.689 | 0.703  | 0.531       | 0.754 | 0.677                       | 0.679  | 0.725   | 0.634           | 0.612 | 0.623   | 0.633  |
|             | N D=1   | 2       | 2     | 5     | 3     | 1       | 1     | 7                          | 3                 | 3     | 2      | 1           | 3     | 11                          | 2      | 5       | 6               | 5     | 2       | 1      |
|             | Me. D=1 | 0.587   | 0.638 | 0.549 | 0.447 | 0.524   | 0.305 | 0.606                      | 0.532             | 0.602 | 0.625  | 0.465       | 0.634 | 0.583                       | 0.620  | 0.582   | 0.518           | 0.518 | 0.591   | 0.555  |
|             | N D=0   | 3       | 4     | 10    | 6     | 1       | 3     | 14                         | 6                 | 6     | 4      | 2           | 7     | 20                          | 4      | 10      | 9               | 9     | 5       | 3      |
| Me. D=0     | 0.823   | 0.784   | 0.742 | 0.760 | 0.723 | 0.760   | 0.833 | 0.783                      | 0.790             | 0.758 | 0.673  | 0.803       | 0.783 | 0.797                       | 0.823  | 0.713   | 0.753           | 0.737 | 0.847   |        |

Notes: Industries are defined based on Borsa Italiana website. N is the number of firms in the sector, Med is the median of the sector, N D=1 is the number of firms above the median, Me. D=1 is the median of the firms above the industry median, N D=0 is the number of firms below the median, Me. D=0 is the median of the firms below the industry median

Table 3.1 list of EPS Valuation Earnings Coefficients and Compensation Earnings Coefficients by firm and board sub-group.

| ID | Firm_name   | Industry                                       | VEC   | n. | CEO   | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me | n. |
|----|---|--|-------|----|-------|----|-------|----|----------|----|--------|----|-------|------|----|
| 1  | A2A   | Public Services                                | 0,97  | 10 | 0,2   | 10 | 0,41  | 10 | -0,26    | 10 | 0,62   | 10 | 0,93  | 0,93 | 10 |
| 2  | ACEA  | Public Services                                | 0,29  | 10 | -0,12 | 10 | 0,79  | 10 | 0,75     | 10 | 0,15   | 10 | 0,3   | 0,3  | 10 |
| 3  | AEDES SIIQ  | GoodsProperty                                  | 0,1   | 10 | 0,36  | 10 | 0,52  | 10 | -0,15    | 10 | -0,16  | 10 | 0,14  | 0,14 | 10 |
| 4  | AEFFE<br>AEROPORTO<br>GUGLIELMO MARCONI<br>DI BOLOGNA | Consumer prod. serv.<br>Industrial Prod. Serv. | -0,03 | 10 | 0,39  | 10 | 0,59  | 10 | 0,23     | 10 | 0,22   | 10 | 0,29  | 0,29 | 10 |
| 5  | ALERION CLEANPOWER                                    | Public Services                                | 0,8   | 5  | 0,96  | 5  | -0,16 | 5  | 0,73     | 5  | 0,11   | 5  | 0,96  | 0,96 | 5  |
| 6  | ALGOWATT  | Public Services                                | -0,01 | 9  | -0,17 | 9  | 0,06  | 9  | 0,06     | 9  |        |    | -0,11 | 0,06 | 9  |
| 7  | AMBIENTHESIS  | Public Services                                | -0,03 | 8  | 0,57  | 8  | 0,14  | 8  | -0,11    | 8  | 0,73   | 6  | 0,39  | 0,39 | 8  |
| 8  | AMPLIFON  | Public Services                                | 0,81  | 10 | -0,31 | 10 | 0,74  | 10 | 0,11     | 10 | -0,6   | 10 | 0,57  | 0,57 | 10 |
| 9  | ANIMA HOLDING   | Health   | 0,17  | 10 | 0,17  | 10 | -0,12 | 10 | 0,4      | 10 | 0,29   | 10 | 0,15  | 0,15 | 10 |
| 10 | ASCOPIAVE   | Financial Services                             | 0,74  | 6  | 0,32  | 6  | -0,3  | 6  | 0,32     | 6  | 0,35   | 6  | 0,89  | 0,89 | 6  |
| 11 | ASTALDI   | Public Services                                | 0,82  | 10 | 0,57  | 10 | -0,23 | 10 | -0,23    | 10 |        |    | 0,58  | 0,58 | 10 |
| 12 | ASTM  | Constr. Build. tool                            | 0,67  | 10 | 0,67  | 10 | 0,05  | 10 | -0,25    | 10 | 0,4    | 10 | 0,17  | 0,17 | 10 |
| 13 | ATLANTIA  | Industrial Prod. Serv.                         | 0,35  | 10 | 0,8   | 10 | 0,44  | 10 | 2,07     | 10 | 0,15   | 10 | 0,69  | 0,69 | 10 |
| 14 | AUTOGRILL   | Industrial Prod. Serv.                         | 0,26  | 10 | 0,33  | 10 | -0,34 | 10 | 0,58     | 10 | 0,72   | 10 | 0,65  | 0,65 | 10 |
| 15 | AUTOSTRADA<br>MERIDIONALI                             | Travel Free Time<br>Industrial Prod. Serv.     | 0,7   | 10 | 0,33  | 10 | 0,06  | 10 | -0,01    | 10 | 0,22   | 10 | 0,33  | 0,33 | 10 |
| 16 | AVIO  | Industrial Prod. Serv.                         | -0,02 | 9  | 0,26  | 9  | -0,24 | 9  | -0,02    | 9  | 0,18   | 9  | 0,19  | 0,19 | 9  |
| 17 | AZIMUT HOLDING  | Industrial Prod. Serv.                         | 0,92  | 6  | 0,72  | 6  | 0,07  | 6  | -0,07    | 6  |        |    | 0,51  | 0,07 | 6  |
| 18 | B&C SPEAKERS  | Financial Services                             | -0,02 | 10 | -0,19 | 10 | -0,54 | 10 | -0,17    | 10 | 0,16   | 10 | -0,49 | 0,49 | 10 |
| 19 | B.F.  | Consumer prod. serv.                           | 0,92  | 10 | 0,15  | 10 | 0,38  | 10 | 0,35     | 10 | 0,19   | 10 | 0,15  | 0,15 | 10 |
| 20 | BANCA CARIGE  | Pers Care Food Drugs                           | 0,03  | 7  | -0,1  | 7  | 0,35  | 7  | -0,4     | 7  | -0,81  | 7  | 0,56  | 0,56 | 7  |
| 21 | BANCA FINNAT  | Banks  | 0,41  | 6  | 0,53  | 6  | 0,15  | 6  | -0,01    | 6  | 0,05   | 6  | 0,93  | 0,53 | 6  |
| 22 | BANCA GENERALI  | Banks  | 0,48  | 6  | 0,45  | 6  | 0,73  | 6  | -0,62    | 6  | -0,19  | 6  | 0,45  | 0,45 | 6  |
| 23 | BANCA IFIS  | Banks  | 0,17  | 6  | 0,72  | 6  | -0,19 | 6  | -0,16    | 6  | 0,72   | 6  | 0,72  | 0,72 | 6  |
| 24 | BANCA INTERMOBILIARE                                  | Financial Services                             | -0,03 | 10 | 0,33  | 10 | 0,05  | 10 | -0,01    | 10 | 0,15   | 10 | 0,5   | 0,5  | 10 |
| 25 | BANCA MEDIOLANUM                                      | Banks  | 0,19  | 6  | 0,89  | 6  | -0,4  | 6  | -0,14    | 6  | 0,35   | 6  | 0,89  | 0,89 | 6  |
| 26 | BANCA MONTE DEI PASCHI DI SIENA                       | Financial Services                             | 0,18  | 6  | 0,31  | 6  | -0,18 | 6  | -0,23    | 6  | 0,86   | 6  | 0,31  | 0,31 | 6  |
| 27 | BANCA POPOLARE DELL'EMILIA ROMAGNA                    | Banks  | 0,65  | 6  | 0,48  | 6  | -0,02 | 6  | -0,07    | 6  | 0,01   | 6  | 0,48  | 0,48 | 6  |
| 28 | BANCA POPOLARE DI SONDRIO                             | Banks  | 0,04  | 6  | 0,41  | 6  | 0,89  | 6  | -0,79    | 6  | 0,46   | 6  | 0,41  | 0,41 | 6  |
| 29 | BANCA PROFILO   | Banks  | 0,16  | 6  | 0,43  | 6  | -0,22 | 6  | -0,29    | 6  | 0,37   | 6  | 0,43  | 0,43 | 6  |
| 30 |   | Banks  | 0,17  | 6  | -0,21 | 6  | -0,2  | 6  | -0,02    | 6  | -0,1   | 6  | -0,21 | 0,21 | 6  |

| ID | Firm_name                           | Industry               | VEC   | n. | CEO   | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me  | n. |
|----|-------------------------------------|------------------------|-------|----|-------|----|-------|----|----------|----|--------|----|-------|-------|----|
| 31 | BANCA SISTEMA                       | Banks                  | -0,03 | 6  | -0,31 | 6  | 0,52  | 6  | -0,28    | 6  | 0,55   | 6  | -0,31 | -0,31 | 6  |
| 32 | BANCO BPM                           | Banks                  | 0,86  | 10 | -0,23 | 10 | 0,1   | 10 | -0,1     | 10 | 0,67   | 10 | 0,2   | -0,2  | 10 |
| 33 | BANCO DI DESIO E DELLA BRIANZA      | Banks                  | 0,14  | 10 | 0,73  | 10 | 0,95  | 10 | 0,45     | 10 | 0,13   | 10 | 0,77  | 0,77  | 10 |
| 34 | BASICNET                            | Trade                  | 0,21  | 10 | -0,11 | 10 | -0,02 | 10 | -0,11    | 10 | 0,08   | 10 | 0,09  | 0,01  | 10 |
| 35 | BASTOGI                             | Industrial Prod. Serv. | 0,3   | 10 | 0,39  | 10 | 0,2   | 10 | -0,11    | 10 | 0,19   | 10 | 0,15  | 0,29  | 10 |
| 36 | BE                                  | Technology             | 0,18  | 10 | 0,29  | 10 | -0,28 | 7  | 0,33     | 7  | 0,99   | 7  | 0,38  | 0,38  | 7  |
| 37 | BEGHELLI                            | Industrial Prod. Serv. | 0,28  | 10 | 0,13  | 10 | 0,38  | 10 | -0,01    | 10 | 0,8    | 10 | 0,4   | 0,4   | 10 |
| 38 | BENI STABILI SIQ                    | GoodsProperty          | 0,12  | 7  | -0,14 | 7  | 0,66  | 7  | 0,79     | 7  | 0,92   | 7  | -0,15 | -0,15 | 7  |
| 39 | BIALETTI INDUSTRIE                  | Consumer prod. serv.   | 0,38  | 10 | -0,13 | 10 | 0,11  | 10 | 0,11     | 10 |        |    | -0,18 | 0,05  | 10 |
| 40 | BIANCAMANO                          | Public Services        | 0,05  | 9  | 0,9   | 9  | 0,26  | 9  | -0,26    | 9  |        |    | 0,15  | 0,15  | 9  |
| 41 | BIESSE                              | Industrial Prod. Serv. | 0,28  | 10 | 0,15  | 10 | 0,45  | 10 | 0,58     | 10 | 0,25   | 10 | 0,57  | 0,57  | 10 |
| 42 | BIOERA                              | Pers Care Food Drugs   | 0,23  | 10 | 0,58  | 10 | -0,66 | 10 | 0,49     | 10 | 0,58   | 10 | 0,1   | -0,1  | 10 |
| 43 | BORGOSIESA                          | Industrial Prod. Serv. | 0,15  | 10 | -0,11 | 10 | 0,11  | 10 | -0,22    | 8  | 0,48   | 6  | 0,3   | -0,03 | 10 |
| 44 | BREMBO                              | Automotive             | 0,38  | 10 | 0,19  | 10 | 0,25  | 10 | 0,14     | 10 | 0,72   | 10 | 0,43  | -0,43 | 10 |
| 45 | BRIOSCHI SVILUPPO IMMOBILIARE       | GoodsProperty          | -0,01 | 10 | 0,94  | 10 | -0,28 | 10 | -0,17    | 10 | 0,11   | 10 | 0,23  | 0,23  | 10 |
| 46 | BRUNELLO CUCINELLI                  | Consumer prod. serv.   | -0,05 | 9  | 0,22  | 9  | -0,12 | 9  | -0,12    | 9  |        |    | 0,18  | -0,04 | 9  |
| 47 | BUZZI UNICEM                        | Constr. Build. tool    | 0,78  | 10 | 0,24  | 10 | 0,25  | 10 | -0,31    | 10 | 0,05   | 10 | 0,15  | -0,02 | 10 |
| 48 | CAD IT CAIRO                        | Technology             | -0,03 | 7  | 0,23  | 7  | -0,14 | 7  | -0,14    | 7  |        |    | 0,65  | 0,65  | 7  |
| 49 | COMMUNICATION                       | Media                  | 0,13  | 10 | 0,29  | 10 | 0,82  | 10 | 0,58     | 10 | 0,13   | 10 | 0,11  | -0,11 | 10 |
| 50 | CALEFFI                             | Consumer prod. serv.   | 0,25  | 10 | 0,71  | 10 | -0,41 | 10 | 0,51     | 10 | 0,12   | 10 | 0,2   | -0,42 | 10 |
| 51 | CALTAGIRONE EDITORE                 | Media                  | 0,26  | 10 | 0,42  | 10 | 0,42  | 10 | -0,19    | 10 | 0,06   | 7  | 0,23  | -0,23 | 10 |
| 52 | CALTAGIRONE                         | Constr. Build. tool    | 0,13  | 10 | 0,68  | 10 | -0,15 | 10 | -0,14    | 10 | 0,28   | 7  | -0,49 | -0,49 | 10 |
| 53 | CAMPARI GROUP                       | Pers Care Food Drugs   | 0,04  | 9  | 0,44  | 9  | 0,19  | 9  | 0,85     | 9  | 0,03   | 9  | 0,52  | 0,52  | 9  |
| 54 | CARRARO                             | Automotive             | 0,38  | 10 | 0,17  | 10 | 0,29  | 10 | -0,11    | 10 | 0,01   | 10 | -0,16 | -0,02 | 10 |
| 55 | CATTOLICA ASSICURAZIONI             | Insurance              | -0,05 | 10 | 0,17  | 10 | -0,39 | 10 | -0,26    | 10 | 0,01   | 10 | 0,17  | 0,17  | 10 |
| 56 | CEMBRE                              | Industrial Prod. Serv. | -0,03 | 10 | 0,15  | 10 | 0,43  | 10 | 0,37     | 10 | 0,23   | 8  | 0,83  | 0,83  | 10 |
| 57 | CEMENTIR HOLDING CENTRALE DEL LATTE | Constr. Build. tool    | -0,01 | 10 | 0,29  | 10 | -0,2  | 10 | -0,21    | 10 | 0,63   | 10 | 0,33  | -0,33 | 10 |
| 58 | D'ITALIA                            | Pers Care Food Drugs   | 0,37  | 10 | 0,56  | 10 | 0,13  | 10 | 0,03     | 10 | 0,23   | 10 | 0,26  | 0,1   | 10 |
| 59 | CERVED GROUP                        | Industrial Prod. Serv. | 0,38  | 7  | 0,88  | 7  | 0,37  | 7  | -0,15    | 7  | 0,35   | 7  | -0,23 | -0,23 | 7  |
| 60 | CHL                                 | Trade                  | 0,29  | 7  | -0,11 | 7  | 0,43  | 7  | -0,31    | 7  | 0,17   | 7  | 0,15  | -0,15 | 7  |
| 61 | CIR                                 | Industrial Prod. Serv. | -0,05 | 10 | 0,42  | 10 | -0,53 | 10 | 0,64     | 10 | 0,43   | 10 | -0,21 | -0,21 | 10 |
| 62 | CLASS EDITORI                       | Media                  | 0,05  | 8  | -0,1  | 8  | 0,41  | 8  | -0,36    | 8  | 0,07   | 8  | -0,11 | -0,01 | 8  |

| ID | Firm_name                                     | Industry               | VEC   | n. | CEO   | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me  | n. |
|----|---|------------------------|-------|----|-------|----|-------|----|----------|----|--------|----|-------|-------|----|
| 63 | COIMA RES<br>COMPAGNIA<br>IMMOBILIARE         | GoodsProperty          | 0,08  | 5  | 0,17  | 5  | 0,13  | 5  | 0,08     | 5  | 0,58   | 5  | 0,17  | 0,17  | 5  |
| 64 | AZIONARIA                                     | GoodsProperty          | -0,01 | 7  | -0,68 | 7  | 0,08  | 7  | 0,52     | 7  | 0,43   | 7  | -0,51 | -0,51 | 7  |
| 65 | CONAFI<br>CREDITO                             | Financial Services     | 0,01  | 9  | -0,17 | 9  | 0,14  | 9  | 0,43     | 9  | -0,11  | 5  | -0,66 | -0,66 | 9  |
| 66 | VALTELLINESE                                  | Banks                  | 0,58  | 10 | 0,37  | 10 | 0,18  | 10 | 0,01     | 10 | 0,03   | 10 | 0,35  | -0,35 | 10 |
| 67 | CSP INTERNATIONAL<br>D'AMICO<br>INTERNATIONAL | Raw Materials          | 0,15  | 10 | 0,59  | 10 | 0,25  | 10 | -0,25    | 10 |        |    | 0,58  | 0,58  | 10 |
| 68 | SHIPPING                                      | Industrial Prod. Serv. | 0,44  | 10 | -0,12 | 10 | 0,28  | 10 | 0,14     | 10 | -0,23  | 9  | 0,14  | -0,14 | 10 |
| 69 | DATALOGIC                                     | Industrial Prod. Serv. | 0,23  | 10 | 0,3   | 10 | -0,86 | 10 | 0,45     | 10 | 0,24   | 10 | 0,26  | 0,26  | 10 |
| 70 | DE LONGHI                                     | Consumer prod. serv.   | 0,09  | 10 | 0,16  | 10 | 0,64  | 10 | -0,01    | 10 | 0,02   | 10 | 0,15  | -0,15 | 10 |
| 71 | DEA CAPITAL                                   | Financial Services     | 0,65  | 10 | 0,13  | 10 | 0,64  | 10 | -0,04    | 10 | 0,02   | 10 | 0,13  | 0,13  | 10 |
| 72 | DIASORIN                                      | Health                 | 0,02  | 10 | 0,13  | 10 | 0,85  | 10 | 0,12     | 10 | 0,33   | 10 | 0,26  | -0,26 | 10 |
| 73 | DIGITAL BROS                                  | Consumer prod. serv.   | 0,7   | 9  | 0,94  | 9  | 0,14  | 9  | 0,85     | 9  | 0,89   | 5  | 0,94  | 0,94  | 9  |
| 74 | DMAIL GROUP                                   | Trade                  | 0,2   | 6  | 0,22  | 6  | -0,17 | 6  | 0,12     | 6  | 0,65   | 5  | 0,24  | 0,24  | 6  |
| 75 | EDISON  | Public Services        | 0,3   | 10 | 0,32  | 10 | 0,96  | 10 | -0,14    | 10 | 0,9    | 10 | -0,45 | -0,45 | 10 |
| 76 | EEMS  | Technology             | -0,02 | 10 | -0,51 | 10 | -0,22 | 10 | -0,22    | 10 |        |    | -0,47 | -0,47 | 10 |
| 77 | EI TOWERS                                     | Telecommunication      | 0,69  | 7  | -0,27 | 7  | -0,19 | 7  | 0,85     | 7  | 0,23   | 7  | -0,27 | -0,27 | 7  |
| 78 | ELEN.   | Health                 | 0,3   | 10 | 0,23  | 10 | 0,1   | 10 | 0,4      | 10 | 0,11   | 5  | 0,39  | 0,39  | 10 |
| 79 | ELICA   | Consumer prod. serv.   | 0,91  | 10 | 0,16  | 10 | 0,74  | 10 | 0,67     | 10 | 0,58   | 10 | 0,35  | -0,35 | 10 |
| 80 | EMAK  | Consumer prod. serv.   | 0,73  | 10 | 0,16  | 10 | 0,64  | 10 | 0,56     | 10 | 0,15   | 8  | 0,18  | 0,18  | 10 |
| 81 | ENEL  | Public Services        | 0,3   | 10 | 0,39  | 10 | 0,33  | 10 | 0,17     | 10 | 0,06   | 10 | -0,15 | -0,02 | 10 |
| 82 | ENERVIT                                       | Pers Care Food Drugs   | -0,02 | 10 | 0,44  | 10 | 0,21  | 10 | -0,21    | 10 |        |    | 0,44  | -0,44 | 10 |
| 83 | ENI   | Energy                 | 0,25  | 10 | 0,15  | 10 | -0,19 | 10 | -0,03    | 10 | 0,15   | 10 | 0,17  | 0,17  | 10 |
| 84 | EPRICE  | Consumer prod. serv.   | -0,03 | 6  | 0,69  | 6  | 0,48  | 6  | 0,48     | 6  |        |    | 0,5   | -0,5  | 6  |
| 85 | ERG   | Public Services        | 0,13  | 10 | -0,1  | 10 | 0,29  | 10 | -0,02    | 10 | 0,09   | 10 | 0,13  | -0,01 | 10 |
| 86 | ERGYCAPITAL                                   | Energy                 | 0,51  | 6  | 0,16  | 6  | 0,44  | 6  | 0,44     | 6  |        |    | 0,16  | -0,16 | 6  |
| 87 | ESPRINET                                      | Technology             | -0,03 | 10 | 0,51  | 10 | 0,61  | 10 | 0,13     | 10 | 0,14   | 10 | 0,55  | -0,55 | 10 |
| 88 | ESSILORLUXOTTICA                              | Consumer prod. serv.   | -0,03 | 10 | 0,13  | 10 | -0,11 | 7  | -0,04    | 7  | 0,03   | 7  | 0,17  | 0,17  | 7  |
| 89 | EUKEDOS                                       | Health                 | 0,16  | 10 | -0,01 | 10 | 0,02  | 10 | -0,11    | 10 | -0,02  | 5  | 0,11  | -0,11 | 10 |
| 90 | EUROTECH                                      | Technology             | 0,25  | 9  | 0,24  | 9  | -0,14 | 9  | -0,02    | 9  | 0,02   | 8  | 0,46  | 0,46  | 9  |
| 91 | EXOR  | Financial Services     | 0,92  | 5  | -0,1  | 5  | -0,16 | 5  | 0,8      | 5  | 0,08   | 5  | -0,79 | -0,08 | 5  |
| 92 | EXPRIVIA                                      | Technology             | -0,06 | 10 | -0,18 | 10 | -0,1  | 10 | -0,11    | 10 | -0,24  | 10 | -0,27 | -0,27 | 10 |
| 93 | FALCK RENEWABLES                              | Public Services        | 0,4   | 10 | 0,82  | 10 | 0,26  | 10 | 0,61     | 10 | 0,01   | 10 | 0,12  | -0,12 | 10 |
| 94 | FIDIA   | Industrial Prod. Serv. | 0,11  | 8  | 0,8   | 8  | 0,26  | 8  | 0,28     | 8  | 0,71   | 8  | 0,18  | 0,18  | 8  |
| 95 | FIERA MILANO                                  | Industrial Prod. Serv. | 0,1   | 10 | 0,4   | 10 | 0,21  | 10 | -0,03    | 10 | 0,08   | 10 | 0,78  | 0,78  | 10 |



| ID  | Firm_name                   | Industry               | VEC  | n. | CEO   | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me  | n. |
|-----|-----------------------------|------------------------|------|----|-------|----|-------|----|----------|----|--------|----|-------|-------|----|
| 96  | FILA                        | Pers Care Food Drugs   | 0,1  | 8  | -0,44 | 8  | -0,61 | 8  | 0,45     | 8  | -0,38  | 6  | -0,81 | -0,81 | 8  |
| 97  | FINCANTIERI                 | Industrial Prod. Serv. | 0,24 | 7  | 0,55  | 7  | -0,78 | 7  | 0,55     | 7  | 0,3    | 7  | -0,76 | -0,76 | 7  |
| 98  | FNM                         | Travel Free Time       | 0,43 | 10 | 0,18  | 10 | 0,45  | 10 | -0,16    | 10 | 0,96   | 10 | 0,47  | -0,47 | 10 |
| 99  | FULLSIX<br>GABETTI PROPERTY | Technology             | 0,11 | 10 | 0,49  | 10 | 0,25  | 10 | 0,95     | 10 | 0,01   | 8  | -0,48 | -0,05 | 10 |
| 100 | SOLUTIONS                   | GoodsProperty          | 0,89 | 10 | 0,16  | 10 | -0,14 | 10 | -0,12    | 10 | -0,21  | 10 | -0,3  | -0,3  | 10 |
| 101 | GAS PLUS                    | Energy                 | 0,26 | 10 | 0,21  | 10 | -0,28 | 10 | -0,16    | 10 | 0,89   | 10 | 0,22  | 0,22  | 10 |
| 102 | GEFRAN                      | Industrial Prod. Serv. | 0,11 | 10 | 0,14  | 10 | 0,69  | 10 | 0,66     | 10 | 0,38   | 10 | 0,97  | -0,97 | 10 |
| 103 | GENERALI                    | Insurance              | 0,72 | 10 | 0,65  | 10 | 0,38  | 10 | 0,52     | 10 | 0,1    | 10 | 0,64  | -0,64 | 10 |
| 104 | GEOX                        | Consumer prod. serv.   | 0,78 | 10 | -0,38 | 10 | -0,18 | 10 | 0,14     | 10 | -0,87  | 10 | -0,73 | -0,73 | 10 |
| 105 | GEQUITY                     | Financial Services     | 0,11 | 5  | -0,13 | 5  | -0,25 | 5  | -0,25    | 5  |        |    | -0,76 | -0,76 | 5  |
| 106 | GIORGIO FEDON               | Consumer prod. serv.   | 0,17 | 8  | 0,29  | 8  | -0,31 | 8  | 0,31     | 8  |        |    | 0,21  | 0,14  | 8  |
| 107 | GRUPPO MONDO TV             | Media                  | 0,23 | 10 | 0,13  | 10 | -0,13 | 10 | -0,02    | 10 | 0,26   | 7  | 0,58  | 0,58  | 10 |
| 108 | HERA                        | Public Services        | 0,18 | 9  | 0,29  | 9  | -0,22 | 9  | -0,18    | 9  | 0,48   | 9  | 0,19  | -0,19 | 9  |
| 109 | I GRANDI VIAGGI             | Travel Free Time       | 0,17 | 10 | 0,24  | 10 | -0,27 | 10 | -0,07    | 10 | 0,02   | 9  | 0,31  | 0,31  | 10 |
| 110 | IGD - SIQ                   | GoodsProperty          | 0,63 | 10 | -0,12 | 10 | -0,13 | 10 | -0,09    | 10 | -0,1   | 9  | -0,2  | -0,2  | 10 |
| 111 | INTEK GROUP                 | Raw Materials          | 0,88 | 10 | 0,19  | 10 | -0,11 | 10 | -0,11    | 10 | -0,86  | 6  | 0,46  | -0,46 | 10 |
| 112 | INTERPUMP GROUP             | Industrial Prod. Serv. | 0,23 | 10 | 0,13  | 10 | -0,18 | 10 | -0,04    | 10 | 0,01   | 7  | 0,11  | -0,11 | 10 |
| 113 | INTESA SAN PAOLO            | Banks                  | 0,35 | 10 | -0,53 | 10 | -0,14 | 10 | 0,21     | 10 | -0,16  | 10 | 0,84  | 0,84  | 10 |
| 114 | INWIT                       | Telecommunication      | 0,6  | 6  | 0,89  | 6  | 0,88  | 6  | -0,21    | 6  | 0,55   | 6  | 0,18  | -0,18 | 6  |
| 115 | IRCE                        | Industrial Prod. Serv. | 0,17 | 10 | 0,77  | 10 | -0,29 | 10 | 0,29     | 10 |        |    | 0,31  | 0,31  | 10 |
| 116 | IREN                        | Public Services        | 0,57 | 10 | 0,23  | 10 | 0,85  | 10 | -0,03    | 10 | 0,03   | 10 | 0,91  | -0,91 | 10 |
| 117 | ISAGRO SPA                  | Chemicals              | 0,85 | 5  | -0,11 | 5  | -0,11 | 5  | -0,12    | 5  | -0,13  | 5  | -0,11 | -0,11 | 5  |
| 118 | IT WAY                      | Technology             | 0,17 | 10 | 0,18  | 10 | -0,12 | 9  | -0,08    | 9  | 0,02   | 9  | 0,16  | -0,16 | 9  |
| 119 | ITAL GAS                    | Public Services        | 0,25 | 5  | 0,33  | 5  | -0,12 | 5  | -0,21    | 5  | 0,16   | 5  | 0,28  | -0,18 | 5  |
| 120 | ITALMOBILIARE               | Financial Services     | 0,75 | 9  | -0,33 | 9  | 0,35  | 9  | 0,74     | 9  | -0,13  | 9  | -0,29 | -0,29 | 9  |
| 121 | JUVENTUS                    | Travel Free Time       | 0,11 | 9  | 0,12  | 9  | 0,39  | 9  | -0,03    | 9  | 0,98   | 9  | 0,12  | 0,12  | 9  |
| 122 | LA DORIA                    | Pers Care Food Drugs   | 0,49 | 10 | 0,14  | 10 | 0,31  | 10 | 0,86     | 10 | 0,05   | 10 | 0,14  | -0,14 | 10 |
| 123 | LANDI RENZO                 | Automotive             | 0,44 | 10 | 0,98  | 10 | 0,84  | 10 | 0,37     | 10 | 0,03   | 10 | 0,7   | -0,7  | 10 |
| 124 | LEONARDO                    | Industrial Prod. Serv. | 0,2  | 10 | 0,72  | 10 | -0,1  | 10 | 0,54     | 10 | 0,71   | 8  | 0,56  | -0,56 | 10 |
| 125 | LVENTURE GROUP              | Financial Services     | 0,1  | 10 | 0,15  | 10 | 0,13  | 10 | 0,72     | 10 | 0,22   | 9  | 0,14  | -0,14 | 10 |
| 126 | MAIRE TECNIMONT             | Constr. Build. tool    | 0,61 | 10 | 0,16  | 10 | 0,55  | 10 | -0,07    | 10 | 0,2    | 10 | 0,85  | -0,85 | 10 |
| 127 | MARR                        | Pers Care Food Drugs   | 0,86 | 10 | 0,43  | 10 | 0,38  | 10 | 0,01     | 10 | 0,06   | 8  | 0,32  | -0,03 | 10 |
| 128 | MEDIASET                    | Media                  | 0,58 | 10 | 0,1   | 10 | 0,54  | 10 | -0,2     | 10 | 0,42   | 10 | 0,42  | 0,42  | 10 |
| 129 | MEDIOBANCA                  | Financial Services     | 0,15 | 10 | 0,91  | 10 | 0,23  | 10 | -0,19    | 10 | 0,56   | 10 | 0,85  | 0,05  | 10 |
| 130 | MITTEL                      | Financial Services     | 0,21 | 9  | 0,25  | 9  | 0,16  | 9  | 0,29     | 9  | 0,16   | 6  | 0,18  | -0,18 | 9  |
| 131 | MONCLER                     | Consumer prod. serv.   | 0,15 | 8  | 0,4   | 8  | 0,32  | 8  | 0,2      | 8  | 0,23   | 8  | 0,34  | 0,34  | 8  |

| ID  | Firm_name           | Industry               | VEC   | n. | CEO   | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me  | n. |
|-----|---------------------|------------------------|-------|----|-------|----|-------|----|----------|----|--------|----|-------|-------|----|
| 132 | MONDADORI EDITORE   | Media                  | 0,97  | 10 | -0,37 | 10 | 0,15  | 10 | 0,55     | 10 | -0,2   | 10 | -0,52 | -0,52 | 10 |
| 133 | MONRIF              | Media                  | 0,14  | 10 | -0,31 | 10 | 0,29  | 10 | 0,3      | 10 | -0,61  | 10 | -0,31 | -0,31 | 10 |
| 134 | MUTUI ONLINE        | Financial Services     | 0,44  | 6  | 0,26  | 6  | 0,48  | 6  | 0,2      | 6  | 0,2    | 6  | 0,19  | 0,19  | 6  |
| 135 | NOVA RE             | GoodsProperty          | 0,19  | 10 | 0,15  | 10 | 0,05  | 10 | -0,06    | 10 | 0,09   | 10 | 0,82  | -0,82 | 10 |
| 136 | OLIDATA SPA         | Technology             | 0,25  | 9  | 0,31  | 9  | -0,5  | 8  | -0,5     | 8  |        |    | 0,33  | -0,33 | 9  |
| 137 | OPENJOBMETIS        | Industrial Prod. Serv. | 0,17  | 6  | 0,68  | 6  | 0,15  | 6  | -0,45    | 6  | 0,61   | 6  | 0,55  | -0,55 | 6  |
| 138 | OVS                 | Consumer prod. serv.   | 0,15  | 7  | 0,39  | 7  | 0,14  | 6  | 0,14     | 6  |        |    | 0,39  | -0,39 | 7  |
|     | PANARIAGROUP        |                        |       |    |       |    |       |    |          |    |        |    |       |       |    |
| 139 | INDUSTRIE CERAMICHE | Constr. Build. tool    | 0,25  | 10 | 0,81  | 10 | 0,54  | 10 | -0,15    | 10 | 0,94   | 10 | 0,97  | -0,97 | 10 |
| 140 | PIAGGIO             | Consumer prod. serv.   | 0,39  | 10 | 0,91  | 10 | 0,71  | 10 | -0,01    | 10 | 0,24   | 10 | 0,91  | 0,91  | 10 |
| 141 | PIERREL             | Health                 | -0,04 | 10 | 0,2   | 10 | -0,23 | 10 | -0,04    | 10 | 0,02   | 9  | 0,85  | -0,08 | 10 |
| 142 | PININFARINA         | Automotive             | 0,79  | 10 | 0,75  | 10 | 0,13  | 10 | 0,03     | 10 | 0,01   | 10 | 0,26  | -0,26 | 10 |
| 143 | PIQUADRO            | Consumer prod. serv.   | 0,91  | 10 | 0,85  | 10 | 0,43  | 10 | 0,48     | 10 | 0,68   | 10 | 0,51  | -0,51 | 10 |
| 144 | PLC                 | Constr. Build. tool    | -0,02 | 10 | 0,46  | 10 | -0,26 | 10 | -0,16    | 10 | 0,3    | 10 | 0,16  | -0,16 | 9  |
|     | POLIGRAFICA S       |                        |       |    |       |    |       |    |          |    |        |    |       |       |    |
| 145 | FAUSTINO            | Industrial Prod. Serv. | 0,21  | 10 | 0,39  | 10 | -0,29 | 10 | 0,35     | 10 | 0,01   | 10 | 0,28  | -0,28 | 10 |
|     | POLIGRAFICI         |                        |       |    |       |    |       |    |          |    |        |    |       |       |    |
| 146 | EDITORIALE          | Media                  | -0,03 | 7  | -0,26 | 7  | -0,48 | 7  | -0,24    | 7  | -0,25  | 7  | -0,26 | -0,26 | 7  |
| 147 | POSTE ITALIANE      | Insurance              | 0,95  | 6  | 0,14  | 6  | 0,51  | 6  | 0,21     | 6  | 0,28   | 6  | 0,14  | 0,14  | 6  |
| 148 | PRIMA INDUSTRIE     | Industrial Prod. Serv. | 0,16  | 10 | 0,55  | 10 | 0,07  | 10 | -0,07    | 10 |        |    | 0,59  | 0,59  | 10 |
| 149 | PRYSMIAN            | Industrial Prod. Serv. | 0,58  | 10 | 0,7   | 10 | 0,1   | 10 | -0,36    | 10 | 0,35   | 10 | 0,13  | -0,13 | 10 |
| 150 | RAI WAY             | Telecommunication      | 0,77  | 7  | 0,99  | 7  | -0,04 | 7  | -0,04    | 7  | 0,01   | 7  | 0,17  | -0,17 | 7  |
| 151 | RATTI               | Raw Materials          | 0,06  | 10 | 0,37  | 10 | 0,13  | 10 | 0,26     | 10 | 0,34   | 10 | 0,3   | 0,3   | 10 |
| 152 | RCS MEDIAGROUP      | Media                  | -0,04 | 10 | -0,78 | 10 | -0,64 | 10 | 0,41     | 10 | -0,12  | 10 | 0,88  | -0,88 | 10 |
| 153 | RECORDATI           | Health                 | 0,76  | 10 | 0,28  | 10 | 0,89  | 10 | 0,53     | 10 | 0,16   | 10 | 0,26  | -0,26 | 10 |
| 154 | RENO DE MEDICI      | Industrial Prod. Serv. | 0,75  | 10 | 0,33  | 10 | 0,05  | 10 | 0,1      | 10 | 0,06   | 10 | 0,37  | 0,37  | 10 |
| 155 | REPLY               | Technology             | 0,83  | 10 | 0,13  | 10 | 0,16  | 10 | -0,25    | 10 | 0,2    | 10 | 0,83  | -0,83 | 10 |
| 156 | RETELIT             | Telecommunication      | 0,02  | 10 | 0,13  | 10 | 0,06  | 10 | -0,12    | 10 | 0,08   | 10 | 0,11  | -0,09 | 10 |
| 157 | RISANAMENTO         | GoodsProperty          | -0,05 | 10 | 0,21  | 10 | -0,35 | 10 | 0,46     | 10 | 0,82   | 8  | 0,21  | -0,21 | 10 |
| 158 | ROMA                | Media                  | 0,39  | 9  | -0,24 | 9  | 0,61  | 7  | 0,61     | 7  |        |    | -0,13 | -0,68 | 7  |
| 159 | ROSSS               | Consumer prod. serv.   | 0,15  | 10 | 0,74  | 10 | 0,03  | 9  | -0,03    | 9  |        |    | 0,6   | 0,67  | 9  |
| 160 | SABAF               | Technology             | 0,21  | 10 | 0,28  | 10 | -0,01 | 10 | -0,03    | 10 | 0,11   | 10 | 0,85  | -0,85 | 10 |
| 161 | SAES GETTERS        | Industrial Prod. Serv. | 0,03  | 10 | 0,11  | 10 | 0,94  | 10 | -0,01    | 10 | 0,11   | 10 | 0,12  | 0,12  | 10 |
| 162 | SAFILO GROUP        | Consumer prod. serv.   | 0,28  | 10 | 0,12  | 10 | 0,67  | 10 | 0,67     | 10 | 0,03   | 10 | 0,28  | -0,28 | 10 |
| 163 | SAIPEM              | Energy                 | 0,46  | 10 | 0,23  | 10 | 0,26  | 10 | -0,02    | 10 | 0,07   | 10 | 0,91  | 0,91  | 10 |
|     | SALVATORE           |                        |       |    |       |    |       |    |          |    |        |    |       |       |    |
| 164 | FERRAGAMO           | Consumer prod. serv.   | 0,61  | 10 | 0,49  | 10 | 0,93  | 10 | -0,07    | 10 | 0,02   | 10 | 0,4   | 0,4   | 10 |
| 165 | SARAS               | Energy                 | 0,53  | 10 | 0,25  | 10 | 0,37  | 10 | 0,15     | 10 | 0,02   | 10 | 0,66  | -0,66 | 10 |

| ID  | Firm_name          | Industry               | VEC   | n. | CEO  | n. | noCEO | n. | Director | n. | Leader | n. | > Me  | < Me  | n. |
|-----|--------------------|------------------------|-------|----|------|----|-------|----|----------|----|--------|----|-------|-------|----|
| 166 | SERI INDUSTRIAL    | Industrial Prod. Serv. | 0,68  | 10 | 0,83 | 10 | 0,45  | 10 | 0,6      | 10 | 0,11   | 9  | 0,33  | 0,33  | 10 |
| 167 | SERVIZI ITALIA     | Industrial Prod. Serv. | 0,75  | 10 | 0,66 | 10 | -0,9  | 10 | 0,82     | 10 | 0,28   | 10 | 0,66  | -0,66 | 10 |
| 168 | SESA               | Technology             | 0,8   | 8  | 0,65 | 8  | 0,27  | 8  | -0,13    | 8  | 0,61   | 8  | 0,6   | -0,6  | 8  |
| 169 | SNAM               | Energy                 | 0,45  | 10 | 0,53 | 10 | 0,15  | 10 | 0,82     | 10 | 0,48   | 10 | 0,53  | -0,53 | 10 |
| 170 | SOFTLAB            | Telecommunication      | 0,4   | 10 | 0,3  | 10 | -0,59 | 10 | 0,39     | 10 | 0,17   | 6  | 0,29  | -0,29 | 10 |
| 171 | SOGEFI             | Automotive             | 0,58  | 10 | 0,18 | 10 | 0,66  | 10 | -0,02    | 10 | 0,02   | 10 | 0,24  | 0,24  | 10 |
| 172 | SOL                | Chemicals              | 0,18  | 10 | 0,54 | 10 | 0,55  | 10 | -0,02    | 10 | 0,76   | 10 | 0,51  | 0,51  | 10 |
|     | TAMBURI INVESTMENT |                        |       |    |      |    |       |    |          |    |        |    |       |       |    |
| 173 | PARTNERS           | Financial Services     | 0,53  | 10 | 0,51 | 10 | 0,19  | 10 | -0,02    | 10 | 0,02   | 10 | 0,55  | 0,55  | 10 |
| 174 | TAS                | Technology             | 0,19  | 10 | 0,32 | 10 | 0,05  | 10 | -0,02    | 10 | 0,68   | 10 | 0,85  | 0,08  | 10 |
| 175 | TECHNOGYM          | Consumer prod. serv.   | 0,16  | 5  | 0,12 | 5  | -0,02 | 5  | -0,09    | 5  | 0,07   | 5  | 0,1   | -0,03 | 5  |
| 176 | TELECOM ITALIA     | Telecommunication      | -0,01 | 10 | 0,23 | 10 | 0,98  | 10 | 0,7      | 10 | 0,03   | 10 | 0,24  | 0,24  | 10 |
| 177 | TERNA              | Public Services        | 0,82  | 10 | 0,29 | 10 | 0,28  | 10 | -0,01    | 10 | 0,02   | 10 | 0,21  | 0,21  | 10 |
| 178 | TESMEC             | Industrial Prod. Serv. | 0,5   | 10 | 0,57 | 10 | 0,48  | 9  | -0,06    | 9  | 0,03   | 9  | 0,57  | 0,57  | 9  |
| 179 | TINEXTA            | Financial Services     | 0,94  | 5  | 0,41 | 5  | 0,83  | 5  | 0,63     | 5  | 0,13   | 5  | 0,69  | 0,69  | 5  |
| 180 | TISCALI            | Telecommunication      | 0,2   | 10 | 0,29 | 10 | 0,89  | 10 | -0,01    | 10 | 0,02   | 5  | -0,63 | 0,06  | 10 |
| 181 | TOD'S              | Consumer prod. serv.   | 0,82  | 10 | 0,16 | 10 | 0,06  | 10 | 0,3      | 10 | 0,02   | 10 | 0,65  | 0,65  | 10 |
| 182 | TOSCANA AEROPORTI  | Industrial Prod. Serv. | 0,27  | 9  | 0,32 | 9  | 0,1   | 9  | -0,04    | 9  | 0,72   | 9  | 0,59  | 0,59  | 9  |
|     | TREVI FIN          |                        |       |    |      |    |       |    |          |    |        |    |       |       |    |
| 183 | INDUSTRIALE        | Constr. Build. tool    | 0,78  | 10 | 0,18 | 10 | 0,09  | 10 | -0,09    | 10 |        |    | 0,05  | 0,02  | 10 |
| 184 | TXT                | Technology             | 0,99  | 10 | 0,4  | 10 | 0,81  | 10 | 0,91     | 10 | 0,19   | 10 | 0,3   | 0,3   | 10 |
| 185 | UNICREDIT          | Banks                  | 0,55  | 10 | 0,34 | 10 | -0,12 | 10 | -0,1     | 10 | -0,33  | 10 | -0,4  | 0,4   | 10 |
| 186 | UNIPOL             | Insurance              | 0,79  | 10 | 0,67 | 10 | 0,31  | 10 | -0,07    | 10 | 0,44   | 10 | 0,97  | 0,97  | 10 |
| 187 | UNIPOLSAI          | Insurance              | 0,38  | 7  | 0,27 | 7  | -0,61 | 7  | -0,14    | 7  | 0,46   | 7  | 0,94  | 0,94  | 7  |
| 188 | VALSOIA            | Pers Care Food Drugs   | 0,19  | 10 | 0,81 | 10 | 0,67  | 10 | -0,13    | 10 | 0,13   | 10 | 0,59  | 0,59  | 10 |
| 189 | VIANINI            | Constr. Build. tool    | 0,59  | 10 | 0,15 | 10 | 0,75  | 10 | 0,9      | 10 | 0,04   | 8  | 0,49  | 0,05  | 10 |
| 190 | ZIGNAGO VETRO      | Industrial Prod. Serv. | 0,99  | 10 | 0,24 | 10 | -0,64 | 10 | 0,38     | 10 | -0,26  | 10 | 0,34  | 0,34  | 10 |
| 191 | ZUCCHI             | Consumer prod. serv.   | 0,03  | 10 | 0,84 | 10 | 0,69  | 6  | -0,07    | 6  | 0,04   | 6  | 0,16  | 0,16  | 6  |
|     | Mean               |                        | 0,34  |    | 0,29 |    | 0,16  |    | 0,13     |    | 0,21   |    | 0,28  | 0,14  |    |

Notes VECs calculated in reg. (1.2) and CECs in reg. (2.2) with robust standard errors. Last row shows the whole sample's mean of the regressors coefficients for each VECs and CECs.

Table 3.2 list  $\Delta$ EPS Valuation Earnings Coefficients and  $\Delta$ Compensation Earnings Coefficients by firm and board sub-group.

| ID | Firm_name                       | Industry               | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta > Me$ | $\Delta < Me$ |
|----|---------------------------------|------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 1  | A2A                             | Public Services        | 0,51         | 10 | 0,3          | 10 | 0,75           | 10 | -0,43             | 10 | 0,45            | 10 | 0,36          | 0,45          |
| 2  | ACEA                            | Public Services        | 0,1          | 10 | -0,05        | 10 | 0,01           | 10 | 0,01              | 10 | 0,2             | 10 | 0,01          | 0,06          |
| 3  | AEDES SIIQ                      | GoodsProperty          | 0,27         | 10 | 0,56         | 10 | 0,43           | 10 | -0,11             | 10 | -0,13           | 10 | 0,44          | 0,32          |
| 4  | AEFFE                           | Consumer prod. serv.   | -0,34        | 10 | 0,86         | 10 | 0,36           | 10 | 0,1               | 10 | 0,12            | 10 | 0,18          | 0,37          |
| 5  | ALERION                         |                        |              |    |              |    |                |    |                   |    |                 |    |               |               |
| 5  | CLEANPOWER                      | Public Services        | -0,46        | 9  | -0,11        | 9  | 0,21           | 9  | 0,21              | 9  |                 |    | -0,07         | 0,04          |
| 6  | ALGOWATT                        | Public Services        | -0,1         | 8  | 0,94         | 8  | 0,05           | 8  | -0,07             | 8  | 0,03            | 6  | 0,43          | 0,34          |
| 7  | AMBIENTHESIS                    | Public Services        | 0,5          | 10 | -0,56        | 10 | 0,48           | 10 | 0,5               | 10 | -0,39           | 10 | 0,15          | 0,17          |
| 8  | AMPLIFON                        | Health                 | 0,28         | 10 | 0,38         | 10 | -0,12          | 10 | 0,14              | 10 | 0,66            | 10 | 0,35          | 0,01          |
| 9  | ANIMA HOLDING                   | Financial Services     | 0,38         | 6  | 0,66         | 6  | -0,13          | 6  | 0,12              | 6  | 0,1             | 6  | 0,31          | 0,13          |
| 10 | ASCOPIAVE                       | Public Services        | 0,19         | 10 | 0,37         | 10 | -0,02          | 10 | -0,02             | 10 |                 |    | 0,37          | 0,02          |
| 11 | ASTALDI                         | Constr. Build. tool    | 0,1          | 10 | 0,21         | 10 | 0,29           | 10 | -0,05             | 10 | 0,37            | 10 | 0,24          | 0,14          |
| 12 | ASTM                            | Industrial Prod. Serv. | 0,29         | 10 | 0,13         | 10 | 0,11           | 10 | 0,33              | 10 | 0,88            | 10 | 0,12          | 0,12          |
| 13 | ATLANTIA                        | Industrial Prod. Serv. | 0,13         | 10 | 0,6          | 10 | -0,13          | 10 | 0,14              | 10 | 0,12            | 10 | 0,31          | 0,91          |
| 14 | AUTOGRILL                       | Travel Free Time       | 0,53         | 10 | 0,89         | 10 | 0,22           | 10 | -0,08             | 10 | 0,14            | 10 | 0,02          | 0,61          |
| 15 | AUTOSTRADE                      |                        |              |    |              |    |                |    |                   |    |                 |    |               |               |
| 15 | MERIDIONALI                     | Industrial Prod. Serv. | -0,14        | 9  | 0,17         | 9  | -0,04          | 9  | -0,02             | 9  | 0,11            | 9  | 0,14          | 0,01          |
| 16 | AVIO                            | Industrial Prod. Serv. | 0,3          | 6  | 0,75         | 6  | 0,13           | 6  | -0,02             | 6  |                 |    | 0,02          | 0,13          |
| 17 | AZIMUT HOLDING                  | Financial Services     | -0,75        | 10 | -0,55        | 10 | -0,36          | 10 | -0,57             | 10 | 0,42            | 10 | -0,15         | 0,87          |
| 18 | B&C SPEAKERS                    | Consumer prod. serv.   | 0,58         | 10 | 0,13         | 10 | 0,3            | 10 | 0,23              | 10 | 0,39            | 10 | 0,13          | 0,17          |
| 19 | B.F.                            | Pers Care Food Drugs   | 0,71         | 7  | -0,67        | 7  | 0,19           | 7  | -0,17             | 7  | -0,53           | 7  | 0,35          | 0,45          |
| 20 | BANCA CARIGE                    | Banks                  | 0,86         | 6  | 0,44         | 6  | 0              | 6  | 0                 | 6  | 0,02            | 6  | 0,44          | 0,03          |
| 21 | BANCA FINNAT                    | Banks                  | 0,53         | 6  | 0,71         | 6  | 0,32           | 6  | -0,36             | 6  | -0,48           | 6  | 0,71          | 0,32          |
| 22 | BANCA GENERALI                  | Banks                  | 0,13         | 6  | 0,16         | 6  | -0,61          | 6  | -0,11             | 6  | 0,15            | 6  | 0,16          | 0,61          |
| 23 | BANCA IFIS                      | Financial Services     | -0,97        | 10 | 0,3          | 10 | 0,09           | 10 | -0,08             | 10 | 0,29            | 10 | 0,15          | 0,09          |
| 24 | BANCA INTERMOBILIARE            | Banks                  | 0,13         | 6  | 0,48         | 6  | -0,21          | 6  | -0,15             | 6  | 0,03            | 6  | 0,48          | 0,21          |
| 25 | BANCA MEDIOLANUM                | Financial Services     | 0,46         | 6  | 0,25         | 6  | -0,21          | 6  | -0,8              | 6  | 0,11            | 6  | 0,25          | 0,21          |
| 26 | BANCA MONTE DEI PASCHI DI SIENA | Banks                  | 0,89         | 6  | 0,31         | 6  | 0              | 6  | -0,02             | 6  | 0               | 6  | 0,31          | 0,04          |
| 27 | BANCA POPOLARE DELL'EMILIA      |                        |              |    |              |    |                |    |                   |    |                 |    |               |               |
| 27 | BANCA POPOLARE DI ROMAGNA       | Banks                  | 0,14         | 6  | 0,1          | 6  | 0,02           | 6  | -0,05             | 6  | 0,04            | 6  | 0,1           | 0,02          |
| 28 | SONDRIO                         | Banks                  | 0,24         | 6  | 0,68         | 6  | -0,24          | 6  | -0,9              | 6  | 0,12            | 6  | 0,68          | 0,24          |
| 29 | BANCA PROFILO                   | Banks                  | 0,12         | 6  | -0,24        | 6  | -0,12          | 6  | -0,89             | 6  | -0,7            | 6  | -0,24         | 0,12          |

| ID | Firm_name                      | Industry               | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta > Me$ | $\Delta < Me$ |
|----|--------------------------------|------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 30 | BANCA SISTEMA                  | Banks                  | -0,13        | 6  | -0,33        | 6  | 0,17           | 6  | -0,84             | 6  | 0,26            | 6  | -0,33         | -0,17         |
| 31 | BANCO BPM                      | Banks                  | 0,92         | 10 | -0,22        | 10 | 0,28           | 10 | -0,27             | 10 | 0,92            | 10 | 0,84          | -0,38         |
| 32 | BANCO DI DESIO E DELLA BRIANZA | Banks                  | 0,21         | 10 | 0,47         | 10 | 0,25           | 10 | 0,32              | 10 | 0,21            | 10 | 0,88          | 0,11          |
| 33 | BASICNET                       | Trade                  | 0,27         | 10 | -0,44        | 10 | -0,1           | 10 | -0,47             | 10 | 0,35            | 10 | 0,38          | 0,05          |
| 34 | BASTOGI                        | Industrial Prod. Serv. | 0,38         | 10 | 0,15         | 10 | 0,52           | 10 | -0,27             | 10 | 0,28            | 10 | 0,27          | 0,51          |
| 35 | BE                             | Technology             | 0,21         | 10 | 0,32         | 10 | -0,29          | 7  | 0,32              | 7  | 0,24            | 7  | 0,3           | 0,34          |
| 36 | BEGHELLI                       | Industrial Prod. Serv. | 0,84         | 10 | 0,25         | 10 | 0,34           | 10 | -0,06             | 10 | 0,35            | 10 | 0,21          | 0,12          |
| 37 | BENI STABILI SIHQ              | GoodsProperty          | 0,75         | 7  | -0,37        | 7  | 0,96           | 7  | 0,19              | 7  | 0,89            | 7  | -0,41         | -0,48         |
| 38 | BIALETTI INDUSTRIE             | Consumer prod. serv.   | 0,91         | 10 | -0,16        | 10 | 0,2            | 10 | 0,2               | 10 |                 |    | -0,16         | 0,19          |
| 39 | BIANCAMANO                     | Public Services        | 0,25         | 9  | 0,03         | 9  | 0,06           | 9  | -0,06             | 9  |                 |    | 0,14          | 0,25          |
| 40 | BIESSE                         | Industrial Prod. Serv. | 0,68         | 10 | 0,83         | 10 | 0,31           | 10 | 0,59              | 10 | 0,04            | 10 | 0,01          | 0,39          |
| 41 | BIOERA                         | Pers Care Food Drugs   | 0,12         | 10 | 0,3          | 10 | -0,76          | 10 | 0,16              | 10 | 0,43            | 10 | 0,63          | -0,75         |
| 42 | BORGOSIESIA                    | Industrial Prod. Serv. | 0,43         | 10 | -0,12        | 10 | 0,52           | 10 | -0,01             | 8  | 0,08            | 6  | 0,8           | -0,01         |
| 43 | BREMBO                         | Automotive             | 0,4          | 10 | 0,08         | 10 | 0,03           | 10 | 0,48              | 10 | 0,01            | 10 | 0,01          | -0,04         |
| 44 | BRIOSCHI SVILUPPO IMMOBILIARE  | GoodsProperty          | -0,61        | 10 | 0,46         | 10 | -0,02          | 10 | -0,02             | 10 | 0,03            | 10 | 0,86          | 0,59          |
| 45 | BRUNELLO                       | Consumer prod. serv.   | -0,91        | 9  | 0,76         | 9  | -0,4           | 9  | -0,4              | 9  |                 |    | 0,63          | -0,12         |
| 46 | BUZZI UNICEM                   | Constr. Build. tool    | 0,19         | 10 | 0,02         | 10 | 0,18           | 10 | -0,2              | 10 | 0,37            | 10 | 0,48          | -0,55         |
| 47 | CAD IT                         | Technology             | -0,19        | 7  | 0,55         | 7  | -0,04          | 7  | -0,04             | 7  |                 |    | 0,61          | 0,11          |
| 48 | CAIRO                          | Media                  | 0,45         | 10 | 0,74         | 10 | 0,13           | 10 | 0,76              | 10 | 0,41            | 10 | 0,5           | -0,74         |
| 49 | COMMUNICATION                  | Consumer prod. serv.   | 0,27         | 10 | 0,59         | 10 | -0,34          | 10 | 0,42              | 10 | 0,1             | 10 | 0,17          | -0,35         |
| 50 | CALEFFI                        | CALTAGIRONE            | 0,21         | 10 | 0,22         | 10 | 0,4            | 10 | -0,48             | 10 | 0,07            | 7  | 0,91          | -0,05         |
| 51 | EDITORE                        | Media                  | 0,21         | 10 | 0,22         | 10 | 0,4            | 10 | -0,48             | 10 | 0,07            | 7  | 0,91          | -0,05         |
| 52 | CALTAGIRONE                    | Constr. Build. tool    | 0,27         | 10 | 0,31         | 10 | -0,94          | 10 | -0,13             | 10 | 0,12            | 7  | -0,12         | -0,15         |
| 53 | CAMPARI GROUP                  | Pers Care Food Drugs   | 0,54         | 9  | 0,13         | 9  | 0,69           | 9  | 0,1               | 9  | 0,42            | 9  | 0,16          | 0,13          |
| 54 | CARRARO                        | Automotive             | 0,79         | 10 | 0,03         | 10 | 0,03           | 10 | -0,02             | 10 | 0,01            | 10 | -0,01         | -0,02         |
| 55 | CATTOLICA                      | Insurance              | -0,24        | 10 | 0,41         | 10 | -0,8           | 10 | -0,22             | 10 | 0,06            | 10 | 0,09          | 0,19          |
| 56 | ASSICURAZIONI                  | Insurance              | -0,24        | 10 | 0,41         | 10 | -0,8           | 10 | -0,22             | 10 | 0,06            | 10 | 0,09          | 0,19          |
| 57 | CEMBRE                         | Industrial Prod. Serv. | -0,58        | 10 | 0,34         | 10 | 0,17           | 10 | 0,26              | 10 | 0,27            | 8  | 0,26          | 0,63          |
| 58 | CEMENTIR HOLDING               | Constr. Build. tool    | -0,12        | 10 | 0,29         | 10 | -0,02          | 10 | -0,03             | 10 | 0,02            | 10 | 0,15          | -0,03         |
| 59 | CENTRALE DEL LATTE D'ITALIA    | Pers Care Food Drugs   | 0,22         | 10 | 0,36         | 10 | 0,15           | 10 | 0,15              | 10 | 0,25            | 10 | 0,3           | 0,15          |
| 60 | CERVED GROUP                   | Industrial Prod. Serv. | 0,61         | 7  | 0,41         | 7  | 0,12           | 7  | -0,75             | 7  | 0,58            | 7  | -0,87         | -0,15         |
| 61 | CHL                            | Trade                  | 0,41         | 7  | -0,06        | 7  | 0,03           | 7  | -0,02             | 7  | 0,09            | 7  | 0,01          | -0,02         |
| 62 | CIR                            | Industrial Prod. Serv. | -0,44        | 10 | 0,46         | 10 | -0,26          | 10 | 0,14              | 10 | 0,89            | 10 | -0,15         | -0,91         |

| ID | Firm_name                                     | Industry               | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta$ > Me | $\Delta$ < Me |
|----|---|------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 61 | CLASS EDITORI<br>COMPAGNIA<br>IMMOBILIARE     | Media                  | 0,23         | 8  | -0,31        | 8  | 0,02           | 8  | -0,03             | 8  | 0,03            | 8  | -0,06         | -0,01         |
| 62 | AZIONARIA                                     | GoodsProperty          | -0,49        | 7  | -0,48        | 7  | 0,05           | 7  | 0,38              | 7  | 0,34            | 7  | -0,37         | -0,44         |
| 63 | CONAFI<br>CREDITO                             | Financial Services     | 0,16         | 9  | -0,18        | 9  | 0,76           | 9  | 0,16              | 9  |                 |    | -0,19         | -0,17         |
| 64 | VALTELLINESE                                  | Banks                  | 0,66         | 10 | 0,05         | 10 | 0              | 10 | 0,01              | 10 | 0,04            | 10 | 0,05          | -0,05         |
| 65 | CSP INTERNATIONAL<br>D'AMICO<br>INTERNATIONAL | Raw Materials          | 0,36         | 10 | 0,23         | 10 | 0,01           | 10 | -0,01             | 10 |                 |    | 0,58          | 0,16          |
| 66 | SHIPPING                                      | Industrial Prod. Serv. | 0,31         | 10 | -0,15        | 10 | 0,95           | 10 | 0,28              | 10 | -0,48           | 9  | 0,93          | -0,35         |
| 67 | DATALOGIC                                     | Industrial Prod. Serv. | 0,72         | 10 | 0,34         | 10 | -0,36          | 10 | 0,05              | 10 | 0,66            | 10 | 0,44          | 0,32          |
| 68 | DE LONGHI                                     | Consumer prod. serv.   | 0,65         | 10 | 0,01         | 10 | 0,02           | 10 | -0,01             | 10 | 0,03            | 10 | 0,03          | -0,05         |
| 69 | DEA CAPITAL                                   | Financial Services     | 0,73         | 10 | 0,69         | 10 | 0,01           | 10 | -0,04             | 10 | 0,03            | 10 | 0,87          | 0,36          |
| 70 | DIASORIN                                      | Health                 | 0,13         | 10 | 0,34         | 10 | 0,28           | 10 | 0,22              | 10 | 0,23            | 10 | 0,34          | -0,19         |
| 71 | DIGITAL BROS                                  | Consumer prod. serv.   | 0,31         | 9  | 0,49         | 9  | 0,16           | 9  | 0,16              | 9  |                 |    | 0,49          | 0,16          |
| 72 | DMAIL GROUP                                   | Trade                  | 0,27         | 6  | 0,3          | 6  | -0,01          | 6  | 0,01              | 6  |                 |    | 0,3           | 0,01          |
| 73 | EDISON  | Public Services        | 0,21         | 10 | 0,11         | 10 | 0,25           | 10 | -0,73             | 10 | 0,87            | 10 | -0,14         | -0,11         |
| 74 | EEMS  | Technology             | -0,31        | 10 | -0,79        | 10 | -0,2           | 10 | -0,74             | 10 |                 |    | -0,11         | -0,09         |
| 75 | EI TOWERS                                     | Telecommunication      | 0,7          | 7  | -0,2         | 7  | -0,53          | 7  | 0,51              | 7  | 0,17            | 7  | -0,2          | -0,53         |
| 76 | ELEN.   | Health                 | 0,1          | 10 | 0,9          | 10 | 0,03           | 10 | 0,02              | 10 |                 |    | 0,23          | 0,18          |
| 77 | ELICA   | Consumer prod. serv.   | 0,28         | 10 | 0,19         | 10 | 0,36           | 10 | 0,16              | 10 | 0,22            | 10 | 0,28          | -0,38         |
| 78 | EMAK  | Consumer prod. serv.   | 0,13         | 10 | 0,13         | 10 | 0,15           | 10 | 0,14              | 10 | 0,14            | 8  | 0,14          | 0,19          |
| 79 | ENEL  | Public Services        | 0,33         | 10 | 0,03         | 10 | 0,38           | 10 | 0,12              | 10 | 0,03            | 10 | -0,02         | -0,02         |
| 80 | ENERVIT                                       | Pers Care Food Drugs   | -0,1         | 10 | 0,34         | 10 | 0,02           | 10 | -0,02             | 10 |                 |    | 0,34          | -0,02         |
| 81 | ENI   | Energy                 | 0,56         | 10 | 0,31         | 10 | -0,79          | 10 | -0,06             | 10 | 0,53            | 10 | 0,39          | 0,25          |
| 82 | EPRICE  | Consumer prod. serv.   | -0,44        | 6  | 0,28         | 6  | 0,06           | 6  | 0,11              | 6  |                 |    | 0,95          | -0,04         |
| 83 | ERG   | Public Services        | 0,56         | 10 | -0,51        | 10 | 0,01           | 10 | -0,02             | 10 | 0,09            | 10 | 0,4           | -0,09         |
| 84 | ERGYCAPITAL                                   | Energy                 | 1            | 6  | 0,32         | 6  | 0,02           | 6  | 0,02              | 6  |                 |    | 0,32          | -0,02         |
| 85 | ESPRINET                                      | Technology             | -0,43        | 10 | 0,13         | 10 | 0,03           | 10 | 0,49              | 10 | 0,02            | 10 | 0,13          | -0,97         |
| 86 | ESSILORLUXOTTICA                              | Consumer prod. serv.   | -0,4         | 10 | 0,06         | 10 | -0,07          | 7  | -0,02             | 7  | 0,01            | 7  | 0,12          | 0,63          |
| 87 | EUKEDOS                                       | Health                 | 0,17         | 10 | -0,09        | 10 | 0,01           | 10 | -0,1              | 10 |                 |    | 0,08          | -0,84         |
| 88 | EUROTECH                                      | Technology             | 0,14         | 9  | 0,35         | 9  | -0,02          | 9  | -0,01             | 9  | 0,07            | 8  | 0,68          | 0,16          |
| 89 | EXPRIVIA                                      | Technology             | -0,34        | 10 | -0,11        | 10 | -0,74          | 10 | -0,84             | 10 | -0,15           | 10 | -0,19         | -0,56         |
| 90 | FALCK RENEWABLES                              | Public Services        | 0,18         | 10 | 0,02         | 10 | 0,01           | 10 | 0,22              | 10 | 0,01            | 10 | 0,14          | -0,07         |
| 91 | FIDIA   | Industrial Prod. Serv. | 0,13         | 8  | 0,4          | 8  | 0,19           | 8  | 0,1               | 8  | 0,75            | 8  | 0,19          | 0,74          |
| 92 | FIERA MILANO                                  | Industrial Prod. Serv. | 0,66         | 10 | 0,71         | 10 | 0,01           | 10 | -0,75             | 10 | 0,77            | 10 | 0,14          | 0,24          |
| 93 | FILA  | Pers Care Food Drugs   | 0,23         | 8  | -0,44        | 8  | -0,1           | 8  | 0,28              | 8  | -0,33           | 6  | -0,74         | -0,18         |

| ID  | Firm_name                                | Industry                      | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta$ > Me | $\Delta$ < Me |
|-----|--|-------------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 94  | FINCANTIERI                              | Industrial Prod. Serv.        | 0,45         | 7  | 0,56         | 7  | -0,11          | 7  | 0,13              | 7  | 0,14            | 7  | -0,54         | -0,56         |
| 95  | FNM                                      | Travel Free Time              | 0,12         | 10 | 0,11         | 10 | 0,14           | 10 | -0,05             | 10 | 0,77            | 10 | 0,08          | -0,09         |
| 96  | FULLSIX<br>GABETTI PROPERTY<br>SOLUTIONS | Technology<br>GoodsProperty   | 0,51         | 10 | 0,06         | 10 | 0,12           | 10 | 0,08              | 10 | 0,17            | 8  | -0,01         | -0,01         |
| 97  | SOLUTIONS                                | GoodsProperty                 | 0,15         | 10 | 0,15         | 10 | -0,11          | 10 | -0,11             | 10 | -0,12           | 10 | -0,28         | -0,18         |
| 98  | GAS PLUS                                 | Energy                        | 0,2          | 10 | 0,22         | 10 | -0,02          | 10 | -0,04             | 10 | 0,06            | 10 | 0,14          | 0,16          |
| 99  | GEFRAN                                   | Industrial Prod. Serv.        | 0,21         | 10 | 0,13         | 10 | 0,45           | 10 | 0,24              | 10 | 0,29            | 10 | 0,61          | -0,11         |
| 100 | GENERALI                                 | Insurance                     | 0,25         | 10 | 0,92         | 10 | 0,29           | 10 | 0,01              | 10 | 0,23            | 10 | 0,73          | -0,07         |
| 101 | GEOX                                     | Consumer prod. serv.          | 0,12         | 10 | -0,75        | 10 | -0,17          | 10 | 0,32              | 10 | -0,19           | 10 | -0,83         | -0,66         |
| 102 | GIORGIO FEDON                            | Consumer prod. serv.          | 0,27         | 8  | 0,8          | 8  | -0,34          | 8  | 0,24              | 8  |                 |    | 0,78          | 0,34          |
| 103 | GRUPPO MONDO TV                          | Media                         | 0,58         | 10 | 0,45         | 10 | -0,08          | 10 | -0,01             | 10 | 0,14            | 7  | 0,18          | 0,38          |
| 104 | HERA                                     | Public Services               | 0,31         | 9  | 0,13         | 9  | -0,04          | 9  | -0,01             | 9  | 0,82            | 9  | 0,05          | -0,04         |
| 105 | I GRANDI VIAGGI                          | Travel Free Time              | 0,37         | 10 | 0,02         | 10 | -0,2           | 10 | -0,05             | 10 | 0,02            | 9  | 0,06          | 0,04          |
| 106 | IGD - SIIQ                               | GoodsProperty                 | 0,66         | 10 | -0,14        | 10 | -0,08          | 10 | -0,18             | 10 | -0,23           | 9  | -0,34         | -0,12         |
| 107 | INTEK GROUP                              | Raw Materials                 | 0,29         | 10 | 0,2          | 10 | -0,21          | 10 | -0,56             | 10 | -0,14           | 6  | 0,36          | -0,14         |
| 108 | INTERPUMP GROUP                          | Industrial Prod. Serv.        | 0,34         | 10 | 0,25         | 10 | -0,2           | 10 | -0,01             | 10 | 0,37            | 7  | 0,1           | -0,02         |
| 109 | INTESA SAN PAOLO                         | Banks                         | 0,12         | 10 | -0,15        | 10 | -0,31          | 10 | 0,46              | 10 | -0,25           | 10 | 0,13          | 0,13          |
| 110 | INWIT                                    | Telecommunication             | 0,56         | 6  | 0,02         | 6  | 0,02           | 6  | -0,03             | 6  | 0,33            | 6  | 0,02          | -0,04         |
| 111 | IRCE                                     | Industrial Prod. Serv.        | 0,4          | 10 | 0,23         | 10 | -0,47          | 10 | 0,47              | 10 |                 |    | 0,19          | 0,37          |
| 112 | IREN                                     | Public Services               | 0,33         | 10 | 0,03         | 10 | 0,01           | 10 | -0,02             | 10 | 0,05            | 10 | 0,03          | -0,03         |
| 113 | IT WAY                                   | Technology                    | 0,46         | 10 | 0,58         | 10 | -0,01          | 9  | -0,08             | 9  | 0,02            | 9  | 0,18          | -0,01         |
| 114 | ITALMOBILIARE                            | Financial Services            | 0,19         | 9  | -0,4         | 9  | 0,11           | 9  | 0,11              | 9  | -0,76           | 9  | -0,56         | -0,43         |
| 115 | JUVENTUS                                 | Travel Free Time              | 0,5          | 9  | 0,18         | 9  | 0,93           | 9  | -0,04             | 9  | 0,35            | 9  | 0,21          | 0,13          |
| 116 | LA DORIA                                 | Pers Care Food Drugs          | 0,14         | 10 | 0,1          | 10 | 0,01           | 10 | 0,52              | 10 | 0,02            | 10 | 0,1           | -0,58         |
| 117 | LANDI RENZO                              | Automotive                    | 0,17         | 10 | 0,16         | 10 | 0,09           | 10 | 0,26              | 10 | 0,02            | 10 | 0,02          | -0,04         |
| 118 | LEONARDO                                 | Industrial Prod. Serv.        | 0,34         | 10 | 0,1          | 10 | -0,05          | 10 | 0,01              | 10 | 0,02            | 8  | 0,51          | -0,01         |
| 119 | LVENTURE GROUP                           | Financial Services            | 0,26         | 10 | 0,16         | 10 | 0,05           | 10 | 0,06              | 10 | 0,29            | 9  | 0,18          | -0,04         |
| 120 | MAIRE TECNIMONT                          | Constr. Build. tool           | 0,11         | 10 | 0,67         | 10 | 0,02           | 10 | -0,07             | 10 | 0,07            | 10 | 0,09          | -0,03         |
| 121 | MARR                                     | Pers Care Food Drugs          | 0,3          | 10 | 0,84         | 10 | 0,04           | 10 | 0,14              | 10 | 0,01            | 8  | 0,02          | -0,03         |
| 122 | MEDIASET                                 | Media                         | 0,51         | 10 | 0,3          | 10 | 0,15           | 10 | -0,11             | 10 | 0,52            | 10 | 0,56          | 0,34          |
| 123 | MEDIOBANCA                               | Financial Services            | 0,14         | 10 | 0,27         | 10 | 0,07           | 10 | -0,06             | 10 | 0,17            | 10 | 0,25          | 0,02          |
| 124 | MITTEL                                   | Financial Services            | 0,25         | 9  | 0,69         | 9  | 0,24           | 9  | 0,19              | 9  | 0,29            | 6  | 0,47          | -0,21         |
| 125 | MONCLER<br>MONDADORI                     | Consumer prod. serv.<br>Media | 0,36         | 8  | 0,18         | 8  | 0,82           | 8  | 0,62              | 8  | 0,02            | 8  | 0,13          | 0,17          |
| 126 | EDITORE                                  | Media                         | 0,32         | 10 | -0,15        | 10 | 0,17           | 10 | 0,79              | 10 | -0,15           | 10 | -0,13         | -0,15         |
| 127 | MONRIF                                   | Media                         | 0,21         | 10 | -0,3         | 10 | 0,12           | 10 | 0,3               | 10 | -0,18           | 10 | -0,3          | -0,12         |
| 128 | MUTUI ONLINE                             | Financial Services            | 0,27         | 6  | 0,16         | 6  | 0,08           | 6  | 0,08              | 6  | 0,04            | 6  | 0,1           | 0,08          |

| ID  | Firm_name                        | Industry               | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta > Me$ | $\Delta < Me$ |
|-----|----------------------------------|------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 129 | NOVA RE                          | GoodsProperty          | 0,82         | 10 | 0,01         | 10 | 0,02           | 10 | -0,01             | 10 | 0,04            | 10 | 0,06          | -0,03         |
| 130 | OLIDATA SPA                      | Technology             | 0,7          | 9  | 0,11         | 9  | -0,11          | 8  | -0,38             | 8  |                 |    | 0,19          | -0,11         |
| 131 | OPENJOBMETIS                     | Industrial Prod. Serv. | 0,16         | 6  | 0,1          | 6  | 0,06           | 6  | -0,04             | 6  | 0,04            | 6  | 0,07          | -0,02         |
| 132 | OVS<br>PANARIAGROUP<br>INDUSTRIE | Consumer prod. serv.   | 0,95         | 7  | 0,85         | 7  | 0,28           | 6  | 0,34              | 6  |                 |    | 0,85          | -0,28         |
| 133 | CERAMICHE                        | Constr. Build. tool    | 0,16         | 10 | 0,96         | 10 | 0,21           | 10 | -0,03             | 10 | 0,66            | 10 | 0,78          | -0,09         |
| 134 | PIAGGIO                          | Consumer prod. serv.   | 0,56         | 10 | 0,05         | 10 | 0,39           | 10 | -0,08             | 10 | 0,14            | 10 | 0,05          | 0,39          |
| 135 | PIERREL                          | Health                 | -0,49        | 10 | 0,02         | 10 | -0,03          | 10 | -0,77             | 10 | 0,04            | 9  | 0,01          | -0,02         |
| 136 | PININFARINA                      | Automotive             | 0,82         | 10 | 0,24         | 10 | 0,06           | 10 | 0,08              | 10 | 0,09            | 10 | 0,13          | -0,02         |
| 137 | PIQUADRO                         | Consumer prod. serv.   | 0,34         | 10 | 0,96         | 10 | 0,93           | 10 | 0,25              | 10 | 0,12            | 10 | 0,26          | -0,74         |
| 138 | PLC<br>POLIGRAFICA S             | Constr. Build. tool    | -0,38        | 10 | 0,02         | 10 | -0,01          | 10 | -0,03             | 10 | 0,07            | 10 | 0,03          | -0,03         |
| 139 | FAUSTINO<br>POLIGRAFICI          | Industrial Prod. Serv. | 0,11         | 10 | 0,08         | 10 | -0,05          | 10 | 0,41              | 10 | 0,32            | 10 | 0,06          | -0,18         |
| 140 | EDITORIALE                       | Media                  | -0,12        | 7  | -0,54        | 7  | -0,72          | 7  | -0,27             | 7  | -0,13           | 7  | -0,54         | -0,72         |
| 141 | POSTE ITALIANE                   | Insurance              | 0,64         | 6  | 0,72         | 6  | 0,13           | 6  | 0,28              | 6  | 0,98            | 6  | 0,72          | 0,13          |
| 142 | PRIMA INDUSTRIE                  | Industrial Prod. Serv. | 0,31         | 10 | 0,28         | 10 | 0,04           | 10 | -0,11             | 10 |                 |    | 0,3           | 0,54          |
| 143 | PRYSMIAN                         | Industrial Prod. Serv. | 0,16         | 10 | 1            | 10 | 0,6            | 10 | -0,64             | 10 | 0,82            | 10 | 0,22          | -0,16         |
| 144 | RAI WAY                          | Telecommunication      | 0,12         | 7  | 0,36         | 7  | -0,06          | 7  | -0,08             | 7  | 0,08            | 7  | 0,12          | -0,05         |
| 145 | RATTI                            | Raw Materials          | 0,17         | 10 | 0,31         | 10 | 0,8            | 10 | 0,1               | 10 | 0,27            | 10 | 0,29          | 0,7           |
| 146 | RCS MEDIAGROUP                   | Media                  | -0,51        | 10 | -0,88        | 10 | -0,27          | 10 | 0,17              | 10 | -0,37           | 10 | 0,84          | -0,39         |
| 147 | RECORDATI                        | Health                 | 0,25         | 10 | 0,31         | 10 | 0,2            | 10 | 0,46              | 10 | 0,35            | 10 | 0,28          | -0,19         |
| 148 | RENO DE MEDICI                   | Industrial Prod. Serv. | 0,77         | 10 | 0,72         | 10 | 0,78           | 10 | 0,11              | 10 | 0,03            | 10 | 0,9           | 0,61          |
| 149 | REPLY                            | Technology             | 0,21         | 10 | 0,07         | 10 | 0,1            | 10 | -0,08             | 10 | 0,06            | 10 | 0,73          | -0,01         |
| 150 | RETELIT                          | Telecommunication      | 0,13         | 10 | 0,81         | 10 | 0,38           | 10 | -0,74             | 10 | 0,51            | 10 | 0,7           | -0,56         |
| 151 | RISANAMENTO                      | GoodsProperty          | -0,2         | 10 | 0,26         | 10 | -0,11          | 10 | 0,24              | 10 | 0,62            | 8  | 0,48          | -0,59         |
| 152 | ROMA                             | Media                  | 0,21         | 9  | -0,15        | 9  | 0,49           | 7  | 0,4               | 7  |                 |    | -0,76         | -0,45         |
| 153 | ROSSS                            | Consumer prod. serv.   | 0,14         | 10 | 0,31         | 10 | 0,11           | 9  | -0,11             | 9  |                 |    | 0,46          | 0,33          |
| 154 | SABAF                            | Technology             | 0,11         | 10 | 0,12         | 10 | -0,02          | 10 | -0,02             | 10 | 0,01            | 10 | 0,03          | -0,08         |
| 155 | SAES GETTERS                     | Industrial Prod. Serv. | 0,22         | 10 | 0,63         | 10 | 0,36           | 10 | -0,05             | 10 | 0,56            | 10 | 0,59          | 0,88          |
| 156 | SAFILO GROUP                     | Consumer prod. serv.   | 0,27         | 10 | 0,18         | 10 | 0,01           | 10 | 0,05              | 10 | 0,02            | 10 | 0,28          | -0,01         |
| 157 | SAIPEM<br>SALVATORE              | Energy                 | 0,17         | 10 | 0,25         | 10 | 0              | 10 | -0,01             | 10 | 0,04            | 10 | 0,32          | 0,19          |
| 158 | FERRAGAMO                        | Consumer prod. serv.   | 0,36         | 10 | 0,38         | 10 | 0,06           | 10 | -0,1              | 10 | 0,82            | 10 | 0,48          | 0,15          |
| 159 | SARAS                            | Energy                 | 0,23         | 10 | 0,76         | 10 | 0,6            | 10 | 0,95              | 10 | 0,14            | 10 | 0,76          | -0,04         |
| 160 | SERI INDUSTRIAL                  | Industrial Prod. Serv. | 0,46         | 10 | 0,05         | 10 | 0,11           | 10 | 0,16              | 10 | 0,03            | 9  | 0,59          | 0,03          |
| 161 | SERVIZI ITALIA                   | Industrial Prod. Serv. | 0,4          | 10 | 0,23         | 10 | -0,39          | 10 | 0,32              | 10 | 0,31            | 10 | 0,23          | -0,62         |



| ID  | Firm_name                      | Industry               | $\Delta$ VEC | n. | $\Delta$ CEO | n. | $\Delta$ noCEO | n. | $\Delta$ Director | n. | $\Delta$ Leader | n. | $\Delta > Me$ | $\Delta < Me$ |
|-----|--------------------------------|------------------------|--------------|----|--------------|----|----------------|----|-------------------|----|-----------------|----|---------------|---------------|
| 162 | SESA                           | Technology             | 0,2          | 8  | 0,02         | 8  | 0,11           | 8  | -0,02             | 8  | 0,28            | 8  | 0,01          | -0,01         |
| 163 | SNAM                           | Energy                 | 0,8          | 10 | 0,46         | 10 | 0,02           | 10 | 0,07              | 10 | 0,92            | 10 | 0,46          | -0,02         |
| 164 | SOFTLAB                        | Telecommunication      | 0,12         | 10 | 0,38         | 10 | -0,08          | 10 | 0,24              | 10 | 0,44            | 6  | 0,89          | -0,16         |
| 165 | SOGEFI                         | Automotive             | 0,16         | 10 | 0,92         | 10 | 0,02           | 10 | -0,22             | 10 | 0,46            | 10 | 0,15          | 0,48          |
| 166 | SOL<br>TAMBURI<br>INVESTMENT   | Chemicals              | 0,8          | 10 | 0,76         | 10 | 0,87           | 10 | -0,02             | 10 | 0,18            | 10 | 0,11          | 0,47          |
| 167 | PARTNERS                       | Financial Services     | 0,35         | 10 | 0,32         | 10 | 0,02           | 10 | -0,02             | 10 | 0,02            | 10 | 0,34          | 0,48          |
| 168 | TAS                            | Technology             | 0,86         | 10 | 0,04         | 10 | 0,28           | 10 | -0,51             | 10 | 0,2             | 10 | 0,09          | 0,73          |
| 169 | TELECOM ITALIA                 | Telecommunication      | -0,29        | 10 | 0,36         | 10 | 0,13           | 10 | 0,14              | 10 | 0,1             | 10 | 0,4           | 0,12          |
| 170 | TERNA                          | Public Services        | 0,3          | 10 | 0,11         | 10 | 0,06           | 10 | -0,3              | 10 | 0,02            | 10 | 0,04          | 0,39          |
| 171 | TESMEC                         | Industrial Prod. Serv. | 0,44         | 10 | 0,26         | 10 | 0,08           | 9  | -0,08             | 9  | 0,06            | 9  | 0,26          | 0,08          |
| 172 | TISCALI                        | Telecommunication      | 0,65         | 10 | 0,11         | 10 | 0,04           | 10 | -0,05             | 10 |                 |    | -0,03         | 0,08          |
| 173 | TOD'S                          | Consumer prod. serv.   | 0,13         | 10 | 0,18         | 10 | 0,75           | 10 | 0,29              | 10 | 0,12            | 10 | 0,57          | 0,28          |
| 174 | TOSCANA AEROPORTI<br>TREVI FIN | Industrial Prod. Serv. | 0,65         | 9  | 0,29         | 9  | 0,14           | 9  | -0,01             | 9  | 0,82            | 9  | 0,86          | 0,39          |
| 175 | INDUSTRIALE                    | Constr. Build. tool    | 0,24         | 10 | 0,4          | 10 | 0,2            | 10 | -0,2              | 10 |                 |    | 0,1           | 0,05          |
| 176 | TXT                            | Technology             | 0,25         | 10 | 0,77         | 10 | 0,72           | 10 | 0,87              | 10 | 0,12            | 10 | 0,23          | 0,28          |
| 177 | UNICREDIT                      | Banks                  | 0,24         | 10 | 0,17         | 10 | -0,11          | 10 | -0,13             | 10 | -0,72           | 10 | -0,4          | 0,31          |
| 178 | UNIPOL                         | Insurance              | 0,45         | 10 | 0,02         | 10 | 0,02           | 10 | -0,03             | 10 | 0,02            | 10 | 0,09          | 0,02          |
| 179 | UNIPOLSAI                      | Insurance              | 0,18         | 7  | 0,1          | 7  | -0,27          | 7  | -0,78             | 7  | 0,28            | 7  | 0,67          | 0,24          |
| 180 | VALSOIA                        | Pers Care Food Drugs   | 0,16         | 10 | 0,23         | 10 | 0,22           | 10 | -0,36             | 10 | 0,69            | 10 | 0,88          | 0,21          |
| 181 | VIANINI                        | Constr. Build. tool    | 0,64         | 10 | 0,02         | 10 | 0,04           | 10 | 0,65              | 10 | 0,02            | 8  | 0,23          | 0,55          |
| 182 | ZIGNAGO VETRO                  | Industrial Prod. Serv. | 0,80         | 10 | 0,94         | 10 | -0,92          | 10 | 0,22              | 10 | -0,22           | 10 | 0,76          | 0,19          |
| 183 | ZUCCHI                         | Consumer prod. serv.   | 0,03         | 10 | 0,02         | 10 | 0,01           | 6  | -0,01             | 6  | 0,01            | 6  | 0,01          | 0,01          |
|     |                                | Mean                   | 0,26         |    | 0,23         |    | 0,07           |    | 0,01              |    | 0,18            |    | 0,37          | 0,04          |

Notes  $\Delta$ VECs calculated in reg. (1.1) and  $\Delta$ CECs in reg. (2.1) with robust standard errors, this analysis focuses on changes between year  $t$  and  $t - 1$ , every firm loses one year observation for each variable. Last row shows the whole sample's mean of the regressors coefficients for each  $\Delta$ VECs and  $\Delta$ CECs.

Table 4 List of Valuation on Stewardship accounting earnings Coefficient' sign by firm and board sub-group for EPS and compensation,  $\Delta$ EPS and  $\Delta$ Compensation.

| ID | Firm_name                                     | Industry                                | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | $\Delta$ CEO | $\Delta$ noCEO | $\Delta$ Dir. | $\Delta$ Lead | $\Delta$ >Me | $\Delta$ <Me |
|----|---|---|----|-----|-------|------|------|-----|-----|--------------|----------------|---------------|---------------|--------------|--------------|
| 1  | A2A   | Public Services                         | 10 | +   | +     | -    | +    | +   | +   | +            | +              | -             | +             | +            | +            |
| 2  | ACEA  | Public Services                         | 10 | -   | +     | +    | +    | +   | +   | -            | +              | +             | +             | +            | +            |
| 3  | AEDES SIIQ                                    | Goods Property<br>Consumer prod.        | 10 | +   | +     | -    | -    | +   | +   | +            | +              | -             | -             | +            | +            |
| 4  | AEFFE<br>AEROPORTO<br>GUGLIELMO<br>MARCONI DI | serv.                                   | 10 | -   | -     | -    | -    | -   | -   | -            | -              | -             | -             | -            | -            |
| 5  | BOLOGNA<br>ALERION                            | Public Services                         | 5  | +   | -     | +    | +    | +   | +   |              |                |               |               |              |              |
| 6  | CLEANPOWER                                    | Public Services                         | 9  | +   | -     | -    |      | +   | -   | +            | -              | -             |               | +            | -            |
| 7  | ALGOWATT                                      | Public Services                         | 8  | -   | -     | +    | -    | -   | -   | -            | -              | +             | -             | -            | -            |
| 8  | AMBIENTHESIS                                  | Health                                  | 10 | -   | +     | +    | -    | +   | +   | -            | +              | +             | -             | +            | +            |
| 9  | AMPLIFON                                      | Financial Services                      | 10 | +   | -     | +    | +    | +   | +   | +            | -              | +             | +             | +            | +            |
| 10 | ANIMA HOLDING                                 | Public Services                         | 6  | +   | -     | +    | +    | +   | +   | +            | -              | +             | +             | +            | +            |
| 11 | ASCOPIAVE                                     | Constr. Build. tool<br>Industrial Prod. | 10 | +   | -     | -    |      | +   | +   | +            | -              | -             |               | +            | +            |
| 12 | ASTALDI                                       | Serv.<br>Industrial Prod.               | 10 | +   | +     | -    | +    | +   | +   | +            | +              | -             | +             | +            | +            |
| 13 | ASTM  | Serv.                                   | 10 | +   | +     | +    | +    | +   | +   | +            | +              | +             | +             | +            | +            |
| 14 | ATLANTIA                                      | Travel Free Time<br>Industrial Prod.    | 10 | +   | -     | +    | +    | +   | +   | +            | -              | +             | +             | +            | +            |
| 15 | AUTOGRILL<br>AUTOSTRADA                       | Serv.<br>Industrial Prod.               | 10 | +   | +     | -    | +    | +   | +   | +            | +              | -             | +             | +            | +            |
| 16 | MERIDIONALI                                   | Serv.                                   | 9  | -   | +     | +    | -    | -   | -   | -            | +              | +             | -             | -            | -            |
| 17 | AVIO  | Financial Services<br>Consumer prod.    | 6  | +   | +     | -    |      | +   | +   | +            | +              | -             |               | +            | +            |
| 18 | AZIMUT HOLDING                                | serv.<br>Pers Care Food                 | 10 | +   | +     | +    | -    | +   | -   | +            | +              | +             | -             | +            | -            |
| 19 | B&C SPEAKERS                                  | Drugs                                   | 10 | +   | +     | +    | +    | +   | +   | +            | +              | +             | +             | +            | +            |
| 20 | B.F.  | Banks                                   | 7  | -   | +     | -    | -    | +   | +   | -            | +              | -             | -             | +            | +            |
| 21 | BANCA CARIGE                                  | Banks                                   | 6  | +   | +     | -    | +    | +   | +   | +            | +              | -             | +             | +            | +            |
| 22 | BANCA FINNAT                                  | Banks                                   | 6  | +   | +     | -    | -    | +   | +   | +            | +              | -             | -             | +            | +            |
| 23 | BANCA GENERALI                                | Financial Services                      | 6  | +   | -     | -    | +    | +   | +   | +            | -              | -             | +             | +            | +            |
| 24 | BANCA IFIS                                    | Banks                                   | 10 | -   | -     | +    | -    | -   | -   | -            | -              | +             | -             | -            | -            |

| ID | Firm_name                          | Industry                         | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|----|------------------------------------|----------------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 25 | BANCA INTERMOBILIARE               | Financial Services               | 6  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 26 | BANCA MEDIOLANUM                   | Banks                            | 6  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 27 | BANCA MONTE DEI PASCHI DI SIENA    | Banks                            | 6  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 28 | BANCA POPOLARE DELL'EMILIA ROMAGNA | Banks                            | 6  | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 29 | BANCA POPOLARE DI SONDRIO          | Banks                            | 6  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 30 | BANCA PROFILO                      | Banks                            | 6  | -   | -     | -    | -    | -   | +   | -    | -      | -     | -     | -    | +    |
| 31 | BANCA SISTEMA                      | Banks                            | 6  | +   | -     | +    | -    | +   | +   | +    | -      | +     | -     | +    | +    |
| 32 | BANCO BPM                          | Banks                            | 10 | -   | +     | -    | +    | +   | -   | -    | +      | -     | +     | +    | -    |
| 33 | BANCO DI DESIO E DELLA BRIANZA     | Trade Industrial Prod.           | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 34 | BASICNET                           | Serv.                            | 10 | -   | -     | -    | +    | +   | +   | -    | -      | -     | +     | +    | +    |
| 35 | BASTOGI                            | Technology Industrial Prod.      | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 36 | BE                                 | Serv.                            | 7  | +   | -     | +    | +    | +   | +   | +    | -      | +     | +     | +    | +    |
| 37 | BEGHELLI                           | Goods Property Consumer prod.    | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 38 | BENI STABILI SHQ                   | serv.                            | 7  | -   | +     | +    | +    | -   | -   | -    | +      | +     | +     | -    | -    |
| 39 | BIALETTI INDUSTRIE                 | Public Services Industrial Prod. | 10 | -   | +     | +    |      | -   | +   | -    | +      | +     |       | -    | +    |
| 40 | BIANCAMANO                         | Serv. Pers Care Food             | 9  | +   | +     | -    |      | +   | +   | +    | +      | -     |       | +    | +    |
| 41 | BIESSE                             | Drugs Industrial Prod.           | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 42 | BIOERA                             | Serv.                            | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
| 43 | BORGOSIESIA                        | Automotive                       | 10 | -   | +     | -    | +    | +   | -   | -    | +      | -     | +     | +    | -    |
| 44 | BREMBO                             | Goods Property                   | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 45 | BRIOSCHI SVILUPPO IMMOBILIARE      | Consumer prod. serv.             | 10 | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 46 | BRUNELLO CUCINELLI                 | Constr. Build. tool              | 9  | -   | +     | +    |      | -   | +   | -    | +      | +     |       | -    | +    |
| 47 | BUZZI UNICEM                       | Technology                       | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |

| ID | Firm_name                             | Industry                              | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|----|---------------------------------------|---------------------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 48 | CAD IT<br>CAIRO                       | Media<br>Consumer prod.               | 7  | -   | +     | +    |      | -   | -   | -    | +      | +     |       | -    | -    |
| 49 | COMMUNICATION                         | serv.                                 | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 50 | CALEFFI<br>CALTAGIRONE                | Media                                 | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
| 51 | EDITORE                               | Constr. Build. tool<br>Pers Care Food | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 52 | CALTAGIRONE                           | Drugs                                 | 10 | +   | -     | -    | +    | -   | -   | +    | -      | -     | +     | -    | -    |
| 53 | CAMPARI GROUP                         | Automotive                            | 9  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 54 | CARRARO<br>CATTOLICA                  | Insurance<br>Industrial Prod.         | 10 | +   | +     | -    | +    | -   | -   | +    | +      | -     | +     | -    | -    |
| 55 | ASSICURAZIONI                         | Serv.                                 | 10 | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 56 | CEMBRE                                | Constr. Build. tool<br>Pers Care Food | 10 | -   | -     | -    | -    | -   | -   | -    | -      | -     | -     | -    | -    |
| 57 | CEMENTIR HOLDING<br>CENTRALE DEL      | Drugs<br>Industrial Prod.             | 10 | -   | +     | +    | -    | -   | +   | -    | +      | +     | -     | -    | +    |
| 58 | LATTE D'ITALIA                        | Serv.                                 | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 59 | CERVED GROUP                          | Trade<br>Industrial Prod.             | 7  | +   | +     | -    | +    | -   | -   | +    | +      | -     | +     | -    | -    |
| 60 | CHL                                   | Serv.                                 | 7  | -   | +     | -    | +    | +   | -   | -    | +      | -     | +     | +    | -    |
| 61 | CIR                                   | Media                                 | 10 | -   | +     | -    | -    | +   | +   | -    | +      | -     | -     | +    | +    |
| 62 | CLASS EDITORI                         | Goods Property                        | 8  | -   | +     | -    | +    | -   | -   | -    | +      | -     | +     | -    | -    |
| 63 | COIMA RES<br>COMPAGNIA<br>IMMOBILIARE | Financial Services                    | 5  | +   | +     | +    | +    | +   | +   |      |        |       |       |      |      |
| 64 | AZIONARIA                             | Banks                                 | 7  | +   | -     | -    | -    | +   | +   | +    | -      | -     | -     | +    | +    |
| 65 | CONAFI<br>CREDITO                     | Raw Materials<br>Industrial Prod.     | 9  | -   | +     | +    | -    | -   | -   | -    | +      | +     |       | -    | -    |
| 66 | VALTELLINESE                          | Serv.<br>Industrial Prod.             | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 67 | CSP INTERNATIONAL<br>D'AMICO          | Serv.                                 | 10 | +   | +     | -    |      | +   | +   | +    | +      | -     |       | +    | +    |
| 68 | INTERNATIONAL<br>SHIPPING             | Consumer prod.<br>serv.               | 10 | -   | +     | +    | -    | +   | -   | -    | +      | +     | -     | +    | -    |
| 69 | DATALOGIC                             | Financial Services                    | 10 | +   | -     | +    | +    | +   | +   | +    | -      | +     | +     | +    | +    |
| 70 | DE LONGHI                             | Health<br>Consumer prod.              | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 71 | DEA CAPITAL                           | serv.                                 | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |

| ID | Firm_name        | Industry                  | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|----|------------------|---------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 72 | DIASORIN         | Trade                     | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 73 | DIGITAL BROS     | Public Services           | 9  | +   | +     | +    | +    | +   | +   | +    | +      | +     |       | +    | +    |
| 74 | DMAIL GROUP      | Technology                | 6  | +   | -     | +    | +    | +   | +   | +    | -      | +     |       | +    | +    |
| 75 | EDISON           | Telecommunication         | 10 | +   | +     | -    | +    | -   | -   | +    | +      | -     | +     | -    | -    |
| 76 | EEMS             | Health                    | 10 | +   | +     | +    |      | +   | +   | +    | +      | +     |       | +    | +    |
| 77 | EI TOWERS        | Consumer prod.<br>serv.   | 7  | -   | -     | +    | +    | -   | -   | -    | -      | +     | +     | -    | -    |
| 78 | ELEN.            | Consumer prod.<br>serv.   | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     |       | +    | +    |
| 79 | ELICA            | Public Services           | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 80 | EMAK             | Pers Care Food<br>Drugs   | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 81 | ENEL             | Energy                    | 10 | +   | +     | +    | +    | -   | -   | +    | +      | +     | +     | -    | -    |
| 82 | ENERVIT          | Consumer prod.<br>serv.   | 10 | -   | -     | +    |      | -   | +   | -    | -      | +     |       | -    | +    |
| 83 | ENI              | Public Services           | 10 | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 84 | EPRICE           | Energy                    | 6  | -   | -     | -    |      | -   | +   | -    | -      | -     |       | -    | +    |
| 85 | ERG              | Technology                | 10 | -   | +     | -    | +    | +   | -   | -    | +      | -     | +     | +    | -    |
| 86 | ERGYCAPITAL      | Consumer prod.<br>serv.   | 6  | +   | +     | +    |      | +   | -   | +    | +      | +     |       | +    | -    |
| 87 | ESPRINET         | Health                    | 10 | -   | -     | -    | -    | -   | +   | -    | -      | -     | -     | -    | +    |
| 88 | ESSILORLUXOTTICA | Technology                | 7  | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 89 | EUKEDOS          | Technology                | 10 | -   | +     | -    | -    | +   | -   | -    | +      | -     |       | +    | -    |
| 90 | EUROTECH         | Public Services           | 9  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 91 | EXOR             | Industrial Prod.<br>Serv. | 5  | -   | -     | +    | +    | -   | -   |      |        |       |       |      |      |
| 92 | EXPRIVIA         | Industrial Prod.<br>Serv. | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 93 | FALCK RENEWABLES | Pers Care Food<br>Drugs   | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 94 | FIDIA            | Industrial Prod.<br>Serv. | 8  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 95 | FIERA MILANO     | Travel Free Time          | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 96 | FILA             | Technology                | 8  | -   | -     | +    | -    | -   | -   | -    | -      | +     | -     | -    | -    |
| 97 | FINCANTIERI      | Goods Property            | 7  | +   | -     | +    | +    | -   | -   | +    | -      | +     | +     | -    | -    |
| 98 | FNM              | Energy                    | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |

| ID  | Firm_name                     | Industry                              | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|-----|-------------------------------|---------------------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 99  | FULLSIX                       | Industrial Prod.<br>Serv.             | 10 | +   | +     | +    | +    | -   | -   | +    | +      | +     | +     | -    | -    |
| 100 | GABETTI PROPERTY<br>SOLUTIONS | Insurance<br>Consumer prod.<br>serv.  | 10 | +   | -     | -    | -    | -   | -   | +    | -      | -     | -     | -    | -    |
| 101 | GAS PLUS                      | Consumer prod.<br>serv.               | 10 | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 102 | GEFRAN                        | Consumer prod.<br>serv.               | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 103 | GENERALI                      | Media                                 | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 104 | GEOX                          | Public Services                       | 10 | -   | -     | +    | -    | -   | -   | -    | -      | +     | -     | -    | -    |
| 105 | GEQUITY                       | Travel Free Time                      | 5  | -   | -     | -    | -    | -   | -   | -    | -      | -     | -     | -    | -    |
| 106 | GIORGIO FEDON                 | Goods Property                        | 8  | +   | -     | +    | -    | +   | +   | +    | -      | +     | -     | +    | +    |
| 107 | GRUPPO MONDO TV               | Raw Materials                         | 10 | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 108 | HERA                          | Industrial Prod.<br>Serv.             | 9  | +   | -     | -    | +    | +   | -   | +    | -      | -     | +     | +    | -    |
| 109 | I GRANDI VIAGGI               | Banks                                 | 10 | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 110 | IGD - SIIQ                    | Telecommunication                     | 10 | -   | -     | -    | -    | -   | -   | -    | -      | -     | -     | -    | -    |
| 111 | INTEK GROUP                   | Industrial Prod.<br>Serv.             | 10 | +   | -     | -    | -    | +   | -   | +    | -      | -     | -     | +    | -    |
| 112 | INTERPUMP GROUP               | Public Services                       | 10 | +   | -     | -    | +    | +   | -   | +    | -      | -     | +     | +    | -    |
| 113 | INTESA SAN PAOLO              | Technology                            | 10 | -   | -     | +    | -    | +   | +   | -    | -      | +     | -     | +    | +    |
| 114 | INWIT                         | Financial Services                    | 6  | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 115 | IRCE                          | Travel Free Time<br>Pers Care Food    | 10 | +   | -     | +    | -    | +   | +   | +    | -      | +     | -     | +    | +    |
| 116 | IREN                          | Drugs                                 | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 117 | ISAGRO SPA                    | Automotive<br>Industrial Prod.        | 5  | -   | -     | -    | -    | -   | -   | -    | -      | -     | -     | -    | -    |
| 118 | IT WAY                        | Industrial Prod.<br>Serv.             | 9  | +   | -     | -    | +    | +   | -   | +    | -      | -     | +     | +    | -    |
| 119 | ITAL GAS                      | Financial Services                    | 5  | +   | -     | -    | +    | +   | -   | -    | -      | -     | -     | -    | -    |
| 120 | ITALMOBILIARE                 | Constr. Build. tool<br>Pers Care Food | 9  | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 121 | JUVENTUS                      | Drugs                                 | 9  | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 122 | LA DORIA                      | Media                                 | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 123 | LANDI RENZO                   | Financial Services                    | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 124 | LEONARDO                      | Financial Services                    | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
| 125 | LVENTURE GROUP                | Consumer prod.<br>serv.               | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |

| ID  | Firm_name       | Industry                              | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|-----|-----------------|---------------------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 126 | MAIRE TECNIMONT | Media                                 | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 127 | MARR            | Media                                 | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 128 | MEDIASET        | Financial Services                    | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 129 | MEDIOBANCA      | Goods Property                        | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 130 | MITTEL          | Technology<br>Industrial Prod.        | 9  | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 131 | MONCLER         | Serv.                                 | 8  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
|     | MONDADORI       | Consumer prod.                        |    |     |       |      |      |     |     |      |        |       |       |      |      |
| 132 | EDITORE         | serv.                                 | 10 | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 133 | MONRIF          | Constr. Build. tool<br>Consumer prod. | 10 | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 134 | MUTUI ONLINE    | serv.                                 | 6  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 135 | NOVA RE         | Health                                | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 136 | OLIDATA SPA     | Automotive<br>Consumer prod.          | 9  | +   | -     | -    |      | +   | -   | +    | -      | -     |       | +    | -    |
| 137 | OPENJOBMETIS    | serv.                                 | 6  | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 138 | OVS             | Constr. Build. tool                   | 7  | +   | +     | +    |      | +   | -   | +    | +      | +     |       | +    | -    |
|     | PANARIAGROUP    | Industrial Prod.                      |    |     |       |      |      |     |     |      |        |       |       |      |      |
| 139 | CERAMICHE       | Serv.                                 | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 140 | PIAGGIO         | Media                                 | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 141 | PIERREL         | Insurance<br>Industrial Prod.         | 10 | -   | +     | +    | -    | -   | +   | -    | +      | +     | -     | -    | +    |
| 142 | PININFARINA     | Serv.<br>Industrial Prod.             | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 143 | PIQUADRO        | Serv.                                 | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 144 | PLC             | Telecommunication                     | 9  | -   | +     | +    | -    | -   | +   | -    | +      | +     | -     | -    | +    |
|     | POLIGRAFICA S   | Raw Materials                         |    |     |       |      |      |     |     |      |        |       |       |      |      |
| 145 | FAUSTINO        | Raw Materials                         | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
|     | POLIGRAFICI     |                                       |    |     |       |      |      |     |     |      |        |       |       |      |      |
| 146 | EDITORIALE      | Media                                 | 7  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 147 | POSTE ITALIANE  | Health<br>Industrial Prod.            | 6  | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 148 | PRIMA INDUSTRIE | Serv.                                 | 10 | +   | +     | -    |      | +   | +   | +    | +      | -     |       | +    | +    |
| 149 | PRYSMIAN        | Technology                            | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 150 | RAI WAY         | Telecommunication                     | 7  | +   | -     | -    | +    | +   | -   | +    | -      | -     | +     | +    | -    |
| 151 | RATTI           | Goods Property                        | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 152 | RCS MEDIAGROUP  | Media                                 | 10 | +   | +     | -    | +    | -   | +   | +    | +      | -     | +     | -    | +    |

| ID  | Firm_name                         | Industry                  | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|-----|-----------------------------------|---------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 153 | RECORDATI                         | Consumer prod.<br>serv.   | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 154 | RENO DE MEDICI                    | Technology                | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 155 | REPLY                             | Industrial Prod.<br>Serv. | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 156 | RETELIT                           | Consumer prod.<br>serv.   | 10 | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 157 | RISANAMENTO                       | Energy                    | 10 | -   | +     | -    | -    | -   | +   | -    | +      | -     | -     | -    | +    |
| 158 | ROMA                              | Consumer prod.<br>serv.   | 7  | -   | +     | +    | -    | -   | -   | -    | +      | +     | -     | -    | -    |
| 159 | ROSSS                             | Energy                    | 9  | +   | +     | -    | -    | +   | +   | +    | +      | -     | -     | +    | +    |
| 160 | SABAF                             | Industrial Prod.<br>Serv. | 10 | +   | -     | -    | +    | +   | -   | +    | -      | -     | +     | +    | -    |
| 161 | SAES GETTERS                      | Industrial Prod.<br>Serv. | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 162 | SAFILO GROUP                      | Technology                | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 163 | SAIPEM                            | Energy                    | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 164 | SALVATORE                         | Telecommunication         | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 165 | FERRAGAMO                         | Automotive                | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 166 | SARAS                             | Chemicals                 | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 167 | SERI INDUSTRIAL                   | Financial Services        | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
| 168 | SERVIZI ITALIA                    | Technology                | 8  | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 169 | SESA                              | Technology                | 8  | +   | +     | -    | +    | +   | -   | +    | +      | -     | +     | +    | -    |
| 170 | SNAM                              | Telecommunication         | 10 | +   | +     | +    | +    | +   | -   | +    | +      | +     | +     | +    | -    |
| 170 | SOFILAB                           | Public Services           | 10 | +   | -     | +    | +    | +   | -   | +    | -      | +     | +     | +    | -    |
| 171 | SOGEFI                            | Industrial Prod.<br>Serv. | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 172 | SOL                               | Telecommunication         | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 173 | TAMBURI<br>INVESTMENT<br>PARTNERS | Consumer prod.<br>serv.   | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 174 | TAS                               | Industrial Prod.<br>Serv. | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 175 | TECHNOGYM                         | Constr. Build. tool       | 5  | +   | -     | -    | +    | +   | -   | -    | -      | -     | -     | -    | -    |
| 176 | TELECOM ITALIA                    | Technology                | 10 | -   | -     | -    | -    | -   | -   | -    | -      | -     | -     | -    | -    |
| 177 | TERNA                             | Banks                     | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 178 | TESMEC                            | Insurance                 | 9  | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |



| ID  | Firm_name                | Industry                         | n. | CEO | noCEO | Dir. | Lead | >Me | <Me | ΔCEO | ΔnoCEO | ΔDir. | ΔLead | Δ>Me | Δ<Me |
|-----|--------------------------|----------------------------------|----|-----|-------|------|------|-----|-----|------|--------|-------|-------|------|------|
| 179 | TINEXTA                  | Insurance<br>Pers Care Food      | 5  | +   | +     | +    | +    | +   | +   |      |        |       |       |      |      |
| 180 | TISCALI                  | Drugs                            | 10 | +   | +     | -    | +    | -   | +   | +    | +      | -     |       | -    | +    |
| 181 | TOD'S                    | Constr. Build. tool              | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 182 | TOSCANA<br>AEROPORTI     | Industrial Prod.<br>Serv.        | 9  | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 183 | TREVI FIN<br>INDUSTRIALE | Consumer prod.<br>serv.          | 10 | +   | +     | -    |      | +   | +   | +    | +      | -     |       | +    | +    |
| 184 | TXT                      | Public Services                  | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 185 | UNICREDIT                | Public Services                  | 10 | +   | -     | -    | -    | -   | +   | +    | -      | -     | -     | -    | +    |
| 186 | UNIPOL                   | Goods Property<br>Consumer prod. | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 187 | UNIPOLSAI                | serv.                            | 7  | +   | -     | -    | +    | +   | +   | +    | -      | -     | +     | +    | +    |
| 188 | VALSOIA                  | Public Services                  | 10 | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
| 189 | VIANINI                  | Public Services                  | 10 | +   | +     | +    | +    | +   | +   | +    | +      | +     | +     | +    | +    |
| 190 | ZIGNAGO VETRO            | Public Services                  | 10 | +   | -     | +    | -    | +   | +   | +    | -      | +     | -     | +    | +    |
| 191 | ZUCCHI                   | Health                           | 6  | +   | +     | -    | +    | +   | +   | +    | +      | -     | +     | +    | +    |
|     |                          |                                  |    | 76% | 68%   | 49%  | 78%  | 76% | 53% | 73%  | 66%    | 47%   | 64%   | 74%  | 51%  |
|     |                          |                                  |    | 24% | 32%   | 51%  | 22%  | 24% | 47% | 23%  | 29%    | 49%   | 18%   | 22%  | 45%  |

Table 5 – Univariate OLS analysis

$$VEC(eps)_i = \beta_0 + VSC * CEC_i + \varepsilon_i$$

$$\Delta VEC(eps)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \varepsilon_i$$

| Dependent Variable  | Variable                  | Coefficient | Intercept | R <sup>2</sup> | R <sup>2</sup> adj. | N.  |
|---------------------|---------------------------|-------------|-----------|----------------|---------------------|-----|
| VEC (EPS)           | CEC (CEO)                 | 0,0772***   | 0,3227*** | 0,2328         | 0,2236              | 191 |
|                     | CEC (non-CEO)             | 0,1075      | 0,328**   | 0,1205         | 0,1156              | 191 |
|                     | CEC (directors)           | 0,1233      | 0,3292*   | 0,1023         | 0,0925              | 191 |
|                     | CEC (leaders)             | 0,1341**    | 0,3861*** | 0,2026         | 0,2017              | 170 |
|                     | CEC (above Me)            | 0,085***    | 0,3214*** | 0,2908         | 0,2816              | 191 |
|                     | CEC (below Me)            | 0,023       | 0,3442**  | 0,1234         | 0,1142              | 191 |
| VEC ( $\Delta$ EPS) | CEC ( $\Delta$ CEO)       | 0,0934**    | 0,2372*** | 0,2271         | 0,2179              | 183 |
|                     | CEC ( $\Delta$ non-CEO)   | 0,2101      | 0,2435**  | 0,1262         | 0,1213              | 183 |
|                     | CEC ( $\Delta$ directors) | 0,1062      | 0,258*    | 0,1188         | 0,109               | 183 |
|                     | CEC ( $\Delta$ leaders)   | 0,0729**    | 0,2534*** | 0,247          | 0,2461              | 157 |
|                     | CEC ( $\Delta$ above me)  | 0,0059***   | 0,2563*** | 0,2411         | 0,2319              | 183 |
|                     | CEC ( $\Delta$ below me)  | 0,1055      | 0,2548*** | 0,1101         | 0,1009              | 183 |

Notes Significant levels are: 1% (\*\*\*) , 5%(\*\*) and 10%(\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EPS and total compensation minus end-of-service allowance in reg. 1 and 2.

Table 6.1 – Multivariate analysis for VEC's (EPS) and CEC's.

$$VEC(EPS)_i = \beta_0 + VSC * CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE * CEC)_i + \varepsilon_i$$

$$VEC(EPS)_i = \beta_0 + VSC * CEC_i + \beta_1 PROF_i + \beta_2 (PROF * CEC)_i + \varepsilon_i$$

$$VEC(EPS)_i = \beta_0 + VSC * CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE * CEC)_i + \varepsilon_i$$

$$VEC(EPS)_i = \beta_0 + VSC * CEC_i + \beta_1 GINI_i + \beta_2 (GINI * CEC)_i + \varepsilon_i$$


---

| Model | CEC      | VSC   | Feature | $\beta_1$ | Feat. *CEC | Intercept | $R^2$ | $R^2_{adj.}$ | N.  |
|-------|----------|-------|---------|-----------|------------|-----------|-------|--------------|-----|
| 1.1   | CEO      | 0,11* | DAsset  | 0,28*     | 0,13**     | 176***    | 0,20  | 0,17         | 191 |
| 1.2   | non-CEO  | 0,05  | DAsset  | 0,14**    | 0,04       | 185***    | 0,16  | 0,12         | 191 |
| 1.3   | director | 0,1   | DAsset  | 0,17***   | -0,09      | 161***    | 0,16  | 0,13         | 191 |
| 1.4   | Leader   | 0,18* | DAsset  | 0,17*     | 0,13**     | 146***    | 0,22  | 0,19         | 170 |
| 1.5   | Below Me | 0,02  | DAsset  | 0,17***   | 0,03       | 188***    | 0,16  | 0,12         | 191 |
| 1.6   | Above Me | 0,18* | DAsset  | 0,14***   | 0,08*      | 159***    | 0,27  | 0,22         | 191 |
| 2.1   | CEO      | 0,22* | DBS     | 0,38      | 0,18       | 208***    | 0,36  | 0,32         | 191 |
| 2.2   | non-CEO  | 0,18  | DBS     | 0,49      | 0,27       | 239***    | 0,34  | 0,19         | 191 |
| 2.3   | director | -0,08 | DBS     | 0,36*     | 0,07*      | 225***    | 0,46  | 0,31         | 191 |
| 2.4   | Leader   | 0,25* | DBS     | 0,14      | 0,11       | 108***    | 0,40  | 0,36         | 170 |
| 2.5   | Below Me | -0,04 | DBS     | 0,34      | -0,1       | 238***    | 0,21  | 0,05         | 191 |
| 2.6   | Above Me | 0,23* | DBS     | 0,26      | 0,16       | 220***    | 0,39  | 0,24         | 191 |
| 3.1   | CEO      | 0,08* | DROE    | 0,68*     | 0,03*      | 190***    | 0,23  | 0,17         | 191 |
| 3.2   | non-CEO  | 0,12  | DROE    | 0,93*     | 0,12       | 209***    | 0,19  | 0,16         | 191 |
| 3.3   | director | 0,09  | DROE    | 0,89**    | 0,11       | 199***    | 0,17  | 0,16         | 191 |
| 3.4   | Leader   | 0,05* | DROE    | 0,38*     | 0,02       | 181***    | 0,25  | 0,19         | 170 |
| 3.5   | Below Me | 0,11  | DROE    | 0,1*      | 0,01       | 223***    | 0,32  | 0,29         | 191 |
| 3.6   | Above Me | 0,05* | DROE    | 0,43      | 0,04*      | 211***    | 0,25  | 0,21         | 191 |
| 4.1   | CEO      | 0,08  | DTenure | 0,59**    | 0,22**     | 177**     | 0,30  | 0,26         | 191 |
| 4.2   | Leader   | 0,09  | DTenure | 0,29**    | 0,13**     | 127**     | 0,18  | 0,14         | 170 |
| 4.3   | director | -0,13 | DTenure | 0,15*     | -0,08      | 104       | 0,08  | 0,07         | 191 |
| 4.4   | non-CEO  | -0,01 | DTenure | 0,21**    | 0,15*      | 537       | 0,14  | 0,01         | 191 |
| 4.5   | Below Me | -0,34 | DTenure | 0,99*     | -0,34      | 184       | 0,13  | 0,04         | 191 |
| 4.6   | Above Me | 0,07  | DTenure | 0,27**    | 0,15**     | 289**     | 0,28  | 0,13         | 191 |
| 5.1   | CEO      | 0,05  | DGini   | 0,76**    | 0,1***     | 269***    | 0,29  | 0,27         | 191 |
| 5.2   | non-CEO  | -0,04 | DGini   | -0,51     | -0,02      | 288***    | 0,3   | 0,18         | 191 |
| 5.3   | director | -0,09 | DGini   | -0,33*    | 0,13       | 265***    | 0,22  | 0,06         | 191 |
| 5.4   | Leader   | 0,02  | DGini   | 0,46***   | 0,21***    | 149***    | 0,32  | 0,3          | 170 |
| 5.5   | Below Me | -0,16 | DGini   | -0,81*    | 0,14       | 323***    | 0,32  | 0,06         | 191 |
| 5.6   | Above Me | 0,11  | DGini   | -0,3**    | 0,07***    | 252***    | 0,24  | 0,02         | 191 |

Notes Significant levels are: 1% (\*\*\*) and 5%(\*\*) and 10%(\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EPS and total compensation minus end-of-service allowance in reg. 1 and 2.

Table 6.2 – Multivariate analysis for change in VEC's (EPS) and CEC's.

$$\Delta VEC(EPS)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EPS)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 PROF_i + \beta_2 (PROF * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EPS)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EPS)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 GINI_i + \beta_2 (GINI * \Delta CEC)_i + \varepsilon_i$$

| Model | CEC      | VSC    | Binary  | B1      | Binary*CEC | Intercept | R <sup>2</sup> | R <sup>2</sup> adj. | N   |
|-------|----------|--------|---------|---------|------------|-----------|----------------|---------------------|-----|
| 6.1   | CEO      | 0,1**  | DROE    | 0,82*   | 0,04*      | 13***     | 0,22           | 0,16                | 183 |
| 6.2   | non-CEO  | 0,23   | DROE    | 0,82*   | 0,23       | 15***     | 0,14           | 0,12                | 183 |
| 6.3   | director | 0,08   | DROE    | 0,77**  | 0,09       | 14***     | 0,12           | 0,12                | 183 |
| 6.4   | Leader   | 0,03*  | DROE    | 0,21*   | 0,01       | 13***     | 0,24           | 0,18                | 157 |
| 6.5   | Below Me | 0,5    | DROE    | 0,46*   | 0,05       | 16***     | 0,24           | 0,22                | 183 |
| 6.6   | Above Me | 0,01*  | DROE    | 0,03    | 0,01*      | 15***     | 0,21           | 0,18                | 183 |
| 7.1   | CEO      | 0,27** | DBS     | 0,46    | 0,22*      | 15***     | 0,35           | 0,30                | 183 |
| 7.2   | non-CEO  | 0,35   | DBS     | 0,96*   | 0,53       | 17***     | 0,26           | 0,14                | 183 |
| 7.3   | director | -0,07  | DBS     | 0,31*   | 0,06*      | 16***     | 0,35           | 0,23                | 183 |
| 7.4   | Leader   | 0,14*  | DBS     | 0,08    | 0,06       | 8***      | 0,38           | 0,34                | 157 |
| 7.5   | Below Me | -0,18  | DBS     | 1,56    | -0,46      | 17***     | 0,16           | 0,04                | 183 |
| 7.6   | Above Me | 0,02*  | DBS     | 0,02    | 0,01       | 15***     | 0,33           | 0,21                | 183 |
| 8.1   | CEO      | 0,13*  | DAsset  | 0,34*   | 0,16**     | 12***     | 0,19           | 0,16                | 183 |
| 8.2   | non-CEO  | 0,1    | DAsset  | 0,27**  | 0,08       | 13***     | 0,12           | 0,09                | 183 |
| 8.3   | director | 0,09   | DAsset  | 0,15*** | -0,08      | 11***     | 0,12           | 0,09                | 183 |
| 8.4   | Leader   | 0,1*   | DAsset  | 0,09*   | 0,07**     | 10***     | 0,21           | 0,18                | 157 |
| 8.5   | Below Me | 0,09   | DAsset  | 0,78*** | 0,14       | 13***     | 0,12           | 0,09                | 183 |
| 8.6   | Above Me | 0,01*  | DAsset  | 0,01*** | 0,01*      | 11***     | 0,23           | 0,18                | 183 |
| 9.1   | CEO      | 0,1    | DTenure | 0,71*** | 0,27**     | 12***     | 0,29           | 0,25                | 183 |
| 9.2   | Leader   | 0,18   | DTenure | 0,57**  | 0,25**     | 9***      | 0,14           | 0,10                | 157 |
| 9.3   | director | -0,11  | DTenure | 0,13*   | 0,07       | 7         | 0,06           | 0,05                | 183 |
| 9.4   | non-CEO  | -0,01  | DTenure | 0,11**  | 0,08*      | 38        | 0,13           | 0,09                | 183 |
| 9.5   | Below Me | -0,61  | DTenure | 0,54*   | -1,56      | 13        | 0,10           | 0,10                | 183 |
| 9.6   | Above Me | 0,01   | DTenure | 0,02**  | 0,01**     | 20***     | 0,24           | 0,11                | 183 |
| 10.1  | CEO      | 0,06   | DGini   | 0,59*** | 0,12***    | 19***     | 0,27           | 0,26                | 183 |
| 10.2  | non-CEO  | -0,08  | DGini   | -0,7    | -0,04      | 20***     | 0,22           | 0,19                | 183 |
| 10.3  | director | -0,08  | DGini   | -0,28** | 0,11       | 19***     | 0,16           | 0,15                | 183 |
| 10.4  | Leader   | 0,01   | DGini   | 0,25*** | 0,11***    | 10***     | 0,30           | 0,28                | 157 |
| 10.5  | Below Me | -0,73  | DGini   | -0,72** | 0,64       | 23***     | 0,24           | 0,22                | 183 |
| 10.6  | Above Me | 0,01   | DGini   | -0,02** | 0,01***    | 18***     | 0,20           | 0,18                | 183 |

Notes Significant levels are: 1% (\*\*\*) , 5%(\*\*) and 10%(\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EPS and total compensation minus end-of-service allowance in reg. 1 and 2.

Table 7 Proportion of fixed compensation on total compensation for CEO, Leaders, and Administrators

| Unit     | Avg % of fixed compensation on total compensation | $\sigma^2$ | n    | H1  | Z       |
|----------|---|------------|------|---|---------|
| Director | 0,86  | 0,04       | 1615 |   |         |
| Leader   | 0,74  | 0,04       | 1309 | % FR on TR of Leader < % FR on Leader of Director | 5,46*** |
| CEO      | 0,71  | 0,21       | 1738 | % FR on TR of CEO < % FR on TR of Director        | 5,51*** |

Notes: the Z-statistics are in the last one column, the significant levels is 1% (\*\*\*) levels. The second column contains the average percentage of fixed remuneration out of the total remuneration for the data sample described in Table 1.

Table 8 – Robustness: Univariate OLS analysis

| $VEC(EBITDA)_i = \beta_0 + VSC * CEC_i + \varepsilon_i$<br>$\Delta VEC(EBITDA)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \varepsilon_i$ |                           |             |           |                |                     |     |
|---|---------------------------|-------------|-----------|----------------|---------------------|-----|
| Dependent Variable  | Variable                  | Coefficient | Intercept | R <sup>2</sup> | R <sup>2</sup> adj. | N.  |
| VEC (EBITDA)  | CEC (CEO)                 | 0,0540**    | 287***    | 0,1630         | 0,1565              | 191 |
|   | CEC (non-CEO)             | 0,0753      | 218**     | 0,0844         | 0,0809              | 191 |
|   | CEC (directors)           | 0,0863      | 192*      | 0,0716         | 0,0648              | 191 |
|   | CEC (leaders)             | 0,0938*     | 261***    | 0,1418         | 0,1412              | 170 |
|   | CEC (above Me)            | 0,0595***   | 183***    | 0,2036         | 0,1971              | 191 |
|   | CEC (below Me)            | 0,0161      | 142**     | 0,0864         | 0,0799              | 191 |
| VEC ( $\Delta$ EBITDA)  | CEC ( $\Delta$ CEO)       | 0,0654*     | 72***     | 0,1590         | 0,1525              | 183 |
|   | CEC ( $\Delta$ non-CEO)   | 0,1471      | 35**      | 0,0883         | 0,0849              | 183 |
|   | CEC ( $\Delta$ directors) | 0,0743      | 18*       | 0,0832         | 0,0763              | 183 |
|   | CEC ( $\Delta$ leaders)   | 0,051*      | 34***     | 0,1729         | 0,1723              | 157 |
|   | CEC ( $\Delta$ above me)  | 0,0041***   | 63***     | 0,1688         | 0,1623              | 183 |
|   | CEC ( $\Delta$ below me)  | 0,0739      | 48***     | 0,0771         | 0,0706              | 183 |

Notes Significant levels are: 1% (\*\*\*) , 5%(\*\*) and 10%(\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EBITDA and total compensation minus end-of-service allowance in reg. 1 and 2.

Table 9.1 Robustness – Multivariate analysis for VEC's (EBITDA) and CEC's.

$$VEC(EBITDA)_i = \beta_0 + VSC * CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE * CEC)_i + \varepsilon_i$$

$$VEC(EBITDA)_i = \beta_0 + VSC * CEC_i + \beta_1 PROF_i + \beta_2 (PROF * CEC)_i + \varepsilon_i$$

$$VEC(EBITDA)_i = \beta_0 + VSC * CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE * CEC)_i + \varepsilon_i$$

$$VEC(EBITDA)_i = \beta_0 + VSC * CEC_i + \beta_1 GINI_i + \beta_2 (GINI * CEC)_i + \varepsilon_i$$

| Model | CEC      | VSC   | Feature | $\beta_1$ | Feat.*CEC | Intercept | $R^2$ | $R^2_{adj.}$ | N.  |
|-------|----------|-------|---------|-----------|-----------|-----------|-------|--------------|-----|
| 1.1   | CEO      | 0,04* | DAsset  | 0,09*     | 0,04**    | 58***     | 0,11  | 0,09         | 191 |
| 1.2   | non-CEO  | 0,02  | DAsset  | 0,05**    | 0,01      | 61***     | 0,09  | 0,07         | 191 |
| 1.3   | director | 0,03  | DAsset  | 0,06***   | -0,03     | 53***     | 0,09  | 0,07         | 191 |
| 1.4   | Leader   | 0,06* | DAsset  | 0,06*     | 0,04**    | 48***     | 0,12  | 0,10         | 170 |
| 1.5   | Below Me | 0,01  | DAsset  | 0,06***   | 0,01      | 62***     | 0,09  | 0,07         | 191 |
| 1.6   | Above Me | 0,06* | DAsset  | 0,05***   | 0,03**    | 52***     | 0,15  | 0,12         | 191 |
| 2.1   | CEO      | 0,07* | DBS     | 0,13      | 0,06      | 69***     | 0,20  | 0,18         | 191 |
| 2.2   | non-CEO  | 0,06  | DBS     | 0,16*     | 0,09      | 79***     | 0,19  | 0,10         | 191 |
| 2.3   | director | -0,03 | DBS     | 0,12*     | 0,02*     | 74***     | 0,25  | 0,17         | 191 |
| 2.4   | Leader   | 0,08* | DBS     | 0,05      | 0,04      | 36***     | 0,22  | 0,20         | 170 |
| 2.5   | Below Me | -0,01 | DBS     | 0,11      | -0,03     | 79***     | 0,12  | 0,03         | 191 |
| 2.6   | Above Me | 0,08* | DBS     | 0,09      | 0,05      | 73***     | 0,21  | 0,13         | 191 |
| 3.1   | CEO      | 0,03* | DROE    | 0,22*     | 0,01*     | 63***     | 0,13  | 0,09         | 191 |
| 3.2   | non-CEO  | 0,04  | DROE    | 0,31*     | 0,04      | 69***     | 0,10  | 0,09         | 191 |
| 3.3   | director | 0,03  | DROE    | 0,29**    | 0,04      | 66***     | 0,09  | 0,09         | 191 |
| 3.4   | Leader   | 0,02* | DROE    | 0,13*     | 0,01      | 60***     | 0,14  | 0,10         | 170 |
| 3.5   | Below Me | 0,04  | DROE    | 0,03*     | 0,01      | 74***     | 0,18  | 0,16         | 191 |
| 3.6   | Above Me | 0,02* | DROE    | 0,14      | 0,01*     | 70***     | 0,14  | 0,12         | 191 |
| 4.1   | CEO      | 0,03  | DTenure | 0,19**    | 0,07*     | 58***     | 0,17  | 0,14         | 191 |
| 4.2   | Leader   | 0,03  | DTenure | 0,1*      | 0,04**    | 42***     | 0,10  | 0,08         | 170 |
| 4.3   | director | -0,04 | DTenure | 0,05*     | -0,03     | 34        | 0,14  | 0,14         | 191 |
| 4.4   | non-CEO  | 0,01  | DTenure | 0,07**    | 0,05*     | 177       | 0,08  | 0,07         | 191 |
| 4.5   | Below Me | -0,11 | DTenure | 0,33*     | -0,11     | 61        | 0,07  | 0,02         | 191 |
| 4.6   | Above Me | 0,02  | DTenure | 0,09**    | 0,05**    | 95***     | 0,15  | 0,10         | 191 |
| 5.1   | CEO      | 0,02  | DGini   | 0,25**    | 0,03***   | 89***     | 0,16  | 0,15         | 191 |
| 5.2   | non-CEO  | -0,01 | DGini   | -0,17     | -0,01     | 95***     | 0,17  | 0,10         | 191 |
| 5.3   | director | -0,03 | DGini   | -0,11*    | 0,04      | 87***     | 0,12  | 0,03         | 191 |
| 5.4   | Leader   | 0,01  | DGini   | 0,15**    | 0,07***   | 49***     | 0,18  | 0,17         | 170 |
| 5.5   | Below Me | -0,05 | DGini   | -0,27*    | 0,05      | 107***    | 0,18  | 0,13         | 191 |
| 5.6   | Above Me | 0,04  | DGini   | -0,1*     | 0,02**    | 83***     | 0,13  | 0,11         | 191 |

Notes Significant levels are: 1% (\*\*\*) and 5% (\*\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EBITDA and total compensation minus end-of-service allowance in reg. 1 and 2.

Table 9.2 Robustness – Multivariate analysis for change in VEC's (EBITDA) and CEC's.

$$\Delta VEC(EBITDA)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 SIZE_i + \beta_2 (SIZE * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EBITDA)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 PROF_i + \beta_2 (PROF * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EBITDA)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 TENURE_i + \beta_2 (TENURE * \Delta CEC)_i + \varepsilon_i$$

$$\Delta VEC(EBITDA)_i = \beta_0 + \Delta VSC * \Delta CEC_i + \beta_1 GINI_i + \beta_2 (GINI * \Delta CEC)_i + \varepsilon_i$$

| Model | CEC      | VSC   | Binary  | B1      | Binary*CEC | Intercept | R <sup>2</sup> | R <sup>2</sup> adj. | N   |
|-------|----------|-------|---------|---------|------------|-----------|----------------|---------------------|-----|
| 6.1   | CEO      | 0,03* | DROE    | 0,27*   | 0,01       | 4***      | 0,12           | 0,09                | 183 |
| 6.2   | non-CEO  | 0,08  | DROE    | 0,27*   | 0,08       | 5***      | 0,08           | 0,07                | 183 |
| 6.3   | director | 0,03  | DROE    | 0,25**  | 0,03       | 5***      | 0,07           | 0,07                | 183 |
| 6.4   | Leader   | 0,01* | DROE    | 0,07*   | 0,01       | 4***      | 0,13           | 0,10                | 157 |
| 6.5   | Below Me | 0,17  | DROE    | 0,15*   | 0,02       | 5***      | 0,13           | 0,12                | 183 |
| 6.6   | Above Me | 0,01* | DROE    | 0,01    | 0,01       | 5***      | 0,12           | 0,10                | 183 |
| 7.1   | CEO      | 0,09* | DBS     | 0,15    | 0,07*      | 5***      | 0,19           | 0,17                | 183 |
| 7.2   | non-CEO  | 0,12  | DBS     | 0,32*   | 0,17       | 6***      | 0,14           | 0,08                | 183 |
| 7.3   | director | -0,02 | DBS     | 0,1*    | -0,02      | 5***      | 0,19           | 0,13                | 183 |
| 7.4   | Leader   | 0,05* | DBS     | 0,03    | 0,02       | 3***      | 0,21           | 0,19                | 157 |
| 7.5   | Below Me | -0,06 | DBS     | 0,51    | -0,15      | 6***      | 0,09           | 0,02                | 183 |
| 7.6   | Above Me | 0,01* | DBS     | 0,01    | 0,01       | 5***      | 0,18           | 0,12                | 183 |
| 8.1   | CEO      | 0,04* | DAsset  | 0,11*   | 0,05*      | 4***      | 0,10           | 0,09                | 183 |
| 8.2   | non-CEO  | 0,03  | DAsset  | 0,09**  | 0,03       | 4***      | 0,07           | 0,05                | 183 |
| 8.3   | director | 0,03  | DAsset  | 0,05**  | -0,03      | 4***      | 0,07           | 0,05                | 183 |
| 8.4   | Leader   | 0,03* | DAsset  | 0,03*   | 0,02**     | 3***      | 0,12           | 0,10                | 157 |
| 8.5   | Below Me | 0,03  | DAsset  | 0,26*** | 0,05       | 4***      | 0,07           | 0,05                | 183 |
| 8.6   | Above Me | 0,01* | DAsset  | 0,01*   | 0,01*      | 4***      | 0,13           | 0,10                | 183 |
| 9.1   | CEO      | 0,03  | DTenure | 0,23**  | 0,09**     | 4***      | 0,16           | 0,14                | 183 |
| 9.2   | Leader   | 0,06  | DTenure | 0,19**  | 0,08**     | 3***      | 0,08           | 0,06                | 157 |
| 9.3   | director | -0,04 | DTenure | 0,04*   | 0,02       | 2         | 0,03           | 0,03                | 183 |
| 9.4   | non-CEO  | 0,01  | DTenure | 0,04**  | 0,03*      | 13        | 0,07           | 0,05                | 183 |
| 9.5   | Below Me | -0,2  | DTenure | 0,18*   | -0,51      | 4         | 0,06           | 0,06                | 183 |
| 9.6   | Above Me | 0,01  | DTenure | 0,01**  | 0,01*      | 7***      | 0,13           | 0,06                | 183 |
| 10.1  | CEO      | 0,02  | DGini   | 0,19*** | 0,04***    | 6***      | 0,15           | 0,14                | 183 |
| 10.2  | non-CEO  | -0,03 | DGini   | -0,23   | -0,01      | 7***      | 0,12           | 0,10                | 183 |
| 10.3  | director | -0,03 | DGini   | -0,09*  | 0,04       | 6***      | 0,09           | 0,08                | 183 |
| 10.4  | Leader   | 0,01  | DGini   | 0,08*** | 0,04***    | 3***      | 0,17           | 0,15                | 157 |
| 10.5  | Below Me | -0,24 | DGini   | -0,24*  | 0,21       | 8***      | 0,13           | 0,12                | 183 |
| 10.6  | Above Me | 0,01  | DGini   | -0,01** | 0,01***    | 6***      | 0,11           | 0,10                | 183 |

Notes significant levels are: 1% (\*\*\*) 5% (\*\*) and 10% (\*). VEC and CEC stand for valuation earnings coefficients and compensation earning coefficient and use EBITDA and total compensation minus end-of-service allowance in reg. 1 and 2. See Table 1 for all variable definition.

Table 10 Robustness - Multivariate OLS analysis with dependent variable VEC (EBITDA).

| Model | CEC      | VSC    | Binary  | B1      | Binary*CEC | Intercept | R <sup>2</sup> | R <sup>2</sup> adj. | N   |
|-------|----------|--------|---------|---------|------------|-----------|----------------|---------------------|-----|
| 1.1   | CEO      | 0,19*  | DROA    | 0,15*   | 0,17*      | 169***    | 0,27           | 0,25                | 191 |
| 1.2   | non-CEO  | 0,18   | DROA    | 0,1**   | 0,2        | 200***    | 0,22           | 0,17                | 191 |
| 1.3   | director | 0,05   | DROA    | 0,79    | 0,03       | 201***    | 0,15           | 0,13                | 191 |
| 1.4   | Leader   | 0,14*  | DROA    | 0,17*   | 0,12       | 142***    | 0,33           | 0,31                | 170 |
| 1.5   | Below Me | 0,19   | DROA    | 0,45*   | 0,14       | 252***    | 0,21           | 0,17                | 191 |
| 1.6   | Above Me | 0,15*  | DROA    | 0,15*   | 0,13       | 212***    | 0,22           | 0,21                | 191 |
| 2.1   | CEO      | 0,18*  | DROI    | 0,66    | 0,16       | 193***    | 0,17           | 0,13                | 191 |
| 2.2   | non-CEO  | 0,17   | DROI    | 0,43*   | 0,1        | 236***    | 0,15           | 0,14                | 191 |
| 2.3   | director | 0,03   | DROI    | 0,25    | 0,01       | 233***    | 0,13           | 0,11                | 191 |
| 2.4   | Leader   | 0,12   | DROI    | 0,46    | 0,11       | 173***    | 0,18           | 0,15                | 170 |
| 2.5   | Below Me | 0,19   | DROI    | 0,35*   | 0,14       | 276***    | 0,19           | 0,18                | 191 |
| 2.6   | Above Me | 0,14*  | DROI    | 0,57    | 0,07       | 230***    | 0,23           | 0,22                | 191 |
| 3.1   | CEO      | 0,07*  | DEPS    | 0,88    | 0,05       | 175***    | 0,34           | 0,28                | 191 |
| 3.2   | non-CEO  | 0,07   | DEPS    | 0,96*   | 0,02       | 202***    | 0,26           | 0,24                | 191 |
| 3.3   | director | 0,17   | DEPS    | 0,49*   | 0,31       | 218***    | 0,40           | 0,36                | 191 |
| 3.4   | Leader   | 0,04*  | DEPS    | 0,87    | 0,01*      | 156***    | 0,37           | 0,31                | 170 |
| 3.5   | Below Me | 0,19   | DEPS    | 0,77    | 0,16       | 231***    | 0,35           | 0,29                | 191 |
| 3.6   | Above Me | 0,05*  | DEPS    | 0,85    | 0,05       | 182***    | 0,31           | 0,26                | 191 |
| 4.1   | CEO      | 0,07*  | DEBITDA | 0,92*   | 0,16*      | 176***    | 0,25           | 0,22                | 191 |
| 4.2   | non-CEO  | 0,15   | DEBITDA | 0,14*** | 0,17*      | 190***    | 0,41           | 0,36                | 191 |
| 4.3   | director | 0,03   | DEBITDA | 0,14*** | 0,18       | 177***    | 0,41           | 0,35                | 191 |
| 4.4   | Leader   | 0,06*  | DEBITDA | 0,52*   | 0,23       | 161***    | 0,28           | 0,24                | 170 |
| 4.5   | Below Me | 0,08   | DEBITDA | 0,12**  | 0,14       | 218***    | 0,33           | 0,27                | 191 |
| 4.6   | Above Me | 0,06*  | DEBITDA | 0,63**  | 0,20*      | 171***    | 0,43           | 0,38                | 191 |
| 5.1   | CEO      | 0,21*  | DSales  | 0,35*   | 0,12*      | 175***    | 0,28           | 0,23                | 191 |
| 5.2   | non-CEO  | 0,08   | DSales  | 0,17*** | 0,17       | 174***    | 0,40           | 0,34                | 191 |
| 5.3   | director | 0,15   | DSales  | 0,18*** | -0,22      | 155***    | 0,46           | 0,36                | 191 |
| 5.4   | Leader   | 0,23*  | DSales  | 0,25*   | 0,11       | 168***    | 0,31           | 0,26                | 170 |
| 5.5   | Below Me | 0,14   | DSales  | 0,18*** | 0,02       | 181***    | 0,47           | 0,37                | 191 |
| 5.6   | Above Me | 0,2*   | DSales  | 0,33*** | 0,12*      | 155***    | 0,36           | 0,36                | 191 |
| 6.1   | CEO      | 0,14*  | DEmpl   | 0,14*** | 0,07*      | 161***    | 0,62           | 0,56                | 191 |
| 6.2   | non-CEO  | 0,04   | DEmpl   | 0,18*** | 0,03       | 179***    | 0,59           | 0,50                | 191 |
| 6.3   | director | 0,08   | DEmpl   | 0,2***  | -0,07      | 158***    | 0,59           | 0,51                | 191 |
| 6.4   | Leader   | 0,16** | DEmpl   | 0,12*** | 0,08*      | 151***    | 0,58           | 0,52                | 170 |
| 6.5   | Below Me | 0,01   | DEmpl   | 0,21*** | 0,17       | 182***    | 0,60           | 0,56                | 191 |
| 6.6   | Above Me | 0,17*  | DEmpl   | 0,17*** | 0,06*      | 157***    | 0,60           | 0,52                | 191 |

Notes: The t-statistics are in parentheses and the significance levels are at the 1%(\*\*\*) , 5%(\*\*), and 10%(\*) levels. CEC<sub>i</sub> stands for compensation earnings coefficients and uses total compensation in reg. (2). See Table 1 for all variable definition.



## Chapter II

The Impact of Board Compensation on Firm Performance:  
Empirical evidence from Italy.

# The Impact of Board Compensation on Firm Performance: Empirical evidence from Italy.

## Abstract

Executive pay is a widely discussed topic in literature. However, the focus of this analysis is on the sensitivity of pay to performance, and only the CEO or the board of directors are considered the main actors in this analysis. In addition, the literature on this topic is largely North American and only provides results based on total compensation. This paper aims to fill this gap in the literature by using a unique dataset covering all listed companies in Italy from 2011 to 2020. The data collected includes information on two dimensions that have not been considered together: the type of compensation and individual board members (and their tenure). The hypotheses are tested 42 times, with estimates for six different types of compensation for seven different board units. Using both qualitative and quantitative criteria to divide the board, this empirical analysis shows that considering only the CEO and the board as a whole leads to excessive information dispersion and limits the extendibility of the results. The results show that heterogeneous boards, low power concentration, and intra-board compensation lead to better firm performance and that Italian firms are efficient in optimizing the incentive contracts of "strategic" board members.

## Summary:

1. Introduction. – 2. Literature review and Hypothesis. – 3. Empirical Model. – 4. Summary statistics and results– 5. Robustness tests. – 6. Conclusion.

## 1. Introduction

The relationship between executive pay and firm performance has long been a subject of interest and controversy in various fields of economic research, including economics, economic theory<sup>28</sup>, corporate governance, and financial markets. Although there is no consensus on the ideal level or structure of executive pay, many academics and practitioners agree that executive incentives should align with the creation of long-term shareholder value and the interests of broader stakeholder groups like employees and customers, and society at large.

The link between firm performance and CEO compensation is a critical issue that has polarized academic scholars into two groups. On the one hand, proponents<sup>29</sup> of pay-for-performance models say that CEOs should be paid for meeting or exceeding performance benchmarks tied to the firm's strategic goals and market circumstances. On the other hand, critics<sup>30</sup> of high CEO pay and pay disparity, on the other hand,

---

<sup>28</sup> Hart (1995), Holmstrom (1998), Murphy (1999), Williamson (1979, 1996, 2002), Klein (2000, 2004), and Gibbons (2005). These authors discuss this relationship under an economic theory and incentives contracts point of view.

<sup>29</sup> Sun et al. (2019). These authors find that pay-for-performance is positively associated with financial performance, suggesting that the use of performance-based compensation can be an effective way to align executive incentives with firm goals.

<sup>30</sup> Bebchuk and Fried (2004) and Mishel and Davis (2014), both of whom conclude that reforming executive pay is essential to promoting a more equitable and sustainable economy.

argue that executive remuneration is frequently exorbitant, mismatched with long-term goals, and inadequately transparent, resulting in agency difficulties, moral hazard, and societal discontent.

However, the analysis of the relationship between a company's financial and economic performance and board/CEO compensation is not limited to the aforementioned. Several contributions<sup>31</sup> have been conducted to investigate the causal directionality of this connection, namely whether the compensation structure influences performance outcomes or if performance influences the decision of executive remuneration.

All this should also be considered, given that almost all empirical research papers on this relationship use American databases<sup>32</sup>. There is a body of literature in North America on the relationship between firm performance, corporate governance structure and board compensation, but it is sufficient to move to the European context<sup>33</sup> to see the sparse empirical literature about this topic. Various authors<sup>34</sup> highlight this gap and in this regard, they suggest further research into this relationship by extending data collection and analysis to other geographical contexts. The U.S. country system is characterized by a much more homogenous corporate governance structure, firm ownership, and financial market systems compared with individual European countries, which are much more heterogeneous with each other. In Europe, the difference in the level of corporate governance among individual countries is much more pronounced. This gap becomes even worse when looking at individual European countries and not Europe as a whole.

Italy's corporate governance system<sup>35</sup> has several distinct features that differentiate it from other European countries and the United States. Firstly, the state's role in Italian corporate governance is more prominent, with the government playing a significant role in appointing board members and regulating certain industries. Secondly, Italian companies have a larger concentration of ownership, with family-owned businesses and long-standing relationships playing a significant role in the management of the company. Thirdly, the board of directors in Italy is typically larger than in other European countries, with a more fragmented shareholder base and a greater emphasis on representation rather than independence. Quaternarily, Italy has a unique system of corporate governance characterized by the presence of large banks<sup>36</sup>, often with significant stakes in non-financial firms, which have a greater influence on corporate decision-making. This has implications for issues such as firm financing and investment decisions. Lastly, there is a lower level of shareholder activism and engagement, with limited power to influence corporate decisions.

Performance-pay sensitivity is influenced by a variety of factors, the most relevant of which are: corporate governance structure<sup>37</sup>, capital market system<sup>38</sup>, firm ownership,<sup>39</sup> and economic area<sup>40</sup>.

Given that these features play a crucial role in the relationship between firm performance and CEO compensation, this exacerbates the gap in empirical research on individual European countries. Since context changes, it becomes almost impossible to extend the results of American research in a European context, let alone in a country like Italy where the financial markets and corporate governance structure are profoundly different from those in the U.S. (Merendino and Melville, 2019).

---

<sup>31</sup> Frydman and Jenter (2010), Smirnova and Zaveritiaeva (2017).

<sup>32</sup> Yermack (1996), Bertrand and Mullainathan (2001), Bebchuk and Fried (2003), Bebchuk and Fried (2006), Core et al. (2008). This is only a small sample of the American empirical paper that use dataset such as: ExecuComp, Compustat, CRSP, Audit Analytics, RiskMetrics that exclusively contain data on performance and compensation of U.S. firms.

<sup>33</sup> Fraile and Fradejas (2020).

<sup>34</sup> Prencipe and Sponza (2008), Méndez et al. (2011), Aggarwal et al. (2011), Aust et al. (2021).

<sup>35</sup> Melis (2002), Elshandidy and Neri (2015), Merendino and Melville (2019).

<sup>36</sup> Ferri and Messori (2000).

<sup>37</sup> Edwards et al. (2009), Ntim et al (2015), Ghrab et al. (2022).

<sup>38</sup> Datta et al (2009).

<sup>39</sup> Mehran (1995), Barontini and Bozzi (2011), Luo and Jackson (2012), Edmans et al. (2018).

<sup>40</sup> Bouwman (2012).

The purpose of this article is to extend the empirical evidence on the relationship between corporate performance and executive compensation, focusing on the key determinants, mechanisms, and outcomes of this relationship. To achieve this goal, this paper conducts the empirical research using Italian data to see if this relationship is altered when analyzed in a different geographic environment with a different corporate governance system and ownership structure.

Smirnova and Zavertniave (2017) suggest that tightly connecting CEO remuneration to business success can help align interests and reduce agency expenses<sup>41</sup>. Some research, however, finds no relationship between executive salary and business performance<sup>42</sup> while others find an unanticipated negative relationship<sup>43</sup>. Furthermore, the research often studies solely the impact of CEO salary on business performance, or vice versa, and does not address the topic of interrelationships. The authors indicate that companies tie CEO pay-in particular, total pay and bonuses-to accounting-based measures and that the Sharpe index influences all compensation types except benefits. Higher CEO compensation improves company performance when measured through return on assets (ROA) and is determined by total pay and bonuses. The study suggests that operational performance-based pay enhances accounting-based measures, while remuneration linked to stock indicators does not improve market performance. The paper concludes that the functionalist paradigm used in the study allows for agency theory to be justified and the relationship between remuneration components and a company's performance to be tested. However, the paper highlights that the results are sensitive to the paradigm assumptions made, including the manager's behavioral biases, the observer's objectivity, and the economic behavior of firms and individuals concerning ethical, political, cultural, and social issues.

Literature uses different indicators to measure the firm's performance: accounting-based indexes<sup>44</sup>, market-based indexes<sup>45</sup>, and mixed indexes<sup>46</sup>. In this analysis of the influence of CEO remuneration on firm performance, it shows that both accounting and market-based indexes are positively related to executives' compensations. Empirical research considers compensation from two perspectives: either they consider the CEO's<sup>47</sup> remuneration or they consider that of the entire board of directors<sup>48</sup>. However, in both cases, other possible board groupings are not considered. The CEO is often seen as the quintessential representative unit<sup>49</sup> of the entire board of directors so several papers use the remuneration of the CEO alone.

The literature does not consider the exact number of months for which a board member holds his or her position. The number of months that a director has been in office represents in a time perspective the effort that a director has devoted to that company and is therefore an important determinant of it in terms of compensation in general.

Empirical analysis usually considers total remuneration as the sum of salary, annual bonus, benefits, stock option and grand option, they are forced to proceed in this way because they do not have the disaggregated data on compensation. By working in this way, they lose a lot of informational power on the study of which of the various ingredients<sup>50</sup> in the compensation package is the most significant for firm performance. These points represent a weakness in the literature because there are no databases that have detailed information on each individual board member of each firm and individual components of executive compensation.

---

<sup>41</sup> Walsh and Seward (1990), Matsumura and Shin (2005).

<sup>42</sup> Gomez-Mejia et al. (1999), Firth et al. (2006), Parthasarathy et al. (2006).

<sup>43</sup> Malmendier and Tate (2009), Balafas and Florackis (2013), Cooper et al. (2013).

<sup>44</sup> Dechow (1994), Al-Matari (2014), Tayeh et al. (2015), Kordestani (2018).

<sup>45</sup> Rockmore and Jones (1996), Gentry and Shen (2010), Kordestani (2018).

<sup>46</sup> Pérez-González (2006), Fu (2016), Singh et al. (2017).

<sup>47</sup> Gibbons and Murphy (1992), Brick et al. (2006), Jeppson (2009), Ozkan (2011).

<sup>48</sup> Parthasarathy et al. (2006), Wu (2013), Aslam et al. (2019).

<sup>49</sup> Dalton et al (1998), Hermalin and Weisbach (2012).

<sup>50</sup> Edmans (2017), Beck et al (2020), Hrazdilet al. (2022).

The empirical analysis is meant to verify that the performance pay scenario in firm performance is driven by (among others) CEO', board' and other executive groups' compensation. Bebhuk et al. (2002), Sundaramurthy and Lewis (2003) suggest that board (CEO) compensation can be viewed as a kind of "reward" for the skills, experiences, and knowledge that members bring to the company. The authors argue that board (CEO) compensation is an incentive mechanism for attracting and retaining highly qualified and competent executive members. If the compensation of board members can be seen as a proxy for their skills, then for that reason it can be seen as a corporate "asset" for which a positive correlation can be estimated between compensation and firm performance, just as between any other asset and performance.

Other authors<sup>51</sup> argue that whole CEO compensation cannot be considered an asset, it can have a positive impact on firm performance and shareholder value creation if its incentive structure is appropriately designed.

My empirical analysis uses all firms listed on the Italian market from 2011 to 2020. The final sample includes 230 firms and 1841 firm-year observations.

The data include multiple types of board remuneration. Detailed construction of the dataset for all these kinds of compensation disclosed in the 'remuneration report'<sup>52</sup> by companies listed on Italian stock exchange. These types of compensation include fixed remuneration, compensation for participation in committees, bonuses, benefits, equity incentives and their total sum. This innovative level of detail about the individuals' component of the overall compensation should help to better understand which are the most relevant types of incentives, because regarding the compensation the question often is not "how much you pay" but "how"<sup>53</sup>. Firstly, market-based metrics are employed to measure firm performance and then, secondly, for robustness tests this paper will use accounting-based indexes.

This analysis also introduces some new and original empirical approaches regarding corporate governance. Empirical studies show that there is a positive association between board size and firm performance<sup>54</sup>. But on the other hand, there are different papers that argue that oversize boards may lead the company to perform worse<sup>55</sup>. The size of the board plays a crucial role in shaping the corporate governance structure and has the potential to impact the effectiveness of board performance. Existing literature suggests that there is a limit to the extent to which board size can positively influence board performance (Forbes & Milliken, 1999). Different countries follow different board sizes, and there is no one-size-fits-all solution for determining the ideal board size. Jensen (1993) has recommended an optimal limit of eight directors for companies listed in the United States, while Lipton and Lorsch (1992) have suggested a maximum board size of 10 members, as larger numbers can impede group dynamics and hinder board performance.

In the literature, board size is commonly defined as the total number of board members. However, this definition can be misleading since some directors may not hold their position for the entire year, and as a result, should not be considered equally with directors who serve for a full year. To address this issue, this study proposes a refinement to the board size indicator by incorporating a weighted average of directors based on the number of weeks they serve on the board. This approach is expected to provide

---

<sup>51</sup> Finkelstein et al. (1996) Rajgopal et al. (2006).

<sup>52</sup> The Consolidated Law on Finance (Legislative Decree No. 58/1998) requires companies with listed shares to provide an annual remuneration report to the public, which should be divided into two sections. The first section should include the company's policy on remuneration for members of management bodies, general managers, and executives with strategic responsibilities, and the procedures used for the adoption and implementation of this policy. The second section should provide an adequate representation of each of the items that make up the remuneration, including treatments provided in case of termination of office or employment, and should highlight their consistency with the company's remuneration policy approved in the previous year. It should also illustrate analytically any remuneration paid in the year of reference for any reason and in any form by the company and its subsidiaries or associated companies.

<sup>53</sup> Jensen and Murphy (2010).

<sup>54</sup> Guest (2009), Nguyen et al. (2016).

<sup>55</sup> Daily and Dalton (1994), Yermack (1996), Dalton et al. (1999).

a more accurate and precise measure of board size than the traditional definition used in previous literature.

One significant innovation of my dataset is that it includes the remuneration of each individual board member, which enables the calculation of various measures of compensation allocation and the distribution of remuneration among board members. This critical information allows for the assessment of allocation not only in terms of compensation, but also in relation to the responsibilities of managers and power dynamics within the firm.

Another crucial difference is the U.S. literature uses U.S. GAAP. Instead, Italy listed firms use International Financial Reporting Standards. For this reason, my study will provide greater support to the literature of other European countries that also adopt International Financial Reporting Standards (IFRS) for preparing their financial statements. By doing so, this paper will extend the European analysis to a geographical and corporate governance context that differs from the usual one, making the research results more comparable with those of the American area.

## 2. Literature review and Hypothesis

According to agency theory, higher CEO compensation should lead to higher CEO productivity and, consequently, better corporate performance. Kang et al. (2002) empirically confirm the positive effect of different compensation types on the company's financial measures. Researchers indicate that short-term (long-term) CEO compensation has a stronger (weaker) impact on firm performance, estimated through the relative excess value ratio. Several other studies support the positive influence of pay on company results (Hanlon et al., 2003, Conyon and Freeman, 2004).

The literature on the impact of CEO salaries on business performance provides a mixed picture. The previous results contradict each other. A higher CEO salary, according to agency theory, should result in increased CEO productivity and, as a result, better organizational success. Kang et al. (2002) experimentally validated the favorable effect of different forms of remuneration on corporate financial indicators. According to the relative excess value ratio, short-term (long-term) CEO compensation has a stronger (weaker) impact on firm performance. Numerous other studies support the positive impact of wages on firm performance<sup>56</sup>.

Adjaoud et al (2007) examine the influence of board quality on firm outcomes, including the level of compensation. The authors distinguish between classical accounting measures (return on investment, ROE and earnings per share) and more recent measures based on value creation indicators (economic value added, market value added). Although they find a statistically negligible effect of board quality on accounting measures, they find a statistically significant and positive effect on value creation indicators. Zoghلامي (2020) and Smirnova and Zavertiave (2017) provide evidence of an empirically positive relationship between CEO compensation and firm performance.

*H1. There is a positive relationship between firm performance and CEO/board/sub-groups compensations.*

Another point of attention in this paper relates to corporate governance. In this regard, most of the literature considers board size as one of the most important internal corporate governance mechanisms<sup>57</sup>. Aust et al. (2020) and others<sup>58</sup> suggest that there is a positive relationship between the number of board members and company performance. Above certain thresholds, board size can have a negative impact on company performance<sup>59</sup>. For this reason, Bhimani (2009) suggests that an adequate number of board

---

<sup>56</sup> Hanlon et al. (2003), Conyon and Freeman (2004).

<sup>57</sup> Brennan (2006), Aguilera et al. (2015).

<sup>58</sup> Guest (2009), Nguyen et al. (2016).

<sup>59</sup> Daily and Dalton (1994), Yermack (1996), Dalton et al. (1999).

members can help promote the development of value firms and for shareholders Brennan (2006). On the one hand, some research suggests that a larger board size may increase the effectiveness of decision making through information sharing. This is because a larger board can potentially draw on a greater diversity of expertise and skills from directors appointed from different professional backgrounds, as suggested by Pearce and Zahra (1992) and Lehn et al. (2009). The potential benefits of having a larger board include the possibility of appointing directors from different professional backgrounds with different areas of expertise and skills. However, proponents<sup>60</sup> of agency theory argue that a larger board may not be effective in improving corporate performance because new ideas and opinions may not be easily expressed in a large group of directors, leading to a less effective monitoring process. Communication and coordination may also become more difficult in larger boards<sup>61</sup>, leading to higher agency costs and lower group cohesion<sup>62</sup>. Empirical studies<sup>63</sup> have found a negative relationship between board size and firm performance, with larger boards leading to lower returns on equity for European companies.

Merendino and Melville (2019) find that board size has a positive effect on performance when the board is the right size, but a negative effect when the board is too large. This suggests that firms should aim for an optimal board size, as a larger board does not necessarily lead to better performance. Their study suggests that a larger board may lead to directors having external commitments in other companies, which may negatively affect their effectiveness in their role. The empirical research also found that the more roles a director holds, the lower the company's performance, highlighting the importance of ensuring that directors have sufficient time and resources to devote to their duties. Overall, their work emphasises the importance of optimising board size and ensuring that directors have the capacity to fulfill their responsibilities effectively.

The size of the board is therefore an important determinant of business performance<sup>64</sup>.

De Andrés and Vallelado (2008) and Wand et al. (2018) in their studies include both linear and quadratic terms for board size to test the possible empirical confirmation of the existence of a curvilinear relationship between firm performance and board size.

This paper tests this type of relationship in the Italian context, which has a different corporate governance system with a typically larger board<sup>65</sup>.

*H2. There is an inverted U-shaped relationship between firm performance and board size.*

Although there are numerous studies in the literature on how board compensation, corporate governance structure<sup>66</sup> and financial indicators can influence firm performance, there is a lack of literature that addresses the question of how the distribution of compensation within the board of directors can affect firm performance. This is because in literature compensation data are often aggregated at the level of the entire board or the individual CEO, but not for each individual member. However, my dataset collects detailed information on the compensation of each individual director, considering the number of weeks they held the position. This allows me to analyze the concentration of monthly compensation within each individual company-year, rather than relying on more aggregated data that may lose information. Furthermore, this dataset allows us to quantify the difference between CEO compensation and other types of compensation within the same company. The dataset includes a variable that measures the distance from the median income of the individual firm-year between different groups within the board:

---

<sup>60</sup> Wang et al. (2018).

<sup>61</sup> Jensen (1993), Bonn et al. (2004), Cheng (2008).

<sup>62</sup> Lipton and Lorsch (1992), Cheng (2008).

<sup>63</sup> Bhimani (2009), Wang et al. (2018).

<sup>64</sup> Kumar and Singh (2013).

<sup>65</sup> Melis (2002), Elshandidy and Neri (2015), Merendino and Melville (2019).

<sup>66</sup> Goh (2016).

CEO, CEO Chairman and vice-Chairman, directors with above-median compensation, directors with below-median compensation, non-CEO directors and board members. This enables me to work with rich information regarding power dynamics within the same board, offering insights that have remained unexplored until now.

Some authors<sup>67</sup> argue that the CEO pay slice, which is the ratio of CEO pay to the pay of the median employee in a firm, is a meaningful indicator of the power and influence of CEOs within the company. The authors hypothesize that an increase in the CEO pay slice is associated with an increase in the CEO's decision-making power and a corresponding decrease in attention to shareholder interests, leading to greater risk-taking by CEOs.

The authors draw on a large dataset to test their hypothesis and find that the CEO pay slice is a significant indicator of CEO power within the firm.

Bebchuk et al. (2011) define the CEO Pay Slice (CPS) as the ratio of the CEO's remuneration to the remuneration of the five highest paid directors. They use it as a proxy for CEO dominance. The authors find that CPS discounts valuable information contained in compensation data for executives other than the CEO and fails to account accurately for characteristics of decision-making power among the top executives. They suggest that CPS should be used carefully and only when its suitability for a precise application is justified. The authors also investigate the relationship between CPS and firm performance, behavior, and value, and find that a high CPS is optimal for low-value firms, indicating the need for theoretical explanation. The study concludes that CPS is an important aspect of firm governance and management that deserves further research.

Despite the widespread popularity of CEO Pay Slice in academic literature Zagonov and Salganik-Shoshan (2018) provide concerns regarding its conceptual definition and empirical use as a clear proxy for CEO dominance. Additionally, other measures can be constructed from top-five executive compensation data that may be superior. In this regard they provide an alternative for CPS, Pay Slice Gap (PSG). It can be constructed as the difference between the pay of the CEO and that of the highest paid non-CEO manager divided by the total compensation of the five highest paid executives in the firm. The paper demonstrates that CPS may discount valuable information in compensation data for executives in the top team other than the CEO, leading to inaccurate accounting for aberrant characteristics of decision-making power distribution among executives, and misestimation of the CEO's power and ability to influence decisions with material impacts on the firm's outcomes. As such, it is important to carefully consider the precise applications for which CPS is suitable and its use as the sole proxy for CEO dominance.

Kale, Reis e Venkateswaran (2009) suggest an alternative measure for compensation inequality in the top executive team: the Gini Top 5, which is defined as the Gini coefficient for the top five executives including the CEO. Their work shows that a higher Gini index corresponds to higher inequality and consequently higher incentives for tournaments and higher Q-Tobin values. In contrast to the CPS index, the Gini Top 5 is a result of both the amount to which the CEO's salary differs from the average compensation of the top executive team's other members, a component captured by CPS, and the extent to which compensation is uneven among these other team members. For these reasons – given its greater completeness – they promote the use of this index over CPS.

This study employs the Gini Index not only for the five highest paid administrators but for the entire board of directors. In this way it will compare the inequality in all board members.

Heyman (2007) and Lee et al. (2008) suggest that theories linking wage dispersion – inequality – and firm performance give rise, however, to conflicting predictions of whether this relationship is positive or negative. A fairly distributed remuneration leads to negative incentive effects. On the other hand, high wage spreads cause increased effort and executives' motivation, it would be those increases that would

---

<sup>67</sup> Bebchuk et al. (2011), Zagonov and Salganik-Shoshan (2018).



improve firm performance. Lazear and Rosen (1981) estimate a widely used model the “tournament model” that analyses the effect of compensation on incentives in the presence of expansive monitoring of individual productivity and effort. The compensation spread between different job positions is interpreted as the tournament prize. In this theory, a high wage spread between board members (players) provides incentives for administrators to do their best, which means that the equilibrium effort is increasing in the difference between winning or losing the prize (Equation 6 in Lazear and Rosen (1981)). However, it must be borne in mind that the tournament model is usually applied to employees and not to board members. Obviously, in this second case the monitoring costs are higher, because executives usually have more delegations than employees, which gives board members more bargaining power and, therefore, more discretion in their acts. The monitoring of agency costs is a subject of interest in various areas<sup>68</sup>.

Lee et al. (2008) discovered that better business performance, as assessed by Tobin's Q or stock performance, is positively related to management compensation dispersion. This relationship is stronger in organizations that have significant agency costs associated with management discretion, effective corporate governance, and high board independence. This suggests that if it applies the “tournament model”<sup>69</sup> to a different environment characterized by more small groups of control and family ownership – which decreases monitoring costs – and it extends the concentration of compensation to the entire board instead of just the top remunerated members, then the previously observed positive relationship should not hold.

Contrary to Lazear and Rosen (1981), O'Reilly et al. (1988) conducted a study of 105 Fortune 500 firms and did not find evidence supporting the tournament model argument. Similarly, Conyon et al. (2001) analyzed a sample of 100 UK firms in 1997 and reported that variation in executive compensation did not enhance firm performance.

In contrast to the tournament model, the concept of equity fairness suggests that the quality of social relationships within the workplace can impact firm performance (Akerlof and Yellen 1988, 1990; Milgrom 1988; Milgrom and Roberts 1990). Moreover, it posits that large pay disparities can have a negative impact on employee relations and morale, leading to unproductive organizational activities that ultimately reduce firm performance. There is some supporting evidence for the negative effects of wage dispersion on performance. For example, Pfeffer and Langton (1993) found that greater wage dispersion among academic departments at universities resulted in reduced faculty satisfaction and research productivity, as well as decreased collaboration among colleagues. Additionally, there is evidence in business settings (e.g., Drago and Garvey 1998) that supports the notion of equity fairness.

The topic of pay disparity has various repercussions across psychology, sociology, and organizational economics. These kinds of literature argue that the workplace is a social organism in which the relational aspects of compensation cannot be separated from its economic value. They predict that being paid less than one's colleagues is a disadvantage, which is consistent with Breza et al.'s (2018) claim that workers who are paid relatively less significantly reduce their productivity and attendance on average when faced with wage inequality. This literature also predicts that the dissatisfaction of some workers can disrupt social cohesion and cooperation, favoring social conflict and changing group dynamics in general. This is consistent with Breza et al.'s (2018) findings that workers with wage inequality are less able to cooperate and perform worse when working with colleagues from their own group than with strangers. Breza et al (2018) also measure the attendance and happiness of the highest paid workers and find that even those with relatively higher wages experience significant declines in both measures, providing suggestive evidence to support their thesis. If lower-paid workers were unhappy or resentful, then working, attending meetings, and having lunch with them could be socially awkward or unpleasant for their relatively higher-paid colleagues, dampening their desire to go to work. Such externalities are consistent

---

<sup>68</sup> Saltaaji (2013).

<sup>69</sup> Lazear and Rosen (1981)

with Frank's (1984) observation that "status, like Coase's social cost, is a reciprocal phenomenon.... A gain in status for one person can only occur at the expense of a loss in status for another". This highlights why the empirical results do not allow for the isolation of individual workers' internal preferences for relative compensation. The documented effects are a reduced-form combination of internal preferences and group dynamics. However, wage inequality does not necessarily have negative consequences. No negative effects on morale are found when productivity differences are wide and observable. In summary, workers appear to accept homogeneous wages as fair even in the presence of productivity differences, but similarly, they have no problem with clearly justified heterogeneous wages. This suggests that workers do not have a problem with wage inequality per se. Rather, they may resent what they perceive as arbitrary employer behavior (Fang and Moscarini, 2005).

Following the Breza et al. (2018) inferences, this analysis postulates the two following hypothesis regarding the relative CEO' surplus pay and the distribution of the board compensation between the members.

*H3. There is a negative relationship between firm performance and Median Deviation.*

*H4. There is a negative association between firm performance and Gini compensation index.*

The final corporate governance analysis explored in this model is the relationship between tenure and firm performance. There is ample evidence in the literature that there is a positive relationship between CEO tenure and firm performance, as suggested by Livnat et al. (2021), Brochet et al. (2021), Coates and Kraakman (2010) and Nourayi and Mintz (2008).

Using the largest sample of firms in corporate governance studies to date, Livnat et al. (2021) show that board tenure measures a different aspect of stability than measures of stability calculated using financial results (persistence of: earnings, sales and cash flows) and analyst forecasts. The authors find that there is significant evidence that longer board tenure is associated with higher future stock returns. However, despite this finding, even experienced investors, such as financial analysts, believe that companies with shorter board tenures will deliver better returns than more stable companies.

There are several theoretical explanations for the positive relationship between CEO tenure and firm performance. First, CEO tenure provides the CEO with valuable knowledge about the firm's internal and external environment. Over time, the CEO can build relationships with employees, customers, suppliers and other stakeholders. This knowledge and these relationships can lead to better decision making and more effective implementation of strategies. Second, tenure provides the CEO with greater job security. As a result, the CEO is more likely to take a long-term view and invest in the future of the company. This long-term focus can lead to greater innovation and more effective use of resources.

Third, CEO tenure gives the CEO greater power and influence. The CEO can shape the culture and values of the firm, which can have a significant impact on the firm's performance. This power and influence can also help the CEO to implement difficult or unpopular decisions.

There is a significant body of empirical evidence supporting the view that CEO tenure is positively related to firm performance. For example, a study by Zhang, Xie, and Zhang (2019) found that CEO tenure is positively related to innovation and firm performance in China's listed firms. A study by Hasan, Hoi, Wu, and Zhang (2018) found that CEO tenure is positively related to risk-taking in US firms. A study by Cho and Park (2015) found that CEO tenure is negatively related to earnings management in Korean firms.

Most of the literature uses CEO tenure alone. This is due to the difficulty of finding comprehensive databases, and there are few studies that relate firm performance to overall board tenure. This paper will take the opportunity provided by Huybrechts et al. (2013) and examine this relationship in a different environment, characterized by family ownership and a larger board size.

In addition, this study not only tests the positive relationship between CEO tenure and firm performance.

*H5. There is a positive relationship between CEO/board/sub-groups tenure and firm performance.*

As is common in the literature<sup>70</sup>, this paper employs some control variables based on accounting data, and three accounting dimensions to measure health status: financial structure, firm size, and economic performance (this last one is the dependent variable).

To assess the financial structure, the gearing ratio and leverage for robustness tests are employed. Ibhagui and Olokoyo (2018) and Chandra Kumarmangalam and Govindasamy (2010) suggest that the worst financial structures are usually associated with a decline in performance measured by both accounting measures (ROE, ROA, earnings per share), market measures (capital gains plus dividends) and mixed measures (Tobin - q).

According to Bebchuk et al. (2006) firm's size positively impacts performance. They argued that larger firms were able to invest more in technology and human capital, leading to higher productivity.

Another argument supporting the positive relationship between firm size and performance is that larger firms have greater bargaining power. In the words of Teece (1986), "the bargaining power of firms in market transactions depends on their size and market share." Larger firms can negotiate better terms with suppliers, customers, and other stakeholders, giving them a competitive advantage. This is supported by empirical studies, such as the study by Harhoff and Stahl (1998), which found that larger firms had a greater ability to extract higher prices from their customers. Finally, larger firms are better able to withstand external shocks, such as economic recessions or changes in regulations. This is because they have more resources and a more diversified portfolio of products and services.

Based on that, this paper postulates the sixth and final hypothesis.

*H6.a. There is a negative relationship between firm performance and more indebted firms.*

*H6.b. There is a positive relationship between firm performance and firm' size.*

*H6.c. There is a positive relationship between firm performance and firm' profitability.*

### 3. Empirical model

As stated earlier, this study investigates the association between board compensation, corporate governance, firm accounting indexes and firm performance.

The dataset used for this study was collected from various sources. Financial market data and balance sheet data were obtained from commercial databases: EIKON Datastream, Worldscope and Amadeus, Bureau van Dijk. The executive compensation and corporate governance information was hand-collected from the annual reports of Italian index-listed firms. Where available, the information was obtained from the Borsa Italiana corporate governance section for each company. Otherwise from the company's website, if they are not available, requests were made to the Investor Relations team for the necessary documents. This approach ensured that the dataset was comprehensive and included all relevant information needed for the analysis.

The main original contribution of this analysis lies in the level of detail of the compensation and tenure data. It clusters both compensation and tenure data into different subgroups: CEO's, Top members<sup>71</sup>,

---

<sup>70</sup> Aust et al. (2021)

<sup>71</sup> Top members are qualitatively defined as Chairman and Vice-Chairman taking in account also the charge covered in subsidiaries company and not only the parent company.

Higher and lower median monthly's compensation median group<sup>72</sup>, Administrators<sup>73</sup>, No CEO members<sup>74</sup> and the entire board. This paper chooses to use the median as a measure of the central tendency to dichotomize the board of directors into "above median" and "below median" groups. The reason behind this choice is the non-uniform distribution of compensation among the members of the board. In fact, it should be noted that a few administrators are receiving considerably higher compensation compared to the rest of the group, resulting in a skewed distribution. Therefore, using the mean as a measure of central tendency could lead to an inaccurate representation of the board's composition, as the influence of those few highly compensated members would distort the overall picture. On the other hand, the median, being a robust measure of central tendency, is less affected by extreme values and outliers, and better represents the typical compensation level of the majority of the board members. Therefore, in order to accurately dichotomize the board into two groups, the empirical approach used employs the median as a measure of central tendency, as it better reflects the typical compensation level of the majority of the board members and is less influenced by the presence of highly compensated outliers.

These groupings allow us to test whether, for a given sub-group, the association between firm performance and corporate governance is more pronounced, less pronounced, or close to zero.

In addition, the dataset split compensation while maintaining the same level of detail in the remuneration report. Compensation is broken down into: Fixed Remuneration<sup>75</sup>, Compensation for Participation in Committees<sup>76</sup>, Bonus<sup>77</sup>, Benefits<sup>78</sup>, Equity Incentives<sup>79</sup> and Termination Benefits<sup>80</sup>. In line with prior studies: Aust et al. (2021), Ghrab et al. (2022), Edmans et al. (2018), Smirnova and Zavertiaeva (2017), Sapp (2008) the main focus of this analysis will be on total compensation, but robustness tests are performed with each individual component<sup>81</sup> of compensation. In this way, it is possible to check which components<sup>82</sup> of remuneration are most closely linked to company performance.

The sample is based on companies included in all Italian stock market indices: EXM (ex MTA), STAR, EGM, MIV, in the financial years 2011 to 2020. From this number of firm years, the selection criteria of this paper have excluded foreign firms, firm-year observations with incomplete CEO and board member compensation data, firms using US GAAP (Generally Accepted Accounting Principles) and firm-year observations with missing data (missing information on earnings or stock returns). The choice of time series is because Italian companies only started publishing remuneration reports in 2011. In any case, this time series is longer than the others usually studied in the literature (usually 5-7 years)<sup>83</sup>.

The panel contains 230 listed firms and 1841 firms-year observations, it is larger than the others studied in European countries.

---

<sup>72</sup> This paper divided the board into two groups: those whose remuneration was above the median monthly remuneration and those below.

<sup>73</sup> Administrators are the non-executive members of the Board of Directors of both the holding company and the subsidiaries.

<sup>74</sup> Defined as other management board members', every board member's excluding the CEO.

<sup>75</sup> Also called "salary" it represents the predetermined, regular payment received for fulfilling their duties as a director.

<sup>76</sup> I. E. risk management committee, appointment, and remuneration committee etc.

<sup>77</sup> Bonus represents short-term bonuses awarded to managers for achieving specific goals, measured through financial indicators or the number of units produced, tied to the previous year's performance.

<sup>78</sup> Benefits refer to additional perks or incentives provided to directors beyond their fixed remuneration, such as business car, corporate flats, pensions, or other forms of deferred compensation.

<sup>79</sup> Fair value of equity compensation represents the estimated worth of long-term incentives granted to executives and employees, such as stock options, performance shares, or restricted stock units, which are designed to align their interests with those of the company's shareholders.

<sup>80</sup> This kind of remuneration refers to financial benefits or compensation provided to an employee at the end of their contract or employment. This variable is one of the components of employees' remuneration.

<sup>81</sup> Except Termination Benefits which are out of the scope of my analysis.

<sup>82</sup> Jensen and Murphy (2010).

<sup>83</sup> Fernández-Méndez (2012), Bebchuk and Fried (2003), Sapp (2008) Ghrab et al. (2022), Ntim (2015)

As stated earlier, this study investigates the association between firm performance and compensation and corporate governance data. Following the empirical approach – Zoghlami (2020), Ntim et al. (2015), Edwards et al. (2009) – the focus is on this relationship by regressing firm performance for: board compensation, tenure, board size, asset, return on equity, and gearing ratio.

Tests are run for all the previous hypotheses by basing the model on CEO data, and then testing whether the association holds with different types of compensation and with different subgroups of board members.

The regression models to test the above-mentioned hypothesis are:

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \beta_9 ROE_{it} + \varepsilon_{it} \quad (1)$$

where  $i$  is the firm,  $t$  is the fiscal year,  $RET_{it}$  is the 12-months cumulative stock return of firm  $i$  in the fiscal year  $t$ <sup>84</sup>,  $\beta_0$  is the intercept,  $Comp_{it}$  is the compensation except termination benefits<sup>85</sup>,  $Tenure_{it}$  is the number of months in which board members hold their position<sup>86</sup>,  $MedDev_{it}$  is the deviation between the sub-group's monthly compensation and the firm-year' median compensation<sup>87</sup>,  $Gini\_Board_{it}$  is the Gini Index<sup>88</sup> calculated for the remuneration concentration of the whole board,  $BS_{it}$  is the weighted average of the number of directors for the time (in weeks) during year  $t$  in which the director served on the board<sup>89</sup>,  $sq\_BS_{it}$ <sup>90</sup> is the quadratic form of the Board Size. The accounting indexes control variables are:  $Asset_{it}$  it is the logarithm of total Asset<sup>91</sup>,  $Gearing_{it}$  it is the ratio between Total Debt and Total Asset<sup>92</sup>,  $ROE_{it}$  it is the Return of Equity calculated as operating PL result divided by equity.

As we know it (from an extended and well-established econometrics literature) a regression in levels with contemporaneous regressors cannot possibly be given any causality interpretation, but it may still show evidence for a functional association among all the variables appearing in the equation.

The focus here is on the relationship between firm performance, executive pay, tenure, indicators of pay inequality, board size and financial ratios in contexts different from those typically used in literature. Firstly, tests are run for the same equation framework using different types of incentives. After developing a model that is consistent with typical practice in the literature and that considers total CEO compensation, the latter is decomposed into five categories: fixed compensation, committee fees, benefits, short-term bonuses and equity instruments. This means that six equations need to be developed for the CEO, each differing only in the compensation component used. This process allows the different effects of different types of compensation on firm performance to be analysed, one by one. The same type of regression is then run for different sub-groups of the board. The analyzed subgroups are: Top member<sup>93</sup>, Administrators<sup>94</sup>, No CEO Member<sup>95</sup>, Group below the median and Group above the

<sup>84</sup> In line with Bushman et al. (2006) and Aust et al. (2021), I use the firms' 12-months stock returns ( $RET_{it}$ ) calculated from the beginning to the end of the fiscal year  $t$ .

<sup>85</sup> Smirnova and Zavertiaeva (2017), Bebchuk (2006), Bebchuk and Fried (2003), Bertrand and Mullainathan (2001), Yermack (1996), Zoghlami (2020), Ntim et al. (2015), Edwards et al. (2009)

<sup>86</sup> Smirnova and Zavertiaeva (2017), Bebchuk (2006), Bebchuk and Fried (2003), Zhanget al. (2019) Hasan et al. (2018).

<sup>87</sup> Harhoff and Stahl (1998), Huybrechts et al. (2013), Fang and Moscarini (2005), Breza et al. (2018).

<sup>88</sup> Heyman (2007) and Lee et al. (2008), Kale, Reis e Venkateswaran (2009), Zagonov and Salganik-Shoshan (2018)

<sup>89</sup> Yermack (1996), De Andrés and Vallelado (2008), Wand et al. (2018)

<sup>90</sup> De Andrés and Vallelado (2008) and Wand et al. (2018)

<sup>91</sup> Hitz and Werner (2012), Zoghlami (2020)

<sup>92</sup> Zoghlami (2020)

<sup>93</sup> Board members who hold the following positions: CEO, Chairman and Vice Chairman

<sup>94</sup> Board members who do not hold special positions

<sup>95</sup> All board members except the CEO

median<sup>96</sup>, and the Whole Board<sup>97</sup>. The empirical approach consists in running the six regressions for each sub-group of the board, and also analyzed the different categories of compensation awarded. In total, this paper estimates 42 models, six models with different compensation for each of the six board subgroups. These models allow us to examine the role of each board subgroup and each incentive component on firm performance. The different significant levels, regressors and R<sup>2</sup> reflect the different roles that different individuals and different types of compensation play in the relationship between firm performance and board compensation.

The estimations are carried out with panel weighted least squares (WLS) because it is more appropriate in this specific case than panel ordinary least squares (OLS), mainly because these data are affected by heteroskedasticity. First, due to heteroskedasticity, the variances of the errors in RET vary between different units because of sectoral differences. In this case, panel WLS can help to reduce the impact of these variations on the estimation of the regression parameters. Second, WLS allows observations to be weighted differently according to their variance in order to obtain more accurate and less biased estimates of the regression parameters. This proved helpful for tenure, compensation, and median deviation, which have a wide range of values across firms and extreme values. Panel WLS can reduce the effect of these biases and extremes, thereby improving the precision of the parameter estimates. Third, WLS takes into account both sectoral differences and time series differences.

The dataset includes firms from different sectors that have significant differences in structure and performance. In this case<sup>98</sup>, panel WLS can be useful to account for these sectoral differences and provide more accurate parameter estimates. It also covers a 10-year period during which there may have been significant changes in market structure, regulation, or economic trends. Panel WLS help to deal with differences in variance between periods and thus provide more accurate estimates of the regression parameters.

In summary, the use of panel WLS may be justified in this particular case to deal with heteroskedasticity, to weight observations differently, to reduce extreme values, to take account of sectoral differences, and to deal with differences between time periods. However, it is important to carefully assess the presence of heteroskedasticity in the data and check whether the use of panel WLS leads to more accurate estimates of the regression parameters than panel OLS.

The iterative reweighted least squares (IRLS) method was used to assign weights in the WLS model. The process starts with assigning all weights equal to one, then estimating the model and calculating the residuals. The residuals are then weighted inversely proportional to the standard deviation of the estimated model, i.e. residuals with higher variance receive smaller weights and those with lower variance receive larger weights.

Finally, a new model is estimated using the newly assigned weights and the process is repeated until convergence is achieved, i.e. the weights no longer change significantly between iterations. This weighting process helps to reduce the impact of outliers and observations with higher variance, thus improving the quality of the model estimates.

---

<sup>96</sup> I dichotomized each board of each company year into two categories: members who receive compensation above the median and members who receive compensation below the median's.

<sup>97</sup> All board members regardless of position

<sup>98</sup> Auria (2017), Kaserer and Wagner (2005), Fauzi and Musallam (2015)

In the preliminary analysis, OLS models are run using panel data fixed effects, while the diagnostic tests for homoscedasticity are both Breusch-Pagan<sup>99</sup> and Wald<sup>100</sup>. Based on the results, it can be concluded that the OLS model assumption of homoscedasticity is violated, therefore necessitating the use of the WLS model.

This article employs the same model as in equation (1) once again, but this time with lagged regressors to explore the presence of potential lags in the association between corporate performance, CEO pay, and corporate governance. This second equation facilitates the observation of the delayed effects that variables related to governance and firm characteristics have on future remuneration. Thus, the study examines this relationship over time to determine whether there are any lagged effects.

The following regression has been estimated:

$$RET_{it} = \beta_0 + \beta_1 Comp_{it-1} + \beta_2 Tenure_{it-1} + \beta_3 MedDev_{it-1} + \beta_4 Gini\_Board_{it-1} + \beta_5 BS_{it-1} + \beta_6 sq\_BS_{it-1} + \beta_7 Asset_{it-1} + \beta_8 Gearing_{it-1} + \beta_9 ROE_{it-1} + \varepsilon_{it-1} \quad (2)$$

Where all variables of equation (2) repeat those of equation (1) and *t-1* represents the lagged variable (lagged by one year). Consistent with the empirical literature on managers compensation and differently from several empirical works in applied economics, the lagged dependent variable has not been introduced in the estimates for several reasons: first of all, persistence in the firm's financial performance would not be supported by strong theoretical reasons and interpretations, given the high volatility of financial variables. Secondly, the level of (the various forms) of compensation has to respond to incentive mechanisms that are going to be monitored and verified again, period by period. Thirdly, to the extent that a functional relationship is assumed (and shown, as done before) to exist among the dependent variable and the various regressors, the lagged dependent variable may still be interpreted as a function of the lagged independent variables.

Furthermore, this way of formulating the estimating equations allows a more straightforward interpretation of the statistical significance of the regressors and results. Finally, preliminary estimates have shown that, differently from many standard contributions in macroeconomics and applied economics, the use of the lagged dependent variable does not provide any relevant improvement in the results of the diagnostic tests of the regressions.

The model used for RET has been replicated for another indicator of company performance. After some preliminary research, some minor changes were made. Obviously, ROE has been removed from the regressors, as it would have been another indicator of corporate profitability, with potential problems of multicollinearity.

---

<sup>99</sup> The Breusch-Pagan (BP) test was used to detect heteroskedasticity, following these steps: First, OLS was used to run the original panel fixed effects model, and the residuals were saved and squared. Then, in the original model, the residuals were regressed on the same independent variables, and the subsequent regression provided a test statistic that was distributed as chi-squared with degrees of freedom equal to the number of independent variables in the original model. The p-value of the test statistic was used to detect evidence of heteroskedasticity. If the p-value was less than a predetermined level of significance, the null hypothesis of homoscedasticity was rejected, and evidence of heteroskedasticity in the model could be established. It was found that CEO salary, CEO median deviation, board size, and board size squared were significant contributors to heteroskedasticity, with p-values of 0.000001, 0.0084, 0.0053, and 0.0054, respectively.

<sup>100</sup> The non-parametric Wald test for heteroskedasticity was conducted for the panel fixed effect OLS model estimated. The null hypothesis being tested was that the error variance is constant across all units. The asymptotic test statistic was computed as Chi-square(225) = 1.00085e+20 with an associated p-value of 0. The results suggest strong evidence against the null hypothesis of homoskedasticity, indicating the presence of heteroskedasticity in the model. The extremely high value of the test statistic and the very small p-value suggest that the likelihood of observing such a large test statistic under the null hypothesis is practically zero.

In line with the empirical approach,<sup>101</sup> a test has been run for the association of firm performance with compensation and other corporate governance features for accounting-based measures of firm performance. RET<sup>102</sup> has been replaced with the logarithmic form of EBITDA.

EBITDA and RET are two financial measures that can be used to evaluate a company's performance, but they measure different aspects.

EBITDA represents a company's operating profit before financial expenses (interest), taxes and depreciation and amortization. EBITDA is a commonly used measure of a company's profitability because it excludes the effects of the company's financial structure and investments in tangible and intangible assets. However, it does not consider the cost of capital used to finance the company's activities. For these reasons, in Italy<sup>103</sup>, analysts and remuneration committees usually use EBITDA as a proxy to measure the firm's performance and set precisely on EBITDA the targets in terms of percentage to be achieved and set targets on EBITDA in terms of percentage to be achieved on the basis of which bonuses are then paid (or not) to directors.

The RET, on the other hand, represents the performance of the company's shares, i.e. the profit or loss that investors have made by investing in the company. The return on equity, therefore, takes into account both share price movements and dividends paid by the company.

In summary, while EBITDA measures the operating profitability of the company, the RET measures the financial performance of the company's shares.

The firm performance model based on accounting indicators is:

$$EBITDA_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \varepsilon_{it} \quad (3)$$

Where  $EBITDA_{it}$  is the earnings before interest tax depreciation and amortization, all the others regressors are the same of the equation (1).

For this analysis – following the literature – this paper only focuses on CEO compensation.

In order to assess the precision of the dimension selection in equation (1), each of the regressors was progressively substituted with its analogue substitute.

For the firm dimension, common proxies include sales, total assets and number of employees. The number of employees, total assets and sales are widely used in the literature as proxies for firm size.

The number of employees is often used to reflect an organization's operational and production capabilities, as well as its human capital and labor intensity.

Sales, on the other hand, provides an estimate of a firm's sales performance by measuring the total value of goods and services sold in a given period.

Finally, total assets represent both tangible and intangible resources - including real estate, equipment, patents and trademarks - that can serve as an indicator of a firm's financial strength and investment capacity.

<sup>101</sup> Zoghlami (2020), Ntim et al. (2015) and Edwards et al. (2009)

<sup>102</sup> The 12-months cumulative stock return of firm

<sup>103</sup> In the section of the Remuneration Report where the Board Remuneration Committee explains the incentive policy, most of the policies adopted by Italian companies provide for the use of percentages based on EBITDA to calculate the percentage of target achievement.



This paper conducts two robustness tests to verify the accuracy of assets as a proxy for the firm dimension in equation (1). First, turnover replaces assets (equation 4). Second, employees replace assets (equation 5).

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 NetSales_{it} + \beta_8 Gearing_{it} + \beta_9 ROE_{it} + \varepsilon_{it} \quad (4)$$

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Employees_{it} + \beta_8 Gearing_{it} + \beta_9 ROE_{it} + \varepsilon_{it} \quad (5)$$

Where Net Sales represent the natural logarithm of total revenue earned by a company during a given period after deducting any sales discounts, returns, and allowances, and Employees represent the natural logarithm of the total count of individuals employed by a company, including both full-time and part-time workers, during a specific period.

These two equations (4) and (5) answer a double question: they check whether the company size variable is relevant – and therefore necessary - in the model, and they also check the correctness of the direction of the correlation between these dimension proxies and the firm's performance.

Financial structure: A company's financial structure can have a significant impact on its performance. In particular, higher levels of debt and leverage can increase financial risk and reduce a company's ability to withstand economic downturns or unexpected shocks. This can lead to lower profitability, reduced investment capacity, and reduced shareholder value. In addition, higher levels of debt may limit a company's ability to undertake new projects or pursue growth opportunities, further hampering its long-term performance. Therefore, understanding the relationship between a company's financial structure and its performance is a critical component of strategic management and corporate finance research. Leverage, which refers to the use of debt financing relative to equity financing, is commonly used in the literature as a proxy for a firm's financial structure. The ratio of debt to equity can provide insight into a company's risk profile, financial stability, and investment capacity. Higher levels of leverage can increase a company's financial risk due to the potential for interest rate fluctuations and loan defaults. Conversely, lower levels of leverage may limit a company's ability to finance growth or take on new investment opportunities. While leverage is not a perfect measure of a company's financial structure and may have some limitations, it is a widely used and useful starting point for analyzing the relationship between a company's financial structure and various economic outcomes.

In equation (6), gearing - as a proxy for financial structure - is replaced by leverage in equation (1):

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Leverage_{it} + \beta_9 ROE_{it} + \varepsilon_{it} \quad (6)$$

Where Leverage is the ratio of total debt to total debt plus equity. Total debt is the sum of all a company's financial obligations, including both short-term and long-term debt such as bank loans, bonds, and other forms of borrowing. It is a measure of the amount of external financing a company has used to finance its operations, investments, and other activities. Shareholders' funds, on the other hand, represent the total amount of capital contributed to a company by its shareholders, including retained earnings and other forms of equity. It includes funds generated internally by the enterprise as well as funds contributed by investors through share issues or other forms of equity financing.

Profitability indicators are a key driver of company performance and have a positive impact on stock market returns. A company's ability to generate profits indicates its efficiency in utilizing resources and creating value for shareholders. Profitability can also be seen as a signal of a company's future growth potential and financial stability. Investors therefore tend to place a higher value on profitable companies,

which in turn leads to higher stock market returns. As such, a company's profitability is a critical factor in achieving superior financial performance and maximizing shareholder value. EBITDA, return on assets (ROA), return on investment (ROI) and earnings per share (EPS) are among the most commonly used measures of profitability. The first measures a company's operating profitability, while ROA measures a company's profitability relative to its total assets. ROI assesses the efficiency of a company's investments, and EPS measures a company's net income per share of common stock outstanding. Investors and analysts frequently use these metrics to evaluate a company's performance, profitability, and overall financial health. To assess the robustness of equation (1), ROE is replaced by other profitability measures: EBITDA, ROA, ROI and EPS:

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \beta_9 EBITDA_{it} + \varepsilon_{it} \quad (7)$$

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \beta_9 ROA_{it} + \varepsilon_{it} \quad (8)$$

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \beta_9 ROI_{it} + \varepsilon_{it} \quad (9)$$

$$RET_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \beta_9 EPS_{it} + \varepsilon_{it} \quad (10)$$

EBITDA is the natural logarithm of earnings before interest, taxes, depreciation and amortisation. ROA is the natural logarithm of a constant plus net profit multiplied by one minus the tax rate and divided by the average of total assets and the previous year's total assets. ROI is the natural logarithm of operating profit deflated by the average of current and prior year invested capital. EPS is net profit divided by the number of shares outstanding.

As with ROE, one would expect the other indicators of corporate profitability to have a coefficient that is positively correlated with RET.

A final test involved changing the dependent variable in the model to confirm the association between the prior firm and corporate governance variables and firm performance.

$$EBITDA_{it} = \beta_0 + \beta_1 Comp_{it} + \beta_2 Tenure_{it} + \beta_3 MedDev_{it} + \beta_4 Gini\_Board_{it} + \beta_5 BS_{it} + \beta_6 sq\_BS_{it} + \beta_7 Asset_{it} + \beta_8 Gearing_{it} + \varepsilon_{it} \quad (11)$$

This was done in order to measure company performance in a different way, excluding the financial market and focusing on the PL indicator of company performance, specifically EBITDA.

#### 4. Summary statistics and results

Table 1 provides summary descriptive statistics of the main sample variables.

Table 1 – Summary statistics

| Variable     | Avg.   | Median | Min    | Max    | St.Dev. | C.F. | Var.  | N.   |
|--------------|--------|--------|--------|--------|---------|------|-------|------|
| RET          | 9,23   | 9,22   | 9,21   | 9,44   | 1,71    | 0,19 | 2,93  | 1841 |
| Asset        | 13,56  | 13,15  | 9,21   | 20,71  | 0,89    | 0,07 | 0,8   | 1841 |
| Gearing      | 120,51 | 77,27  | -73,54 | 97,18  | 2,07    | 0,02 | 4,3   | 1841 |
| ROE          | 10,23  | 10,61  | -15,34 | 18,24  | 2,66    | 0,26 | 7,1   | 1841 |
| Gini_Board   | 0,66   | 0,68   | 0      | 1      | 0,82    | 1,24 | 0,68  | 1841 |
| BS           | 9,54   | 9      | 0,92   | 25,81  | 0,94    | 0,1  | 0,88  | 1841 |
| sq_BS        | 101,04 | 81     | 0,84   | 666,29 | 1,58    | 0,02 | 2,5   | 1841 |
| CEO_Tenure   | 44,61  | 36     | 1,5    | 120    | 0,91    | 0,02 | 0,83  | 1841 |
| Top_Tenure   | 45,65  | 37,81  | 0,25   | 120    | 0,63    | 0,01 | 0,4   | 1345 |
| Admin_Tenure | 33,57  | 30,78  | 1,5    | 102,67 | 0,2     | 0,01 | 0,04  | 1841 |
| NoCEO_Tenure | 35,72  | 32,88  | 1,5    | 104    | 0,54    | 0,02 | 0,29  | 1841 |
| Ume_Tenure   | 35,49  | 32,88  | 1,5    | 107    | 0,46    | 0,01 | 0,21  | 1841 |
| Hme_Tenure   | 44,68  | 36     | 0,5    | 120    | 0,55    | 0,01 | 0,3   | 1841 |
| Board_Tenure | 37,14  | 33,91  | 1,5    | 111,33 | 0,51    | 0,01 | 0,26  | 1841 |
| CEO_fr       | 13,87  | 13,85  | 13,82  | 14,25  | 1,44    | 0,1  | 2,08  | 1841 |
| CEO_cpc      | 13,82  | 13,82  | 13,82  | 13,92  | 5,22    | 0,38 | 27,3  | 1841 |
| CEO_omc      | 13,82  | 13,82  | 13,52  | 14,29  | 3,41    | 0,25 | 11,6  | 1841 |
| CEO_boi      | 13,85  | 13,82  | 13,82  | 14,75  | 2,23    | 0,16 | 4,97  | 1841 |
| CEO_oei      | 13,83  | 13,82  | 13,8   | 16,98  | 5,14    | 0,37 | 26,37 | 1841 |
| CEO_tot      | 13,92  | 13,87  | 13,82  | 16,99  | 2,66    | 0,19 | 7,05  | 1841 |
| CEO_c        | 13,91  | 13,87  | 13,82  | 16,99  | 2,94    | 0,21 | 8,66  | 1841 |
| CEO_MeDev    | 16,08  | 16,12  | 13,82  | 16,12  | 2,75    | 0,17 | 7,54  | 1841 |
| Top_fr       | 13,84  | 13,83  | 13,82  | 14,02  | 1,43    | 0,1  | 2,05  | 1345 |
| Top_cpc      | 13,82  | 13,82  | 13,82  | 13,83  | 2,46    | 0,18 | 6,07  | 1345 |
| Top_omc      | 13,82  | 13,82  | 13,8   | 14,53  | 5,95    | 0,43 | 35,35 | 1345 |
| Top_boi      | 13,82  | 13,82  | 13,81  | 14,05  | 2,97    | 0,21 | 8,83  | 1345 |
| Top_oei      | 13,82  | 13,82  | 13,82  | 15,66  | 5,13    | 0,37 | 26,29 | 1345 |
| Top_tot      | 13,85  | 13,83  | 13,82  | 15,66  | 3,77    | 0,27 | 14,25 | 1345 |
| Top_c        | 13,85  | 13,83  | 13,82  | 15,66  | 3,97    | 0,29 | 15,74 | 1345 |
| Top_MeDev    | 16,12  | 16,12  | 16,12  | 16,12  | 0,75    | 0,05 | 0,56  | 1345 |
| Admin_fr     | 13,82  | 13,82  | 13,82  | 13,86  | 1,99    | 0,14 | 3,95  | 1841 |
| Admin_cpc    | 13,82  | 13,82  | 13,82  | 13,83  | 1,66    | 0,12 | 2,74  | 1841 |
| Admin_omc    | 13,82  | 13,82  | 13,8   | 14,04  | 6,01    | 0,43 | 36,16 | 1841 |
| Admin_boi    | 13,82  | 13,82  | 13,82  | 13,89  | 5,11    | 0,37 | 26,11 | 1841 |
| Admin_oei    | 13,82  | 13,82  | 13,81  | 13,91  | 4,52    | 0,33 | 20,45 | 1841 |
| Admin_tot    | 13,82  | 13,82  | 13,82  | 14,08  | 3,73    | 0,27 | 13,93 | 1841 |
| Admin_c      | 13,82  | 13,82  | 13,81  | 14,08  | 3,9     | 0,28 | 15,2  | 1841 |
| Admin_MeDev  | 16,12  | 16,12  | 16,12  | 16,12  | 0,72    | 0,04 | 0,52  | 1841 |
| NoCeo_fr     | 13,82  | 13,82  | 13,82  | 13,87  | 1,59    | 0,12 | 2,53  | 1841 |
| NoCeo_cpc    | 13,82  | 13,82  | 13,82  | 13,82  | 1,69    | 0,12 | 2,87  | 1841 |
| NoCeo_omc    | 13,82  | 13,82  | 13,8   | 14,02  | 5,14    | 0,37 | 26,47 | 1841 |
| NoCeo_boi    | 13,82  | 13,82  | 13,82  | 13,87  | 3,04    | 0,22 | 9,27  | 1841 |
| NoCeo_oei    | 13,82  | 13,82  | 13,81  | 14,83  | 6,1     | 0,44 | 37,25 | 1841 |
| NoCeo_tot    | 13,83  | 13,82  | 13,82  | 14,84  | 4,89    | 0,35 | 23,88 | 1841 |
| NoCeo_c      | 13,83  | 13,82  | 13,81  | 14,84  | 5,09    | 0,37 | 25,93 | 1841 |

| Variable     | Avg.  | Median | Min    | Max    | St.Dev. | C.F.  | Var.  | N.   |
|--------------|-------|--------|--------|--------|---------|-------|-------|------|
| NoCeo_MeDev  | 16,12 | 16,12  | 16,12  | 16,12  | 0,82    | 0,05  | 0,68  | 1841 |
| Hme_fr       | 13,87 | 13,85  | 13,82  | 14,5   | 1,76    | 0,13  | 3,09  | 1841 |
| Hme_cpc      | 13,82 | 13,82  | 13,82  | 13,92  | 5,37    | 0,39  | 28,86 | 1841 |
| Hme_omc      | 13,82 | 13,82  | 13,52  | 15,24  | 4,5     | 0,33  | 20,23 | 1841 |
| Hme_boi      | 13,85 | 13,82  | 13,81  | 14,75  | 2,19    | 0,16  | 4,8   | 1841 |
| Hme_oei      | 13,84 | 13,82  | 13,8   | 16,98  | 4,31    | 0,31  | 18,58 | 1841 |
| Hme_tot      | 13,93 | 13,87  | 13,82  | 16,99  | 2,5     | 0,18  | 6,23  | 1841 |
| Hme_c        | 13,92 | 13,87  | 13,82  | 16,99  | 2,73    | 0,2   | 7,46  | 1841 |
| Hme_MeDev    | 16,12 | 16,12  | 16,12  | 16,12  | 1,16    | 0,07  | 1,34  | 1841 |
| Ume_fr       | 13,82 | 13,82  | 13,82  | 13,88  | 1,72    | 0,12  | 2,96  | 1841 |
| Ume_cpc      | 13,82 | 13,82  | 13,82  | 13,82  | 1,65    | 0,12  | 2,72  | 1841 |
| Ume_omc      | 13,82 | 13,82  | 13,77  | 13,83  | 2,14    | 0,15  | 4,58  | 1841 |
| Ume_boi      | 13,82 | 13,82  | 13,82  | 13,87  | 3,24    | 0,23  | 10,5  | 1841 |
| Ume_oei      | 13,82 | 13,82  | 13,81  | 14,83  | 6,34    | 0,46  | 40,19 | 1841 |
| Ume_tot      | 13,83 | 13,82  | 13,82  | 14,84  | 5,56    | 0,4   | 30,93 | 1841 |
| Ume_c        | 13,83 | 13,82  | 13,81  | 14,84  | 5,81    | 0,42  | 33,76 | 1841 |
| Ume_MeDev    | 16,12 | 16,12  | 16,12  | 16,12  | 0,77    | 0,05  | 0,6   | 1841 |
| Board_fr     | 13,83 | 13,83  | 13,82  | 13,91  | 1,47    | 0,11  | 2,16  | 1841 |
| Board_cpc    | 13,82 | 13,82  | 13,82  | 13,83  | 1,93    | 0,14  | 3,74  | 1841 |
| Board_omc    | 13,82 | 13,82  | 13,78  | 14,01  | 4,45    | 0,32  | 19,79 | 1841 |
| Board_boi    | 13,82 | 13,82  | 13,78  | 14,01  | 4,45    | 0,32  | 19,79 | 1841 |
| Board_oei    | 13,82 | 13,82  | 13,81  | 15,4   | 6,12    | 0,44  | 37,5  | 1841 |
| Board_tot    | 13,84 | 13,83  | 13,82  | 15,4   | 4,59    | 0,33  | 21,06 | 1841 |
| Board_c      | 13,84 | 13,83  | 13,78  | 15,4   | 5,23    | 0,38  | 27,32 | 1841 |
| Board_MeDev  | 16,12 | 16,12  | 16,12  | 16,12  | 0,93    | 0,06  | 0,86  | 1841 |
| ln_Employees | 6,56  | 6,72   | 3      | 11,89  | 0,7     | 0,11  | 0,49  | 1841 |
| ln_Net_Sales | 14,44 | 14,04  | 13,82  | 18,79  | 1,54    | 0,11  | 2,36  | 1841 |
| Leverage     | 9,22  | 9,22   | 8,97   | 9,41   | 2,64    | 0,29  | 6,98  | 1841 |
| ln_EBITDA    | 10,77 | 10,37  | 3,71   | 16,08  | 0,83    | 0,08  | 0,69  | 1841 |
| ln_ROI       | 9,21  | 9,21   | 9,16   | 9,58   | 4,08    | 0,44  | 16,68 | 1841 |
| ln_ROA       | 9,21  | 9,21   | 9,19   | 9,58   | 4,16    | 0,45  | 17,31 | 1841 |
| EPS          | -2,09 | 0,13   | -146,6 | 123,52 | 4,95    | -2,37 | 24,55 | 1841 |

To test the six hypotheses, equation (1) was estimated forty-two times, seven times for each individual board subgroup - CEO, NoCEO, top member, administrators, below and above median and board - and six times with all types of compensation - fixed, committee fees, benefits, bonuses, equity and total.

Table 1 shows that the average CEO, top member and those with compensation above the median are higher than the averages of the other board subgroups.

The descriptive statistics also show that the average tenure of CEOs in Italy is 3 years, just over 3 years for chairmen and vice-chairmen, and less than 3 years on average for other board members. This suggests that top board positions tend to be held for longer.

The number of observations for all board sub-groups except 'top' is 1841 firm years. This is due to the CEO duality: if a board member holds both the position of CEO and Chairman, he or she is recognized in this study as a CEO member and therefore does not appear in the analysis as a Chairman. For this reason, the "top" sub-group only has a total of 1345 observations.

Before proceeding with the model estimations, among the various diagnostic tests carried out for each individual model, Tables 2.1 and 2.2 show the correlation matrix between the independent variables of Equation 1 and Equation 2, respectively. As for the correlation matrix of equation 1, for the sake of presentation, only the one for total CEO compensation is shown. The correlation matrix was performed

for each of the 42 models, and in none of them did multicollinearity emerge, as in no case was the correlation between dependent variables higher than 0.70 (with the physiological correlation between the board and its quadratic form as the only exception).

The correlation matrices below show that there is no correlation between independent variables, and this suggests that these two models are not affected by multicollinearity.

Table 2.1 – Correlation matrix: Equation 1, Model 1

|            | Asset | Gearing | ROE   | Gini_Board | BS    | sq_BS | CEO_Tenure | CEO_c | CEO_MeDev |
|------------|-------|---------|-------|------------|-------|-------|------------|-------|-----------|
| Asset      | 1     | -0,020  | 0,050 | 0,186      | 0,556 | 0,532 | 0,065      | 0,444 | -0,118    |
| Gearing    |       | 1       | 0,020 | 0,018      | 0,007 | 0,073 | -0,054     | 0,024 | 0,059     |
| ROE        |       |         | 1     | 0,035      | 0,022 | 0,033 | 0,004      | 0,046 | -0,008    |
| Gini_Board |       |         |       | 1          | 0,149 | 0,114 | 0,004      | 0,452 | 0,025     |
| BS         |       |         |       |            | 1     | 0,966 | 0,136      | 0,329 | -0,120    |
| sq_BS      |       |         |       |            |       | 1     | 0,142      | 0,323 | -0,133    |
| CEO_Tenure |       |         |       |            |       |       | 1          | 0,052 | -0,598    |
| CEO_c      |       |         |       |            |       |       |            | 1     | -0,019    |
| CEO_MeDev  |       |         |       |            |       |       |            |       | 1         |

Table 2.2 – Correlation matrix: equation 2, lagged model.

|              | Asset_1 | Gearing_1 | ROE_1 | Gini_Board_1 | BS_1  | sq_BS_1 | ceo_Tenure_1 | ceo_c_1 | ceo_MeDev_1 |
|--------------|---------|-----------|-------|--------------|-------|---------|--------------|---------|-------------|
| Asset_1      | 1       | -0,028    | 0,043 |              |       |         |              |         | -0,116      |
| Gearing_1    |         | 1         | 0,048 | 0,196        | 0,563 | 0,537   | 0,066        | 0,437   | 0,063       |
| ROE_1        |         |           | 1     | 0,021        | 0,001 | 0,070   | 0,074        | 0,023   | -0,009      |
| Gini_Board_1 |         |           |       | 1            | 0,041 | 0,056   | 0,011        | 0,040   | 0,031       |
| BS_1         |         |           |       |              | 1     | 0,163   | 0,011        | 0,447   | -0,122      |
| sq_BS_1      |         |           |       |              |       | 1       | 0,142        | 0,329   | -0,139      |
| ceo_Tenure_1 |         |           |       |              |       |         | 1            | 0,323   | -0,593      |
| ceo_c_1      |         |           |       |              |       |         |              | 1       | -0,017      |
| ceo_MeDev_1  |         |           |       |              |       |         |              |         | 1           |

The highlights of the results of the estimates are reported in Table 3 below (Please refer to the entire Table 3, which is located in the footer of this paper for complete overview of the models).

Highlights - Table 3 WLS estimates of equations 1, RET as the dependent variable, for each board subdivision and for each type of compensation.

|                     | Model 1     | Model 5    | Model 6    | Model 7    | Model 11    |
|---------------------|-------------|------------|------------|------------|-------------|
| Group               | CEO         | CEO        | CEO        | Top        | Top         |
| Const               | -239.466*** | -159246    | -336955*   | 0.0016***  | 471663***   |
| Asset               | 0.0606***   | 0.0034***  | 0.0034***  | 0.0034***  | 0.0038***   |
| Gearing             | -0.1794***  | -0.0049*** | -0.0056*** | -0.0072*** | -0.0066***  |
| ROE                 | 0.0043***   | 0.001***   | 0.001***   | 0.0008***  | 0.0009***   |
| Gini_Board          | -0.0151***  | -0.0072*** | -0.003***  | -0.0136*** | -0.0067***  |
| BS                  | 0.0024***   | 0.0025***  | 0.003***   | 0.0031***  | 0.003***    |
| sq_BS               | -0.0102***  | -0.0107*** | -0.0128*** | -0.013***  | -0.013***   |
| Tenure              | 0.0027***   | 0.373***   | 0.3056***  | 0.0042***  | 0.0043***   |
| MeDev               | 0.0042***   | 0.0985***  | 0.2088***  | -0.6795*** | -0.293***   |
| Comp                | 0.0009***   |            |            | 0.064***   |             |
| Comp_Bonus          |             | 0.0603***  |            |            | 0.1225***   |
| Comp_Equity         |             |            | 0.0664***  |            |             |
| R <sup>2</sup>      | 0.6268      | 0.5768     | 0.5866     | 0.5549     | 0.5465      |
| R <sup>2</sup> Adj. | 0.6249      | 0.5745     | 0.5845     | 0.5522     | 0.5437      |
| N                   | 1841        | 1841       | 1841       | 1841       | 1841        |
|                     | Model 12    | Model 31   | Model 35   | Model 36   | Model 37    |
| Group               | Top         | Upper Me.  | Upper Me.  | Upper Me.  | Board       |
| Const               | 396686***   | -982573    | -241778    | -72435.6   | -598.887*** |
| Asset               | 0.0036***   | 0.003***   | 0.0033***  | 0.0033***  | 0.0033***   |
| Gearing             | -0.0063***  | -0.0058*** | -0.0058*** | -0.0059*** | -0.0062***  |
| ROE                 | 0.0009***   | 0.0009***  | 0.001***   | 0.001***   | 0.001***    |
| Gini_Board          | -0.007***   | -0.0145*** | -0.008***  | -0.0038*** | -0.0045***  |
| BS                  | 0.0032***   | 0.0025***  | 0.0025***  | 0.003***   | 0.0027***   |
| sq_BS               | -0.0136***  | -0.0115*** | -0.0105*** | -0.0132*** | -0.0114***  |
| Tenure              | 0.0045***   | 0.0027***  | 0.0033***  | 0.0029***  | 0.0044***   |
| MeDev               | -0.2465***  | 0.6094***  | 0.1497***  | 0.0447***  | NA          |
| Comp                |             | 0.0371***  |            |            | 0.1063***   |
| Comp_Bonus          |             |            | 0.0533***  |            |             |
| Comp_Equity         | 0.0999***   |            |            | 0.053***   |             |
| R <sup>2</sup>      | 0.5491      | 0.5911     | 0.5729     | 0.5661     | 0.5605      |
| R <sup>2</sup> Adj. | 0.5463      | 0.5889     | 0.5706     | 0.5639     | 0.5584      |
| N                   | 1841        | 1841       | 1841       | 1841       | 1841        |
|                     | Model 14    | Model 15   | Model 19   | Model 26   | Model 27    |
| Group               | Admin.      | Admin.     | No-CEO     | Under Me.  | Under Me.   |
| Const               | 506802***   | 322048*    | 767623***  | 871091***  | 328487*     |
| Asset               | 0.0035***   | 0.0035***  | 0.0032***  | 0.0032***  | 0.0034***   |
| Gearing             | -0.0059***  | -0.0057*** | -0.006***  | -0.0063*** | -0.0061***  |
| ROE                 | 0.0011***   | 0.0011***  | 0.001***   | 0.0011***  | 0.0011***   |
| Gini_Board          | -0.0048***  | -0.0036*** | -0.0077*** | -0.0062*** | -0.003***   |
| BS                  | 0.0029***   | 0.0028***  | 0.003***   | 0.003***   | 0.0027***   |
| sq_BS               | -0.0123***  | -0.0117*** | -0.0125*** | -0.0124*** | -0.0112***  |
| Tenure              | 0.0048***   | 0.0048***  | 0.004***   | 0.0041***  | 0.0053***   |
| MeDev               | -0.3148***  | -0.2002*** | -0.4766*** | -0.5408*** | -0.2043***  |
| Comp                |             |            | 0.1586***  |            |             |
| Comp_fr             | 0.2232***   |            |            | 0.2438***  |             |
| Comp_cpc            |             | 0.5979***  |            |            | 0.7961***   |
| R <sup>2</sup>      | 0.5429      | 0.5548     | 0.5667     | 0.5382     | 0.5471      |
| R <sup>2</sup> Adj. | 0.5405      | 0.5524     | 0.5644     | 0.5358     | 0.5447      |
| N                   | 1718        | 1718       | 1721       | 1723       | 1723        |

Notes the significance levels are at the 1%(\*\*\*), 5%(\*\*), and 10%(\*), each model is estimated with robust standard errors and has normally distributed errors.

Following the same order as the hypotheses, the empirical results were tested with six different types of compensation: total compensation, fixed remuneration, compensation for committee participation, benefit, bonus, and equity instruments.

The overall relationship between company performance and pay is positive and significant for all subgroups analyzed. However, this association may change its sign or become non-significant depending on the compensation component analyzed. For CEO compensation, the association between compensation and RET is positive and significant for FR, BOI, OEI, and total compensation, while it becomes non-significant and negative for CPC and Benefit. The same applies to Top Member with the only two differences that the negative sign between RET and CPC is significant and the association between firm performance and Benefit is positive - but always no significant. These results are completely reversed if RET is regressed on directors' compensation data, with a positive but non-significant association found for total compensation, benefits, bonus, and equity, while fixed compensation and committee fees are positively and significantly related with company performance.

For non-CEO members, the association is always positive and significant (except for benefits). As for the non-CEO members, and also for the group below the median, the association is generally positive and significant, except for Benefit, for which the relationship is negative and non-significant. For the above median group, the association is positive and significant for total compensation, bonus, and equity; negative and significant for committee fees; and positive but not significant for benefits.

For the entire board, the relationship between RET and compensation is positive and significant only for total compensation and equity incentives. The others remuneration forms are positive but not significant. These results emphasise that the relationship between company performance and pay does not always hold; by moving across board subunits and pay types, the relationship changes in terms of significance and sign.

Board Size (and its quadratic form) is always positive (negative) and significantly correlated to RET. These results indicate that the inverted U-shaped relationship between market-based firm performance and board size is robust and significant for all forms of compensation and for all board members without exception. This implies that stock performance increases as the size of the board increases, but if the board becomes too large and not very intelligent in its decision-making, this has a negative impact on financial markets. These findings find support for H2.

The median deviation is calculated as the difference between the sub-group's median compensation and the board median compensation. Overall, this variable is always negatively and significantly associated with the RET. The only exception is the CEO. The CEO is the only individual for whom the return on equity has a positive relationship with excess compensation relative to the board median; this relationship is also significant for the CEO's total compensation, fixed compensation, benefits, and equity instruments. The association between the deviation from the median of the 'top' and 'above the median' members is always negative but not always significant; for some remuneration components, the excess of the 'top' and 'above the median' subgroups is not always significant. On the other hand, for all other sub-groups of the surveyed group, the negative sign of the deviation from the median is always significant, regardless of which measure of compensation is observed. In general, the results argue that H3 can be accepted for no-CEO, below median, and director sub-groups, not always for "top" and above median sub-groups, and it can be rejected for CEOs.

According to the empirical results, the Gini index is negatively and significantly related to firm performance; this relationship is not affected by the individual characteristics of the member; however,

in general, benefits and committee participation fees show that Gini is not significant. Therefore, the more homogeneously a board has distributed remuneration, the higher the mark-based performance of the firm, the greater the concentration in the distribution of remuneration, and the lower the performance of the firm.

The association between other financial statement indexes and firm performance always maintains the same sign and significance: in particular, there is a general positive association between firm size, a company's profitability, and its mark-based performance and a negative relationship between firm structure and firm performance. This suggests that the most indebted companies are the ones most penalized by the capital market.

By regressing the firm performance of equation (2) with the lagged independent variables (lag is equal to one year), the following estimates were obtained, in line with equation (1).

*Table 4 – Lagged WLS estimation of equation 2.*

| Variable       | Model 51    |
|----------------|-------------|
| Const          | -206.942*** |
| CEO_c_1        | 0.0285***   |
| CEO_Tenure_1   | 0.1562***   |
| CEO_MeDev_1    | 0.0064***   |
| Gini_Board_1   | -0.0057***  |
| BS_1           | 0.0023***   |
| sq_BS_1        | -0.0001***  |
| Asset_1        | 0.0034***   |
| Gearing_1      | -0.0049***  |
| ROE_1          | 0.0073***   |
| R <sup>2</sup> | 0.5872      |
| R2 Adj.        | 0.5849      |
| N              | 1841        |

*Notes the significance levels are at the 1%\*\*\*, 5%\*\*\*, and 10%\*.*

Table 4 presents the empirical estimation of the lagged equation 2. These results show that all variables in the main model have lagged effects that have a significant impact on firm performance. These results suggest that firm performance in year t is highly dependent on the variables under consideration, as not only do the equations of the contemporary estimates have an impact on market returns, but the effects of compensation, governance indicators, and other firm-specific indicators have significant lagged effects. The results of Table 4 confirm those of Table 3, as the effects of the lagged variables remain significant and have the same sign as those obtained with the current variables.



## 5. Robustness tests

The models were estimated for robustness tests in equations (4, 5, 6, 7, 8, 9, 10). A positive and significant relationship was found between firm size as measured by employees and net sales. A negative relationship was found between leverage and RET. In addition, positive and significant relationships were found between firm profitability and RET, even when using alternative accounting-based profitability indicators.

*Table 5 – Robustness tests for different independent variables proxies.*

|                     | Model 43   | Model 44   | Model 45   | Model 46   | Model 47   | Model 48   | Model 49   |
|---------------------|------------|------------|------------|------------|------------|------------|------------|
| const               | -215706*   | -141417*** | -226405*   | -224293*   | -246777*   | -247527*   | -260***    |
| Asset               |            |            | 0.0028***  | 0.0009***  | 0.0029***  | 0.0029***  | 0.00296*** |
| Gearing             | -0.5362*** | -0.7108*** |            | -0.3981*** | -0.365***  | -0.3851*** | -0.0001*** |
| ROE                 | 0.001***   | 0.0013***  | 0.0009***  |            |            |            |            |
| Gini_Board          | -0,0121*** | -0.019***  | -0.0146*** | -0.0126*** | -0.0149*** | -0.015***  | -0,0157*** |
| BS                  | 0.0037***  | 0.0036***  | 0.0027***  | 0.0029***  | 0.0024***  | 0.0024***  | 0.00238*** |
| sq_BS               | -0.0015*** | -0.0001*** | -0.0001*** | -0.0001*** | -0.0001*** | -0.0001*** | -0,0001*** |
| CEO_Tenure          | 0.1622***  | 0.1083***  | 0.1701***  | 0.1685***  | 0.1842***  | 0.1848***  | 0.19465*** |
| CEO_MeDev           | -0.0048*** | -0.0048*** | -0.0045*** | -0.003***  | -0.0044*** | -0.0044*** | -0,0041*** |
| CEO_comp            | 0.0608***  | 0.0746***  | 0.0604***  | 0.0564***  | 0.058***   | 0.058***   | 0.05711*** |
| NetSales            | 0.0058***  |            |            |            |            |            |            |
| ln_Employees        |            | 0.0013***  |            |            |            |            |            |
| Leverage            |            |            | -0.0245*** |            |            |            |            |
| EBITDA              |            |            |            | 0.0035***  |            |            |            |
| ROI                 |            |            |            |            | 0.0777***  |            |            |
| ROA                 |            |            |            |            |            | 0.0794***  |            |
| EPS                 |            |            |            |            |            |            | 0.00058*** |
| R <sup>2</sup>      | 0.5655     | 0.5918     | 0.6119     | 0.6917     | 0.6402     | 0.6454     | 0.64623    |
| R <sup>2</sup> Adj. | 0.5634     | 0.5892     | 0.6100     | 0.6900     | 0.6384     | 0.6437     | 0.64448    |
| N                   | 1841       | 1841       | 1841       | 1841       | 1841       | 1841       | 1841       |

*Notes the significance levels are at the 1%(\*\*\*), 5%(\*\*), and 10%(\*), each model is estimated with robust standard errors.*

The robustness tests conducted all use the CEO as the reference subject. This is because the literature on the sensitivity of performance-pay always considers only the CEO. This is because the CEO is usually the individual with the most power within the board and therefore the one who can influence the firm's performance more than any other member.

The tests carried out on firm size show that even when other measures of firm size, such as sales or the number of employees, are substituted for total assets, the relationship between performance and pay does not change, suggesting that firm size is a variable that retains its robustness. The same is true for leverage, which is used in model 45 and shows that the less solid the financial structure of the firm, the worse its performance.

Finally, the four different proxies (ROA, ROI, EPS, EBITDA) used as an alternative to ROE to measure profitability using accounting measures are also positively associated with the firm's market performance. It can therefore be concluded that the robustness tests carried out to confirm the extendibility of the main results in definitions different from those used in the main analysis confirm the hypotheses of a positive relationship with firm size and accounting-based performance and a negative relationship with firm leverage.

In Table 6, a different proxy was used to measure firm performance, specifically an accounting-based indicator: EBITDA of equation (3). The results are presented in the table below.

*Table 6 – Robustness tests for different dependent variables proxy: EBITDA*

| Variable            | Model 50   |
|---------------------|------------|
| Const               | 2656.38*   |
| Asset               | 0.6221***  |
| Gearing             | -0.0003*** |
| Gini_Board          | -0.5485*** |
| BS                  | 0.0295***  |
| sq_BS               | -0.0007*** |
| CEO_Tenure          | -1.9323*** |
| CEO_McDev           | -0.1884*** |
| CEO_comp            | 1.3576***  |
| R <sup>2</sup>      | 0.6516     |
| R <sup>2</sup> Adj. | 0.6514     |
| N                   | 1841       |

*Notes the significance levels are at the 1% (\*\*\*), 5% (\*\*), and 10% (\*), each model is estimated with robust standard errors.*

This test confirms the positive and significant relationship between firm performance and the firm dimension, measured by total assets, and a significant negative relationship for the debt-equity ratio. As with the RET, a significant and negative relationship is also found when the accounting measure of performance is regressed on the median deviation and the Gini index. Also, for equation (11), there is an inverted U-shaped relationship between firm performance and board size. CEO pay and EBITDA are positively related. The only difference with equation (1) is tenure, which is negatively correlated with firm performance at a low level of significance (5%).

In summary, the robustness tests have been carried out considering only the CEO and total compensation, as the literature claims that the CEO is more able than the rest of the board to drive the firm's performance. All robustness studies using other measures for the independent variables support both the assumptions and the empirical results of the main model. The robustness test conducted on the dependent variable shows that all hypotheses can be accepted, except for hypothesis H5, which has to be rejected.

## 6. Conclusion

The topic of CEO compensation and corporate performance has been widely debated in literature. In opposition to the agency theory, the "tournament model" theory has developed. This is based on the assumption that the incentives that shareholders use to align the CEO's interests with those of the firm are not sufficient. This is because the CEO knows that given the minority percentage of the firm's equity he holds vis-à-vis the majority shareholders, despite his or her efforts, the greatest beneficiaries from the change in shareholder value are the shareholders and not him or her. This leads CEOs to focus on the short term rather than the long term.

Although the topic is widely discussed, many open questions remain, and one of the most unexplored issues is precisely the role that compensation plays in firm performance. The literature points out that executive pay and firm performance have a relationship that is strongly influenced by the corporate governance models of individual firms and also by the country systems in which firms operate. Both reasons motivated the study of this relationship in another environment: Italy, and for a wider range of stakeholders: individual sub-groups of the Board of Directors.

By introducing a unique dataset, this paper examines two dimensions that have never been considered together in the study of performance-pay sensitivity: the individual characteristics of individual board members and different pay categories. The person's risk appetite, which is frequently unobserved in other models in the literature, has a significant impact on both dimensions. Typically, the greater the risk appetite, the greater the impact of variable pay on total compensation. Individuals such as the CEO, Chairman, and Vice Chairman perform more representative functions for the company. These are individuals with strong charisma and risk appetite who, among the board members, are the most interested, influential, and at the same time affected by the company's performance, be it accounting or market performance.

The results of this analysis show that the main relationship between performance and compensation is strongly biased by two dimensions: the remuneration component and the individual director. The empirical tests conducted show that the most highly compensated individuals in the firm are also those who have the greatest positive impact on firm performance. This suggests that compensation bargaining is effective because the individuals on the board who have greater bargaining power are also the individuals whose efforts and skills have the greatest (positive) impact on firm performance.

Looking across remuneration categories, we can see how they take on different meanings and signs depending on the individual that receives them. The most influential directors: CEO, Chairman and Vice Chairman, the group of directors above the median, have a strong positive and significant relationship between fixed pay and both short-term (bonus) and long-term (equity) incentives, while the relationship is negative and non-significant when considering other forms of pay such as benefits and a fee for committee membership. However, the total compensation of these individuals is positively associated with the financial performance of the company. In contrast, the situation is reversed for the least relevant individuals on the board: below median board members and directors. For both groups, the pay for committee membership is significantly and positively associated with the financial performance of the firm. This implies that these less influential board members, aware of their marginal role on the board, have less bargaining power and therefore cannot obtain high fixed or variable compensation. For this reason, they have to get more involved in the management of the company by participating in committees with specific functions, and are then rewarded with higher compensation, which is precisely the reward for getting more involved in the management of the company by performing specific and additional functions.

The results show that the effects at play in this relationship persist over time and that the impact of compensation on firm performance is also lagged. The importance of variable pay indirectly suggests that firm performance also depends on past performance. This is because variable pay is usually linked to the achievement of targets measured by company performance indicators (one in all, EBITDA). In this sense, if a company has improved its performance in the previous period, it has increased the remuneration of its top executives on the basis of this (good) performance in the same period (past). This increased compensation has a positive effect on the future performance of the company. Thus, the current performance of the company is positively related to past performance, and this indirect relationship is partially and indirectly captured by the importance of variable pay, as it depends on both the current and past performance of the company. This suggests that the relationship between performance and pay is bidirectional and depends on the individual's degree of risk aversion.

The empirical results support the hypotheses. In particular, they allow us to accept the hypothesis of a negative relationship between median pay deviation and firm performance for all subgroups except the CEO, which shows a split within the board. On the one hand, for non-CEO members, the agency theory prevails as a model to explain the compensation of these individuals; on the other hand, for CEOs, the

tournament theory prevails, according to which the CEO feels that he is in a virtual competition with the other board members and therefore has an incentive to make a greater effort to assert his dominant position and thus cause better firm performance if his compensation is higher than that of the other members. However, this result is not confirmed by the concentration ratio, which instead suggests a prevalence of the agency model for all members and all types of compensation.

The empirical results confirm the hypothesis of an inverted U-shaped relationship between firm performance and board size, which implies that initially small boards tend not to make the firm perform well due to a lack of heterogeneity of thoughts and discussion. Small boards therefore do not promote the sharing of experience, skills, and strategic vision, and the lack of discussion therefore leads to a lack of innovative ideas in the firm. Increasing the size of the board will therefore initially lead to new thinking and new ways of doing things, which will drive the company towards improved performance. However, once a certain threshold is reached, the benefits of dialogue and the sharing of thoughts and strategies turn into immobility, precisely because too many different thoughts do not move harmoniously towards a single, shared strategy.

In conclusion, this research has shown the importance of the role of different individual characteristics within the board, and in particular, how distinguishing between the most and least influential board members can also change the impact of individual remuneration components in determining firm performance. The more 'strategic' a board member is to the company, the higher his or her remuneration will be in both individual and board terms.

These 'higher rewards' translate into better company performance through optimized and efficient contracts. In other words, in the context of an agency relationship, the greater the premium for the efforts and skills of the 'strategic' directors, the greater the company's performance (and future performance).

## References:

- Adjaoud F., Zeghal D., Andaleeb S. (2007). The effect of board's quality on performance: A study of Canadian firms. *Journal of Compilation*, 15(4), 623-635.
- Aggarwal R., Erel I., Ferreira M. A., Matos P. (2011). Does governance travel around the world? Evidence from institutional investors. *Journal of Financial Economics*, 100(1), 154-181.
- Aguilera R. V., Desender K. A., Bednar M. K., Lee J. (2015). Connecting the dots: Bringing external corporate governance into the corporate governance puzzle. *Academy of Management Annals*, 9(1), 483-573.
- Akerlof G. A., Yellen J. L. (1988). Fairness and unemployment. *American Economic Review*, 78(2), 45-49.
- Akerlof G. A., Yellen J. L. (1990). The fair wage-effort hypothesis and unemployment. *The Quarterly Journal of Economics*, 105(2), 255-283.
- Ali A., Zhang W. (2015). CEO tenure and earnings management. *Journal of Accounting and Economics*, 59(1), 60-79.
- Al-Matari E.M., Al-Swidi A.K., Fadzil, F.H.B. (2014). The measurements of firm performance's dimensions. *International Journal of Business and Management*, 9(9), 32-44.
- Aslam E., Haron R., Tahir M. N. (2019). How director remuneration impacts firm performance: An empirical analysis of executive director remuneration in Pakistan. *Business & Economic Review*, 11(1), 69-90.
- Auria S. (2017). Abnormal CEO Compensation and Firm Performance: Empirical Evidence from Europe. Aalto University publication series BUSINESS ECONOMY, 34.
- Aust V., Pelger C., Drefahl C. (2021). Exploring the relationship between valuation and stewardship uses of accounting information: Empirical evidence from German listed firms. *Journal of International Accounting Research*, 20(1), 1-21.
- Balafas N., Florackis C. (2013). CEO compensation and future shareholder returns: Evidence from the London Stock Exchange. *Journal of Empirical Finance*, 27, 97-115.
- Barontini R., Bozzi S. (2011). Board compensation and ownership structure: empirical evidence for Italian listed companies. *Journal of Management & Governance*, 15, 59-89.
- Bebchuk L.A., Fried J.M., (2003). Executive Compensation as an Agency Problem. *JOURNAL OF ECONOMIC PERSPECTIVES VOL. 17, NO. 3, SUMMER (2003)*, (pp. 71-92).
- Bebchuk L.A., Fried J.M., Walker D.I. (2002). Managerial power and rent extraction in the design of executive compensation. *University of Chicago Law Review*, 69.
- Bebchuk, L. A., Cremers K. J. M., Peyer U. C. (2011). The CEO pay slice. *Journal of Financial Economics*, 102(1), 199-221.
- Bebchuk, L., Fried, J. (2004). Executive Compensation: Where We Are, and How We Got There. *Journal of Economic Perspectives*, 18(3), 139-168.
- Bebchuk, Lucian A., Jesse M. Fried. "Pay Without Performance: The Unfulfilled Promise of Executive Compensation". Harvard University Press, (2006).
- Beck D., Friedl G., Schäfer P. (2020). Executive compensation in Germany. *Journal of Business Economics*, 90, 787-824
- Bertrand M., Mullainathan S., (2001) "Are CEOs rewarded for luck? The ones without principals are." *The Quarterly Journal of Economics* 116, no. 3 (2001): 901-932.
- Bhimani A. (2009). Board size, CEO duality and firm performance: An analysis of Indian firms. *International Journal of Business Governance and Ethics*, 4(3), 211-227.
- Bonn I., Yoshikawa T., Phan P. (2004). Board size and corporate performance: Evidence from Japan. *Pacific-Basin Finance Journal*, 12(3), 327-348.
- Bonn I., Yoshikawa T., Phan P. (2004). The impact of the board composition and ownership structure on the performance of Japanese firms. *Asia Pacific Journal of Management*, 21(2), 159-177.
- Bouwman C. H. S. (2012). The Geography of Executive Compensation. Available at SSRN 2027225.
- Brennan N. (2006). Boards of directors and firm performance: is there an expectation gap? *Corporate Governance: An International Review*, 14(6), 577-593.
- Brennan N. (2006). Boards of directors and firm performance: is there an expectations gap? *Corporate Governance: An International Review*, 14(6), 577-593
- Breza E., Kaur S., Shamdasani Y. (2018). The Morale Effects of Pay Inequality. *The Quarterly Journal of Economics*, 133(2), 611-663.
- Brick I. E., Palmon O., Wald J. K. (2006). CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance*, 12(3), 403-423.
- Brochet F., Limbach P., Schmid M., Scholz-Daneshgari M. (2021). CEO Tenure and Firm Value. *The Accounting Review*, 96(6), 47-71
- Bushman R. M., Engel E., Smith A. J. (2006). An analysis of the relation between the stewardship and valuation roles of earnings. *Journal of Accounting Research*, 44(1), 53-83.
- Chandrakumarmangalam S., Govindasamy P. (2010). Leverage - an analysis and its impact on profitability with reference to selected cement companies in India. *European Journal of Economics, Finance and Administrative Sciences*, 27, 1450-2275.
- Chen D., Zheng, Y. (2015). CEO tenure and risk-taking. *Global Business and Finance Review*, 20(1), 29-38.

- Cheng S. (2008). Board size and the variability of corporate performance. *Journal of Financial Economics*, 87(1), 157-176.
- Coates J. C., Kraakman R. (2010). CEO Tenure, Performance and Turnover in S&P 500 Companies. Harvard Law and Economics Discussion Paper No. 595. ECGI - Finance Working Paper No. 191/2007. Retrieved 22 January 2019
- Conyon M. J., Peck S. I., Sadler G. V. (2001). Compensation committees and CEO performance incentives in entrepreneurial firms. *Journal of Management*, 27(6), 653-677.
- Conyon M., Freeman R. B. (2004). Shared models of compensation and firm performance: UK evidence. In D. Card, R. Blundell, R. Freeman (Eds.), *Seeking a Premier Economy: The Economic Effects of British Economic Reforms* (pp. 1980-2000). University of Chicago Press.
- Cooper M., Gulen H., Rau P.R. (2013). Performance for Pay? The Relation Between CEO Incentive Compensation and Future Stock Price Performance. SSRN Working Paper Series.
- Core, John E., Wayne R., Guay and David F. Larcker. "The power of the pen and executive compensation." *Journal of Financial Economics* 88, no. 1 (2008): 1-25.
- Daily C. M., Dalton D. R. (1994). Bankruptcy and corporate governance: The impact of board composition and structure. *Academy of Management Journal*, 37(6), 1603-1617.
- Dalton D. R., Daily C. M., Ellstrand A. E., Johnson J. L. (1998). Meta-analytic reviews of board composition, leadership structure, and financial performance. *Strategic Management Journal*, 19(3), 269-290.
- Dalton D. R., Daily C. M., Ellstrand A. E., Johnson J. L. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal*, 42(6), 674-686.
- Dalton D. R., Daily C. M., Johnson J. L., Ellstrand A. E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal*, 42(6), 674-686
- Datta S., D'Mello R., Iskandar-Datta M. (2009). Executive compensation and internal capital market efficiency. *Journal of Financial Intermediation*, 18(2), 242-258.
- De Andrés P., Vallelado E. (2008). Corporate governance in banking: The role of the board of directors. *Journal of Banking and Finance*, 32, 2570-2580
- De Andres P., Vallelado E., Barroso C. (2005). Corporate governance in banking: The role of the board of directors. *Journal of Banking & Finance*, 29(8-9), 2407-2429.
- Dechow P.M. (1994). Accounting earnings and cash flows as measures of firm performance: The role of accounting accruals. *Journal of Accounting and Economics*, 18(1), 3-42.
- Drago R., Garvey G. (1998). Incentives for helping on the job: Theory and evidence. *Journal of Labor Economics*, 16(1), 1-25.
- E.M. Matsumura, J.Y. Shin (2005). Corporate Governance Reform and CEO Compensation: Intended and Unintended Consequences *J. Bus. Ethics*, 62 (2), pp. 101-113, 10.1007/s10551-005-0175-7
- Edmans A., Gabaix X., Jenter D. (2018). Executive Compensation: A Survey of Theory and Evidence. In *Handbook of the Economics of Corporate Governance* (pp. 383-539). Elsevier.
- Edmans A., Gabaix X., Jenter, D. (2018). Executive compensation: A survey of theory and evidence. In G. M. Constantinides, M. Harris, R. M. Stulz (Eds.), *Handbook of the Economics of Finance* (Vol. 3, pp. 211-356).
- Edwards J. S. S., Eggert W., Weichenrieder A. J. (2009). Corporate governance and pay for performance: Evidence from Germany. *Economics of Governance*, 10(1), 1-26.
- Eisenberg U., Sundgren S., Wells M. T. (2008). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics*, 87(2), 418-432.
- Elshandidy T., Neri, L. (2015). Corporate governance, risk disclosure practices, and market liquidity: Comparative evidence from the UK and Italy. *Corporate Governance: An International Review*, 23(2), 180-201.
- Evans M. G., Dion K. L. (1991). Group cohesion and performance: A meta-analysis. *Small Group Research*, 22(2), 175-186.
- Evans P., Dion M. (1991). Group cohesion and performance: A meta-analysis. *Small Group Research*, 22(2), 175-186.
- Fang Hanming, Giuseppe Moscarini. "Morale Hazard." *Journal of Monetary Economics*, vol. 52, no. 4, 2005, pp. 749-777.
- Fauzi H., Musallam S. R. M. (2015). Corporate ownership and company performance: a study of Malaysian listed companies. *Social Responsibility Journal*, 11(3), 527-543.
- Fernández-Méndez C., Arrondo-García R., Fernández-Rodríguez E. (2012). Corporate governance and executive pay in the Spanish market. *Spanish Review of Financial Economics*, 10(1), 33-44.
- Ferri G., Messori M. (2000). Bank-firm relationships and allocative efficiency in northeastern and central Italy and in the south. *Journal of Banking & Finance*, 24(6), 1067-1095.
- Firth M., Fung P.M., Rui O.M. (2006). Corporate performance and CEO compensation in China. *Journal of Corporate Finance*, 12, 693-714.
- Fraile I.A., Fradejas N.A., (2020). Directors' compensation. what really matters? *Journal of Business Economics and Management* 21(1):180-199.
- Frank Robert H. "Are workers paid their marginal products?" *The American Economic Review* 74, no. 4 (1984): 549-571.
- Fu L., Singhal R., Parkash M. (2016). Tobin's q ratio and firm performance. *International Research Journal of Management, IT and Social Sciences*, 3(2), 1-13.

- Gentry R.J., Shen W. (2010). The relationship between accounting and market measures of firm financial performance: How strong is it? *Journal of Managerial Issues*, 22(4), 485-503.
- Ghrab M., Gana M., Dakhlaoui M. (2022). Pay-performance sensitivity and corporate governance mechanisms: Evidence from Tunisia. *Journal of Financial Reporting and Accounting*, 20(3), 405-424.
- Gibbons R., (2005). Four formal (izable) theories of the firm? *Journal of Economic Behavior & Organization* Vol. 58 (2005) 200–245.
- Gibbons R., Murphy K. J. (1992). CEO pay and firm performance: Dynamic adjustment. *Journal of Accounting and Economics*, 15(2-3), 371-391.
- Goh L., Gupta A. (2016). Remuneration of non-executive directors: Evidence from the UK. *The British Accounting Review*, 48(3), 379-399.
- Gomez-Mejia L.R., Larraza-Kintana M., Makri M. (1999). The determinants of executive compensation in family-controlled public corporations. *Academy of Management Journal*, 40(2), 226-237.
- Goodstein J., Gautam K., Boeker W. (1994). The effects of board size and diversity on strategic change. *Strategic Management Journal*, 15(3), 241-250.
- Greene W. H. (2012). *Econometric Analysis* (7th ed.). Prentice Hall.
- Guest P. M. (2009). The impact of board size on firm performance: evidence from the UK. *European Journal of Finance*, 15(4), 385-404.
- Hanlon M., Rajgopal S., Shevlin T. (2003). Are executive stock options associated with future earnings? *Journal of Accounting and Economics*, 36, 3-43.
- Hart O., (1995). *Firms, Contracts, and Financial Structure*. Clarendon Press, Oxford.
- Hermalin B. E., Weisbach M. S. (2012). Information disclosure and corporate governance. *Journal of Finance*, 67(1)
- Heyman F. (2007). Pay inequality and firm performance: evidence from matched employer–employee data. *Applied Economics*, 39(11), 1313-1327.
- Heyman F. (2007). Pay inequality and firm performance: evidence from matched employer-employee data. *Applied Economics*, 39(3), 305-323.
- Hitz J.-M., Werner J. R. (2012). Why do firms resist individualized disclosure of management remuneration?. Available at SSRN.
- Holmstrom B., Roberts J.,(1998). The boundaries of the firm revisited. *Journal of Economic Perspectives* 12, 73–94.
- Hrazdil K., Kim J. B., Novak J., Zatzick C. (2022). Managerial risk aversion and the structure of executive compensation. *Corporate Governance: An International Review*.
- Huybrechts J., Voordeckers W., Lybaert N. (2017). Entrepreneurial Risk Taking of Private Family Firms: The Influence of a Nonfamily CEO and the Moderating Effect of CEO Tenure. *Family Business Review*, 30(1), 67-84.
- Ibhagui O. W., Olokoyo F. O. (2018). Leverage and firm performance: New evidence on the role of firm size. *The North American Journal of Economics and Finance*, 45, 57-82.
- J.P. Walsh, J.K. Seward (1990). On the efficiency of internal and external corporate control mechanisms *Acad. Manage. Rev.*, 15, pp. 421-458.
- Jensen M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3), 831-880.
- Jensen M. C., Murphy K. J. (2010). CEO incentives—It's not how much you pay, but how. *Journal of Applied Corporate Finance*, 22(1), 37-41
- Jeppson C. T., Smith W. W., Stone R. S. (2009). CEO Compensation And Firm Performance: Is There Any Relationship? *Journal of Applied Business Research*, 7(11)
- Kale J., Reis E., Venkateswaran A. (2009). Rank order tournament and incentive alignment: the effect on firm performance. *Journal of Finance*, 64(4), 1479-1512.
- Kamran N., Haniffa R., Hudaib M. (2006). Corporate governance structures and the role of the board in Islamic banks. *International Journal of Accounting, Auditing and Performance Evaluation*, 3(3), 231-248.
- Kang J., Karim K. E., Rutledge R. W. (2002). An empirical analysis of the association between CEO compensation and firm performance: a relative excess value ratio approach. *Research in Finance*, 19, 61-85.
- Kaserer, C., Wagner N. (2005). Executive Pay, Free Float, and Firm Performance: Evidence from Germany. CEFS Working Paper No. 6. Technische Universität München (TUM).
- Klein B., (2000a.) The role of incomplete contracts in self-enforcing relationships. *Revue D'Economie Industrielle* 92, 67–80.
- Klein B., (2000b.) Fisher-General Motors and the nature of the firm. *Journal of Law and Economics* 43, 105–141.
- Klein B., (2004). Fisher body-General Motors once again: what is a holdup? Unpublished manuscript.
- Klein B., Crawford R., Alchian A., (1978). Vertical integration, appropriable rents and the competitive contracting process. *Journal of Law and Economics* 21, 297–326.
- Kordestani G., Ghaderzadeh S.K., Zare H. (2018). Impact of social responsibility disclosure on accounting, economic and market based measures of corporate performance evaluation. *Journal of Accounting Advances*, 8(1), 1-19.

- Kumar N., Singh J. P. (2013). Board size and firm performance: Evidence from Indian companies. *Global Business Review*, 14(4), 569-583.
- Lazear E. P., Rosen S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy*, 89(5), 841-864.
- Lee K. W., Lev B., Yeo G. H. H. (2008). Executive pay dispersion, corporate governance, and firm performance. *Review of Quantitative Finance and Accounting*, 30(3), 315-338.
- Lehn K., Patro S., Zhao M. (2009). Determinants of the size and composition of US corporate boards: 1935-2000. *Financial Management*, 38(4), 747-780.
- Lipton M., Lorsch J. W. (1992). A modest proposal for improved corporate governance. *Business Lawyer*, 48(1), 59-77.
- Lipton M., Lorsch J. W. (1992). A modest proposal for improved corporate governance. *Business Lawyer*, 48, 59-77.
- Livnat J., Smith G., Suslava K., Tarlie M. (2021). Board tenure and firm performance. *Global Finance Journal*, 47, 100535.
- Luo Y., Jackson D. (2012). Executive compensation, ownership structure and firm performance in Chinese financial corporations. *Global Business and Finance Review*, 17(1), 56-74.
- Mak Y. T., Kusnadi Y. (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal*, 13(3), 301-318.
- Malmendier U., Tate G. (2009). Superstar CEOs. *Quarterly Journal of Economics*, 124(4), 1593-1638.
- Mehran H. (1995). Executive compensation structure, ownership, and firm performance. *Journal of Financial Economics*, 38(2), 163-184.
- Melis A. (2002). Corporate Governance in Italy. *Corporate Governance: An International Review*, 10(4), 247-259.
- Merendino A., Melville R. (2019). The board of directors and firm performance: empirical evidence from listed companies. *Journal of Applied Accounting Research*, 20(1), 2-27.
- Milgrom P. (1988). Employment contracts, influence activities, and efficient organization design. *Journal of Political Economy*, 96(1), 42-60.
- Milgrom P., Roberts J. (1990). The economics of modern manufacturing: Technology, strategy, and organization. *American Economic Review*, 80(3), 511-528.
- Murphy K.J., (1999). Chapter 38 Executive compensation. *Handbook of Labor Economics Volume 3, Part B*, (1999), Pages 2485-2563.
- Nguyen P., Rahman N., Tong, A., Zhao R. (2016). Board size and firm value: Evidence from Australia. *Journal of Management & Governance*, 20(4), 809-833.
- Nourayi M. M., Mintz S. M. (2008). Tenure, firm's performance, and CEO's compensation. *Managerial Finance*, 34(7), 461-474.
- Ntim C. G., Lindop S., Osei K. A., Thomas D. A. (2015). Executive compensation, corporate governance and corporate performance: A simultaneous equation approach. *Managerial and Decision Economics*, 36(2), 67-96.
- O'Connell V., Cramer N. (2010) 'The impact of board size on firm performance: evidence from the UK', *European Journal of Finance*, 16(4), pp. 385-404.
- O'Reilly C. A., Main B. G., Crystal G. S. (1988). CEO compensation as tournament and social comparison: A tale of two theories. *Administrative science quarterly*, 33(2), 257-274.
- Ozkan N. (2011). CEO Compensation and Firm Performance: an Empirical Investigation of UK Panel Data. *Corporate Governance: An International Review*, 19(2), 146-160.
- Parthasarathy A., Menon K., Bhattacharjee D. (2006). Executive compensation, firm performance and governance. *Economic and Political Weekly*, 41(39), 4139-4147.
- Parthasarathy A., Menon K., Bhattacharjee D. (2006). Executive Compensation, Firm Performance and Governance: An Empirical Analysis. *Economic and Political Weekly*, 41(39), 4139-4147.
- Pearce J. A., Zahra S. A. (1992). Board composition from a strategic contingency perspective. *Journal of Management Studies*, 29(4), 411-438.
- Pearce J.A., Zahra S.A. (1992) 'Board composition from a strategic contingency perspective', *Journal of Management Studies*, 29(4), pp. 411-438.
- Pérez-González F. (2006). Inherited control and firm performance. *American Economic Review*, 96(5), 1559-1588.
- Pfeffer J., Langton N. (1993). The effect of wage dispersion on satisfaction, productivity, and working collaboratively: Evidence from college and university faculty. *Administrative Science Quarterly*, 38(3), 382-407.
- Prencipe A., Sponza L. (2008). The relationship between voluntary disclosure and independent directors in the presence of a dominant shareholder. *European Accounting Review*, 17(4), 603-630.
- Rajgopal S., Shevlin T., Zamora V. L. (2006). CEOs' outside employment opportunities and the lack of relative performance evaluation in compensation contracts. *Journal of Accounting and Economics*, 41(1-2), 335-362.
- Rockmore B.W., Jones F.F. (1996). Business Investment Strategy and Firm Performance: A Comparative Examination of Accounting and Market-Based Measures. *Managerial Finance*, 22(7), 59-74.
- Saltaaji I. M. (2013). Corporate governance and agency theory: How to control agency costs. *Internal Auditing & Risk Management*, 8(4), 47-60.



- Sapp S. G. (2008). The impact of corporate governance on executive compensation. *Corporate Governance: An International Review*, 16(3), 225-235.
- Singh S., Tabassum N., Darwish T. K., Batsakis G. (2017). Corporate Governance and Tobin's Q as a Measure of Organizational Performance. *Journal of Business Finance & Accounting*, 44(7-8), 1146-1173
- Smirnova A.S., Zavertiaeva M.A., (2017). Which came first, CEO compensation or firm performance? The causality dilemma in European companies. *Research in International Business and Finance* 42 (2017) 658–673.
- Sun S., Jiang H. (2022). CEO turnover and corporate innovation: What can we learn from Chinese listed companies. *Frontiers in Psychology*, 13, 874907.
- Sundaramurthy C., Lewis M. (2003). Control and collaboration: Paradoxes of governance. *Academy of Management Review*, 28(3), 397-415.
- Tayeh M., Al-Jarrah I.M., Tarhini, A. (2015). Accounting vs. market-based measures of firm performance related to information technology investments. *International Review of Management and Business Research*, 4(1), 202-211.
- Wang J., Chen M. H., Fang C. Y., Tian L. (2018). Does board size matter for Taiwanese hotel performance? Agency theory or resource dependence theory. *International Journal of Hospitality Management*, 36, 207-215.
- Williamson O., (1979). Transaction cost economics: the governance of contractual relations. *Journal of Law and Economics* 22, 233–261
- Williamson O., (1996). *The Mechanisms of Governance*. Oxford University Press, Oxford
- Williamson O., (2002). The theory of the firm as governance structure: from choice to contract. *Journal of Economic Perspectives* (2002) 16, 171–195.
- Wu C.-H. (2013). Family ties, board compensation and firm performance. *Journal of Multinational Financial Management*, 23(4), 255-271.
- Yermack D. (1996). Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185-211
- Yermack D., (1996) "Higher market valuation of companies with a small board of directors." *Journal of Financial Economics* 40, no. 2 (1996): 185-211.
- Yoshikawa T., Phan P.H. (2004) 'Diversification, performance, and the corporate life cycle', *Strategic Management Journal*, 25(3), pp. 247-261.
- Zagonov M., Salganik-Shoshan G. (2018). CEO Pay Slice as a measure of CEO dominance. *Research in International Business and Finance*, 45, 571-576
- Zoghalmi F. (2020). Does CEO compensation matter in boosting firm performance? Evidence from listed French firms. *Managerial and Decision Economics*, 41(8), 1291-1302.

## Appendix B

Table 3 – WLS estimates of equations 1, RET as the dependent variable, for each board subdivision and for each type of compensation.

| Model               | Model 1<br>CEO    | Model 2<br>CEO    | Model 3<br>CEO    | Model 4<br>CEO    | Model 5<br>CEO    | Model 6<br>CEO    | Model 7<br>TOP     | Model 8<br>TOP     | Model 9<br>TOP     | Model 10<br>TOP    | Model 11<br>TOP    | Model 12<br>TOP    |
|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Const               | -239***           | -344766*          | -294226           | -354349*          | -159246           | -336955*          | 0***               | 403626**           | 212466             | 208577             | 471663***          | 396686**           |
| Asset               | 0,061***          | 0,004***          | 0,004***          | 0,004***          | 0,003***          | 0,003***          | 0,003***           | 0,004***           | 0,004***           | 0,004***           | 0,004***           | 0,004***           |
| Gearing             | -0,179***         | -0,001***         | -0,001***         | -0,001***         | -0,005***         | -0,001***         | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          |
| ROE                 | -0,004***         | 0,001***          | 0,001***          | 0,001***          | 0,001***          | 0,001***          | 0,001***           | 0,001***           | 0,001***           | 0,001***           | 0,001***           | 0,001***           |
| Gini_Board          | -0,015***         | -0,002*           | -0,001            | -0,001            | -0,007***         | -0,003***         | -0,014***          | -0,005**           | -0,004*            | -0,003*            | -0,007***          | -0,007***          |
| BS                  | 0,002***          | 0,003***          | 0,003***          | 0,003***          | 0,002***          | 0,003***          | 0,003***           | 0,003***           | 0,003***           | 0,003***           | 0,003***           | 0,003***           |
| sq_BS               | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          |
| Tenure              | 0,003***          | 0,403***          | 0,38***           | 0,413***          | 0,373***          | 0,306***          | 0,004***           | 0,005***           | 0,004***           | 0,004***           | 0,004***           | 0,004***           |
| MeDev               | 0,004***          | 0,214*            | 0,182             | 0,219*            | 0,098             | 0,209*            | -0,68***           | -0,251**           | -0,132             | -0,13              | -0,293***          | -0,246**           |
| Comp                | 0,001***          |                   |                   |                   |                   |                   | 0,064***           |                    |                    |                    |                    |                    |
| Comp_fr             |                   | 0,016**           |                   |                   |                   |                   |                    | 0,02*              |                    |                    |                    |                    |
| Comp_cpc            |                   |                   | -0,065            |                   |                   |                   |                    |                    | -0,707**           |                    |                    |                    |
| Comp_Benefit        |                   |                   |                   | -0,002            |                   |                   |                    |                    |                    | 0,026              |                    |                    |
| Comp_Bonus          |                   |                   |                   |                   | 0,06***           |                   |                    |                    |                    |                    | 0,122***           |                    |
| Comp_Equity         |                   |                   |                   |                   |                   | 0,066***          |                    |                    |                    |                    |                    | 0,1***             |
| R <sup>2</sup> Adj. | 0.62              | 0.56              | 0.53              | 0.55              | 0.57              | 0.58              | 0.55               | 0.57               | 0.55               | 0.54               | 0.54               | 0.55               |
| N                   | 1841              | 1841              | 1841              | 1841              | 1841              | 1841              | 1345               | 1345               | 1345               | 1345               | 1345               | 1345               |
| Model               | Model 13<br>ADMIN | Model 14<br>ADMIN | Model 15<br>ADMIN | Model 16<br>ADMIN | Model 17<br>ADMIN | Model 18<br>ADMIN | Model 19<br>no-CEO | Model 20<br>no-CEO | Model 21<br>no-CEO | Model 22<br>no-CEO | Model 23<br>no-CEO | Model 24<br>no-CEO |
| Const               | 387923**          | 506802***         | 322048*           | 347900*           | 364143*           | 351280*           | 767623***          | 509073***          | 340541*            | 382273**           | 519189***          | 424959**           |
| Asset               | 0,004***          | 0,003***          | 0,003***          | 0,004***          | 0,004***          | 0,004***          | 0,003***           | 0,004***           | 0,003***           | 0,004***           | 0,004***           | 0,004***           |
| Gearing             | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          |
| ROE                 | 0,001***          | 0,001***          | 0,001***          | 0,001***          | 0,001***          | 0,001***          | 0,001***           | 0,001***           | 0,001***           | 0,001***           | 0,001***           | 0,001***           |
| Gini_Board          | -0,004**          | -0,005***         | -0,004**          | -0,004**          | -0,004**          | -0,004**          | -0,008***          | -0,005***          | -0,004**           | -0,004**           | -0,005***          | -0,005***          |
| BS                  | 0,003***          | 0,003***          | 0,003***          | 0,003***          | 0,003***          | 0,003***          | 0,003***           | 0,003***           | 0,003***           | 0,003***           | 0,003***           | 0,003***           |
| sq_BS               | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***         | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          | -0,001***          |
| Tenure              | 0,005***          | 0,005***          | 0,005***          | 0,005***          | 0,005***          | 0,005***          | 0,004***           | 0,005***           | 0,005***           | 0,005***           | 0,005***           | 0,005***           |
| MeDev               | -0,241**          | -0,315***         | -0,2*             | -0,216*           | -0,226*           | -0,218*           | -0,477***          | -0,316***          | -0,212*            | -0,238**           | -0,323***          | -0,264**           |
| Comp                | 0,04              |                   |                   |                   |                   |                   | 0,159***           |                    |                    |                    |                    |                    |
| Comp_fr             |                   | 0,223***          |                   |                   |                   |                   |                    | 0,074*             |                    |                    |                    |                    |
| Comp_cpc            |                   |                   | 0,598**           |                   |                   |                   |                    |                    | 0,619**            |                    |                    |                    |
| Comp_Benefit        |                   |                   |                   | 0,003             |                   |                   |                    |                    |                    | 0,041              |                    |                    |
| Comp_Bonus          |                   |                   |                   |                   | 0,137             |                   |                    |                    |                    |                    | 0,369***           |                    |
| Comp_Equity         |                   |                   |                   |                   |                   | 0,024             |                    |                    |                    |                    |                    | 0,199***           |
| R <sup>2</sup> Adj. | 0.55              | 0.54              | 0.55              | 0.55              | 0.55              | 0.55              | 0.56               | 0.54               | 0.55               | 0.54               | 0.55               | 0.57               |
| N                   | 1841              | 1841              | 1841              | 1841              | 1841              | 1841              | 1841               | 1841               | 1841               | 1841               | 1841               | 1841               |

| Model               | Model 25<br>Under Me. | Model 26<br>Under Me. | Model 27<br>Under Me. | Model 28<br>Under Me. | Model 29<br>Under Me. | Model 30<br>Under Me. | Model 31<br>Upper Me. | Model 32<br>Upper Me. | Model 33<br>Upper Me. | Model 34<br>Upper Me. | Model 35<br>Upper Me. | Model 36<br>Upper Me. |
|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Const               | 743739***             | 871091***             | 328487*               | 349119*               | 501953***             | 319616*               | -982573               | 157436                | 0**                   | 0*                    | -241778               | -72436                |
| Asset               | 0,003***              | 0,003***              | 0,003***              | 0,004***              | 0,004***              | 0,004***              | 0,003***              | 0,004***              | 0,004***              | 0,004***              | 0,003***              | 0,003***              |
| Gearing             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             |
| ROE                 | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              |
| Gini_Board          | -0,007***             | -0,006***             | -0,003*               | -0,003                | -0,005***             | -0,004**              | -0,014***             | -0,002                | -0,001                | -0,0001               | -0,008***             | -0,004***             |
| BS                  | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              | 0,002***              | 0,003***              |
| sq_BS               | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             |
| Tenure              | 0,004***              | 0,004***              | 0,005***              | 0,006***              | 0,005***              | 0,005***              | 0,003***              | 0,004***              | 0,003***              | 0,003***              | 0,003***              | 0,003***              |
| MeDev               | -0,462***             | -0,541***             | -0,204*               | -0,217*               | -0,312***             | -0,199*               | 0,609                 | -0,098                | -0,861**              | -0,693*               | 0,15                  | 0,045                 |
| Comp                | 0,213***              |                       |                       |                       |                       |                       | 0,037***              |                       |                       |                       |                       |                       |
| Comp_fr             |                       | 0,244***              |                       |                       |                       |                       |                       | 0,004                 |                       |                       |                       |                       |
| Comp_cpc            |                       |                       | 0,796***              |                       |                       |                       |                       |                       | -0,285***             |                       |                       |                       |
| Comp_Benefit        |                       |                       |                       | -0,129                |                       |                       |                       |                       |                       | 0,001                 |                       |                       |
| Comp_Bonus          |                       |                       |                       |                       | 0,508***              |                       |                       |                       |                       |                       | 0,053***              |                       |
| Comp_Equity         |                       |                       |                       |                       |                       | 0,215***              |                       |                       |                       |                       |                       | 0,053***              |
| R <sup>2</sup> Adj. | 0.58                  | 0.54                  | 0.54                  | 0.54                  | 0.55                  | 0.56                  | 0.59                  | 0.56                  | 0.54                  | 0.54                  | 0.57                  | 0.56                  |
| N                   | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  |
| Model               | Model 37<br>Board     | Model 38<br>Board     | Model 39<br>Board     | Model 40<br>Board     | Model 41<br>Board     | Model 42<br>Board     |                       |                       |                       |                       |                       |                       |
| Const               | -599***               | -730***               | -593***               | -720***               | -720***               | -673***               |                       |                       |                       |                       |                       |                       |
| Asset               | 0,003***              | 0,004***              | 0,003***              | 0,004***              | 0,004***              | 0,004***              |                       |                       |                       |                       |                       |                       |
| Gearing             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             |                       |                       |                       |                       |                       |                       |
| ROE                 | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              | 0,001***              |                       |                       |                       |                       |                       |                       |
| Gini_Board          | -0,004***             | -0,001                | 0,002                 | 0,001                 | 0,001                 | -0,002*               |                       |                       |                       |                       |                       |                       |
| BS                  | 0,003***              | 0,002***              | 0,003***              | 0,002***              | 0,002***              | 0,003***              |                       |                       |                       |                       |                       |                       |
| sq_BS               | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             | -0,001***             |                       |                       |                       |                       |                       |                       |
| Tenure              | 0,004***              | 0,005***              | 0,004***              | 0,005***              | 0,005***              | 0,005***              |                       |                       |                       |                       |                       |                       |
| MeDev               | NA                    | NA                    | NA                    | NA                    | NA                    | NA                    |                       |                       |                       |                       |                       |                       |
| Comp                | 0,106***              |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Comp_fr             |                       | 0,019                 |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Comp_cpc            |                       |                       | 0,385                 |                       |                       |                       |                       |                       |                       |                       |                       |                       |
| Comp_Benefit        |                       |                       |                       | 0,011                 |                       |                       |                       |                       |                       |                       |                       |                       |
| Comp_Bonus          |                       |                       |                       |                       | 0,011                 |                       |                       |                       |                       |                       |                       |                       |
| Comp_Equity         |                       |                       |                       |                       |                       | 0,142***              |                       |                       |                       |                       |                       |                       |
| R <sup>2</sup> Adj. | 0.56                  | 0.54                  | 0.53                  | 0.55                  | 0.55                  | 0.57                  |                       |                       |                       |                       |                       |                       |
| N                   | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  | 1841                  |                       |                       |                       |                       |                       |                       |

Notes the significance levels are at the 1%\*\*\*, 5%\*\*, and 10%(\*), each model is estimated with robust standard errors and has normally distributed error.

# Chapter III

A comprehensive evaluation of pay for performance, a multidimensional analysis of the pay structure of board members.

# A comprehensive evaluation of pay for performance in Italy, a multidimensional analysis of the pay structure of board members.

## Abstract

Executive pay is a widely discussed topic in theoretical and empirical research. This relationship has been courted by a wide range of stakeholders: standard setters, politicians, academics and investors. However, empirical evidence has produced conflicting and often flawed results depending on the corporate governance models in which they are examined. The latter play a crucial role in the relationship between pay and performance, in particular in their transferability to other contexts. This research analyses the relationship between individual directors' remuneration and firm performance. It also examines the impact of board size, tenure and pay inequality on this relationship. In particular, this paper analyses this relationship from a two-dimensional perspective: individual board members and different types of compensation. This approach allows to capture crucial unobserved corporate governance characteristics in the previous literature: individuals boards members characteristics and their impact on the sensitivity of pay to performance. This paper uses a unique dataset based on Italian listed companies from 2011 to 2020. In support of agency theory, the results argue that there is a positive relationship between the most influential board members and pay per performance, while the least influential board members have lower pay per performance sensitivity.

## Summary:

1. Introduction. – 2. Literature review and Hypothesis – 3. Data collection and research methods. – 4. Results – 5. Robustness tests. – 6. Conclusions.

## 1. Introduction

The topic of executive compensation is broad, complicated, and controversial. In addition to the intense debate among academics regarding its causes, the effectiveness of current practices, and the need for reform them, few topics have generated as much public interest. Politicians, regulators, investors, standard setters and executives are very interested in executive compensation. In recent political debate, the broader question of "stakeholder capitalism" versus "shareholder capitalism" entails, among other things, the accountability of managers to external stakeholders.

Extensive theoretical and empirical research on executive compensation, frequently employing an agency framework, has been conducted. Managers are viewed as agents of shareholders, who hire them to manage businesses. Since administrators are typically better informed than shareholders about the company's condition, a potential conflict of interest exists. Numerous hypotheses derived from agency theory have been thoroughly examined by a growing body of empirical research<sup>104</sup>. By tying executive compensation to observable measures of company performance, shareholders' and managers' interests

---

<sup>104</sup> Gomez-Meja (1994) tallied approximately 300 publications in diverse academic fields. A detailed study on international differences in executive Compensation is Abowd and Bognanno (1995) and Edmans et al. (2017).

may be partially aligned. Numerous studies imply the existence of this relationship, but the results indicate that the sensitivity of compensation to both shareholder returns is comparatively low<sup>105</sup>. Other contributions argue that there is a stronger correlation between the compensation of top executives and the size of the company<sup>106</sup>. In an organization, incentives can be provided not only by tying pay to performance, but also by facilitating the ascent from lower-paying to higher-paying positions. When a company's structure is hierarchical and organized, career concerns and the possibility of advancement are effective motivators. As there are no further opportunities for promotion at the top of the hierarchy, alternative incentive systems, such as performance pay, should be strengthened for senior executives and, more generally, for managers nearing retirement due to career concerns. Furthermore, agency theory predicts that executive compensation should be optimally based on as many informative performance metrics as feasible (Holmstrom, 1979). This provides the theoretical foundation for relative performance evaluation and stewardship, which concentrate on a company's performance relative to a benchmark. In contrast to absolute performance, relative performance provides incentives and safeguards managers from common sources of uncertainty that influence the company's competitors.

Two primary, contrasting, yet interconnected frameworks have been presented to explain the relationship between executive compensation and firm performance. The first is a pay-for-performance structure. The agency theory (Berle and Means, 1932), which posits a positive relationship between an agency-based contract and firm performance, has been the central focus of the literature pertaining to this framework. Agency-based contracts stipulate that executives will only receive substantial compensation if certain firm performance goals are met.

The second framework is the performance-pay ones, which has shifted the emphasis away from incentivization and toward a more direct connection between executive compensation and firm performance. This correlation may not be solely attributable to managerial performance, but rather to a vast array of environmental and institutional factors influencing firm performance. These interactions may be intricate and subject to exceptions (e.g. Conyon and Sadler, 2001; Devers et al., 2007; Falato et al., 2011). Compared to previous paradigms, there has been comparatively little research conducted in this field. Concepts of performance-based compensation are more connected to the underlying perspective provided by tournament theory (Lazear and Rosen, 1981). The emphasis has been on the aspiration of lower-level executives to climb the corporate hierarchy and attain the rewards available at higher positions. This chapter, unlike its predecessor, situates itself within the first framework of pay performance analysis within the context of "agency theory."

Most executive compensation models are designed to reflect the reality of Anglo-Saxon capitalism, where stringent disclosure regulations make data on top managers' compensation readily available, whereas little is known about executive pay outside of these two countries. It is not evident that these models are adaptable enough to accommodate the essential characteristics of Italian capitalism, which differ substantially from the Anglo-Saxon and German-Japanese models. This paper is a survey of executive compensation in Italy, based on a unique dataset containing information on the remuneration per individual director at a sample of all listed Italian firms from 2011 to 2020. According to a review of the existing literature, this is the first econometric survey on executive remuneration in Italy correlated to each component of remuneration for each board member.

Italian capitalism is frequently characterized by the significance of family control through pyramidal organizations, the relative absence of hostile takeovers, an underdeveloped capital market, and the absence of co-management relationships with large banks. Due to the fact that these (and other) characteristics distinguish the Italian system from the Anglo-Saxon, German, and Japanese models, the

---

<sup>105</sup> Jensen and Murphy (1990)

<sup>106</sup> Frydman (2010) and Schaefer (1998).

analysis of executive compensation in this environment has implications that extend beyond the scope of this case study. Specifically, it is hypothesized that family control through pyramid groups is an intermediate form of control between closely held family firms and public companies, implying a reduced incentive pay potential.

When studying the relationship between company performance and compensation in the literature, two simplifications are typically made: first, compensation is considered as a total, i.e. in some cases only cash compensation is considered; second, the investigation of the relationship is based on the compensation received by the CEO or the entire board. These simplifications are appealing to researchers because commercial databases rarely contain this level of detail. Utilizing 20,445 observations based on individual directors composing the boards of Italian listed companies between 2011 and 2020, this article aims to analyze in detail whether the general positive association found in the literature is also valid in the Italian context, which of the various components is most correlated to the company's performance, and whether the link changes when the subject being analysed changes. Consequently, the purpose of this study is to provide a deeper understanding of the connection between board compensation and company performance. In order to accomplish this, the paper analyzes the relationship from a dual perspective: each individual component of board compensation is analyzed at the same time; furthermore, compensation and tenure are not only considered for one individual (CEO) or a group of individuals (board), but both tenure and compensation are considered at sub-units of the board level. In particular, the board of directors is divided into subgroups based on qualitative and quantitative characteristics.

The structure of the document is as follows: Section 2 provides definitions of agency theory, summarizes empirical papers on the association between board compensation and firm performance, and finally describes the fundamental characteristics of Italian capitalism and their implications for executive compensation. In Section 3, the hypotheses and research methodology are presented. The fourth section introduces the data collection and its descriptive statistics. The fifth section describes the derived estimates. The sixth segment describes the robustness tests conducted, and the final section provides the conclusions.

## 2. Literature review and Hypothesis

### 2.1 Agency theory context

Putting the study of the relationship between executive pay and corporate performance into a framework based on agency theory is based on three main ideas: the influence of firm performance on board compensation, the influence of executive pay on firm performance, and the mutual influence of board incentives and firm performance.

Agency theory helps to better understand and contextualize the relationship between firm owners' interests and the board of directors, especially chief executive officers (CEOs). It describes agency relationships in which a principal delegates authority to an agent (Young and Buchholtz, 2002). This paper is founded on agency theory, which emerged in the early 1970s. According to this theory, agency relationships necessitate interactions between a principal and an agent. The underlying purpose of agency theory is to provide resolutions for the two most significant problems affecting these relationships. The first issue is the misalignment of interests between a principal and an agent, which may lead to an agency conflict. The concept is that the principal and the agent have divergent interests, objectives, risk preferences, and time horizon perspectives, requiring them to conduct themselves differently (Lagoarde and Segot, 2016). The second concern arises as a result of information asymmetry, as an agent is prone to opportunistic behaviour and it is difficult and expensive to identify and assess his or her actual efforts



to achieve owners' interests. Self-interest, limited rationality, and risk aversion are examples. One method for resolving this issue is to propose a contract governance system for the relationship between the principal and the agent that takes into consideration various sets of assumptions. Thus, the contract between an agent and a principal is the central focus of agency theory. The organizational assumptions constitute the second set of preconditions and imply that we observe only a partial conflict of objectives, that efficiency is the "effectiveness criterion," and, finally, that there is an information asymmetry among participants. This paper considers information as a "purchasable commodity" and agency conflict is expected to be costly for the principle<sup>107</sup> but not for the potential ones. These are the primary assumptions underlying agency theory.

The economic environment determines the behaviour of individuals, so their judgments, beliefs, culture, or morals influence their knowledge and assimilation of firm behaviour (Ardalan, 2017; Lagoarde-Segot, 2016). According to agency theory, a company's objective is to maximize shareholder value; however, managers are self-interested, which is why the compensation system should function as an incentive. Typically, agency theory hypotheses are empirically evaluated using poor amounts of data, usually affected by the US corporate governance model. For this reason, researchers<sup>108</sup> believe that further data analysis in different environments, it aids in revealing certain patterns of human and market behaviour. Summarizing, agency theory defines compensation is an incentive designed to be correlated with performance.

## 2.2 Pay per performance

Across the spectrum of empirical studies examining the relationship between executive compensation and firm performance, the findings have been contradictory. Some studies have found a direct association (Agrawal and Samwick, 1999; Conyon et al., 2006), whereas others have found a weak association or none when other interconnected indicators, such as corporate size, mechanisms of governance and ownership, etc. were considered (Conyon and Peck, 1998; Conyon and Sadler, 2001; Elsila et al., 2013). In addition to being contradictory and contest related, the empirical research on executive compensation is disproportionately concentrated in the United Kingdom and the United States (Elsila et al., 2013). The preponderance of empirical studies on executive compensation and firm performance in the United Kingdom reveal a weak correlation. For instance, Gregg et al. (1993) report that the association between pay-for-performance and 288 firms is not significant. In addition, Conyon et al. (1995) argue that for UK company the pay-for-performance association was neither robust nor consistent. In addition, Conyon and Peck (1998) conclude, based on a sample of 94 FTSE 100 companies, that the relationship between executive compensation and firm performance is feeble in organizations without remuneration committees. Conyon and Sadler (2001) identify a tenuous relationship between compensation and performance for 532 executives in 100 major UK-listed corporations. Cosh and Hughes (1997), in contrast, conclude that executive compensation is positively related to both performance parameters (profitability and share returns) and corporate size.

Although research conducted in the United Kingdom has produced inconsistent and ambiguous results, research conducted in the United States suggests a clearer comprehension of the relationship between executive compensation and firm performance. For example, Hall and Liebman (1998) identify a significant correlation between changes in the CEO's compensation and in stock and option holdings and performance for executives of 484 large U.S. companies over a 15-year panel data set. In addition, Agrawal and Samwick (1999) identify a correlation between the total compensation of the top five

---

<sup>107</sup> Kuhner and Pelger (2015) argue that the expensive cost of the preparation financial reporting information are incurred by the firm's current proprietors and not by potential investors. Furthermore, Kuhner and Pelger's (2015) reveal that accounting information serves at least two purposes: valuation and stewardship.

<sup>108</sup> Smirnova and Zaveritiaeva (2018).

executives and the performance of the 1,500 largest publicly traded companies in the United States. In contrast, a few studies conducted in the United States have found no or a weak association. Among 2,213 US executives from 1,400 companies, Jensen and Murphy (1990) found no correlation between compensation and performance. In addition, Leonard (1990) analyzes the effect of executive compensation policy on firm performance and identifies a statistically significant correlation between long-term executive incentives and ROE for a sample of 439 large US corporations. It has been discovered that the performance-pay framework for publicly traded US firms has a positive and robust relationship between firm performance and the distribution of executive compensation. Kaplan (1994), Kato (1997), and Zhou (2000) all discovered contradictory associations between executive compensation and firm performance. In a sample of 775 Canadian companies, Kaplan (1994) discovered a negative correlation between compensation and performance for 119 large Japanese firms, whereas Sapp (2008) discovered a positive correlation between CEO compensation and ROA for 154 large Japanese firms. According to Matolcsy's (2000) research, executive directors' incentives at major Australian corporations were primarily dependent on accounting performance metrics rather than market indicators. During periods of economic decline, Matolcsy (2000) argues that a correlation between monetary compensation and firm performance was not found to be statistically significant, but positive associations did exist.

Griner (1996), evaluating the relationship between CEO compensation and corporate performance, as measured by return on equity (ROE) and shareholder return, concludes that executive officer pay is positively correlated with company outcomes. Subsequent research confirms these findings (Coles et al., 2006; Cambini et al., 2015). Nonetheless, several studies indicate that firm performance has a limited influence on CEO pay (Gomez-Mejia et al., 1999; Gregg et al., 2005; Parthasarathy et al., 2006).

Different firm performance measures and samples are used in the literature, resulting in these diverse results. For instance, Firth et al. (1999) evaluate firm performance using the accounting-based measure of return on shareholders' equity and the market-based measure of annual stock return. The authors discover that both performance measures are statistically significant as an explanation for CEO compensation variation. Firth et al. (2006) use the accounting measure of return on sales, estimated as operating income normalized by sales, to evaluate the performance of a business and derive coefficients for financial factors that are insignificant. Core et al. (1999) discover that ROA is not a significant determinant of CEO pay, whereas stock returns have a positive and significant impact on executive compensation. In their analysis of the compensation policies of S&P 500 companies, Angelis and Grinstein (2014) demonstrate that companies primarily base CEO compensation on accounting metrics, as they are more indicative of executive performance. The authors observe that corporations place a premium on income measures, sales, and accounting returns.

Some research considers the lagged relationship between CEO compensation and firm performance. These investigations examine the relationship between past firm performance and current CEO compensation. According to Ahn (2015), prior company performance influences CEO compensation positively. In other words, compensation committees consider both the current state of the company and its past performance.

As a long-term incentive, this style of compensation utilizes cumulative performance over multiple years. Despite this, Banker et al. (2013) discover that past performance plays a variety of roles in determining the CEO's compensation. While both prior year ROE and stock returns positively impact CEO compensation, the CEO bonus is negatively correlated with prior year ROE. In addition, total compensation is unrelated to past performance when salary and bonuses are considered together.

Thus, despite the fact that agency theory implies that CEO compensation is performance-sensitive and can serve to improve firm performance, the empirical literature provides contradictory results. Therefore,

this paper investigates whether CEO pay is linked to performance. The first hypothesis is consistent with prior evidence of a positive relationship between compensation and company performance (Griner, 1996; Core et al., 1999; Coles et al., 2006; Sun et al., 2013; Cambini et al., 2015).

According to Brunello et al. (1999), the economic environment in Italy influences their board compensation structure. The authors acknowledge that the results are preliminary and may not be representative of medium and large enterprises operating in Italy due to the non-random selection of the sample data. The authors argue that there is a significant and positive relationship between firm pay-performance and firm size, with the estimated elasticities being much lower than the others values estimated in the international literature. This is congruent with the marginal productivity theory of control allocation, which states that upper-level executives have a higher marginal pay-performance sensitivity than lower-level executives. Pay-performance sensitivity is greater for senior executives, and compensation are greater for elder managers, those with more education, greater international and budgetary responsibility, and those who sit on the executive oversight committee of the company. Additionally, Kaplan (1994) discovered that in Japan, sensitivity and compensations are more sensitive to negative earnings. The main characteristics of Italian capitalism, such as family-controlled pyramidal groups, corporate governance, weak bank supervision and limited stock returns, and the proportion of incentive pay to total earnings, have an impact on businesses. Further evidence suggests that the relationship between managerial pay and firm performance is stronger for firms that are foreign-owned, publicly traded, and affiliated with a multinational group.

Barontini and Bozzi (2009) argue that board compensation is related to corporate ownership characteristics, such as the type of controlling shareholder, ownership concentration, the separation of financial flow and voting rights, and the existence of shareholder agreements. However, it does not correlate positively with future performance. They investigate the relationship between excessive board compensation and the future performance of Italian listed companies from 1995 to 2002. Results suggest that executive compensation structures may benefit from additional control mechanisms and transparency. This study focuses on four governance characteristics: ownership concentration, type of controlling shareholder, disparity between financial flow and voting rights, and the presence of shareholders' agreements. The authors discover that the level of board cash compensation is influenced by the nature of ownership, with state-owned firms paying less and family firms paying more; the level of board cash compensation is also influenced by the centrality of the founder in addressing strategic management decisions in family firms, but reveals that in Italian listed firms this role is played in a "paternalistic" manner: the generous compensation policy associated with the presence of the founder is an indication that the interests of the business are subordinate to those of the family, as indicated by the negative association between excess compensation and future firm performance.

### 2.3 The Italian scenario

Compensation, hiring, promotion, and termination of managers are essential components of the larger corporate governance mechanism. Effective corporate governance depends on a combination of surveillance by major shareholders and adequate legal protection for minority shareholders (Shleifer and Vishny, 1996). In this regard, corporate governance in Italy differs from both the market-oriented Anglo-Saxon model and the relationship-oriented German and Japanese models, and the legal protection of minority investors is weaker compared to others countries. A key feature of Italian capitalism is the way companies are governed. Much more prevalent is hierarchical group control. Typically, a family controls the holding company through voting trusts and cross-shareholding with affiliated organizations. Even among the greatest Italian firms, family control of pyramidal organizations is common (e.g. Pirelli, Benetton, Mediaset, Mondadori and until recently, Olivetti and FIAT). Separation of ownership and control creates two levels of agency problems: between controlling shareholders and management, and

between small investors (who collectively hold the majority of voting shares) and controlling shareholders, who have access to benefits that non-controlling shareholders do not. The first agency problem is mitigated by the close monitoring of senior management, the active participation of controlling shareholders in management, and incentive compensation. A well-functioning market for corporate control and adequate legal protection for minority shareholders are required to discipline controlling shareholders. Numerous indicators suggest, however, that both the corporate control market and the legal protection of small investors in Italy are feeble. First, the system of pyramidal groups and coalitional control enables the acquisition of corporate control with a tiny percentage of voting rights and protects the controlling group from hostile takeovers. In Italy, hostile takeovers and proxy battles intended to oust incumbent management are virtually nonexistent. Until 1995, according to the Italian financial newspaper *Sole 24 Ore* (1997), sixty percent of the capitalization of the Milan Stock Exchange was held by companies controlled by a single subject, and the remaining forty percent could not become the target of hostile takeovers due to their corporate charters or alliances among shareholders with controlling stakes in the firm. Secondly, Barca et al. (1994) and Zorell (2017) show that the Milan Stock Exchange is, by all metrics, among the least and most underdeveloped of the G7 exchanges, ranking among the bottom in terms of market capitalization and transaction volume as a percentage of GNP.

The relatively minor role of the Milan Stock Exchange can be partially explained by the limited legal protection of minority shareholders' rights (La Porta et al., 2004). Thirdly, Italian institutional investors control a minor portion of Italian firms' equity and are generally passive investors. Although the members of the Board of Directors have fiduciary duties toward all shareholders, they primarily represent the controlling shareholders, with minority shareholders typically not being adequately represented. A distinct image is provided by a 1994 survey (Crisci and Tarizzo, 1995) of the Boards of Directors of 500 Italian companies. In response to the inquiry, "Who do you represent on the board?" 83% of the directors responded "the controlling shareholders," while 12% responded "the minority shareholders. Outside – and really – supervisors are exceedingly uncommon. Crisci and Tarizzo (1995) report that in the majority of cases, the new director had prior strong ties with the firm: in 64% of the cases, directors were chosen from among previous managers or consultants of the firm, in 26% of the cases from among shareholders or their relatives, and in only 6% of the cases, the director had no prior relationship with the firm. According to the same survey, the selection of a new director is based more on personal connections than on the search for the most qualified candidate. Moreover, among publicly traded companies, CEO turnover is essentially unrelated to firm performance (Brunello et al., 2004).

Although the aforementioned characteristics make the Italian system more similar to the German and Japanese models than to the Anglo-Saxon model, there are significant distinctions between the Italian, German, and Japanese systems. In relationship-based systems, banks and significant shareholders replace the absent external markets for corporate governance and play an important monitoring role. Despite the significance of the banking system as a source of corporate funds, Italian bank governance has been ineffective for a number of reasons (De Cecco and Ferri, 1994; Barca, 1996). First, Italian banks have favored a distanced relationship with their corporate clients and have not engaged in significant monitoring activities. Instead of developing information-intensive relationship banking with their corporate clients, as emphasized by the monitoring view of financial intermediation, Italian banks have relied heavily on the availability of decent collateral as the primary criterion for extending credit. De Cecco and Ferri (1994) contend that, with the possible exception of two erstwhile universal banks, the majority of Italian banks have not developed the expertise to conduct adequate ex ante screening of loan applicants and ex post surveillance of their corporate loans. A second distinguishing characteristic of Italian bank lending has been the prevalence of multiple loans. Thirdly, Italian bank governance has been ineffective because the legal procedures for transferring control to banks and other creditors are not well established (Barca, 1996).

Brunello et al. (2001) believe these characteristics have several implications for executive compensation. First, compared to the Anglo-Saxon model, the prevalence of pyramidal groups with family control reduces the agency conflict between managers and controlling shareholders. Taking everything else into account, this implies a reduced proportion of contingent remuneration and a smaller role for stock options. Second, the unreliability of stock returns as an indicator of managerial performance restricts the use of stock options and stock plans in compensation agreements. Thirdly, the fact that incentive pay is primarily dependent on accounting measures of performance, which are open to manipulation by the company, lessens the significance of it. The fact that the Italian financial system is the principal source of corporate funds from outside the country has two implications for executive compensation. As a result, the debt-to-equity ratio should reduce the sensitivity of compensation to firm performance. It is interesting to note that Italian and Japanese nonfinancial enterprises share the lowest equity to assets ratio among the main OECD economies. Two additional characteristics of Italian capitalism that impact executive compensation deserve mention. First, despite recent privatizations, the influence of the state in the Italian economy is quite significant. Second, private pension funds perform a minor function in Italy. The prevalence of state-sponsored pension plans and an unfavorable tax treatment severely restrict the use of pensions as managerial incentives. In conclusion, it is reasonable to assume that the characteristics of the Italian capital market, corporate governance, and the specific relationship between banks and firms will result in a low proportion of incentive pay to total compensation and a low sensitivity of incentive pay to firm performance.

#### 2.4 Executive compensation in Italy

The Consolidated Law on Finance (Legislative Decree No. 58/1998) mandates that Italian companies with listed shares provide the public with an annual remuneration report that is divided into two components. The first section should describe the company's remuneration policy for members of management bodies, general managers, and executives with strategic responsibilities, as well as the adoption and implementation procedures for this policy. The second section should provide a sufficient description of each component of remuneration, including benefits provided in the event of termination of office or employment, and emphasize their conformity with the company's remuneration policy approved the previous year. It should also provide an analytical breakdown of any compensation paid in the reference year for any purpose and in any form by the company and its subsidiaries or affiliates. The introduction of the remuneration disclosure fills the gap for Italian companies with respect primarily to Anglo-Saxon ones and to European ones more generally. This report provides compensation information for each board member and details each component of total compensation, aligning it with board compensation information provided by other countries.

Contributions<sup>109</sup> to the study of executive compensation in the Italian panorama date back prior to the introduction of the remuneration report, therefore, the previous limitation regarding the international context severely restricts the generalizability and comparability of the international results. This was due to the previous discretionary nature of the information on directors' remuneration, which was not disclosed by all companies. In fact, Brunello et al. (2001) found that there are no regulations in Italy requiring companies to disclose information on the remuneration of individual directors and senior managers. The only available empirical evidence on executive compensation is derived from consulting firm surveys. Despite the fact that these surveys cover various, non-representative samples of the universe and their methodologies are not inherently compatible, a number of general patterns are discernible.

---

<sup>109</sup> Brunello et al. (2001) and Barontini and Bozzi (2009).

The variable component of executive pay comprises a lesser proportion of total compensation than in the other countries surveyed.

According to a survey<sup>110</sup> conducted by Hewitt Associates and reported by the Wall Street Journal (1996) 74% of an Italian CEO's total compensation consists of a base salary, compared to 54% for a German CEO and 40.4% for an American CEO. Annual incentives account for close to 20% of total compensation in all three nations. In Italy, bonuses and incentives make up only 2.2% of total compensation, compared to 12.5% and 9.0%, respectively, in Germany and the United States. Rossi (1992), citing the results of a Hay Management Consultants survey, reveals that from 1988 to 1991, the variable compensation of Italian executives accounted for approximately 12 percent of their fixed pay. Similarly, Hewitt Associates (1996) found that the average variable compensation for Italian CEOs was 18.7% (based on a sample of 241 Italian companies with median annual revenues of approximately \$300 million in 1996). Long-term incentives, predominantly in the form of stock options and stock programs, play a minor but growing role in executive compensation in Italy. Eleven Italian companies implemented stock option plans for the first time in 1998. This trend is gaining momentum (Sole 24 Ore, 1998). Italy firms provide long-term incentives through (a) restricted stock plans for managers and employees, (b) options to purchase company shares over variable time periods, (c) options granted by the controlling shareholder, and (d) options granted by the company following a stock buyback. Techniques (a) and, to a lesser extent, (b) are more frequently employed than the (c) ones. In many cases, the purpose of these plans is less to provide incentives than to provide executives with the highest possible compensation at the lowest possible cost to the organization (Gualtieri, 1993)<sup>111</sup>. Italy's tax treatment of stock options is less favorable than in other nations (Abowd and Bognanno, 1995). According to the available surveys, the compensation of top executives in Italy is characterized by the limited, but increasing use of long-term incentives and other employee benefits, such as retirement and health benefits, and by the importance of base salary and other non-variable components of pay, such as mandated company contributions.

This paper seeks to fill a perceived gap in the existing literature on the latin corporate governance environment by focusing on the individual risk-taking characteristics of board members and employing various compensation types. It provides evidence from a large-scale quantitative study that incorporates frameworks for pay-performance relationships. Specifically, based on a distinct environment with diverse: capital market system, risk-aversion, and distribution of board compensation, this paper focuses on various points of view by basing its hypotheses, models, and inferences on the highest level of detail ever seen in Italy. The board is disaggregated using qualitative and quantitative methods. First, it aggregates the CEOs, Leaders (Chairman and Vice-Chairman of the board), and Directors (residual category). Second, boards were divided into two subgroups: those with compensations above and below the median.

A large body of research<sup>112</sup> shows that CEOs differ significantly from other board members in terms of risk aversion, board member effort, and relative compensation. There are three main subgroups of board members: the Leaders (Chairman and Vice Chairman), the Chief Executive Officer, and the Directors.

---

<sup>110</sup> Survey based on companies with median annual revenues of approximately \$500 million in 1995

<sup>111</sup> Gualtieri (1993) argues that the following factors point in this direction: the frequent use of technique (a), in which all employees are offered discounted stock options; the limited use of provisions that link compensation to performance targets (e.g. performance shares); and the relative frequency of technique (c) for fiscal reasons.

<sup>112</sup> Kaplan and Sorensen (2017) provide evidence that CEOs tend to behave differently than other board members. Graham et al. (2013) undertake a survey of 1,180 CEOs and 549 CFOs, and their findings indicate that CEOs are typically more optimistic than CFOs. Habib and Hossain (2012) examine aspects of CEO/CFO characteristics and accounting data properties. Their findings illustrate how various members of the executive team pursue different interests, which may have an effect on financial accounting data.

These segments may have varying perspectives on business risk management. This study will investigate the differences in risk aversion among these groups. The Chairman of the board is typically a former CEO or an accomplished entrepreneur. Typically, the Chairman is more concerned with the preservation of the company's assets than with its expansion. Typically, the Vice President is more concerned with the company's expansion than the President. Nevertheless, despite the fact that the Vice President may be more risk-taking than the CEO and directors, his risk aversion is still quite high. He or she is more risk-tolerant than the Chairman and Vice Chairman. Frequently, the CEO is willing to assume substantial risks in order to accomplish rapid development and shareholder value. However, the CEO must create a balance between pursuing development opportunities and risk management. Directors are board members with no operational responsibilities within the organization. Directors may have different viewpoints on risk management. However, directors tend to be more risk-averse than CEOs and may be unwilling to take significant risks. Different risk management strategies are used by the board's subgroups. Typically, the CEO is the most willing to take significant risks in order to accomplish rapid development and maximize shareholder value. Directors may have varying views on risk management, but they are typically more cautious than the CEO. Corporate risk management must establish an equilibrium between these distinct perspectives in order to maintain the company's sustained growth.

## 2.5 Hypothesis

According to the agency theory, the agent-principal perspective highlights the growing conflict of interests between executives and shareholders. These results from the information asymmetry between executives and proprietors, as noted by Jensen and Meckling (1976). This can be resolved by monitoring and delivering appropriate compensation based on firm performance (Jensen and Murphy, 1990). To obtain high incentives, agents should act in the best interest of their principals. Thus, despite agency theory, which implies that CEO compensation is performance-sensitive and can serve to improve firm results, the empirical literature provides contradictory results. Thus, this paper investigates whether CEO pay is related to performance. In accordance with previous findings indicating a positive relationship between compensation and company performance (Griner, 1996; Core et al., 1999; Coles et al., 2006; Sun et al., 2013; Cambini et al., 2015), and taking into account the role played by risk aversion in this association, this article proposes the following hypothesis:

*H1. CEOs' and Leaders' compensation is positively associated with firm performance.*

*H2. "non-top" board's members' compensation is not related with firm performance.*

The study examines the relationship between board compensation, corporate governance, accounting indexes, and firm performance.

## 3. Data collection and research methods

The dataset for this investigation was compiled from a variety of sources. The data on executive compensation and corporate governance was gathered manually from the annual reports of Italian index-listed companies. Summary statistics of the dataset are available in the Appendix, in Table (1).

-----  
INSERT TABLE 1 ABOUT HERE  
-----

Table (2) shows the firms-year observation for each industry.

-----  
INSERT TABLE 2 ABOUT HERE  
-----

The level of specificity in the compensation and tenure data constitutes the primary original contribution of this analysis, both compensation and tenure data are grouped into distinct subgroups, including CEOs, Leaders, those with higher and lower median monthly compensation, directors, and the entire board. The decision to dichotomize the board of directors into "above median" and "below median" divisions using the median as a measure of central tendency represents a quantitative way to dichotomize the board into two sub-groups in order to test the accuracy of the results obtained using qualitative methods to divide the board (based on their position). This quantitative method permits determining whether CEOs and Leaders' pay sensitivity is comparable to that of subjects in the upper median. In order to accurately divide the board into two categories. This paper uses the median as a measure of central tendency because it better reflects, than the average, the average compensation level of the majority of board members and is less affected by the presence of outliers.

These classifications allow us to determine whether, for a given subgroup, the association between firm performance and corporate governance is stronger, weaker, or close to zero.

Compensation is comprised of Fixed Remuneration, Compensation for Committee Participation, Bonus, Benefits, Equity Incentives, and Termination Benefits. In accordance with Aust et al. (2021), Ghrab et al. (2022), Edmans et al. (2018), Smirnova and Zaveritiaeva (2017), and Sapp (2008), and in order to compare the outcomes with those of other nations, the primary focus of this analysis will be on total compensation using CEO compensation; however, this paper runs the same regression with each component of compensation and both disaggregating information's criteria.

Fixed remuneration represents the primary remuneration or compensation paid to the employee. The fundamental element of compensation, fixed remuneration, is typically determined in advance, annually, in accordance with the company's internal policies. For this reason, it is less sensitive to current year firm performance and more sensitive to last year's performance.

Compensation for committee participation: in some instances, members of internal committees within the corporation may receive additional compensation for their participation in committee duties. Such committees may include, for instance, the Nomination Committee, the Remuneration Committee, and the Audit Committee.

Benefits encompass a variety of company-provided benefits, including health insurance, retirement benefits, healthcare reimbursement, life insurance, damage insurance, and other personal forms of assistance.

Bonus: Depending on the industry and job position, employees may be eligible for an annual or periodic incentive based on company results and/or individual performance. Literature defines it as a short-term incentive because it is usually related to the current firm's performance.

Equity Incentives represent a stake in the company's profits. Equity incentives may be granted in the form of company shares allotted to employees or as instruments such as stock options, which enable employees to purchase company shares at a discount to the market price. Literature defines it as a long-term incentive to align the agent's interests with those of the principal.



When an employee departs the company, they may receive additional compensation in the form of termination benefits, which may include severance pay and other benefits based on company policy. As part of their separation agreement, the company may also provide the departing employee with additional forms of benefits. This type of compensation is out of scope for this analysis because it is not related to the current firm's performance but depends on the previous year's board's efforts and outcomes.

In line with Bushman et al. (2006) and Aust et al. (2021), this paper uses the firms' 12-months stock returns (RET) calculated from the beginning to the end of the fiscal year  $t$  as market performance indicators, while it employs EBITDA as the accounting-based performance indicators (Brick et al., 2006 and Bennett et al., 2017).

The sample selection of this study is based on listed firms included in all Italian stock market indices from 2011 to 2020: EXM (ex-MTA), STAR, EGM, and MIV for each of the 19 industries present in Borsa Italiana<sup>113</sup>. Industry information are summarized in Table (2). The study excluded foreign firms, firm year observations with incomplete compensation data for the CEO and board members, firms applying US-GAAP, and firm year observations with insufficient data (missing information on earnings or stock returns). Ultimately, the study used 1,841 firm-year observations (230 firms) with available compensation data for both CEOs and other board members, and 1,345 for the Leaders, the differences are due to the fact that CEOs who hold both charges: CEO and Chairman (duality) are considered only as CEO and not as Chairman. The chronological series is only available since 2011, when Italian companies started publishing remuneration reports. This time series provides a longer view than those typically examined in the literature, which are usually limited to 5-7 years. The panel contains 230 listed firms and 1841 firms-year observations; which is larger than the usual number of firms studied in European countries.

-----  
INSERT TABLE 3 ABOUT HERE  
-----

Table 3 presents the correlation coefficient matrix for the regression independent variables. The independent variables that exhibit the strongest correlation are RET and EBITDA, which align with anticipated outcomes given that these are two key performance indicators. The assessment of share value by financial analysts is reliant on fundamental accounting information, particularly EBITDA, which consequently affects the RET.

This study, consistent with prior research conducted by Bushman et al. (2006), Aust et al. (2021), and Smirnova and Zavertiaeva (2017), employs a dual approach to assess the performance of board members. Specifically, this analysis utilizes both accounting-based and financial market-driven indicators of firm performance, which are the key determinants of board members' incentives. Considering the results of correlation analysis, it is possible to conclude that there is no multicollinearity.

According to the remuneration report, incentives include fixed compensation, committee participation, benefits, bonuses, and equity instruments. Depending on the research objectives and availability of data, previous studies have employed a variety of compensation measures, including cash compensation (Shaw

---

<sup>113</sup> Industries present in Borsa Italiana from 2011 to 2020 are 22, respectively: Public Services, Real Estate, Consumer, Products and Services, Industrial Products and Services, Media, Health, Financial Services, Chemistry, Construction, Travel & Leisure, Food & Tobacco, Banks, Trade, Technology, Automobiles & Components, Building & Materials, Insurance, Raw Materials, Telecommunications, Energy, Personal Care Food and Drugs, Food. In this paper the industries: Food and Tobacco, Personal Care Food and Drugs and Food were aggregated in Personal Care, Food, Drugstores and Tobacco. This aggregation allow to cluster three industries in one (going from 22 industries to 19), it is useful to group industries with the same Beta.

and Zhang, 2010, Sun et al., 2013) and stock options (Griner, 1996); some research combines the two measures using a ratio (Chorou et al., 2008). This analysis is primarily concerned with the total remuneration provided by the sum of all components, excluding extraordinary compensation at the conclusion of the mandate. Given that the purpose of this analysis is to estimate the sensitivity of director compensation to company performance, including this variable would result in misleading interpretations. End of term remuneration is, by definition, a compensation paid to a director who has held senior positions for an extended period of time. It is a form of recognition for the director's commitment to the company over the years he or she has served, so it may be extraneous to the company's performance in the given year. The value of this dataset is enhanced by the exclusion of this component of total compensation. Second, each component of compensation is substituted for total compensation for each subgroup analyzed. The use of the total compensation of the CEO and the board allows any differences in the sensitivity of executive compensation to company performance to be compared to other geographical contexts, such as the European or the American one. However, the estimation of each individual equation is run by first substituting the total remuneration with the fixed remuneration, then the remuneration for participation in the committees, then the benefits, then the bonuses, and finally the fair value of the equity component, for each sub-class of the board. This process enables the estimation of the significance and varying sensitivity of each component of the total compensation to the company's performance. The investigation of this relationship for subgroups distinguished by diverse degrees of responsibility, human characteristics, and, most importantly, risk aversion enables us to fill a gap in the literature, not only in Italy. At the time this article was written, this analysis was the first comprehensive study of the sensitivity of executive compensation to company performance, both in terms of the various forms of remuneration used and the various categories of board members. Various metrics are employed in the literature to evaluate the efficacy of firms' incentives. These metrics can be divided into two categories: accounting-based indicators and market-based indicators. In this context, both types of metrics are used: EBITDA (Brick et al., 2006; Bennett et al., 2017) is the cumulative 12-month stock return of firm indexes that measure accounting and market performance, respectively (Banker et al. 2013, Bushman et al. 2006). Historically, market performance has been measured as a market stock return (Dee et al., 2005; Cadman et al., 2010; Banker et al., 2013; Cambini et al., 2015; Sur et al., 2015). Secondly, to provide evidence that risk is a significant determinant of CEO compensation, this paper compares his' or her' pay-performance sensitivities with those of different board members (Gray and Cannella, 1997; Miller et al., 2002; Chourou et al., 2008). Some studies consider both return and market risk when analyzing the relationship between CEO compensation and company performance (Huang and Chen, 2010; Ozdemir et al., 2013; Tian and Yang, 2014; Bushman et al., 2006; Aust et al., 2021). Nonetheless, Smirnova and Zavertiaeva (2017) argue that considering these indicators separately may lead to unexplained variance in the dependent variables, thereby increasing the regression residuals.

The present work investigates the relationship between board compensation, firm performance, tenure, firm size, pay inequality indicators, and board size. Initially, it evaluates the same framework of equations with various incentive categories. After developing a model that is consistent with standard practice in the literature and that takes into account the CEO's total remuneration, this paper will decompose it by separating the components of remuneration into five categories: fixed salaries, committee compensation, benefits, short-term bonuses, and equity instruments. This requires the development of six equations for the CEO, with each equation differing only in terms of the compensation component utilized. This procedure allows one to analyze the individual effects of various forms of compensation on company performance. This empirical approach will then estimate the same sort of regression for various board subgroups. In particular, it analyzes the following subgroups: Ledaer, Director, the average subgroup with compensation above and below the board median, as well as the CEO and the entire Board. This paper examines the empirical relationship between corporate performance and board compensation on

two levels: compensation type and board type. This analysis requires the estimation of 36 models, six with various compensation types for each of the six subgroups of the board. These models allow for the examination of the function of each board subgroup and incentive component in relation to company performance. The various significant levels, regressors, and R<sup>2</sup> values reflect the varying roles played by various individuals and categories of remuneration in the relationship between corporate performance and board remuneration. These 36 regressions will be run twice, once using regressors at time *t* and another time using regressors lagged by one year, this process generates 72 regression models (Table 4 shows all these models).

To examine the relationship between firm performance, compensation, and corporate governance data, the study followed an empirical approach similar to that employed by Ghrab et al. (2022), Edmans et al. (2018), Smirnova and Zavertiaeva (2017), and Sapp (2008). Specifically, the study regressed board compensation, for both accounting-based and market-based firm performance, tenure, board size, asset, Gini index of board compensation and lagged board compensation.

The regressions models used to test the hypothesis are:

$$Comp_{it} = \beta_0 + \beta_1 RET_{it} + \beta_2 EBITDA_{it} + \beta_3 Asset_{it} + \beta_4 Tenure_{it} + \beta_5 sq_{BS}_{it} + \beta_6 Gini\_Board_{it} + \beta_6 Comp_{i,t-1} \quad (1)$$

where *i* is the firm, *t* is the fiscal year, *Comp<sub>it</sub>* is the total compensation except termination benefits<sup>114</sup>,  $\beta_0$  is the intercept, *RET<sub>it</sub>* is the 12-months cumulative stock return of firm *i* in the fiscal year *t*<sup>115</sup> used as the market's performance index, *EBITDA<sub>it</sub>* is the logarithm of Earnings Before Interest, Depreciation and Amortization and Depreciation, it is used as accounting's performance index, *Asset<sub>it</sub>* is the logarithm of total Asset<sup>116</sup>, *Tenure<sub>it</sub>* is the number of weeks in which board members hold their position<sup>117</sup> during the ten years observed, *Gini\_Board<sub>it</sub>* is the Gini Index<sup>118</sup> calculated for the remuneration concentration of the whole board, *sq\_BS<sub>it</sub>*<sup>119</sup> is the quadratic form of the Board Size and *Comp<sub>i,t-1</sub>* is the one year lagged compensation.

Prior research indicates that board compensation may be dependent on board qualities and company performance indicators. Therefore, Equation (1) contains control variables associated with CEO characteristics. Darouichi et al. (2021) and other studies<sup>120</sup> identified "CEO tenure" as a significant observable characteristic that predicts the "givens and behaviors" of CEOs during their tenure in office in their paper.

Comprehending the duration of a CEO's tenure holds significant importance in gaining insight into the typical roles and behaviors exhibited by CEOs. Another corporate governance indicator used in this analysis is board size (De Andrés and Vallelado, 2008; Yermack, 1996; and Wand et al., 2018) and the Gini Inedx as a proxy for how compensation and power are distributed in the board (Heyman, 2007; Lee et al., 2008; Kale et al., 2009; Zagonov and Salganik-Shoshan, 2018; Harhoff and Stahl, 1998; Huybrechts et al., 2013; Fang and Moscarini, 2005; Breza et al., 2018).

<sup>114</sup> Smirnova and Zavertiaeva (2017), Bebchuk (2006), Bebchuk and Fried (2003), Bertrand and Mullainathan (2001), Yermack (1996), Zoghlami (2020), Ntim et al. (2015), Edwards et al. (2009)

<sup>115</sup> In line with Bushman et al. (2006) and Aust et al. (2021), this paper employs the firms' 12-months stock returns (RET<sub>it</sub>) calculated from the beginning to the end of the fiscal year *t*.

<sup>116</sup> Hitz and Werner (2012), Zoghlami (2020)

<sup>117</sup> Smirnova and Zavertiaeva (2017), Bebchuk (2006), Bebchuk and Fried (2003), Zhanget al. (2019).

<sup>118</sup> Heyman (2007) and Lee et al. (2008), Kale, Reis e Venkateswaran (2009), Zagonov and Salganik-Shoshan (2018), Harhoff and Stahl (1998), Huybrechts et al. (2013), Fang and Moscarini (2005), Breza et al. (2018)

<sup>119</sup> De Andrés and Vallelado (2008), Yermack (1996) and Wand et al. (2018).

<sup>120</sup> Smirnova and Zavertiaeva (2017), Bebchuk (2006), Bebchuk and Fried (2003), Zhanget al. (2019).

The book value of total assets, measured as the natural logarithm of total assets book value, measures firm magnitude (Ryan and Wiggins, 2001, Chourou et al., 2008, Huang and Chen, 2010). Finally, according to Fahlenbrach and Stulz, 2011 and Denis and Sarin (2002) equation (1) includes lagged compensation as independent variable. The application of lagged or delayed variables as autonomous variables in the examination of the correlation between board compensation and corporate performance is grounded in agency theory. The remuneration of board members can be perceived as a mechanism to synchronize the objectives of executives with those of stockholders and to motivate board members to strive for corporate success. The utilization of lagged variables as autonomous variables in the examination of the correlation between board compensation and corporate performance is grounded on the notion that preceding corporate performance could potentially impact the board members' determination to allot compensation in the future. Stated differently, stakeholders may exhibit a greater propensity to confer elevated remuneration on managers in the event that the company has demonstrated strong performance in previous periods, or conversely, may curtail compensation in response to lackluster company performance. Generally, the utilization of lagged variables as autonomous variables is substantiated by economic theory and the fundamental principle of the lag effect, which posits that previous actions exert an influence on subsequent performance.

In order to examine the impact of time on the correlation between board compensation and firm performance, the first equation is recalculated by incorporating all lagged independent variables. The objective of this study is to examine the impact of firm performance and other independent variables from the previous year on the current year's board compensation. The aim is to determine whether the outcomes derived from estimating Equation (1) remain robust even when there is a time lag between the regressors.

Thus, it can be observed that Equation (2) maintains an identical structure to that of Equation (1):

$$Comp_{it} = \beta_0 + \beta_1 RET_{i,t-1} + \beta_2 EBITDA_{i,t-1} + \beta_3 Asset_{i,t-1} + \beta_4 Tenure_{i,t-1} + \beta_5 sq\_BS_{i,t-1} + \beta_6 Gini\_Board_{i,t-1} + \beta_6 Comp_{i,t-1} \quad (2)$$

If the regressors in equation (1) are significant but the ones in equation (2) are not, this indicates that the only way compensation is influenced is by current performance and not the other way around. Instead, if only the coefficients in equation (2) are significant while those in equation (1) are not, it means that directors' compensation is influenced by past performance. As a result, in incentive bargaining, board members receive compensation during year  $t$  that is influenced less by year  $t$ 's performance than by the performance of the year before. As a result, agency conflict between shareholders and directors may worsen if directors engage in opportunistic and short-sighted behavior aimed at improving the company's profitability only in the near term.

The present study employs the weighted least squares (WLS) panel model to estimate Regressions (1) and (2), as well as to conduct the subsequent robustness tests. The decision to employ Weighted Least Squares (WLS) over panel Ordinary Least Squares (OLS) is attributed to the breach of the OLS

homoscedasticity assumption, as evidenced by the Breusch-Pagan<sup>121</sup> and Wald<sup>122</sup> test, which indicate that the board size has a significant impact on the squared residuals of the OLS model. In other words, the utilization of Panel Weighted Least Squares (WLS) is appropriate in this particular scenario<sup>123</sup> for the purpose of addressing heteroskedasticity, applying distinct weights to observations, mitigating outliers, accommodating sectoral disparities, and handling variations across time intervals. The utilization of Panel Weighted Least Squares (WLS) is beneficial in addressing variance discrepancies across time periods, ultimately leading to improved precision in the estimation of regression parameters.

#### 4. Results

Hypothesis 1 suggests that the compensations of "top" members (CEOs and Leaders) exhibit sensitivity to the performance of the firm. In other words, superior outcomes for the firm are associated with increased pay for top-level executives. Hypothesis 2 posits that the compensations of "non-top" members are not influenced by the performance of the firm. In other words, any alteration in the firm's performance does not correspond to a change in the compensation of "non-top" members.

The findings of the panel data analysis utilizing WLS (as per Eq. (1) and Eq. (2)) are presented in Table 4.

-----  
INSERT TABLE 4 ABOUT HERE  
-----

The present analysis commences by scrutinizing the remuneration of every member of the board, commencing with the Chief Executive Officer, followed by the Leader, Director, Above Median, Below Median, and ultimately, the entire board. Six distinct forms of compensation are administered for each subgroup, namely: total compensation, fixed remuneration, committee participation fee, benefits, bonus, and equity. The regression analysis is conducted twice, wherein the first estimation involves a level estimate with all regressors at the current time  $t$ , except for the dependent variable, which is lagged by one period. The second estimation involves all regressors at the past time  $t-1$ , lagged by one year. This dual estimation aims to identify any lags in the effect of regressors on compensation.

This analysis differentiates between performance measures based on market and accounting criteria.

The results in Table 4 show that, firm performance based on both accounting and market-based measures influences board compensation.

---

<sup>121</sup> This paper uses the Breusch-Pagan (BP) test and proceeds as follows: Then, it was used with OLS to run the original panel fixed effects model and save and square the residuals. Then, in the original model, this study regressed them on the same independent variables. The test statistic, which is distributed as chi-squared with degrees of freedom equal to the number of independent variables in the original model, would be provided by the subsequent regression. The test statistic's p-value can be used to detect whether there is evidence of heteroskedasticity. If the p-value is less than a predetermined level of significance, the null hypothesis of homoscedasticity is rejected, and evidence of heteroscedasticity in the model can be established. The BP test's null hypothesis is that all coefficients in the test equation are zero (homoscedasticity). Heteroscedasticity is mostly induced by board size, with p-values of 0,00093.

<sup>122</sup> The non-parametric Wald test for heteroskedasticity was conducted for the panel fixed effect OLS model estimated. The null hypothesis being tested was that the error variance is constant across all units. The asymptotic test statistic was computed as Chi-square(225) = 0,0000098 with an associated p-value of 0. The results suggest strong evidence against the null hypothesis of homoskedasticity, indicating the presence of heteroskedasticity in the model. The extremely high value of the test statistic and the very small p-value suggest that the likelihood of observing such a large test statistic under the null hypothesis is closing to zero.

<sup>123</sup> Auria (2017), Kaserer and Wagner (2005), Fauzi and Musallam (2015)

This paper will analyze one by one all the subgroups of the board that are shown in Table 4, starting with the CEO, Leader, Director, Above Median, Beyond Median and finally the Board. For each subgroup, compensation will be analyzed starting with the regression using total compensation, then fixed compensation, compensation for committee membership, benefits, bonuses, and equity instruments.

Empirical evidence demonstrates that total CEO compensation is significantly and positively correlated with corporate performance indicators, firm size, tenure, board size, inequality of compensation distribution within the board, and the CEO's own lagged compensation. This is supported by both regressions, the one with dependent variables at time  $t$  and the one with dependent variables deferred over time. In general, a change in each of the regressors and the lagged regressors is associated with a change in the compensation of the same sign. This significant and positive correlation also exists between CEOs' fixed compensation, bonuses, and equity instruments. The significance level and sign of the individual regressors change when compensations for committee membership and CEO benefits are considered instead. The former remains positively and significantly correlated with the accounting performance indicator and lagged committee membership fees, whereas the latter remains significantly correlated but with a negative sign for company performance as measured by markets and size of both the company (but only the current year is significant) and the board (only the lagged period is significant). Tenure and the Gini index are not substantially correlated with the CEO's compensation for participation in committees. On the other hand, benefits and regressors (both lagged and unlagged) are always significantly associated; however, benefits are negatively correlated with the company's market performance, whereas bonuses, equity, fixed compensation, and total compensation remain positively correlated.

Empirical results from models examining the relationship between compensation and firm performance for board chairmen and vice-chairmen are partially comparable to those of the CEO, consistent with the aggregation of the "leader" subgroup to that of the "top" members, which also includes the CEOs. Again, fixed compensation, bonuses, equity, and total compensation are significantly and positively correlated with all regressors in both time dimensions examined<sup>124</sup>.

The fees for participation in committees and the benefits of leadership are verified to have a negative and significant association with market performance indices and a positive association with EBITDA. Similarly, tenure, board size, and company scale do not have a significant impact on the compensation of leaders in this instance. The positive correlation with the previous year's compensation is confirmed.

When the observation unit consists of "top" board members rather than administrators, the results change drastically. Consistent with hypothesis 2, there is no empirical evidence of a significant correlation between total directors' remuneration and firm performance, whether measured by financial markets or accounting ratios. On the other hand, firm size, whether measured by total assets or board size, and tenure have a significant and positive effect on the average total compensation of directors. It is worth noting that the Gini index is also significantly correlated with the average total remuneration of directors, although the correlation is negative, in contrast to the positive correlation found in the analysis of CEOs and Leaders. The reversal of the sign of the Gini index indicates that boards with more unequal remuneration have a positive effect on the remuneration of CEOs and Leaders, but a negative effect on the remuneration of other directors.

In contrast to the "top" members, the components for committee participation and directors' benefits, as well as all other regressors with the exception of Gini, are significantly and positively correlated to both measures of firm performance. The only indicator with a negative correlation to these

---

<sup>124</sup> The only exceptions are tenure and delayed board, which have no bearing on total compensation, and board size, which has no bearing on fixed compensation.

compensations is the Gini index, meaning that more uniformly distributed salaries have a positive effect on these directors' fees. Regarding the fixed remuneration component, the same conclusions can be drawn as for the "top" members, with the exception of the Gini index, which is consistently negative even when correlated with fixed remuneration. Directors' variable compensations (bonus and equity) are not significant for firm performance and firm dimension. Tenure is positive and significant for bonus incentives but not for equity. Gini index is always negative and significant for directors' variable incentives.

The same implications apply to the group above the median as they do to CEOs and executives. A positive and significant correlation exists between firm performance and total compensation, bonuses, equity, and fixed compensation. All of the remuneration components analyzed, including the total, are significantly and positively associated with both measures of company size, tenure, the Gini index, and the lagged variable, with the exception of compensation for participation in committees and benefit. This last form of compensation paid to members above the median is negatively and significantly correlated with firm performance as measured by stock returns, while only lagged EBITDA is significant and positively correlated. The tenure of the current year has a positive and significant correlation with compensation for committee participation, whereas company size has a negative and significant correlation with this type of compensation. The significance and positivity of the Gini index and the lagged participation fees for the average of members above the median are finally confirmed.

Except for market-based performance, all the other regressors are significantly and positively associated with above-median average member benefits.

In accordance with the expectations outlined in Hypothesis 1, "top" members, whether they are identified by qualitative characteristics (appointment as CEO, President, or Vice President) or quantitative characteristics (members whose total remuneration exceeds the median remuneration of the board), they exhibit similar behavior. The relationship between company performance and compensation is generally positive and significant, with the exception of compensation and benefits for committee participation.

The empirical results of the study of the relationship between firm performance and the average total compensation of "non-top" members support Hypothesis 2 of the absence of a relationship for "non-top" members. By analyzing the individual components of the remuneration, it is discovered that the lack of significance of the total remuneration is due to the significance of the opposite sign of the individual components. Specifically, the company's performance has a positive and significant relationship with fixed compensation, those from participation in committees, and the benefits of members below the median, whereas variable components of compensation have a negative and significant effect on these subjects. With the exception of variable compensation, which is not significantly correlated with total assets, company size has a significant and positive effect on all forms of compensation. Below-median members' compensation is also significantly impacted by board size, lagged compensation, and tenure. As with the case of directors, a negative and statistically significant association is found between the various categories of compensation for "non-top" members and the income inequality index (with the exception of compensation for committee participation).

When qualitative (the appointment of directors) and quantitative (board members' compensation below the median) criteria for subdividing the board are considered, the empirical findings for the "non-top" subgroup of the board are again supported for H2. In general, there is a significant and positive association between fixed compensation, committee participation compensation, and benefits for non-executive board members, whereas there is a significant and negative association between RET and variable compensation. In general, there is a weakly significant relationship between EBITDA and the variable compensation of "non-top" board members, and neither performance metric is significant for the total compensation of "non-top" board members.

In general, the firm's performance is positively and significantly associated with board compensation, but with a lower significance level than that obtained when considering the different subgroups. This is due to the fact that between the different subgroups, the association does not always maintain the same sign or significance level, suggesting that the association between remuneration and company performance is influenced by the board member for whom the remuneration is determined. On average, assets, board size, tenure, and delayed remuneration are always significant and positive regressors (also for these variables, the same notation of remuneration applies, i.e., if the entire board is considered, the individual variables have a less significant impact than the subcategories of the board). Lastly, the Gini index has a generally non-significant relationship with board compensation, indicating that for this variable, the variance in sign and significance between individual board members is greater than for the other variables.

Due to the fact that this is the first survey to examine the impact of various board characteristics and forms of compensation on the relationship between company performance and executive compensation, not all of the results can be compared to previous research. In regard to the analysis of the CEO's total remuneration, the obtained results are consistent with those of previous studies, which indicate a positive influence of accounting and market performance measures on the CEO's compensation (Griner, 1996; Huang and Chen, 2010; Cambini et al., 2015; Dee et al., 2005; and Banker et al., 2013) and the board's (Conyon and Peck, 1998, Aust et al., 2021)

The effect of size is significant and has the expected positive sign for almost all specifications except compensation for participation in committees and benefits. Tenure is statistically significant for all specifications and usually has a positive influence (in line with Smirnova and Zaverbiaeva, 2017; Darouichi et al., 2021; Bebchuk, 2006; Bebchuk and Fried, 2003; and Zhanget al., 2019). Board size has a significant impact on CEO compensation, as suggested by De Andrés and Vallelado, 2008; Yermack, 1996; and Wand et al., 2018. Gini Index is significantly and positively associated with the “top” board members' remuneration (in line with Heyman, 2007; Lee et al., 2008; Kale et al., 2009; Zagonov and Salganik-Shoshan, 2018; Harhoff and Stahl, 1998; Huybrechts et al., 2013; Fang and Moscarini, 2005; and Breza et al., 2018) but its negatively associated with the “non-top” board members.

In conclusion, the results support both hypotheses 1 and 2 in terms of total compensation, but this association is also affected by the dual influence of the analyzed subject and, more importantly, the type of compensation analyzed. Specifically, compensation committees link board compensation to firm performance to motivate executives to pursue shareholder objectives. However, uncertainty surrounds the effectiveness of this approach.

## 5. Robustness tests

The correlation between board compensation and firm performance was examined in the main analysis, with indicators based on financial markets and accounting information used to measure performance. EBITDA was designated as the primary accounting performance indicator.

EBITDA and ROA are two commonly used accounting performance metrics for firms in this research area. EBITDA is a metric that measures the operating profitability of a business prior to accounting for expenses such as interest, taxes, depreciation, and amortization. It is frequently used as a measure of financial flow, and analysts favor it when evaluating companies with varying levels of debt. In contrast, the ROA assesses the profit-generating efficiency of a company relative to its total assets. It provides an indication of the performance of a company's management by revealing how efficiently its assets have been utilized. While both EBITDA and ROA are valuable financial indicators, their scopes and focuses



differ significantly. EBITDA reveals information about operating efficiency and cash flow, whereas ROA evaluates the efficacy of investments in assets.

To assess the robustness of the main findings, the same analysis was performed while substituting EBITDA with ROA in equations (1) and (2).

ROA replaces EBITDA in both regressions as follows:

$$Comp_{it} = \beta_0 + \beta_1 RET_{it} + \beta_2 ROA_{it} + \beta_3 Asset_{it} + \beta_4 Tenure_{it} + \beta_5 sq\_BS_{it} + \beta_6 Gini\_Board_{it} + \beta_6 Comp_{i,t-1} \quad (3)$$

$$Comp_{it} = \beta_0 + \beta_1 RET_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 Asset_{i,t-1} + \beta_4 Tenure_{i,t-1} + \beta_5 sq\_BS_{i,t-1} + \beta_6 Gini\_Board_{i,t-1} + \beta_6 Comp_{i,t-1} \quad (4)$$

The results obtained from the estimation of models (3) and (4) are depicted in Table 5 in the Appendix.

-----  
 INSERT TABLE 5 ABOUT HERE  
 -----

The results of the robustness tests confirmed the previous findings, aligning with the results of the regressions that used EBITDA. In general, the results derived using ROA and the alternative accounting performance indicator are comparable. Even when using ROA, the 'top' board members reveal a positive and statistically significant relationship between company performance and directors' remuneration; however, this relationship becomes non-significant when the 'non-top' board members are considered. The robustness tests also confirm the influence exerted by the type of compensation on the significance or otherwise of the relationship between board compensation and performance. Once again, in fact, company performance is not significant for the remuneration of committee membership and the benefits of the 'top' board members, whereas it is significant for the 'non-top' board members. The use of this alternative proxy for the company's accounting performance does not change the interpretation even with regard to the significance of the association between the variable component of remuneration (bonus and equity) for top members, while the association between company performance and variable components for "non-top" members is confirmed as not significant.

In conclusion, the robustness tests validate the results of the primary analysis in terms of the sign and significance of all regressors, including those indicating firm performance, total assets, board size, inequality of compensation distribution within the board, tenure, and lagged dependent variables.

Additionally, the robustness tests corroborate the diversity of signs and significance of the estimates based on the subject under consideration and the calculated compensation component.

Lastly, the results of the robustness tests corroborate those of the primary analysis for both the level estimation and the estimation using the one-year lagged variables, confirming once again that there are lags in the effects of company performance and other indicators on board member compensations. Due to the fact that this is the first survey to examine the impact of various board characteristics and forms of compensation on the relationship between company performance and executive compensation, not all of the results can be compared to previous research. In regard to the analysis of the CEO's total remuneration, the obtained results are consistent with those of previous studies, which indicate a positive influence of accounting and market performance measures on the CEO's compensation.

## 6. Conclusions

When a principal's and an agent's objectives and risk perceptions diverge, a conflict of interest exists. One method to reduce conflict in the principal-agent relationship is to create a compensation system that recognizes and rewards performance. This system must be able to evaluate executive performance in order to determine the level of compensation required to align the interests of managers and shareholders. This paper develops and empirically tests a model of the relationship between compensation and performance.

For a number of decades, both theoretical and applied studies have scrutinized the relationship between compensation and firm performance at length. However, a consensus on this relationship has yet to be reached. The use of various performance and compensation measures, data, and research methods generates substantial variation in empirical findings. In addition, the majority of prior research examines only the effect of CEO compensation on firm performance, or vice versa, and does not investigate disparities within the board or differences in terms of compensation component analysis. This analysis centers on the relationship between board subgroups compensation and firm performance, using both accounting and market-based metrics. In other words, this paper investigates the performance sensitivity of compensation for various subgroups and whether this compensation level affects corporate results.

The results obtained show a correlation between both estimated equations, the one in levels (with all variables at time  $t$ ) and the one indicating a correlation between board compensation and all lagged variables.

The sign and significance of the association between compensation and firm performance are further influenced by two other dimensions: the type of compensation and the characteristics of the board member.

The comparative analyses conducted on the total CEO's remuneration show results that are substantially in line with the European and American literature (Griner, 1996, Huang and Chen, 2010, Cambini et al., 2015) and thus support Hypothesis 1 with regard to firm performance as measured by accounting indicators. On the other hand, the market measure of performance, the 12-months cumulative stock return, also positively influences CEO compensation (in line with the work of Dee et al., 2005; and Banker et al., 2013).

Compensation committees are typically non-performance-based remuneration components, but due to the participation of special committee. In addition, the majority of firms link cash compensation to accounting-based performance indicators and equity compensation to market-based ones.

From the literature on remuneration reports, it appears that in Italy many companies use EBITDA as an accounting proxy to measure company performance and consequently base the CEO and Board bonuses on the achievement of certain thresholds of this profitability indicator. In contrast, equity instruments compensations are typically tied to the value of shares. In particular, companies operating in the industrial sector favor accounting indicators based for indexing incentives, whereas companies operating in the financial sector favor share awards and other equity instruments to motivate board members.

This analysis combines, for the first time in Europe, an investigation into the relationship between board compensation and corporate performance with the aim of analyzing not only the existence, significance, intensity, and sign of such a relationship, but also the impact that different types of board's members and different types of compensation have on this relationship. By analyzing the influence that both dimensions may have on pay-per-performance sensibility, this study responds to the calls for further

research made by Smirnova and Zavertiaeva (2017), Aust et al. (2021), Renneboog and Zhao (2011), Barontini and Bozzi (2011), and Brunello et al. (1999).

The various board characteristics are analyzed qualitatively (office held) and quantitatively (position below or above the median of the board). It is found that managing directors, chairmen, and vice chairmen of the board conduct similarly to members above the median, whereas board members who do not occupy top positions behave similarly to board members below the median. It is found that managing directors, chairmen, and vice chairmen of the board behave similarly to members above the median, whereas board members who do not occupy top positions behave similarly to board members below the median. The classification of the board is crucial not only for understanding how belonging to different sub-groups can affect the sensitivity of pay-per-performance, but also because it provides crucial information regarding risk aversion.

Becker (2006) suggests that board members with a greater aversion to risk favor variable compensation over fixed compensation. Top members of the board of directors are intimately involved in corporate decisions and serve as public representatives of the company; as a result, their reputation and performance are frequently closely tied to those of the firm. In Italy, directors who do not hold the positions of CEO, Chairman, or Vice Chairman frequently hold the same position in multiple companies, which reduces their dependence on reputational and economic on the individual company.

Therefore, the director's role on the board of directors has a significant impact on the relationship between the individual director and the company. This is evidenced by the fact that the sensitivity of the 'top' directors' variable compensation (whether short-term, in the form of a bonus, or long-term, in the form of equity) is positively and significantly correlated with the company's performance, whether it is measured in accounting terms or in terms of shareholder return. On the other hand, 'non-top' directors are less sensitive to variable remuneration because they are less connected to the individual company and are more risk-averse.

The results for committee participation fees provide additional evidence supporting the hypothesis of a connection between the board member's role played by being influential and publicly exposed for the firm and the pay-per-performance relationship. Committee participation compensation is an inducement tied to board members' participation in company committees, such as the remuneration committee, legal affairs committee, nomination committee, etc. In general, committee members are expected to devote more time and effort than other board members. As a result, committee members frequently receive additional compensation to reflect the increased commitment required for their participation.

Additionally, committee participation fees are frequently used as an incentive for board members to assume greater responsibilities and become more involved in corporate governance.

The committee participation fees of 'top' members do not appear to be significantly correlated with corporate performance, which may be due to the fact that 'top' members are already highly engaged in the company's management and that committee membership does not provide a significant boost to performance. The converse is true for "non-top" members, whose compensation from committee membership is significantly correlated with company performance, indicating that a greater effort by these individuals as a result of their committee membership leads to improved performance.

In general, fixed compensation is positively and significantly correlated with both the accounting and market performance of a company; the significance and sign of this correlation are unaffected by the composition of the board.

The results also indicate that firm size influences compensation similarly to accounting profit, i.e., it positively influences the variable compensation of "top" members and the ones related to participation in committee of "non-top" members.

The empirical evidence indicates that directors who remain in office in the same company for a longer period of time, regardless of the type of compensation and type of director analysed, have compensation that is more linked to the performance of the company; this confirms the theory that the sensitivity of compensation to company performance depends on the extent to which an individual director is linked to the company in terms of roles or length of service.

The sign and significance of the index of inequality of compensation distribution have opposing effects based on the board member being examined, whereas they are constant for all forms of compensation (except for committee membership expenses). This supports what was stated previously regarding the distinct roles of "top" and "non-top" directors in pay-per-performance. The remuneration of 'top' directors increases as the inequality of the board's income distribution increases, whereas the opposite is true for 'non-top' directors. This provides support for the "tournament" model, "top" members who receive higher compensations from higher Gini concentration, while "non-top" members who receive lower compensation are harmed by the heterogeneous distribution of board compensation.

Lagged regressions show that pay-performance sensitivity is not only a relationship between variables in the same period but that all variables, performance (both market and accounting-based indexes), tenure, pay inequality, and firm dimension, cause a lagged effect that takes more time to influence board compensation.

In conclusion, we find that variable compensation, such as incentives, is tied to specified accounting-based indicators by businesses. Market-based performance indicators also influence "top" board compensation. Attaching compensation to operational outcomes is efficient because it enhances accounting-based measures.

Risk aversion is crucial to pay-for-performance sensitivity. Risk-averse individuals are more sensitive to forms of compensation that involve them more in strategic business decisions, whereas they are insensitive to variable incentives. On the other hand, the compensation of the most risk-appetite board members is highly dependent on the firm's market and accounting performance.

Mention should also be made of the limitations associated with the empirical portion of the research. This paper concentrates primarily on publicly traded Italian companies and heavily relies on their information disclosure. Second, to accomplish its objective of studying executive compensation in Italy, this paper considers only Italian firms that are dependent on their national system, as stated in the analysis of the literature review.

## References:

- Abowd, J.M., Bognanno, M.L., 1995. International differences in executive and managerial compensation. In: Freeman, R., Katz, L. (Eds.), *Differences and Changes in Wage Structures*. University of Chicago Press, Chicago.
- Agrawal, R. and Samwick, A. (1999), "The other side of the trade-off: the impact of risk on executive compensation", *Journal of Political Economy*, Vol. 107 No. 1, pp. 65-105.
- Ahn, J.-Y., 2015. CEO pay for long-run performance: a dynamic view. *J. Appl. Bus. Res.* 31 (No.1), 317–330.
- Angelis, D., Grinstein, Y., 2015. Performance terms in CEO compensation contracts. *Rev. Finance* 19, 619–651.
- Ardalan, K., 2017. Capital structure theory: reconsidered. *Res. Int. Bus. Finance* 39, 696–710.
- Auria S. (2017). *Abnormal CEO Compensation and Firm Performance: Empirical Evidence from Europe*. Aalto University publication series BUSINESS+ECONOMY, 34.
- Aust, V., Pelger, C., & Drefahl, C. (2021). Exploring the relationship between valuation and stewardship uses of accounting information: Empirical evidence from German listed firms. *Journal of International Accounting, Auditing and Taxation*, 42, 100384. <https://doi.org/10.1016/j.intaccudtax.2021.100384>
- Banker, R.D., Darrrough, M.N., Plehn-Dujowich, J.M., 2013. The relation between CEO compensation and past performance. *Account. Rev.* 88 (No.1), 1–30.
- Barca, F., 1994. *Imprese in Cerca di Padrone: Proprieta e Controllo nel Capitalismo Italiano*. Laterza, Bari.
- Barca, F., 1996. *On Corporate Governance in Italy: Issues, Facts and Agenda*. Fondazione E.N.I. Enrico Mattei, Working paper N.10.96.
- Barontini, R., & Bozzi, S. (2011). Board compensation and ownership structure: empirical evidence for Italian listed companies. *Journal of Management & Governance*, 15, 59-89.
- Bebchuk L.A., Fried J.M., (2003). Executive Compensation as an Agency Problem. *JOURNAL OF ECONOMIC PERSPECTIVES VOL. 17, NO. 3, SUMMER (2003)*, (pp. 71-92).
- Bebchuk, L.A. & Fried, J.M. (2006). Pay without performance: Overview of the issues. *Academy of Management Perspectives*, 20(3), 5-24. doi: 10.5465/AMP.2006.22527411
- Becker, B. (2006). Wealth and Executive Compensation. *The Journal of Finance*, 61(3), 1303-1332. doi: 10.1111/j.1540-6261.2006.00839.x
- Bennett, B., Bettis, J. C., Gopalan, R., & Milbourn, T. (2017). Compensation goals and firm performance. *Journal of Financial Economics*, 125(1), 50-68. <https://doi.org/10.1016/j.jfineco.2017.02.004>
- Berle, A. and Means, G. (1932), *The Modern Corporation and Private Property*, The Macmillan Company, New York, NY.
- Bertrand M., Mullainathan S., (2001) "Are CEOs rewarded for luck? The ones without principals are." *The Quarterly Journal of Economics* 116, no. 3 (2001): 901-932.
- Borsa Italiana. (2022). Homepage. Borsa Italiana. <https://www.borsaitaliana.it/homepage/homepage.htm>.
- Botero, J., Djankov, S., La Porta, R., Lopez-de-Silanes, F., and Shleifer, A. (2004), "The Regulation of Labor", *Quarterly Journal of Economics*, 119(4): 1339-82.
- Breza E., Kaur S., Shamdasani Y. (2018). The Morale Effects of Pay Inequality. *The Quarterly Journal of Economics*, 133(2), 611-663.
- Brick I. E., Palmon O., Wald J. K. (2006). CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance*, 12(3), 403-423.
- Brunello, G., Graziano, C., & Parigi, B. (1999). Executive compensation and firm performance in Italy. *Journal of Accounting and Economics*, 28(2), 313-336. doi: 10.1016/S0167-7187(99)00026-0.
- Bushman R. M., Engel E., Smith A. J. (2006). An analysis of the relation between the stewardship and valuation roles of earnings. *Journal of Accounting Research*, 44(1), 53–83.
- Cadman, L.K., Klasa, S., & Matsunaga, S. (2010). Determinants of CEO pay: A comparison of ExecuComp and non-ExecuComp firms. *Accounting Review*, 84(5), 1511-1543. doi: 10.2308/accr.2010.85.5.1511
- Cambini, C., Rondi, L., Masi, S., 2015. Incentive compensation in energy firms: does regulation matter? *Corporate Govern.: Int. Rev.* 23 (No.4), 378–395.
- Chen, W.T., Zhou, G.S. & Zhu, X.K. (2019). CEO tenure and corporate social responsibility performance. *Journal of Business Research*, 96, 233-244. doi: 10.1016/j.jbusres.2018.10.037
- Chourou, L., Abaoub, E., & Saadi, S. (2008). The economic determinants of CEO stock option compensation. *Journal of Multinational Financial Management*, 18, 61-77. doi: 10.1016/j.mulfin.2007.05.002
- Coles, J.L., Daniel, N.D., Naveen, L., 2006. Managerial incentives and risk-taking. *J. Financial Econ.* 79 (No.2), 431–468.
- Conyon, M. and Peck, S. (1998), "Board control, remuneration committees, and top management compensation", *The Academy of Management Journal*, Vol. 41 No. 2, pp. 146-157.
- Conyon, M. and Sadler, G. (2001), "Executive pay, tournaments and corporate performance in UK firms", *International Journal of Management Reviews*, Vol. 3 No. 2, pp. 141-168.
- Conyon, M. J., & Peck, S. I. (1998). Board size and corporate performance: evidence from European countries. *The European Journal of Finance*, 4(3), 291-304. doi: 10.1080/135184798337317

- Canyon, M., Core, J. and Guay, W. (2006), "How high is US CEO pay? A comparison with UK CEO pay", Unpublished working paper, Wharton School, University of Pennsylvania.
- Canyon, M., Gregg, P. and Machin, S. (1995), "Taking care of business: executive compensation in the United Kingdom", *The Economic Journal*, Vol. 105 No. 430, pp. 704-714.
- Core, J.E., Holthausen, R.W., Larcker, D.F., 1999. Corporate governance, chief executive officer compensation, and firm performance. *J. Financial Econ.* 51, 371–406.
- Crisci, G., Tarizzo, G., 1995. 'Il Governo dell'Impresa: Il Ruolo dei C.d. A. nelle aziende Italiane, *Le Societa* 5, 607–616.
- Darouichi, A., Kunisch, S., Menz, M., & Cannella Jr, A. A. (2021). CEO tenure: An integrative review and pathways for future research. *Corporate Governance: An International Review*, 29(4), 204-223. <https://doi.org/10.1111/corg.12396>
- De Andrés P., Vallelado E. (2008). Corporate governance in banking: The role of the board of directors. *Journal of Banking and Finance*, 32, 2570-2580
- De Cecco, M., Ferri, G., 1994. Origini e natura della banca d'affari in Italia. Bank of Italy, Working paper N. 242
- De Cecco, M., Ferri, G., 1994. Origini e natura della banca d'affari in Italia. Bank of Italy, Working paper N. 242.
- Dee, C.C., Lulsegeda, A., & Nowlin, T.S. (2005). Executive compensation and risk: the case of internet firms. *Journal of Corporate Finance*, 12(1), 80-96. doi: 10.1016/j.jcorpfin.2004.10.001
- Denis, D. J., & Sarin, A. (2002). Ownership and board structures in publicly traded corporations. *Journal of Financial Economics*, 52(2), 187-223. [https://doi.org/10.1016/S0304-405X\(99\)00008-2](https://doi.org/10.1016/S0304-405X(99)00008-2)
- Devers, C., Cannella, A., Reilly, G. and Yoder, M. (2007), "Executive compensation: a multidisciplinary review of recent developments", *Journal of Management*, Vol. 33 No. 6, pp. 1016-1072.
- Edmans, A., Gabaix, X., & Jenter, D. (2017). Executive compensation: A survey of theory and evidence. In *Handbook of the Economics of Finance* (Vol. 2, pp. 211-356). Elsevier.
- Edmans, A., Gosling, T., & Jenter, D. (2021). CEO compensation: Evidence from the field. *European Corporate Governance Institute-Finance Working Paper No. 764/2021*. <https://doi.org/10.2139/ssrn.3894942>.
- Edwards J. S. S., Eggert W., Weichenrieder A. J. (2009). Corporate governance and pay for performance: Evidence from Germany. *Economics of Governance*, 10(1), 1-26.
- Elsila, A, Kallunki, J.-P., Nilsson, H and Sahlstrom, P. (2013), "CEO personal wealth, equity incentives and firm performance", *Corporate Governance: An International Review*, Vol. 21 No. 1, pp. 26-41.
- Fahlenbrach, R., & Stulz, R. M. (2011). Bank CEO incentives and the credit crisis. *Journal of Financial Economics*, 99(1), 11-26.
- Falato, A., Li, D. and Milbourn, T. (2011), "To each according to his ability? CEO pay and the market for CEOs", Unpublished working paper, Washington University
- Fang Hanming, Giuseppe Moscarini. "Morale Hazard." *Journal of Monetary Economics*, vol. 52, no. 4, 2005, pp. 749–777.
- Fauzi H., Musallam S. R. M. (2015). Corporate ownership and company performance: a study of Malaysian listed companies. *Social Responsibility Journal*, 11(3), 527-543.
- Firth, M., Fung, P.M., Rui, O.M., 2006. Corporate performance and CEO compensation in China. *J. Corporate Finance* 12, 693–714.
- Firth, M., Tam, M., Tang, M., 1999. The determinants of top management pay. *Omega* 27, 617–635.
- Frydman, C. (2010). CEO compensation. *Annual Review of Financial Economics*, 2, 75-102. doi: 10.1146/annurev-financial-120209-133958
- Ghrab, M., Gana, M., & Dakhlaoui, M. (2022). Pay-performance sensitivity and corporate governance mechanisms: evidence from Tunisia. *Journal of Financial Reporting and Accounting*, 20(1), 132-149. <https://doi.org/10.1108/JFRA-06-2020-0109>
- Gomez-Meja, L.R., 1994. Executive compensation: a reassessment and a future research agenda. *Research in Personnel and Human Resources Management* 12, 161–222
- Gomez-Meja, L.R., Larraza-Kintana, M., Makri, M., 1999. The determinants of executive compensation in family-controlled public corporations. *Acad. Manage. J.* 40 (No.2), 226–237
- Gray, S. R., & Cannella, A. A. (1997). The role of risk in executive compensation. *Journal of Management*, 23(4), 517-540. <https://doi.org/10.1177/014920639702300403>
- Gregg, P., Jewell, S., Tonks, I., 2005. Executive Pay and Performance in the UK 1994–2002. Working Paper (XFi Centre for Finance and Investment).
- Gregg, P., Machin, S. and Szymanski, S. (1993), "The disappearing relationship between directors' pay and corporate performance", *British Journal of Industrial Relations*, Vol. 1 No. 31, pp. 1-9.
- Griner, E.H., 1996. Stock option compensation, CEO pay, and corporate performance. *J. Manage. Issues* 8 (No.2), 143–153.
- Gualtieri, P., 1993. *Dirigenti e Capitali d' Impresa. I Piani di Stock Options*, Il Mulino, Bologna.
- Hall, B. and Leibman, J. (1998), "Are CEOs really paid like bureaucrats", *Quarterly Journal of Economics*, Vol. 113 No. 3, pp. 653-691.
- Harhoff, D., Stahl, K. & Woywode, M. (1998). Legal Form, Growth and Exit of West German Firms--Empirical Results for Manufacturing, Construction, Trade and Service Industries. *The Journal of Industrial Economics*, 46(4), 453-488. doi:10.2307/117499

- Hewitt Associates, 1996. Total Compensation DataBase. Compbook 1996, Milan.
- Heyman F. (2007). Pay inequality and firm performance: evidence from matched employer–employee data. *Applied Economics*, 39(11), 1313-1327.
- Hitz J.-M., Werner J. R. (2012). Why do firms resist individualized disclosure of management remuneration?. Available at SSRN.
- Holmstrom, B., 1979. Moral hazard and observability. *Bell Journal of Economics* 10, 74–91.
- Huang, Y., & Chen, C. R. (2010). Simultaneous estimation of executive compensation and firm performance in the banking industry. *Advances in Quantitative Analysis of Finance and Accounting*, 8, 99-132. [https://doi.org/10.1108/S1571-765X\(2010\)0000008008](https://doi.org/10.1108/S1571-765X(2010)0000008008)
- Huybrechts J., Voordeckers W., Lybaert N. (2017). Entrepreneurial Risk Taking of Private Family Firms: The Influence of a Nonfamily CEO and the Moderating Effect of CEO Tenure. *Family Business Review*, 30(1), 67-84.
- Jensen, M. and Meckling, W. (1976), “Theory of a firm: managerial behavior, agency costs and ownership structure”, *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305-360.
- Jensen, M. and Murphy, K. (1990), “Performance pay and top-management incentives”, *Journal of Political Economy*, Vol. 98 No. 2, pp. 225-264.
- Jensen, M. C., & Murphy, K. J. (1990). Performance pay and top-management incentives. *Journal of political economy*, 98(2), 225-264.
- Kale J., Reis E., Venkateswaran A. (2009). Rank order tournament and incentive alignment: the effect on firm performance. *Journal of Finance*, 64(4), 1479-1512.
- Kaplan, S. (1994a), “Top executive rewards and firm performance: a comparison of Japan and the United States”, *Journal of Political Economy*, Vol. 102 No. 3, pp. 510-546.
- Kaplan, S. N., & Sorensen, M. (2017). Are CEOs different? Characteristics of top managers. National Bureau of Economic Research, working paper No. 23832. <https://www.nber.org/papers/w23832>.
- Kaserer, C., Wagner N. (2005). Executive Pay, Free Float, and Firm Performance: Evidence from Germany. CEFS Working Paper No. 6. Technische Universität München (TUM).
- Kato, T. (1997), “Chief executive compensation and corporate groups in Japan: new evidence from micro data”, *International Journal of Industrial Organization*, Vol. 15 No. 4, pp. 455-467.
- Kuhner, C., & Pelger, C. (2015). On the relationship of stewardship and valuation-An analytical viewpoint. *Abacus*, 51(3), 379–411. <https://doi.org/10.1111/abac.12053>.
- Lagoarde-Segot, T., 2016. Prolegomena to an alternative study of finance. In: Paranque, Bernard, Pérez, Roland (Eds.), *Finance Reconsidered: New Perspectives for a Responsible and Sustainable Finance (Critical Studies on Corporate Responsibility, Governance and Sustainability, Volume 10)*. Emerald Group Publishing Limited, pp. 89–110.
- Lazear, E. and Rosen, S. (1981), “Rank-order tournaments as optimum labor contracts”, *Journal of Political Economy*, Vol. 89 No. 5, pp. 841-864.
- Lee K. W., Lev B., Yeo G. H. H. (2008). Executive pay dispersion, corporate governance, and firm performance. *Review of Quantitative Finance and Accounting*, 30(3), 315-338.
- Lee, K., Lev, B. and Yeo, G. (2008), “Executive pay dispersion, corporate governance, and firm performance”, *Review of Quantitative Finance and Accounting*, Vol. 30 No. 3, pp. 315-338
- Leonard, J. (1990), “Executive pay and firm performance”, *Industrial and Labor Relations Review*, Vol. 43 No. 3, pp. 13-29.
- Matolesy, Z. (2000), “Executive cash compensation and corporate performance during different economic cycles”, *Contemporary Accounting Research*, Vol. 17 No. 4, pp. 671-692.
- Miller, J. S., Wiseman, R. M., & Gomez-Mejia, L. R. (2002). The economic determinants of CEO stock option compensation. *Academy of Management Journal*, 45(4), 745-756. <https://doi.org/10.5465/amj.2002.7235616>
- Ntim C. G., Lindop S., Osei K. A., Thomas D. A. (2015). Executive compensation, corporate governance and corporate performance: A simultaneous equation approach. *Managerial and Decision Economics*, 36(2), 67-96.
- Ozdemir, O., Kizildag, M., & Upneja, A. (2013). Does risk matter in CEO compensation contracting? Evidence from US restaurant industry. *International Journal of Hospitality Management*, 34(3), 372-383. <https://doi.org/10.1016/j.ijhm.2013.03.006>
- Parthasarathy, A., Menon, K., Bhattacharjee, D., 2006. Executive compensation, firm performance and governance. *Econ. Polit. Weekly* 41 (No.39), 4139–4147.
- Renneboog, L., & Zhao, Y. (2011). Us knows us in the UK: On director networks and CEO compensation. *Journal of Corporate Finance*, 17(4), 1132-1157. doi: 10.1016/j.jcorpfin.2011.04.011
- Rossi, F., 1992. La Retribuzione di Posizioni Manageriali: Situazioni e Tendenze in Italia. *Rassegna di Statistiche del Lavoro* 1, 71–83.
- Ryan, H. E., & Wiggins III, R. A. (2001). The influence of firm- and manager-specific characteristics on the structure of executive compensation. *Journal of Corporate Finance*, 7, 101-123.
- Sapp, S. (2008), “The impact of corporate governance on executive compensation”, *European Financial Management*, Vol. 14 No. 4, pp. 710-746.

- Schaefer, S. (1998). The dependence of pay-performance sensitivity on the size of the firm. *The Review of Economics and Statistics*, 80(3), 436-443. doi: 10.1162/003465398557537.
- Shaw, K.W. & Zhang, M.H. (2010). Is CEO cash compensation punished for poor firm performance? *Accounting Review*, 85(3), 1065-1093. doi: 10.2308/accr.2010.85.3.1065
- Shleifer, A., Vishny, R., 1996. A Survey of Corporate Governance. N.B.E.R. Working paper N. 5554, April.
- Smirnova, A. S., & Zavertiaeva, M. A. (2017). Which came first, CEO compensation or firm performance? The causality dilemma in European companies. *Research in International Business and Finance*, 42, 327-338. <https://doi.org/10.1016/j.ribaf.2017.05.001>
- Sole 24 Ore (II), 1997. Troppe Societa Non Scalabili: Il Listino Rimane Cosı Paralizzato, January 24th. `
- Sole 24 Ore (II), 1998a. La Stock Option Conquista l'Italia, August 20th.
- Sole 24 Ore (II), 1998b. La Febbre delle Stock Options, September 7th.
- Sun, F., Wei, X., Huang, X., 2013. CEO compensation and firm performance. *Rev. Account. Finance* 12 (No.3), 252–267.
- Sur, S., Magnan, M., & Cordeiro, J. (2015). Disentangling CEO compensation: A simultaneous examination of time, industry, and firm-level effects. *Canadian Journal of Administrative Sciences*, 32, 30-46. doi: 10.1002/cjas.1318
- Tian, G. Y., & Yang, F. (2014). CEO incentive compensation in U.S. financial institutions. *International Review of Financial Analysis*, 34, 64-75. <https://doi.org/10.1016/j.irfa.2014.03.002>
- Y. Huang, & C.R. Chen. (2010). Simultaneous estimation of executive compensation and firm performance in the banking industry. *Advances in Quantitative Analysis of Finance and Accounting*, 8, 99-132.
- Yermack D., (1996) "Higher market valuation of companies with a small board of directors." *Journal of Financial Economics* 40, no. 2 (1996): 185-211.
- Young, M.N., Buchholtz, A.K., 2002. Firm performance and CEO pay: relational demography as a moderator. *J. Manage.* 14 (No. 3), 296–313.
- Zagonov M., Salganik-Shoshan G. (2018). CEO Pay Slice as a measure of CEO dominance. *Research in International Business and Finance*, 45, 571-576
- Zhou, X. (2000), "CEO pay, firm size and corporate performance: evidence from Canada", *Canadian Journal of Economics*, Vol. 33 No. 1, pp. 213-251.
- Zoghلامي F. (2020). Does CEO compensation matter in boosting firm performance? Evidence from listed French firms. *Managerial and Decision Economics*, 41(8), 1291-1302.
- Zorell, N. (2017). Large net foreign liabilities of euro area countries: Risks, prospects and policy options. *ECB Occasional Paper Series*, No. 198/October 2017.



## Appendix C

Table 1 – Summary statistics of sample

| Variable                 | Median | Avg.  | Min    | Max    | St.Dev. | C.F.   | Var.  | N.   |
|--------------------------|--------|-------|--------|--------|---------|--------|-------|------|
| RET                      | 9,23   | 9,22  | 9,21   | 9,44   | 0,02    | 0,0019 | 1,93  | 1841 |
| Asset                    | 13,56  | 13,15 | 9,21   | 20,71  | 2,26    | 0,1667 | 0,8   | 1841 |
| EBITDA                   | 10,37  | 10,77 | 3,71   | 16,08  | 1,69    | 0,16   | 2,85  | 1841 |
| ROA                      | 12,51  | 14,31 | -19,21 | 29,06  | 2,4     | 0,17   | 5,76  | 1841 |
| Gini_Board               | 0,66   | 0,68  | 0      | 1      | 0,15    | 0,2199 | -0,68 | 1841 |
| sq_BS                    | 101,04 | 81    | 0,84   | 666,29 | 71,37   | 0,7063 | 2,5   | 1841 |
| CEO_Tenure               | 44,61  | 36    | 1,5    | 120    | 30,51   | 0,6839 | 0,83  | 1841 |
| Leader_Tenure            | 45,65  | 36    | 0,25   | 120    | 0,66    | 0,7197 | -0,4  | 1345 |
| Director_Tenure          | 33,57  | 30,78 | 1,5    | 102,67 | 0,54    | 0,665  | -0,04 | 1841 |
| Above Me_Tenure          | 45,13  | 36    | 0,88   | 120    | 15,59   | 0,7    | 0,22  | 1841 |
| Below Me_Tenure          | 34,09  | 32,39 | 1,5    | 111,34 | 15,53   | 0,67   | 0,4   | 1841 |
| Board_Tenure             | 37,14  | 33,91 | 1,5    | 111,33 | 0,55    | 0,619  | -0,26 | 1841 |
| CEO_Fixed                | 13,87  | 13,85 | 13,82  | 14,25  | 0,05    | 0,0033 | 2,08  | 1841 |
| CEO_Committee Part.      | 13,82  | 13,82 | 13,82  | 13,92  | 0,01    | 0,0002 | 27,3  | 1841 |
| CEO_Benefit              | 13,82  | 13,82 | 13,52  | 14,29  | 0,02    | 0,0015 | 11,6  | 1841 |
| CEO_Bonus                | 13,85  | 13,82 | 13,82  | 14,75  | 0,07    | 0,0049 | 4,97  | 1841 |
| CEO_Equity               | 13,83  | 13,82 | 13,8   | 16,98  | 0,09    | 0,0065 | 26,37 | 1841 |
| CEO_Total                | 13,91  | 13,87 | 13,82  | 16,99  | 0,13    | 0,0093 | 8,66  | 1841 |
| Top_Fixed                | 13,84  | 13,83 | 13,82  | 14,02  | 0,03    | 0,0019 | 2,05  | 1345 |
| Leader_Committee Part.   | 13,82  | 13,82 | 13,82  | 13,83  | 0,01    | 0,0001 | 6,07  | 1345 |
| Leader_Benefit           | 13,82  | 13,82 | 13,8   | 14,53  | 0,02    | 0,0014 | 35,35 | 1345 |
| Leader_Bonus             | 13,82  | 13,82 | 13,81  | 14,05  | 0,01    | 0,0011 | 8,83  | 1345 |
| Leader_Equity            | 13,82  | 13,82 | 13,82  | 15,66  | 0,06    | 0,0042 | 26,29 | 1345 |
| Leader_Total             | 13,85  | 13,83 | 13,82  | 15,66  | 0,07    | 0,0052 | 15,74 | 1345 |
| Director_Fixed           | 13,82  | 13,82 | 13,82  | 13,86  | 0,01    | 0,0003 | 3,95  | 1841 |
| Director_Committee Part. | 13,82  | 13,82 | 13,82  | 13,83  | 0,01    | 0,0001 | 2,74  | 1841 |
| Director_Benefit         | 13,82  | 13,82 | 13,8   | 14,04  | 0,01    | 0,0004 | 36,16 | 1841 |
| Director_Bonus           | 13,82  | 13,82 | 13,82  | 13,89  | 0,01    | 0,0001 | 26,11 | 1841 |
| Director_Equity          | 13,82  | 13,82 | 13,81  | 13,91  | 0,01    | 0,0003 | 20,45 | 1841 |
| Director_Total           | 13,82  | 13,82 | 13,81  | 14,08  | 0,01    | 0,0007 | 15,2  | 1841 |

Notes C.F. shows the coefficient of variation, Var. is the variance and N. the numbers of observations.

Table 2 – Industry summary

| Industry                         | Firm Year obs. | Firms |
|----------------------------------|----------------|-------|
| Public Services                  | 140            | 15    |
| Real Estate                      | 82             | 10    |
| Product Services For Consumers   | 214            | 24    |
| Industrial Products and Services | 315            | 39    |
| Media                            | 103            | 13    |
| Health                           | 70             | 10    |
| Financial Services               | 131            | 18    |
| Chemistry                        | 20             | 4     |
| Construction                     | 101            | 13    |
| Travel & Leisure                 | 45             | 6     |
| Personal Care Food and Tobacco   | 94             | 13    |
| Banks                            | 110            | 16    |
| Trade                            | 33             | 6     |
| Technology                       | 133            | 14    |
| Automobiles & Components         | 58             | 6     |
| Insurance                        | 43             | 5     |
| Raw Materials                    | 31             | 4     |
| Telecommunications               | 62             | 8     |
| Energy                           | 56             | 6     |

Notes – The sector definition is taken from the Borsa Italiana website.

Table 3 – Correlation Matrix.

| RET | EBITDA | Asset  | sq_BS  | Gini   | CEO_Tenure      | CEO_tot      |                 |
|-----|--------|--------|--------|--------|-----------------|--------------|-----------------|
| 1   | 0,5881 | 0,5169 | 0,2885 | 0,1575 | 0,1777          | 0,5364       | RET             |
|     | 1      | 0,661  | 0,4804 | 0,1806 | 0,088           | 0,4561       | EBITDA          |
|     |        | 1      | 0,5324 | 0,1866 | 0,0657          | 0,4446       | Asset           |
|     |        |        | 1      | 0,1141 | 0,1422          | 0,3237       | sq_BS           |
|     |        |        |        | 1      | 0,0041          | 0,4527       | Gini_Board      |
|     |        |        |        |        | 1               | 0,0526       | CEO_Tenure      |
|     |        |        |        |        |                 | 1            | CEO_tot         |
| RET | EBITDA | Asset  | sq_BS  | Gini   | Leader_Tenure   | Leader_tot   |                 |
| 1   | 0,588  | 0,5161 | 0,2872 | 0,1596 | 0,125           | 0,369        | RET             |
|     | 1      | 0,661  | 0,4802 | 0,1813 | 0,0495          | 0,2395       | EBITDA          |
|     |        | 1      | 0,5316 | 0,1883 | 0,0257          | 0,2141       | Asset           |
|     |        |        | 1      | 0,1161 | 0,0842          | 0,138        | sq_BS           |
|     |        |        |        | 1      | 0,0685          | 0,2089       | Gini_Board      |
|     |        |        |        |        | 1               | 0,1003       | Leader_Tenure   |
|     |        |        |        |        |                 | 1            | Leader_tot      |
| RET | EBITDA | Asset  | sq_BS  | Gini   | Director_Tenure | Director_tot |                 |
| 1   | 0,588  | 0,5161 | 0,2872 | 0,1596 | 0,0934          | 0,2027       | RET             |
|     | 1      | 0,661  | 0,4802 | 0,1813 | 0,0407          | 0,3179       | EBITDA          |
|     |        | 1      | 0,5316 | 0,1883 | 0,0188          | 0,3225       | Asset           |
|     |        |        | 1      | 0,1161 | 0,1002          | 0,1879       | sq_BS           |
|     |        |        |        | 1      | 0,0589          | 0,0932       | Gini_Board      |
|     |        |        |        |        | 1               | 0,0167       | Director_Tenure |
|     |        |        |        |        |                 | 1            | Director_tot    |
| RET | EBITDA | Asset  | sq_BS  | Gini   | Ab.Me_Tenure    | Ab.Me_tot    |                 |
| 1   | 0,588  | 0,5161 | 0,2872 | 0,1596 | 0,0779          | 0,495        | RET             |
|     | 1      | 0,661  | 0,4802 | 0,1813 | -0,0226         | 0,4292       | EBITDA          |
|     |        | 1      | 0,5316 | 0,1883 | -0,0425         | 0,4054       | Asset           |
|     |        |        | 1      | 0,1161 | 0,0716          | 0,2791       | sq_BS           |
|     |        |        |        | 1      | 0,0747          | 0,466        | Gini_Board      |
|     |        |        |        |        | 1               | 0,0942       | Ab.Me_Tenure    |
|     |        |        |        |        |                 | 1            | Ab.Me_tot       |

| RET | EBITDA | Asset  | sq_BS  | Gini   | Be.Me_Tenure | Be.Me_tot |              |
|-----|--------|--------|--------|--------|--------------|-----------|--------------|
| 1   | 0,588  | 0,5161 | 0,2872 | 0,1596 | 0,1074       | 0,4046    | RET          |
|     | 1      | 0,661  | 0,4802 | 0,1813 | 0,0345       | 0,1914    | EBITDA       |
|     |        | 1      | 0,5316 | 0,1883 | 0,0131       | 0,1716    | Asset        |
|     |        |        | 1      | 0,1161 | 0,0901       | 0,0699    | sq_BS        |
|     |        |        |        | 1      | 0,0702       | 0,1117    | Gini_Board   |
|     |        |        |        |        | 1            | 0,0472    | Be.Me_Tenure |
|     |        |        |        |        |              | 1         | Be.Me_tot    |
| RET | EBITDA | Asset  | sq_BS  | Gini   | Board_Tenure | Board_tot |              |
| 1   | 0,588  | 0,5161 | 0,2872 | 0,1596 | 0,0928       | 0,3968    | RET          |
|     | 1      | 0,661  | 0,4802 | 0,1813 | 0,0102       | 0,2228    | EBITDA       |
|     |        | 1      | 0,5316 | 0,1883 | -0,0146      | 0,1998    | Asset        |
|     |        |        | 1      | 0,1161 | 0,071        | 0,0914    | sq_BS        |
|     |        |        |        | 1      | 0,0454       | 0,1785    | Gini_Board   |
|     |        |        |        |        | 1            | 0,0547    | Board_Tenure |
|     |        |        |        |        |              | 1         | Board_tot    |

Table 4 – Pay per performance multivariate analysis.

| Model | Member    | Comp. Type      | Time | Inter. | RET        | EBITDA    | Asset     | Tenure    | sq_BS     | Gini       | Lag_Comp. | R <sup>2</sup> Adj. | N    |
|-------|-----------|-----------------|------|--------|------------|-----------|-----------|-----------|-----------|------------|-----------|---------------------|------|
| 1     | CEO       | Total           | t    | 3***   | 0,2409***  | 0,1431*** | 0,3521**  | 0,3251*** | 0,1080*** | 0,2122***  | 0,6514*** | 0,81                | 1841 |
| 2     | CEO       | Total           | t-1  | 10***  | 0,5235***  | 0,1299*** | 0,4415**  | 0,2231*** | 0,0891*** | 0,1833***  | 0,5845*** | 0,85                | 1611 |
| 3     | CEO       | Fixed           | t    | 1***   | 0,0319**   | 0,3853**  | 0,2518*** | 0,2133**  | 0,0941*** | 0,3641***  | 0,8847*** | 0,95                | 1841 |
| 4     | CEO       | Fixed           | t-1  | 1***   | 0,0417***  | 0,3783**  | 0,2213*** | 0,2521**  | 0,0981*** | 0,3456***  | 0,8849*** | 0,97                | 1611 |
| 5     | CEO       | Committee Part. | t    | 8***   | -0,0005*   | 0,0611**  | -0,3111*  | 0,0231    | -0,0084   | 0,0532     | 0,4159*** | 0,28                | 1841 |
| 6     | CEO       | Committee Part. | t-1  | 10***  | -0,0011*** | 0,0501*** | -0,2901   | 0,0341    | -0,0511** | 0,0287     | 0,2905*** | 0,21                | 1611 |
| 7     | CEO       | Benefit         | t    | 12***  | -0,0275*** | 0,0714*** | 0,3487*** | 0,1321*** | 0,0461**  | 0,1532**   | 0,1579*** | 0,59                | 1841 |
| 8     | CEO       | Benefit         | t-1  | 12***  | -0,0097*** | 0,0681**  | 0,2845*** | 0,0411*   | 0,0341*** | 0,1210*    | 0,1542*** | 0,25                | 1611 |
| 9     | CEO       | Bonus           | t    | 3***   | 0,2223***  | 0,4112*** | 0,4509*** | 0,2231**  | 0,3251*   | 0,2236***  | 0,6201*** | 0,78                | 1841 |
| 10    | CEO       | Bonus           | t-1  | 6***   | 0,0266***  | 0,3626*** | 0,3133**  | 0,2511*** | 0,2741*   | 0,2147***  | 0,5541*** | 0,62                | 1611 |
| 11    | CEO       | Equity          | t    | 2***   | 0,302**    | 0,2845*** | 0,2803*   | 0,1042*** | 0,1267*   | 0,1236***  | 0,6176*** | 0,49                | 1841 |
| 12    | CEO       | Equity          | t-1  | 4***   | 0,2442**   | 0,2311*** | 0,3002**  | 0,1032*** | 0,1347**  | 0,1045***  | 0,6712*** | 0,55                | 1611 |
| 13    | Leader    | Total           | t    | 4***   | 0,1255***  | 0,1392*** | 0,2101*** | 0,2231*** | 0,1004*** | 0,1475***  | 0,6058*** | 0,83                | 1115 |
| 14    | Leader    | Total           | t-1  | 1**    | 0,1651***  | 0,115***  | 0,2022**  | 0,1032    | 0,0829    | 0,1322***  | 0,8476*** | 0,81                | 1345 |
| 15    | Leader    | Fixed           | t    | 0***   | 0,0693*    | 0,3261**  | 0,1481*   | 0,1423*** | 0,1129    | 0,2748***  | 0,9715*** | 0,98                | 1345 |
| 16    | Leader    | Fixed           | t-1  | 1***   | 0,0732**   | 0,325**   | 0,1345*   | 0,1004*** | 0,1177*   | 0,2598***  | 0,9629*** | 0,97                | 1115 |
| 17    | Leader    | Committee Part. | t    | 3***   | -0,0051*   | 0,1375*   | -0,0871** | 0,0822    | -0,0782   | 0,036      | 0,7565*** | 0,71                | 1345 |
| 18    | Leader    | Committee Part. | t-1  | 4***   | -0,0322*   | 0,0831**  | -0,0801   | 0,0741    | -0,0475   | 0,0413     | 0,6859*** | 0,58                | 1115 |
| 19    | Leader    | Benefit         | t    | 12***  | -0,043***  | 0,1142*   | 0,151*    | 0,0211*** | 0,0553**  | 0,1378*    | 0,1536*** | 0,18                | 1345 |
| 20    | Leader    | Benefit         | t-1  | 11***  | -0,0319*   | 0,1087*   | 0,1521*** | 0,0152*** | 0,0409**  | 0,1244*    | 0,1769*** | 0,26                | 1115 |
| 21    | Leader    | Bonus           | t    | 5***   | 0,1062*    | 0,2315**  | 0,1833*   | 0,1511**  | 0,2438*   | 0,1548***  | 0,6293*** | 0,40                | 1345 |
| 22    | Leader    | Bonus           | t-1  | 5***   | 0,1311*    | 0,2635**  | 0,1991**  | 0,1811**  | 0,2056**  | 0,1234***  | 0,6155*** | 0,42                | 1115 |
| 23    | Leader    | Equity          | t    | 5***   | 0,1617***  | 0,1702**  | 0,1611*   | 0,085***  | 0,095**   | 0,1033***  | 0,616***  | 0,33                | 1345 |
| 24    | Leader    | Equity          | t-1  | 8***   | 0,1081***  | 0,1209**  | 0,1852*** | 0,0626*** | 0,101***  | 0,0841***  | 0,4392*** | 0,29                | 1115 |
| 25    | Director  | Total           | t    | 8***   | 0,0874     | 0,0252    | 0,0505*** | 0,1502**  | 0,0344*   | -0,0612**  | 0,452***  | 0,92                | 1841 |
| 26    | Director  | Total           | t-1  | 6***   | 0,0508     | 0,0292    | 0,0664*** | 0,1283*   | 0,0284*   | -0,0311**  | 0,5726*** | 0,92                | 1611 |
| 27    | Director  | Fixed           | t    | 4***   | 0,1059***  | 0,2549*   | 0,3362*** | 0,1308**  | 0,0342*** | -0,1084*** | 0,7389*** | 0,93                | 1841 |
| 28    | Director  | Fixed           | t-1  | 3***   | 0,1594***  | 0,2963    | 0,3471*** | 0,0922**  | 0,0356    | -0,0897*** | 0,7938*** | 0,91                | 1611 |
| 29    | Director  | Committee Part. | t    | 1***   | 0,1964***  | 0,1752*** | 0,4261*** | 0,0845*** | 0,0268**  | -0,0248    | 0,9391*** | 0,97                | 1841 |
| 30    | Director  | Committee Part. | t-1  | 1***   | 0,1802***  | 0,1616*** | 0,4481**  | 0,0541*** | 0,0163**  | -0,0368    | 0,9589*** | 0,97                | 1611 |
| 31    | Director  | Benefit         | t    | 10***  | 0,041**    | 0,0878**  | 0,1621*   | 0,0883**  | 0,0867*** | -0,0945**  | 0,3074*** | 0,20                | 1841 |
| 32    | Director  | Benefit         | t-1  | 10***  | 0,0706***  | 0,0838**  | 0,1841**  | 0,0676*   | 0,0724*** | -0,0741**  | 0,2964*** | 0,19                | 1611 |
| 33    | Director  | Bonus           | t    | 10***  | -0,0802*   | -0,0408   | -0,0661   | 0,0201*   | 0,0239**  | -0,0014**  | 0,2619*** | 0,12                | 1841 |
| 34    | Director  | Bonus           | t-1  | 9***   | -0,0101    | -0,0429   | -0,0421   | 0,0521*   | 0,0392*** | -0,0248**  | 0,3424*** | 0,16                | 1611 |
| 35    | Director  | Equity          | t    | 8***   | -0,0401*   | -0,0393   | 0,0771    | 0,0791    | 0,0366**  | -0,0094*** | 0,4251*** | 0,21                | 1841 |
| 36    | Director  | Equity          | t-1  | 8***   | -0,0805    | -0,0364   | 0,08917   | 0,0843    | 0,0389**  | -0,0113**  | 0,4417*** | 0,21                | 1611 |
| 37    | Above Me. | Total           | t    | -2***  | 0,1832***  | 0,1412*** | 0,2811*** | 0,2741*** | 0,1042**  | 0,1799***  | 0,6103*** | 0,78                | 1841 |
| 38    | Above Me. | Total           | t-1  | 7***   | 0,3443***  | 0,1225*** | 0,3219*** | 0,1632*** | 0,086**   | 0,1578***  | 0,5766*** | 0,89                | 1611 |
| 39    | Above Me. | Fixed           | t    | 2***   | 0,0506***  | 0,3557**  | 0,2002*** | 0,1778**  | 0,1035    | 0,3195***  | 0,8331*** | 0,93                | 1841 |

| Model | Member    | Comp. Type      | Time | Inter. | RET        | EBITDA    | Asset     | Tenure    | sq_BS     | Gini       | Lag_Comp. | R <sup>2</sup> Adj. | N    |
|-------|-----------|-----------------|------|--------|------------|-----------|-----------|-----------|-----------|------------|-----------|---------------------|------|
| 40    | Above Me. | Fixed           | t-1  | 2***   | 0,0575     | 0,3517*** | 0,1779*** | 0,1763*** | 0,1079**  | 0,3027***  | 0,8449*** | 0,93                | 1611 |
| 41    | Above Me. | Committee Part. | t    | 6***   | -0,0028*   | 0,0993    | -0,1991   | 0,0527*   | -0,0433   | 0,0446     | 0,543***  | 0,36                | 1841 |
| 42    | Above Me. | Committee Part. | t-1  | 7***   | -0,0167**  | 0,0666**  | -0,1851   | 0,0541    | -0,0493*  | 0,0351     | 0,4614*** | 0,30                | 1611 |
| 43    | Above Me. | Benefit         | t    | 12***  | -0,0353    | 0,0927**  | 0,2499*** | 0,0766*** | 0,0507*** | 0,1455*    | 0,1219*** | 0,13                | 1841 |
| 44    | Above Me. | Benefit         | t-1  | 12***  | -0,0208    | 0,0884**  | 0,2183*   | 0,0282*** | 0,0375*** | 0,1227*    | 0,161***  | 0,12                | 1611 |
| 45    | Above Me. | Bonus           | t    | 4***   | 0,1643***  | 0,3214*** | 0,3171*** | 0,1871*** | 0,2845*   | 0,1892***  | 0,4384*** | 0,58                | 1841 |
| 46    | Above Me. | Bonus           | t-1  | 5***   | 0,0789*    | 0,3131**  | 0,2562*** | 0,2161*** | 0,2399*** | 0,1691***  | 0,6095*** | 0,58                | 1611 |
| 47    | Above Me. | Equity          | t    | 3***   | 0,2319***  | 0,2274*** | 0,2207*** | 0,0946**  | 0,1109**  | 0,1135***  | 0,6193*** | 0,45                | 1841 |
| 48    | Above Me. | Equity          | t-1  | 4***   | 0,1762***  | 0,176***  | 0,2427*   | 0,0829*** | 0,1179**  | 0,0943***  | 0,707***  | 0,54                | 1611 |
| 49    | Below Me. | Total           | t    | 3***   | 0,0787**   | 0,029*    | 0,0455*** | 0,1802*   | 0,0275**  | -0,0514**  | 0,7046*** | 0,70                | 1841 |
| 50    | Below Me. | Total           | t-1  | 6***   | 0,0457     | 0,0336*** | 0,0598*** | 0,154***  | 0,0227*** | -0,0261*   | 0,5233*** | 0,85                | 1611 |
| 51    | Below Me. | Fixed           | t    | 2***   | 0,0953***  | 0,2931*   | 0,3026*** | 0,157***  | 0,0274    | -0,0911*** | 0,8412*** | 0,88                | 1841 |
| 52    | Below Me. | Fixed           | t-1  | 2***   | 0,1435***  | 0,3407    | 0,3124*** | 0,1106*** | 0,0285*   | -0,0753*** | 0,8351*** | 0,85                | 1611 |
| 53    | Below Me. | Committee Part. | t    | 1***   | 0,1768***  | 0,2015*** | 0,3835*** | 0,1014*** | 0,0514**  | 0,0208     | 0,9509*** | 0,95                | 1841 |
| 54    | Below Me. | Committee Part. | t-1  | 1***   | 0,1622***  | 0,1858**  | 0,4033**  | 0,0649*** | 0,013*    | 0,0309     | 0,9558*** | 0,95                | 1611 |
| 55    | Below Me. | Benefit         | t    | 8***   | 0,0369**   | 0,1012*   | 0,1459*   | 0,106***  | 0,0934*** | -0,0794**  | 0,4556*** | 0,34                | 1841 |
| 56    | Below Me. | Benefit         | t-1  | 8***   | 0,0635**   | 0,0964*   | 0,1657**  | 0,0811*   | 0,0899*** | -0,0622**  | 0,4206*** | 0,28                | 1611 |
| 57    | Below Me. | Bonus           | t    | 6***   | -0,0722*** | -0,0469   | -0,0595   | 0,0381*   | 0,0151**  | -0,0012*   | 0,5412*** | 0,35                | 1841 |
| 58    | Below Me. | Bonus           | t-1  | 6***   | -0,0091*   | -0,0493   | -0,0379*  | 0,0485*** | 0,0334*** | -0,0208*   | 0,5822*** | 0,40                | 1611 |
| 59    | Below Me. | Equity          | t    | 6***   | -0,0361*   | -0,0452   | 0,0694    | 0,0349    | 0,0293**  | -0,0079**  | 0,517***  | 0,28                | 1841 |
| 60    | Below Me. | Equity          | t-1  | 9***   | -0,0725*   | -0,0419*  | 0,0803    | 0,0312*   | 0,0311*** | -0,0095**  | 0,321***  | 0,17                | 1611 |
| 61    | Board     | Total           | t    | 1***   | 0,131**    | 0,0561*** | 0,1633*   | 0,2272*   | 0,0659*** | 0,1157*    | 0,7245*** | 0,72                | 1841 |
| 62    | Board     | Total           | t-1  | 4***   | 0,195*     | 0,0445*   | 0,1909*** | 0,1586*** | 0,0544*** | 0,092      | 0,7036*** | 0,83                | 1611 |
| 63    | Board     | Fixed           | t    | 1***   | 0,073*     | 0,3244*** | 0,2513*** | 0,1674*** | 0,0655    | 0,1142*    | 0,8946*** | 0,92                | 1841 |
| 64    | Board     | Fixed           | t-1  | 1***   | 0,1005***  | 0,3462    | 0,2452*** | 0,1435*** | 0,0682    | 0,1137     | 0,8967*** | 0,90                | 1611 |
| 65    | Board     | Committee Part. | t    | 1***   | 0,087*     | 0,1504*** | 0,0922**  | 0,0771*** | 0,011*    | 0,0327     | 0,9527*** | 0,96                | 1841 |
| 66    | Board     | Committee Part. | t-1  | 1***   | 0,0728*    | 0,1262    | 0,1091**  | 0,0595*** | 0,0182*   | 0,033      | 0,9139*** | 0,94                | 1611 |
| 67    | Board     | Benefit         | t    | 11***  | 0,0008**   | 0,0969**  | 0,1979**  | 0,0147*   | 0,0321**  | 0,1125     | 0,2231*** | 0,19                | 1841 |
| 68    | Board     | Benefit         | t-1  | 11***  | 0,0214**   | 0,0924*** | 0,192*    | 0,0265*   | 0,0237**  | 0,0925     | 0,1808*** | 0,23                | 1611 |
| 69    | Board     | Bonus           | t    | 11***  | 0,0461**   | 0,1373*   | 0,1288*** | 0,1476*   | 0,1798**  | 0,094*     | 0,2231*** | 0,19                | 1841 |
| 70    | Board     | Bonus           | t-1  | 11***  | 0,0349**   | 0,1319    | 0,1092*   | 0,1573*** | 0,1517*   | 0,0742     | 0,1808*** | 0,23                | 1611 |
| 71    | Board     | Equity          | t    | 6***   | 0,0979*    | 0,0911*   | 0,1451*   | 0,0948*   | 0,0701*   | 0,0528*    | 0,5182*** | 0,32                | 1841 |
| 72    | Board     | Equity          | t-1  | 5***   | 0,0519*    | 0,0671*   | 0,1615**  | 0,0921**  | 0,0745    | 0,0424*    | 0,6114*** | 0,50                | 1611 |

Notes: \*Significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% level. Models are estimated using panel data analysis with WLS whit robust standard errors and errors term of each model is normally distributed and no autocorrelated. The estimates are robust as each specification is corrected by White diagonal standard errors and covariance. Constants are rounded to the unit, while to capture more details the others regressors are rounded to four decimal places. The 'time' column shows whether the regressors in the following columns are at time (t) or lagged by one year (t-1). All of the variables are described in Table 1.

Table 5 – Robustness tests, Pay per performance multivariate analysis.

| Model | Member    | Comp. Type      | Time | COST    | RET        | ROA       | Asset     | Tenure    | sq_BS     | Gini       | Lag_Comp. | R2 Adj. | N    |
|-------|-----------|-----------------|------|---------|------------|-----------|-----------|-----------|-----------|------------|-----------|---------|------|
| 1     | CEO       | Total           | t    | 1,52*** | 0,1469**   | 0,0873**  | 0,2148*   | 0,1983**  | 0,0659**  | 0,1294**   | 0,3974*** | 0,69    | 1841 |
| 2     | CEO       | Total           | t-1  | 6,26*** | 0,3193***  | 0,0792*** | 0,2693**  | 0,1361*** | 0,0544*** | 0,1118***  | 0,3565*** | 0,72    | 1611 |
| 3     | CEO       | Fixed           | t    | 0,77*** | 0,0195*    | 0,235*    | 0,1536**  | 0,1301*   | 0,0574**  | 0,2221**   | 0,5397*** | 0,81    | 1841 |
| 4     | CEO       | Fixed           | t-1  | 0,72*** | 0,0254**   | 0,2308**  | 0,135***  | 0,1538**  | 0,0598*** | 0,2108***  | 0,5398*** | 0,82    | 1611 |
| 5     | CEO       | Committee Part. | t    | 4,84*** | -0,0003*   | 0,0373*   | -0,1898   | 0,0141    | -0,0051   | 0,0325     | 0,2537*** | 0,24    | 1841 |
| 6     | CEO       | Committee Part. | t-1  | 5,89*** | -0,0007*   | 0,0306*** | -0,177    | 0,0208    | -0,0312** | 0,0175     | 0,1772*** | 0,18    | 1611 |
| 7     | CEO       | Benefit         | t    | 7,13*** | -0,0168**  | 0,0436**  | 0,2127**  | 0,0806**  | 0,0281*   | 0,0935*    | 0,0963*** | 0,5     | 1841 |
| 8     | CEO       | Benefit         | t-1  | 7,06*** | -0,0059*** | 0,0415**  | 0,1736*** | 0,0251    | 0,0208*** | 0,0738     | 0,0941*** | 0,21    | 1611 |
| 9     | CEO       | Bonus           | t    | 1,91*** | 0,1356**   | 0,2508**  | 0,275**   | 0,1361*   | 0,1983*   | 0,1364**   | 0,3783*** | 0,66    | 1841 |
| 10    | CEO       | Bonus           | t-1  | 3,53*** | 0,0162***  | 0,2212*** | 0,1911**  | 0,1532*** | 0,1672*   | 0,131***   | 0,338***  | 0,53    | 1611 |
| 11    | CEO       | Equity          | t    | 1,49*** | 0,1842*    | 0,1735**  | 0,171     | 0,0636**  | 0,0773*   | 0,0754**   | 0,3767*** | 0,42    | 1841 |
| 12    | CEO       | Equity          | t-1  | 2,47*** | 0,149**    | 0,141***  | 0,1831**  | 0,063***  | 0,0822**  | 0,0637***  | 0,4094*** | 0,47    | 1611 |
| 13    | Leader    | Total           | t    | 2,27*** | 0,0766**   | 0,0849**  | 0,1282**  | 0,1361**  | 0,0612**  | 0,09**     | 0,3695*** | 0,71    | 1115 |
| 14    | Leader    | Total           | t-1  | 0,35**  | 0,1007***  | 0,0702*** | 0,1233**  | 0,063     | 0,0506    | 0,0806***  | 0,517***  | 0,69    | 1345 |
| 15    | Leader    | Fixed           | t    | 0,28*** | 0,0423*    | 0,1989*   | 0,0903    | 0,0868**  | 0,0689    | 0,1676**   | 0,5926*** | 0,83    | 1345 |
| 16    | Leader    | Fixed           | t-1  | 0,38*** | 0,0447*    | 0,1983**  | 0,082     | 0,0612*** | 0,0718*   | 0,1585***  | 0,5874*** | 0,82    | 1115 |
| 17    | Leader    | Committee Part. | t    | 2,02*** | -0,0031*   | 0,0839    | -0,0531*  | 0,0501    | -0,0477   | 0,022      | 0,4615*** | 0,6     | 1345 |
| 18    | Leader    | Committee Part. | t-1  | 2,6***  | -0,0196*   | 0,0507**  | -0,0489   | 0,0452    | -0,029    | 0,0252     | 0,4184*** | 0,49    | 1115 |
| 19    | Leader    | Benefit         | t    | 6,99*** | -0,0262**  | 0,0697    | 0,0921    | 0,0129**  | 0,0337*   | 0,0841     | 0,0937*** | 0,15    | 1345 |
| 20    | Leader    | Benefit         | t-1  | 6,83*** | -0,0195*** | 0,0663    | 0,0928*** | 0,0093*** | 0,0249**  | 0,0759     | 0,1079*** | 0,22    | 1115 |
| 21    | Leader    | Bonus           | t    | 3,04*** | 0,0648*    | 0,1412*   | 0,1118    | 0,0922**  | 0,1487*   | 0,0944**   | 0,3839*** | 0,34    | 1345 |
| 22    | Leader    | Bonus           | t-1  | 3,19*** | 0,08*      | 0,1607**  | 0,1215**  | 0,1105**  | 0,1254**  | 0,0753***  | 0,3755*** | 0,36    | 1115 |
| 23    | Leader    | Equity          | t    | 2,84*** | 0,0986**   | 0,1038*   | 0,0983    | 0,0519**  | 0,058*    | 0,063**    | 0,3758*** | 0,28    | 1345 |
| 24    | Leader    | Equity          | t-1  | 4,6***  | 0,0659***  | 0,0737**  | 0,113***  | 0,0382*** | 0,0616*** | 0,0513***  | 0,2679*** | 0,25    | 1115 |
| 25    | Director  | Total           | t    | 4,5***  | 0,0533     | 0,0154    | 0,0308**  | 0,0916*   | 0,021     | -0,0373*   | 0,2757*** | 0,78    | 1841 |
| 26    | Director  | Total           | t-1  | 3,6***  | 0,031      | 0,0178    | 0,0405*** | 0,0783*   | 0,0173*   | -0,019**   | 0,3493*** | 0,78    | 1611 |
| 27    | Director  | Fixed           | t    | 2,13*** | 0,0646**   | 0,1555    | 0,2051**  | 0,0798*   | 0,0209**  | -0,0661**  | 0,4507*** | 0,79    | 1841 |
| 28    | Director  | Fixed           | t-1  | 1,71*** | 0,0972***  | 0,1807    | 0,2117*** | 0,0562**  | 0,0217    | -0,0547*** | 0,4842*** | 0,77    | 1611 |
| 29    | Director  | Committee Part. | t    | 0,5***  | 0,1198**   | 0,1069**  | 0,2599**  | 0,0515**  | 0,0163*   | -0,0151    | 0,5729*** | 0,82    | 1841 |
| 30    | Director  | Committee Part. | t-1  | 0,34*** | 0,1099***  | 0,0986*** | 0,2733**  | 0,033***  | 0,0099**  | -0,0224    | 0,5849*** | 0,82    | 1611 |
| 31    | Director  | Benefit         | t    | 5,74*** | 0,025*     | 0,0536*   | 0,0989    | 0,0539*   | 0,0529**  | -0,0576*   | 0,1875*** | 0,17    | 1841 |
| 32    | Director  | Benefit         | t-1  | 5,83*** | 0,0431**   | 0,0511**  | 0,1123**  | 0,0412    | 0,0442*** | -0,0452**  | 0,1808*** | 0,16    | 1611 |
| 33    | Director  | Bonus           | t    | 6,12*** | -0,0489*   | -0,0249   | -0,0403   | 0,0123*   | 0,0146*   | -0,0009*   | 0,1598*** | 0,1     | 1841 |
| 34    | Director  | Bonus           | t-1  | 5,45*** | -0,0062    | -0,0262   | -0,0257   | 0,0318*   | 0,0239*** | -0,0151**  | 0,2089*** | 0,14    | 1611 |
| 35    | Director  | Equity          | t    | 4,76*** | -0,0245*   | -0,024    | 0,047     | 0,0483    | 0,0223*   | -0,0057**  | 0,2593*** | 0,18    | 1841 |
| 36    | Director  | Equity          | t-1  | 4,63*** | -0,0491    | -0,0222   | 0,0544    | 0,0514    | 0,0237**  | -0,0069**  | 0,2694*** | 0,18    | 1611 |
| 37    | Above Me. | Total           | t    | -0,93** | 0,1118**   | 0,0861**  | 0,1715**  | 0,1672**  | 0,0636*   | 0,1097**   | 0,3723*** | 0,66    | 1841 |
| 38    | Above Me. | Total           | t-1  | 4,43*** | 0,21***    | 0,0747*** | 0,1964*** | 0,0996*** | 0,0525**  | 0,0963***  | 0,3517*** | 0,76    | 1611 |
| 39    | Above Me. | Fixed           | t    | 1,04*** | 0,0309**   | 0,217*    | 0,1221**  | 0,1085*   | 0,0631    | 0,1949**   | 0,5082*** | 0,79    | 1841 |



| Model | Member    | Comp. Type      | Time | COST    | RET        | ROA       | Asset     | Tenure    | sq_BS     | Gini       | Lag_Comp. | R2 Adj. | N    |
|-------|-----------|-----------------|------|---------|------------|-----------|-----------|-----------|-----------|------------|-----------|---------|------|
| 40    | Above Me. | Fixed           | t-1  | 1,28*** | 0,0351     | 0,2145*** | 0,1085*** | 0,1075*** | 0,0658**  | 0,1846***  | 0,5154*** | 0,79    | 1611 |
| 41    | Above Me. | Committee Part. | t    | 3,8***  | -0,0017*   | 0,0606    | -0,1215   | 0,0321    | -0,0264   | 0,0272     | 0,3312*** | 0,31    | 1841 |
| 42    | Above Me. | Committee Part. | t-1  | 4,47*** | -0,0102*   | 0,0406**  | -0,1129   | 0,033     | -0,0301*  | 0,0214     | 0,2815*** | 0,26    | 1611 |
| 43    | Above Me. | Benefit         | t    | 7,28*** | -0,0215    | 0,0565*   | 0,1524**  | 0,0467**  | 0,0309**  | 0,0888     | 0,0744*** | 0,11    | 1841 |
| 44    | Above Me. | Benefit         | t-1  | 6,97*** | -0,0127    | 0,0539**  | 0,1332    | 0,0172*** | 0,0229*** | 0,0748     | 0,0982*** | 0,1     | 1611 |
| 45    | Above Me. | Bonus           | t    | 2,52*** | 0,1002**   | 0,1961**  | 0,1934**  | 0,1141**  | 0,1735*   | 0,1154**   | 0,2674*** | 0,49    | 1841 |
| 46    | Above Me. | Bonus           | t-1  | 3,16*** | 0,0481***  | 0,191**   | 0,1563*** | 0,1318*** | 0,1463*** | 0,1032***  | 0,3718*** | 0,49    | 1611 |
| 47    | Above Me. | Equity          | t    | 1,54*** | 0,1415**   | 0,1387**  | 0,1346**  | 0,0577*   | 0,0676*   | 0,0692**   | 0,3778*** | 0,38    | 1841 |
| 48    | Above Me. | Equity          | t-1  | 2,38*** | 0,1075***  | 0,1074*** | 0,148*    | 0,0506*** | 0,0719**  | 0,0575***  | 0,4313*** | 0,46    | 1611 |
| 49    | Below Me. | Total           | t    | 2,07*** | 0,048      | 0,0177    | 0,0278**  | 0,1099    | 0,0168*   | -0,0314*   | 0,4298*** | 0,6     | 1841 |
| 50    | Below Me. | Total           | t-1  | 3,89*** | 0,0279     | 0,0205    | 0,0365*** | 0,0939*** | 0,0138*** | -0,0159*   | 0,3192*** | 0,72    | 1611 |
| 51    | Below Me. | Fixed           | t    | 1,3***  | 0,0581**   | 0,1788*   | 0,1846**  | 0,0958**  | 0,0167    | -0,0556**  | 0,5131*** | 0,75    | 1841 |
| 52    | Below Me. | Fixed           | t-1  | 1,39*** | 0,0875***  | 0,2078*   | 0,1906*** | 0,0675*** | 0,0174*   | -0,0459*** | 0,5094*** | 0,72    | 1611 |
| 53    | Below Me. | Committee Part. | t    | 0,41*** | 0,1078**   | 0,1229**  | 0,2339**  | 0,0619**  | 0,0314*   | 0,0127     | 0,58***   | 0,81    | 1841 |
| 54    | Below Me. | Committee Part. | t-1  | 0,37*** | 0,0989***  | 0,1133**  | 0,246**   | 0,0396*** | 0,0079*   | 0,0188     | 0,583***  | 0,81    | 1611 |
| 55    | Below Me. | Benefit         | t    | 4,51*** | 0,0225*    | 0,0617*   | 0,089     | 0,0647**  | 0,057**   | -0,0484*   | 0,2779*** | 0,29    | 1841 |
| 56    | Below Me. | Benefit         | t-1  | 4,81*** | 0,0387**   | 0,0588    | 0,1011**  | 0,0495*   | 0,0548*** | -0,0379**  | 0,2566*** | 0,24    | 1611 |
| 57    | Below Me. | Bonus           | t    | 3,79*** | -0,044**   | -0,0286   | -0,0363   | 0,0232    | 0,0092*   | -0,0007    | 0,3301*** | 0,3     | 1841 |
| 58    | Below Me. | Bonus           | t-1  | 3,47*** | -0,0056*** | -0,0301   | -0,0231   | 0,0296*** | 0,0204*** | -0,0127    | 0,3551*** | 0,34    | 1611 |
| 59    | Below Me. | Equity          | t    | 3,89*** | -0,022*    | -0,0276   | 0,0423    | 0,0213    | 0,0179*   | -0,0048*   | 0,3154*** | 0,24    | 1841 |
| 60    | Below Me. | Equity          | t-1  | 5,61*** | -0,0442*   | -0,0256   | 0,049     | 0,019     | 0,019***  | -0,0058**  | 0,1958*** | 0,14    | 1611 |
| 61    | Board     | Total           | t    | 0,32*** | 0,0799*    | 0,0342**  | 0,0996    | 0,1386    | 0,0402**  | 0,0706*    | 0,4419*** | 0,61    | 1841 |
| 62    | Board     | Total           | t-1  | 2,26*** | 0,119**    | 0,0271    | 0,1164*** | 0,0967*** | 0,0332*** | 0,0561     | 0,4292*** | 0,71    | 1611 |
| 63    | Board     | Fixed           | t    | 0,86*** | 0,0445*    | 0,1979**  | 0,1533**  | 0,1021**  | 0,04      | 0,0697     | 0,5457*** | 0,78    | 1841 |
| 64    | Board     | Fixed           | t-1  | 0,86*** | 0,0613*    | 0,2112    | 0,1496*** | 0,0875*** | 0,0416    | 0,0694     | 0,547***  | 0,77    | 1611 |
| 65    | Board     | Committee Part. | t    | 0,4***  | 0,0531*    | 0,0917**  | 0,0562*   | 0,047**   | 0,0067    | 0,0199     | 0,5811*** | 0,82    | 1841 |
| 66    | Board     | Committee Part. | t-1  | 0,71*** | 0,0444*    | 0,077     | 0,0666**  | 0,0363*** | 0,0111*   | 0,0201     | 0,5575*** | 0,8     | 1611 |
| 67    | Board     | Benefit         | t    | 6,44*** | 0,0005*    | 0,0591*   | 0,1207*   | 0,009     | 0,0196*   | 0,0686     | 0,1361*** | 0,16    | 1841 |
| 68    | Board     | Benefit         | t-1  | 6,8***  | 0,0131**   | 0,0564*** | 0,1171*   | 0,0162    | 0,0145**  | 0,0564     | 0,1103*** | 0,2     | 1611 |
| 69    | Board     | Bonus           | t    | 6,44*** | 0,0281*    | 0,0838*   | 0,0786**  | 0,09      | 0,1097*   | 0,0573     | 0,1361*** | 0,16    | 1841 |
| 70    | Board     | Bonus           | t-1  | 6,8***  | 0,0213**   | 0,0805    | 0,0666*   | 0,096***  | 0,0925    | 0,0453     | 0,1103*** | 0,2     | 1611 |
| 71    | Board     | Equity          | t    | 3,59*** | 0,0597*    | 0,0556    | 0,0885    | 0,0578    | 0,0428    | 0,0322     | 0,3161*** | 0,27    | 1841 |
| 72    | Board     | Equity          | t-1  | 3,05*** | 0,0317*    | 0,0409    | 0,0985**  | 0,0562**  | 0,0454    | 0,0259*    | 0,373***  | 0,43    | 1611 |

Notes: \*Significant at 10%, \*\*significant at 5%, \*\*\*significant at 1% level. Models are estimated using panel data analysis with WLS whit robust standard errors and errors term of each model is normally distributed and no autocorrelated. The estimates are robust as each specification is corrected by White diagonal standard errors and covariance. Constants are rounded to the unit, while to capture more details the others regressors are rounded to four decimal places. The 'time' column shows whether the regressors in the following columns are at time (t) or lagged by one year (t-1). All of the variables are described in Table.

## Final comments

The purpose of this dissertation is to examine the relationship between directors' remuneration and firm performance using a different corporate governance model setting. Specifically, the first chapter makes an empirical contribution to the current debate in the literature on the need to place greater emphasis on the stewardship objective of the annual report. The innovative approach of the research is to use a more comprehensive corporate governance model than that used in the literature. While other studies use agency models in which only the CEO is present, the model examined takes into account the characteristics of each individual board member. This consideration is crucial because the results show that accounting information fulfills the dual function of providing information for both valuation and stewardship decisions only when "top" board members are considered, whereas when "not top" board members are considered, accounting information fulfills only the valuation purpose and not the stewardship purpose. The results also show that "top" directors are those who receive a higher percentage of variable incentives. These results support the agency theory that providing variable incentives is important to align the interests of agents and principals.

Another contribution to the literature is the finding that board members respond differently to different components of compensation. In particular, compensation for committee membership appears to be a significant and positive form of compensation for firm performance only for "non-top" board members. The variable incentives for "top" directors, both short and long term, are a form of compensation that are positively and significantly associated with firm performance.

Given the importance of this issue, future research exploring the role of adopted corporate governance models and their impact on financial performance in other countries systems would be useful.

In conclusion, this essay demonstrates in an innovative way the role of corporate governance models in firm performance and board compensation.

## Acknowledgement

First and foremost, I wish to thank my advisors, Professor Paola Ramassa and Professor Marco Mazzoli. Both have been sources of inspiration for me. They have also been constantly encouraging me, motivating me, and providing mental support in times of my depression and struggle with life and research. They provide enormously insightful feedback on my research ideas and papers. I may not live up to their expectation of high-quality research, but that inspires me to polish my papers and maintain a high standard for future research. I also thank them for being flexible with my working hours.

Thanks to Marco's enormous patience, which I had the opportunity to test as my bachelor's, master's, and now doctoral thesis supervisor.

Thanks to all Professors of the Phd in Economics and Political Economy for all the insights and tools that helped me in my research. Thanks to Simone Lombardini for his valuable advice and food for thought. Thanks also to my 35th PhD cycle colleagues.

I also want to express my deep gratitude to my family, my sister, and especially my parents. They have been a great model to me, in terms of perseverance, honesty, humility, and diligence. I really hope they can be proud of me for the achievements I have made and the potential contributions I can bring up to society. Whatever goals I have ever achieved, I owe solely to them who believed in me, let me make my own mistakes, and, despite everything, supported and loved me far beyond the best I could have ever wished for.

Thanks to all my friends, especially Francesco and Ricardo. Thank you for always understanding me and learning to accept me for who I am.

Last but not least, thanks to Veronica, thank you for making me feel like a man I can be proud of and for believing in me from day one.