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The impact of institutional ownership on the level and structure of busy directors' compensation:

Evidence from S&P 1500

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Abstract

The purpose of this empirical research is to examine the relation between institutional ownership and busy directors' compensation. I use panel data on S&P 1500 companies to identify the monitoring influence of institutional investors on the pay systems of busy directors that govern firms. Overall, the main findings of this examination show that the greater the institutional ownership within the firms, the less the busy directors' total compensation is, and the more the part of equity they receive in their compensation. Interestingly, institutional influence is stronger in both size and significance for busy directors than non-busy ones. Collectively, my findings validate that institutional investors act as a governance mechanism that can help reduce potential agency costs. More specifically, my analysis highlights the role of institutional investors in shaping the composition of the compensation of prestigious directors, as drastic monitoring devices. Thus, institutional investors seem to act as an important force of external governance.

Keywords: Busy directors; institutional ownership; compensation; corporate governance

Table of Contents

1. INTRODUCTION

Dealing with the aftermath of the big scandals of Enron, Qwest, WorldCom and Parmalat, as well as the ongoing concerns about corporate governance, boards have been at the focus of the policy debate, governance investigations and considerable academic research. In response to these turbulent events, the US government introduced the SOX[1] and several stock exchanges, like the NASDAQ[2] and NYSE[3], changed the boards' listing requirements. Consequently, boards have become larger, more independent, have more responsibilities, meet more often, and generally have become more "mature" (Linck et al., 2009). Recently, the scandals of Uber and Wells Fargo have opened again the discussion of lawmakers for stronger board oversight and raised vigilance by the directors. Directors' role is vital for a sound governance system, since in a way they act as internal controllers to ensure the well-functioning of the firms as well as the continuity of shareholders' value (Adams et al., 2010).

The number of directorships a person holds is a major determinant of the effectiveness of the director to a given firm, yet there is no regulatory or exchange standard limit, on number of directorships one can hold. The monetary benefits that these directors gain by taking an additional directorship are more than enough to provide a reason why these directors became overboarded in the first place (Andres et al., 2013).[4] Throughout this study I consider outside directors[5] "busy", if they sit on three or more boards, which is consistent with prior work by Core et al. (1999), Ferris et al. (2003) and Fich and Shivdasani (2006). Busy directors are in fact chosen to be on multiple boards precisely because of their high ability. They provide a variety of advantages to the firms that they serve on such as, superior advising capabilities, a wide network of connections, and valuable experience. A concern often voiced about this arrangement is that such directors also come with the obvious cost of having less time to spend with the firm and not enough effort to devote to every board. Consequently, the effectiveness of such "busy" directors has become an active area of both academic and corporate interest (Adams et al., 2010).

Whether holding multiple directorships impairs an individual director's ability to monitor management, has become a controversial topic that has spawned proposals for governance reform. It is true that busy directors' behaviour has changed since the passage of SOX, in 2002, in that directors are less likely to miss board meetings post-SOX (Jiraporn et

[1] Sarbanes–Oxley Act of 2002, Pub.L. 107–204, 116 Stat. 745, enacted July 30, 2002
[2] NASDAQ is an electronic exchange marketplace for buying and trading securities.
[3] The New York Stock Exchange (NYSE) is the world's largest stock exchange.
[4] The terms "overboarded" and "busy" are used interchangeably in my thesis.
[5] An outside director is a member of the board of directors who is unaffiliated with the company.

al., 2009b) and in general they are motivated to act more responsibly (Jiraporn et al., 2009a). It is important to highlight that the determination of compensation most likely changed accordingly after the SOX act and the SEC amendments[6] in 2006. Nonetheless, the existing literature has provided largely inconsistent results regarding these specific directors. Despite the growing tendency in the last years to limit the number of directorships held, sometimes implemented in the form of official resolutions, the importance of the so-called busy directors may still be salient. The importance lies on how to best exploit their advantages but at the same time incentivise them to act as proper monitors. The answer might be hiding in the ownership equity of the firm. As a class, large shareholders have a unique reason to monitor the success of the firms in which they invest and improve their performance; to ensure that they also reap economic rewards by their investment (Shleifer and Vishny, 1986; Core et al., 1999). This perspective is echoed by institutional investors interfering and in general being more active in corporate decision-making, due to the magnitude of their ownership stakes. Based on the ongoing significance of busy directors, and in general the importance of director payment, I will analyse and evaluate the role of institutional ownership of modern firms, on the level and structure of compensation of these reputable directors. More specifically, I attempt to answer the following research question:

RQ: How does the firm's institutional ownership influence both the level and structure of busy directors' compensation?

Providing an answer to this question is important because linking firm's equity ownership with the compensation of a busy board director may provide more nuanced and informative aspects on this topic. In doing so, I provide evidence that the design of the ownership structure of a firm is of utmost importance for a better understanding of corporate behaviour and with respect to setting policy to regulate corporate activities. The study aims to speak to the call by Ferris et al. (2018) for a more insightful examination on the firm's equity ownership and its effect on busy directors.

I hypothesise that busy directors receive greater total compensation than non-busy directors and thus they are still valuable to the firm. Then I contemplate that with the presence of institutional investors of a firm, the total compensation of busy directors

[6] Securities and Exchange Comission: 17 CFR PARTS 228 and 229 "Executive Compensation and related person disclosure" [RELEASE NOS. 33-8732A; 34-54302A; IC-27444A; FILE NO. S7-03-06].

decreases, but the part of equity-based compensation increases. My sample contains information on S&P 1500 firms between 2010 and 2017. To perform my analysis, I match the board of directors' data through ISS[7] with the detailed director compensation data through BoardEx. I then merge them with firm-level information from Compustat and finally with the institutional share of ownership through Thomson Reuters 13f Institutional Holdings database. To get an all-around view, I examine the interaction of director busyness with the institutional ownership and how this affects compensation. In other words, I keep on my sample non-busy directors as well, to extend my research and not limit the conclusions drawn. A panel regression is used to investigate the main questions of this paper. I try to include as well, the most relevant control variables (e.g. firm size, board size, return on assets etc.) that prior research acknowledges.

My principal findings are as follows. Regarding statistical findings that are of academic interest, the mean institutional ownership is quite high and represents 82.9% of shares outstanding. This shows the increasing trend of institutional investors, within the biggest firms nowadays. Moreover, females on boards are encouragingly more than what previous studies find (29 per cent), board size seems to remain quite high (17 members) and average directorships per person stabilises (3.4 per directors). Using a t-test, that compares the mean values of compensation between busy and non-busy directors, I find that the former is higher than the latter. Furthermore, the correlation between institutional ownership and the natural logarithm of busy directors' total compensation is negative (-0.297, $p<0.05$). On the other hand, correlation with the percentage of equity-based compensation is positive (0.112, $p<0.05$). Those results provide a first evidence of the verification of my hypotheses but do not have enough explanatory power to draw safe conclusions.

Including director characteristics (e.g. age, gender and tenure) that can influence the compensation, my baseline findings firstly reveal that busy directors are paid 9.2% more than their counterparts. Regression results testing the second hypothesis show that the total equity position of institutional investors is negatively associated with the level of busy directors' total compensation. Statistically, my model shows that if institutional investors increase their stake by one per cent the level of total compensation of each busy director will decrease by approximately 0.43%[8]. Thus, the governance structure of the firm as in the form of institutional investors alters the directors' ability to extract excessive pay. Interestingly, I encounter a positive association between institutional investor's ownership and the

[7] ISS stands for Institutional Shareholder Services.
[8] The number is based on exponentiation and the calculation is shown on the Results section.

percentage of equity compensation. Upon testing the third hypothesis, I find that the interaction of the total ownership by institutional investors with the busy dummy is positively associated with the percentage of equity compensation of busy directors. This evidence suggests that when an institutional investor increases its stake by one per cent the fraction of equity-based compensation of busy directors increases by approximately 0.15%. Thus, institutional investors intervene on the compensation structure indirectly, since busy directors have more long-term equity-based compensation. What is more interesting is that busy directors are more impacted by a percentage increase in institutional ownership compared to non-busy ones in both regressions. The interaction term relating to busy directors and institutional ownership is greater in both size and significance than the effect in the whole sample of directors. Furthermore, my findings seem to hold on different robustness checks that I perform. In detail, when I test only for non-busy directors the effect of institutional investors is reversed. I also contemplate that the level of ownership is quite important when examining the monitoring role of institutional investors. Smaller percentages of institutional ownership do not have the same effect. Taken together, the results in this paper provide an adequate answer to the research question by showing that institutional ownership affects both the level and the structure of busy directors' compensation.

The findings of this study are contributing to the literature in the following ways. Firstly, it contributes to the literature on agency problem, corporate governance and ownership structure (e.g. Shleifer and Vishny, 1986; Bushee, 2001). Previous empirical studies mainly investigated the link between ownership structure and firm performance. However, little attention has been given to the relation between ownership structure and the level of directors' compensation and more specifically busy ones as it is examined in my study. Most researchers have addressed only the issue of the executives' compensation (i.e. CEO). Although many researchers believe that busy directors can be too distracted to provide adequate monitoring, the skills and connections of busy directors can still benefit modern companies (Ferris et al., 2018). The recent growth of large institutional investors seems to provide another distinct mechanism that can affect the monitoring not only of managers but also of prestigious directors. To my knowledge, this is the first study that examines the relation between institutional ownership and busy directors' compensation packages.

Answering my research question is important from both theoretical and practical perspectives. Based on the existing theoretical insights and empirical findings, it is hypothesised that institutional investors as "large" shareholders have a greater influence on corporate decision-making. From the theoretical perspective, despite the more dominant role

of institutional investors in the recent years, still more research is needed in how institutional ownership concentration may mitigate agency costs. I claim that institutional investor can reduce the compensation of directors that hold multiple boards and influence them on being better monitors by the use of more equity-based pay. From the point of practical relevance, this study will bring a great contribution to investors, academics, policy makers, regulators and companies in giving insight in how the institutional ownership of a firm can act as a mean to further tackle agency problems. Indeed, this thesis offers to shareholders details on which institutional structure they should promote in order to overcome the issue of disproportionately high compensation among their boards. My research highlights the importance of large institutional ownership in shaping compensation packages to ensure the proper monitoring of the firms. Finally, this study extends the busy director literature firstly by highlighting that those directors earn more than their counterparts and secondly by examining how the ownership structure of a firm affects the busy directors' compensation. In other words, showing how the allocation of ownership concentration affects director pay, using recent data discharged from unstable events. The findings of this study redound to a better understanding of the ramifications of institutional ownership in monitoring and in governance mechanisms, since it is the first study to show a direct change in the level and structure of busy directors' compensation.

The remainder of the paper proceeds as follows: Section 2, provides the theoretical background and the development of the hypotheses that I am investigating. Section 3 analyses the methodology and the research design. Section 4 presents the empirical findings, their interpretation and the validation of the formulated hypotheses. Section 5 provides some robustness tests to test the validity of the model. Section 6 discusses the limitations and presents a future research agenda. Finally, Section 7 concludes with a discussion on theoretical implications.

2. THEORITICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

The aim of this chapter is to address the theoretical underpinnings of this thesis. This research is primarily associated with two major streams of literature. More specifically, this section helps the reader understand the fundamentals of the overboarding of directors. In addition, it addresses the literature that discusses the importance of institutional ownership. Following that, it links the compensation of busy directors with the monitoring role of institutional investors to identify a possible interrelation between them. Finally, alongside with the literature review, the hypotheses are formulated.

2.1 Prior literature on the busyness of directors

Boards of directors are tasked with the critical functions of advising and monitoring management's decision making. This applies especially to strategic decisions that affect the prosperity of the company (Monks and Minow, 2004). In terms of strategic decision-making, Harris et al. (2004) find that firms with overboarded directors experience higher abnormal returns when it comes to M&A transactions[9]. It is reasonable for firms to seek outside directors that have an ability to add extra value, hinging on their above-average reputational career concerns. This reputational capital can serve as an incentive for directors to improve their monitoring, as the market penalises poor monitoring with future losses of directorships (Fos and Tsoutsoura, 2014). Consequently, the demand for these directors signals their importance and reflects their visibility (Fama and Jensen, 1983). In addition, as Mace (1971) suggests, outside directorships are valuable since they offer prestige, visibility, and commercial contracts within the firm. For example, through their social connections, directors with multiple ties gain experience and access to strategic information (Carpenter and Westphal, 2001). What is more, a positive association has been found, between the quality of the directors and the likelihood of receiving multiple board appointments (Shivdasani,1993).

Exploring the relation between busy directors and firm performance, Ferris et al. (2003) conclude that busy directors do not shirk their responsibilities while sitting on multiple boards; rather, they enhance firm value through their advisory skills. Furthermore, Field et al. (2013) find that busy directors contribute positively to young, early-stage firms, which in turn can be attributed to the substantial industry expertise of these directors. Based on the social networking theory, Omer at al. (2014) show that firms with well-connected directors experience higher market value, with the impact being stronger for independent directors. In the more recent literature, Withisuphakorn and Jiraporn (2018), examining the period of the Great Recession of 2008, encounter that busy directors can be quite beneficial during stressful times. They find that these directors improve firm performance due to the experience they possess.

Most recently, Ljungqvist and Raff (2018) claim that busy directors can be quite useful when they serve on boards that are linked with positive monitoring synergies. These positive synergies arise when the expertise gained in monitoring one firm can be transferred across other firms as well. Lastly, Ferris et al. (2018) suggest that firms can still benefit by

[9] M&A stands for mergers and acquisitions.

the knowledge and the skills of busy directors. Therefore, the demand for these directors is high due to the benefits that they provide, and this demand should be reflected on their pay. Following Ferris et al. (2018) who show that busy directors earn more than the counterparts who serve on fewer boards, in their sample of 49 different countries, I anticipate that the same will apply to the US market. More specifically, as the first premise of my thesis, I hypothesize:

H_1: Busy directors receive greater total compensation than non-busy directors.

Other studies, however, suggest that too many directorships may lower the effectiveness of outside directors as corporate monitors (Core et al., 1999; Shivdasani and Yermack, 1999).[10] This is important because monitoring by the boards of directors is one of the internal control mechanisms, within the firm, to address the agency problem (Walsh and Seward, 1990).[11] Implying that busy directors are not effective monitors, Core et al. (1999) reveal that the presence of directors who sit on multiple boards interacts with disproportionate executive compensation. Additionally, Adams and Ferreira (2008) show that directors with more directorships are more likely to have attendance problems at board meetings. They suggest that busy directors spend less time at each firm and subsequently they provide inadequate monitoring. In line with this, Jiraporn et al. (2009b) find that busier directors are more likely to miss board meetings, consistent with directors becoming over committed. Fich and Shivdasani (2006) provide further evidence showing that firms where the board consists mostly of busy directors, have weak corporate governance mechanisms and relatively poor performance. Chandar et al. (2012) report that fewer busy directors on board ameliorate financial reporting quality and Bar-Hava et al. (2013) observe positive reactions from the investors' side, when a busy director resigns from a board. In sum, researchers have long studied the differences across boards and tested whether the variance of the boards explains discrepancies in the way firms function and perform. Yet, a controlling mechanism could exist that will offset the alleged disadvantages of busy directors and potentially ensure that these board members act as their position implies.

[10] There is still no indication in the literature and is hard to define the number of directorships that can be considered "too many". However, a survey of directors by BDO USA LLP in 2016 says more than four. Rapoport Michael, 2016 "How Many Boards Is Too Many to Serve On? Survey of Directors Says More Than Four", The Wall Street Journal, October 11.

[11] Agency problem is the conflict of interest between a principal and an agent (Fama and Jensen, 1983).

2.2 Ownership structure: Institutional ownership

The ownership structure of the firm is an essential mechanism that can alleviate agency problems between managers and shareholders as well (Fama and Jensen, 1983). To mitigate potential agency costs related to the risk of expropriation by managers, shareholders may endorse different sets of monitoring mechanisms provided by different governance structures (Shleifer and Vishny, 1997). Black (1992) argues that institutions should increase their influence by holding larger stakes in companies to have a stronger monitoring role. It is important to highlight that, over time, there has been a change in the ownership structures of firms, from more diffusely held to more concentrated owned, as in the form of institutional investors. As a result, institutional investors have become the largest owners of US companies, in the recent decades (Gillan & Starks, 2003).

Institutional investors, are defined as a diverse set of organisations that include, banks and trusts, insurance companies, pension funds, investment advisors and are often described as "large" shareholders, due to the amount of shares that they hold (Croci et al., 2012; Hope, 2013). Institutional shareholders have more power and expertise over large individual stockholders (Cubbin and Leech, 1983) and are advantageous over smaller, more passive or less-informed investors (Hill and Snell, 1989), in that they can provide active monitoring at a lower cost, mainly because of their voting power. These investment professionals have strong incentives to monitor and control institutions, since they collect large pools of funds and invest large amounts in each equity (Ozkan, 2007). Moreover, the benefit they receive most likely exceeds the cost that they incur (Shleifer and Vishny, 1986). Consistent with this, Chen et al. (2007) find that institutional investors reap private benefits, regarding the information advantage that they gain, as opposed to the other shareholders. This results to two consequences: on one hand the higher the stake of institutional investors, the more interest they have in the actual condition of a firm. On the other hand, the more involvement they have, the lower the intentions of the managers are to use discretionary accrual choices (i.e. earnings management[12]) for their own purposes (Chung et al., 2002).

In addition, institutional investors can use their ownership rights not only to minimize agency problems, but also to reduce information asymmetries and maximize the shareholder value (Shleifer and Vishny, 1986). Based on the existing theoretical insights, institutional investors are viewed as an efficient form of corporate governance, due to their great influence

[12] Earnings management is an accounting method to present financial statements in a more positive way for the company.

in implementing changes for the sake of the firm as well as for their own benefit. For example, previous studies suggest that these large block holders, can even determine corporate incentive structures, including the hiring, turnover and remunerating of both executive and non-executive directors (Cosh et al., 1989; Core et al., 1999). The consequences of the role that large shareholders take on, may imply that if anyone in the firm is not performing as expected, can force shareholders on implementing changes.

2.3 Institutional ownership and director compensation

The changes in the business environment (e.g. SOX and NASDAQ), both increased the demand for qualified directors and their eagerness to serve on a board for the right price (Linck et al., 2009). It is intuitive that director compensation can act as a means of motivating directors' behaviour and aligning their interests with that of the shareholders' (Davis & Stobaugh, 1995). Therefore, it is not surprising that the importance of directors' pay has increased substantially the last years, due to the vast changes in the global market. Busy board compensation agreements can be varied on both the level and the structure. The level refers to the total amount of the compensation, whereas the structure refers to the composition of the compensation package, such as cash compensation and equity-based compensation (Geiler & Renneboog, 2010).

While most of the prior literature focuses on executive compensation, the director compensation has not received enough empirical attention, until recently. First and foremost, Ryan and Wiggins (2004) suggest that directors explicitly or implicitly determine their own pay, and this automatically raises some concerns about how much should a director be paid.[13] Dah and Frye (2017) support the notion that directors are overcompensated, along with Ferris et al. (2018) who find that, busy directors earn higher levels of compensation than the non-busy directors. However, it is important to indicate that the direction and strength of this relation can be moderated by the institutional context in which firms operate (Sánchez-Ballesta and García-Meca, 2007).

When it comes to aligning the interests of the managers, Hartzell & Starks (2003) encounter a negative relation between the ownership concentration of a firm and the amount of executive compensation. Consistent with this, Khan et al, (2005) also document a negative relation between institutional ownership concentration and the levels of CEO compensation, emphasising on the monitoring role of the large institutional investors. Thus, the ownership

[13] Solomon, Steven Davidoff, 2013, "How much to pay a director? There's no clear answer", The New York Times, November 10.

structure of the firm and more importantly a sound governance system, may hamper the directors' ability to extract excessive compensation as well. Brick et al. (2006) report an unequivocal and significant association between CEO excess compensation and directors' excess compensation. Furthermore, they find an inverse relation between the firms' future performance and the excess compensation of both the CEOs and the directors. They suggest that their findings are mainly due to "cronyism" which is an entrenchment between the CEO and the board of directors. This in turn, can lead to weak corporate governance codes. An important finding in this context and something that could vindicate the above statement, is by Cordeiro et al. (2000), who show that the compensation for both the CEO and directors is established by the same board compensation committee. Extending the work by Brick et al. (2006), Dah and Frye (2017) show that excessive director compensation is positively related to CEO total compensation. Finally, supporting the contention that overcompensation leads to less monitoring, they find that more compensation for directors reduces CEO pay-for-performance sensitivity. Overall, their results suggest that high compensation may be a sign that directors' intentions are not on par with shareholders' interests. In turn, extremely high levels of director compensation are associated with weaker board monitoring (Victoravich et al., 2012). I contend that institutional investors should be able to alter the directors' ability and especially busy ones, to extract excessive compensation. This leads to the formulation of the second hypothesis.

H_2: The greater the institutional ownership of a firm, the less the total compensation of busy directors is.

Directors, undoubtedly, have a legal duty to protect shareholders' interests. Yet, their interests are unlikely to be perfectly aligned with that of the shareholders'. Perry (2000) claims that the solution to the problem is the provision of equity incentives to the directors that could act as a controlling mechanism. Bryan and Klein (2004) find evidence that firms with greater agency problems make greater use of option compensation (i.e. part of equity-based compensation) for outside directors. According to Farrell et al. (2008), there is a trend towards a rise in the use of fixed-value equity compensation in the design of director compensation plans. Examining the compensation structure of busy corporate directors, Ferris et al. (2018) find that busy directors are compensated with more equity-based compensation than non-busy directors. Their study is the first one to use the number of directorships held by a director to explain the magnitude and structure of busy directors'

compensation. They highlight the importance of a compensation package designation that contains the appropriate mix of fixed and incentive elements to promote conscientious monitoring.

Focusing on the Real Estate Investment Trusts sector, Feng et al. (2009) find that greater institutional ownership leads to more equity-based compensation for the CEO. Similarly, Croci et al. (2012) and Fernandes et al. (2013) show that institutional investors increase the fraction of equity-based compensation. Based on the existing literature and the tendency of a collusion between managers and directors that has come to light, I argue that due to institutional investors' interference, busy directors will have more incentive-based compensation, as well. Intuitively, the third hypothesis of this study is formed as follows:

H_3: The greater the institutional ownership of a firm, the more the percentage of equity-based compensation on the total compensation, for busy directors, is.

3. METHODOLOGY

3.1 Sample and Data

The sample period of my study begins in 2010. The reason for that is twofold. Firstly, it avoids the financial crisis that started in 2007.[14] This period of economic hardship is very likely to coincide with lower compensation packages for the directors. Including data from the crisis period may not be representative of today's economic reality. Secondly, boards of directors in the USA have already complied with the drastic regulations and previous amendments to maintain market's transparency. That means in general, that the time frame that I use reflects a period that is characterized by stability. By the time this thesis was written, not all the firms have reported their financial statements of 2018. For that reason, the sample period ends in 2017, since this is the final year of available data. As an additional measure, utility, financial and public administration companies are excluded from the sample since regulatory effects are different and may lead to a more limited role for the boards (Core & Guay, 1999; Fich and Shivdasani, 2006).[15] All these factors lead to a more comprehensive and reliable sample which strengthens the validity of the results.

To conduct this research, data are available through databases within the Wharton Research Data Services system. To begin, the ISS database (formerly Riskmetrics) provides

[14] The period of recession in the US was over in June 2009 (the National Bureau of Economic Research, 2010).
[15] For example, mutual funds and government-owned business establishments have been excluded because their components are different from that of other industries (Richardson et al., 2005).

the necessary data on corporate governance and board structure. More specifically, the ISS database classifies directors into four groups, “E-employee”, “L-linked”, “I-independent” and “NA-not ascertainable”. Full-time employees of the firm are characterised as insiders. Directors that are associated with the company in any way, that were former employees, that have family or any ties with the firm and those with interlocking directorships with the CEO are classified as "gray". Directors that do not fit the description for inside or gray directors are designated as outside directors. In this study, I only make use of the “I-independent” directors (e.g. outside directors). Consequently, the rest of the directors are taken out of the sample. To classify directors as busy, I use measures of board busyness as stated by prior literature. Consistent with Fich and Shivdasani (2006), Field et. al. (2013) and Ferris et al. (2018), I consider directors busy if they are independent and hold three or more board seats. From an empirical perspective, classifying directors on three or more boards as busy, is robust and should be applied in all the relevant studies (Cashman et al., 2012). However, as an alternative measure in section 5, I also use the number of directorships outside directors’ hold for my first hypothesis.

Furthermore, compensation data, which include both cash and equity-based compensation, are collected via BoardEx. Then, I use the Compustat Fundamentals Annual database to obtain the necessary company-year level accounting and financial data for the US firms on whose boards these directors serve. Finally, the data regarding institutional ownership is retrieved from Thomson Reuters Institutional (13f) Holdings - s34 Master File. In particular, the number of shares owned per manager per firm along with the shares outstanding of each firm, are pulled from the database.

3.2 Empirical Model

In this research, I use a general panel data regression model, since the datasets consist of time-series data with a panel-structure. By doing so, I try to get rid of any unobservable heterogeneity among the firms in my sample. Furthermore, Fich and Shivdasani (2006) argue that fixed effects analysis offers more reliable estimates and controls for unobservable attributes, regarding corporate governance issues. Following that, I include year fixed effects and industry fixed effects and therefore my analysis captures the variation over time and industries and controls for any preferences institutional investors may have for specific industries. Lastly, each model is employed with robust standard errors. An attempt to ensure that my results are unlikely driven by unobservable heterogeneity.

To test the first hypothesis presented in the previous section, I firstly, make use of a t-test to examine the difference in means between the compensation of busy and non-busy directors, as a univariate analysis. Following that, I formulate my first regression model to include additional factors that may impact the relation in question.

$$LnTotalComp_{it} = \beta_0 + \beta_1 Busy + \beta_2 Tenure_{it} + \beta_3 Age_{it} + \beta_4 Boardsize + \beta_5 Gender + \beta_6 Tobin's_{Q_{it}} + \beta_7 Log\ (sales)_{it} + \beta_8 Capx_{it} + \beta_9 Roa_{it} + fixed\ effects + \varepsilon_{it}\ (1)$$[16]

On the following paragraphs I provide a thorough explanation of all the variables that I use and the assumptions that I make for these variables. A list of all the variable definitions that I use in this study and the source that I employed, is also provided in the Appendix. Moreover, the theoretical framework of my study, is also presented by incorporating a predictive validity framework (i.e. "Libby boxes"). Nonetheless, the main objective of this study is to investigate the influence of institutional ownership on the level and structure of busy director's compensation. To get more comparable results, I do not exclude non-busy directors, which would narrow the scope; rather I test how busyness interacts with institutional ownership (BI is the interaction variable). To empirically test the other hypotheses, this study employs the following regression models, for the second and third hypothesis respectively:

$$LnTotalComp_{it} = \beta_0 + \beta_1 Inst_{ratio_{it}} + \beta_2 Busy + \beta_3 B * I + \beta_4 Tenure_{it} + \beta_5 Age_{it} + \beta_6 Boardsize + \beta_7 Gender + \beta_8 Tobin's_{Q_{it}} + \beta_9 Log\ (sales)_{it} + \beta_{10} Capx_{it} + \beta_{11} Roa_{it} + fixed\ effects + \varepsilon_{it}\ (2)$$

$$EquityPercent_{it} = \beta_0 + \beta_1 Inst_{ratio_{it}} + \beta_2 Busy + \beta_3 B * I + \beta_4 Tenure_{it} + \beta_5 Age_{it} + \beta_6 Boardsize + \beta_7 Gender + \beta_8 Tobin's_{Q_{it}} + \beta_9 Log\ (sales)_{it} + \beta_{10} Capx_{it} + \beta_{11} Roa_{it} + fixed\ effects + \varepsilon_{it}\ (3)$$

[16] The firm and the time period are represented by the subscript ''i'' and ''t'', respectively.

As per the accurate interpretation of my models, it is important to include an explanation of the log-linear model:

$$(ln)y = \alpha + \beta Xi + \varepsilon i$$

A one-unit increase in X will produce an expected increase in log Y of β units. In terms of Y itself, this means that the expected value of Y is multiplied by e^{β}. The natural way to do this is to interpret the exponentiated regression coefficients exp(β), since exponentiation is the inverse of logarithm function. For small values of β, approximately $e^{\beta} \approx 1+\beta$.

On the other hand, in a log-log regression model:

$$(ln)y = \propto + \beta(ln)Xi + \varepsilon i$$

the data are presented in terms of relative differences rather than absolute differences. In economic terms, this interpretation of the dependent variable (Y) is expressed as:

$$\%\Delta Y = \%\Delta X * \beta$$

3.3 Busy Director Compensation

The main dependent variable of my study is the total compensation of busy directors that I use in hypothesis 1 and 2. In general, a compensation contract consists of different components; the most common components are salary, cash bonus, restricted stock and stock options (Murphy, 1999). Restricted stock and stock options can be translated as equity-based compensation and establish a direct link between CEO wealth and the shareholder value (Bryan et al., 2000). In hypothesis 3 though, I use the part of the compensation that is equity-based. BoardEx database provides compensation data in various forms. The total cash compensation consists of an annual salary, bonus, pension, and other annual ad hoc payments. For firms that offer their directors equity-based compensation, the value of stocks and options granted, is included. The sum of these two elements is the total compensation of the busy directors. Finally, to reduce the influence of observations on tail and size distribution, I use the logarithmic transformation to all compensation types. This has been used extensively by the CEO compensation literature (Croci et al., 2012; Boye et al., 2017; Alves et al., 2016), as well as by the corresponding one of directors (Farrell et al.,2008; Dah and Frye, 2017; Ferris et al., 2018).

3.4 Main Independent Variable

For hypothesis 1, the independent variable is a busy dummy, which takes the value one if a director is busy and zero otherwise. I predict that this variable would be positive for hypothesis 1, suggesting that busy directors earn more than their counterparts. Nonetheless, the primary variable of interest in my regressions is the institutional ownership, which represents the equity position held by all institutional investors in the firm (Ozkan, 2007; Croci et al., 2012; Khan et al., 2005). It is measured as the total shares held by institutional investors divided by firm shares outstanding. The result is a ratio of total institutional holdings in every firm. Using the interaction between these two independent variables (i.e. institutional ownership and busy dummy) and based on the theory and the hypotheses that were formed in Section 2, I predict that the coefficient of interest (i.e. B*I) would be negative in hypothesis 2 and positive in hypothesis 3. This would imply that the greater the institutional ownership within the firms, the less the busy directors' total compensation would be, and the more the component of equity they would receive in their compensation. Lastly, it is important to highlight that there are some cases, due to amiss with the data, in which the institutional holdings are more than 100 per cent. Obviously, investors cannot hold more than 100 per cent of a company's outstanding shares and for that reason these observations are deleted.

3.5 Control Variables

For the purpose of dealing with other factors that may affect the association that is examined, control variables are added. The detailed inclusion of control variables, after a comprehensive review of prior literature, will help diminish any omitted variables and hence increase the validity of my results. To control for firm characteristics, the variables employed were chosen due to their prevalence in prior literature. More specifically, to measure firm complexity, I include firm size (log of sales). Moreover, I control for profitability (Roa) and firm growth opportunities (Tobin's Q) respectively (Brick et al., 2006; Croci et al., 2012; Khan et al., 2005; Ozkan, 2007).[17] Theory suggests that the level of compensation is an increasing function of the company's performance and company's size (Brickley et al., 1988; Core et al., 1999). In addition, organizations with higher growth opportunities may be willing to pay higher compensation. (Dah and Frye, 2017). To capture the need for monitoring, I use capital expenditures. Firms with high levels of capital expenditures would suggest great monitoring

[17] The measures in the brackets are all proxies for each control variable respectively.

by directors and thus greater compensation for them (Dah and Frye, 2017). Finally, it is important to note that, to control for the firm size, a natural log of the total assets is used to additionally control for the inherent skewness.[18]

Following Field et al. (2016), I include director gender because the literature has suggested a pay gap between female and male directors.[19] Consistent with Core et al. (1999) and Bryan and Klein (2004), I also add director age since it can influence a director's willingness to monitor. Finally, in line with prior literature, I add director's tenure. I contemplate that age and tenure may influence the directors' ability to obtain excess payments. I expect that older directors will likely be more experienced and powerful and thus associated with greater compensation. Such directors may be more knowledgeable in general but more risk averse. Thus, older directors may be able to extract greater compensation but would likely prefer cash-based pay. A similar logic might suggest that directors with shorter tenures may be less likely to extract excess compensation. However, Linck et al. (2009) highlight that new directors may receive greater compensation, mainly because on one hand there is a shortage in qualified directors and on the other hand the workload of these directors has been increased. Finally, since I am dealing with board characteristics, I include board size (Fich and Shivdasani, 2006; Coles et al., 2008). Dah and Frye (2017) find that board size is negatively associated with the compensation. Their result is based on the premise that larger boards might face coordinating problems and in turn are not able to negotiate better pay terms.

4. RESULTS

4.1 Sample Summary Statistics

To gain additional understanding of trends in compensation I provide, in Table 1, a sample distribution of director-year observations across time. More specifically, in Panel A average total compensation increases from $1,250,000 in 2010 to $1,490,000 in 2017 for a total increase of approximately 19 per cent. While the total compensation increases substantially over time, I do not obtain the same pattern for the percentage of equity-based compensation. The use of equity-based compensation shows stability, in general, ranging from a low 62.1% in 2011 to a peak of 66.6% in 2017, as depicted in Panel B. The percentage though is quite significant and shows the continuous importance of linking pay to performance, by the firms.

[18] Ferris et al. (2003) argue that firm size might act as a proxy for intensity of board monitoring.
[19] Carter et al. (2017) find significant pay gaps between female and male executives as well.

In addition, an important aspect to delve into, is that the total compensation distribution hits its highest point in 2013 ($1,954,000) but flattens out quite rapidly in the final years of the sample. An explanation for that could be the constant focus of media attention, in the last years, along with the emerging interest of researchers, which has led to a surge in scrutinizing directors' compensation. Panel C shows that institutional ownership remains quite steady for the period that I examine. Nonetheless, the percentage of shares that institutional investors possess is quite high. Lastly, A graphical representation of the above information is also provided in Figure 1 and Figure 2.

Table 1: Busy directors' compensation across sample years

This table presents the distribution of the director-year observations and director compensation.

Panel A: Total Compensation across years (in '000 USD) S&P 1500

Data Year	N	Mean	Median
2010	2,370	1,250	273
2011	2,391	1,285	278
2012	2,447	1,258	295
2013	2,487	1,954	317
2014	2,527	1,555	305
2015	2,592	1,443	295.5
2016	3,099	1,641	338
2017	3,190	1,490	346

Panel B: % of equity-based compensation across sample years S&P 1500

Data Year	N	Mean	Median
2010	2,266	0.644	0.626
2011	2,302	0.621	0.600
2012	2,388	0.630	0.606
2013	2,418	0.657	0.628
2014	2,422	0.645	0.617
2015	2,522	0.630	0.599
2016	3,003	0.654	0.623
2017	3,095	0.666	0.634

Panel C: % of institutional ownership across years S&P 1500

Data Year	N	Mean	Median
2010	1,089	0.826	0.860
2011	1,049	0.830	0.864
2012	1,102	0.832	0.865
2013	1,137	0.826	0.864
2014	1,157	0.822	0.871
2015	1,138	0.816	0.862
2016	1,420	0.836	0.869
2017	1,543	0.827	0.851

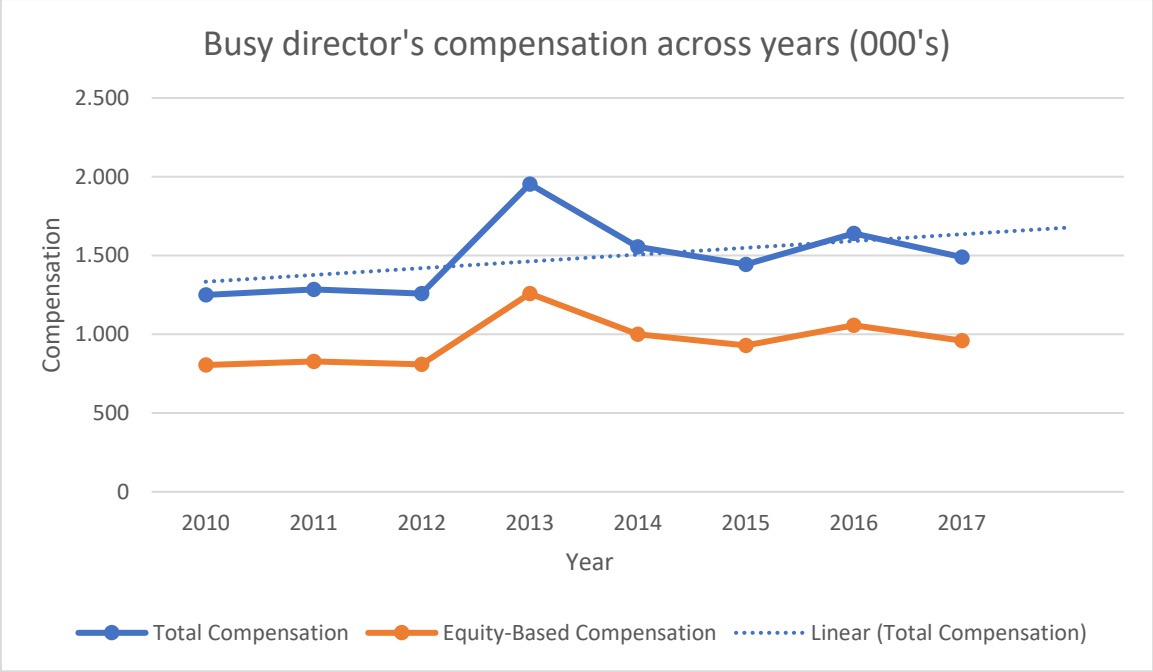

Figure 1: Total and equity-based compensation

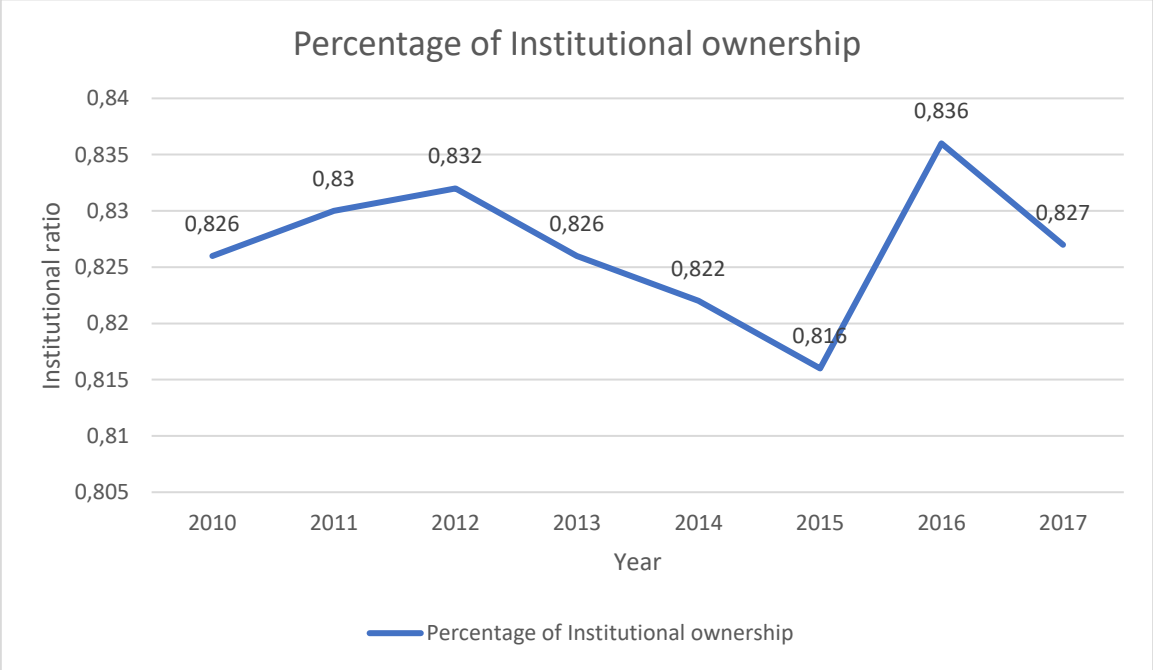

Figure 2: Institutional ownership

Table 2 presents the descriptive statistics of compensation, institutional ownership, board and firm characteristics for the companies in my sample, including means, medians, standard deviations, minimum and maximum values. Firstly, the mean (median) total compensation for the busy directors yields $1,518,442 ($482,000), while the equity-based compensation constitutes 63.7% of the total compensation. This is considerably high compared to the 44 per cent that Ferris et al. (2018) find, while examining international companies, but in line with

the generic estimation by Yermack (2004), that more than half of the director incentives come from equity-based compensation. Shifting the attention to board structure characteristics, my sample busy directors hold a mean (median) of 3.4 (3.0) directorships, which is the exact same number with that of Ferris et al. (2018). This supports the notion that firms and directors alike, have complied with the regulations and have standardized the number of seats granted. Board size seems to be on average 17 members, almost two members more than the international panel of Ferris et al. (2018) and five members more than the US panel of Fich and Shivdasani (2006) in the late 2000s.

As per the interpretation of the summary statistics, I find that 38.3% of my sample directors are classified as busy, while the average age of directors is close to 64. The participation of females on boards shows an encouragingly higher percentage (28 per cent), by far larger than similar recent studies (Dah and Frye, 2017; Ferris et al., 2018). Both studies find that approximately only 9 per cent of their sample directors are female. Moreover, the average busy director in my sample has served on the board of directors for approximately 11.3 years, which shows that busy directors are prone to remaining in large US firms for quite a long period. The mean institutional ownership is 82.9% of shares outstanding, which is substantially higher than previous studies. For example, in their sample from 1991 until 1996, Almazan et al. (2005), find institutional holdings to be 52.2% on average. Additionally, in their sample from 1993 until 2000, Cornett et al. (2007), find that institutional ownership amounts on average 60 per cent. My result pinpoints to the increasing trend of institutional holdings within firms, in the last years.

Table 2 also provides useful summary firm characteristics. I observe that the size of my sample firms is relatively big, as total assets, market capitalization and total sales indicate. This is not surprising, since I am examining the largest US companies. As reported in Table 2, there is a large variation across the proxies for the size of the firms in my sample. For example, the average total sales are about $21.2 billion, with minimum total sales of $109 million and maximum total sales of $483 billion. The mean capital expenditures of the firms are approximately $1 billion, ranging from 0 to $3,798.500 million, while the mean leverage of 73.2% shows on average, that firms on my sample are less dependent on borrowing for their operations. As for the proxy for growth opportunities, I find that Tobin's Q value is approximately 1.6, implying that the firm's stocks are more expensive than the replacement costs of their assets and thus that the firms are overvalued, on average. Following that, return on assets has a mean value of 0.065 which suggests that the firms that are incorporated in the

sample are not so effective in utilizing their assets to extract profits.[20] Lastly, to cater for the issue of extreme outliers and after visually inspecting the variables, institutional ratio, capital expenditures, leverage, return on assets and Tobin's Q are winsorized at the 1% and 99% level.

Variables	***Mean***	**Median**	**Std. Dev.**	**Min**	**Max**
BusyDirector					
Compensation					
Total compensation (in '000 USD)	1,518.44	482	5,543.69	1	2,111.22
Total compensation (Logarithmic transformation)	6.303	6.178	1.058	0	12.261
Equity-based compensation (%)	0.64	0.62	0.16	0.08	1
Institutional ownership					
Inst_ratio	0.83	0.86	0.14	0.01	1
Top5ratio	0.31	0.30	0.78	0.00	0.94
Largestratio	0.12	0.10	0.38	0.00	0.56
Board Characteristics					
Directorships per director	3.43	3	0.68	1	7
Board size	16.76	16	9.72	4	28
Busy Director	0.38	0	0.47	0	1
Female Director	0.29	0	0.39	0	1
Age	63.72	64	6.55	33	90
Tenure	11.36	11	6.38	0	48
Firm-specific measures					
Total assets (in mil. USD)	23,902.40	9,223.30	42,647.02	88.447	37,531.90
Market Capit.(in mil. USD	33,404.28	12,536.32	65,200.40	85.730	790,050.10
Sales (in mil. USD)	21,202.88	7,509	44,212.93	109.283	483,521
Capex (in mil. USD)	1,077.34	265.410	3,016.842	0	3,798.50
Tobin's Q	1.63	1.27	1.36	0.97	16.42
Leverage	0.73	0.57	9.73	-154.51	264.72
Return on assets (*ROA*)	0.07	0.07	0.07	-0.77	0.37

4.2 Univariate analysis

In this section, I will discuss the univariate analysis which consists of pairwise correlations between the variables and a t-test to examine the effect of director busyness on their compensation.

[20] It is important to state that descriptive statistics are useful as they give a basic analysis of the firms examined, but their explanatory power is not very high, since the sample includes many different industries.

4.2.1 Correlations

Initially, Table 3 reports the correlation between the variables that are employed in this study, however in my sample I include only busy directors, since this is the main interest of this study. The correlations between the variables provide the first evidence on the association between them. As can be seen, the institutional ownership is negatively correlated with the natural logarithm of busy directors' total compensation and positively correlated with the percentage of equity-based compensation. More specifically, the correlation between institutional holdings and total compensation is -0.297 ($p<0.05$) and between institutional holdings and the percentage of equity-based compensation is 0.112 ($p<0.05$). These findings point to the direction and are consistent with the proposed second and third hypotheses. Furthermore, the natural logarithm of sales, the return on assets and Tobin's Q are all positively correlated with both the dependent variables of my hypotheses. On the contrary, age, tenure and gender are negatively correlated with both. To conclude, it is also necessary to mention that the correlation matrix also validates that my model is not susceptible to multicollinearity issues, since none of the correlations between the independent variables are high.

Table 3: Pairwise correlation matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) LnTotalComp	1.000								
(2) Equity Percent	0.376*	1.000							
(3) Inst_ratio	-0.297*	0.112*	1.000						
(4) Age	-0.094*	-0.177*	0.013*	1.000					
(5) Gender	-0.041*	-0.012*	-0.014*	-0.265*	1.000				
(6) Tenure	-0.055*	-0.115*	-0.056*	0.344*	-0.139*	1.000			
(7) Log (sales)	0.202*	0.006	-0.386*	-0.000	0.043*	-0.044*	1.000		
(8) Roa	0.058*	0.029*	-0.127*	0.029*	-0.004	0.085*	0.131*	1.000	
(9) Tobin's Q	0.054*	0.153*	-0.143*	-0.035*	0.022*	0.006	-0.131*	0.394*	1.000

This table reports correlations of the variables used in the regression analysis for the period 2010-2017. The sample contains only busy directors. The natural logarithm of total compensation (LnTotalComp) is the dependent variable of my second hypothesis and the percentage of equity-based compensation (EquityPercent) the dependent variable of my third hypothesis. Inst_ratio is the main independent variable of both the hypotheses. * shows significance at the 5% levels.

4.2.2 Busyness and Compensation

In order to examine the first hypothesis and following Ferris et al. (2018), I provide in Table 4 the average values of the log of total compensation for busy and non-busy directors. To present an initial assessment of the first hypothesis, I compare the mean values of compensation across busyness status. The mean value of the log of total compensation for busy directors is 6.174, while the mean value of the log of total compensation for non-busy

directors is 6.033. The difference (0.141) is statistically significant in 1% level (p<.0001). This finding is in line with my expectation, since directors who sit on more boards are perceived as better connected and more skilled than their counterparts. Therefore, these directors are paid more. These findings, however, are only exploratory in nature and do not include firm-specific controls and characteristics that can influence compensation. I provide a more thorough multivariate analysis in the following section.

Table 4: Comparative Compensation for Director Busyness
This table presents the level of compensation across busyness status. In detail, it reports busy directors' compensation, in comparison with the non-busy directors. Director busyness is measured using a busy binary variable that equals one if a director sits on three or more boards. *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Please note that this sample contains all the directors that I could find and classify as busy and non-busy from ISS database, and is not the same as the one that is used for the regressions. It offers a more general intuition.

Director Compensation	Log (Total compensation (in USD))		
	Mean	**Standard Deviation**	***N***
Busy	6.174	0.990	7,390
Non-busy	6.033	1.243	13,713
Diff (busy – non-busy)	0.141***		
p-value	<.0001		

4.3 Multivariate analysis

4.3.1 Busy Directors and Compensation

Following my first hypothesis, I test whether busy directors are highly desirable for their firms and thus compensated accordingly. As shown in column 1 of Table 5, the coefficient of the busy indicator dummy is positive and significant. However, this is just a simple regression between the dependent and the main independent variable, to provide a first understanding of the association between them but does not consider additional variables that may have an impact on the relation that is investigated. Columns 2, 3 and 4 offer a more comprehensive approach, since control variables, year fixed effects and industry fixed effects are included, respectively. The sign and the significance of the coefficients remain unchanged, verifying my hypothesis. Adding everything together and thus incorporating all the necessary aspects in my research, column 5 of Table 5, is the appropriate one to test the first hypothesis. As can be observed, the coefficient of the busy director dummy is 0.092 and significant at the 5% level. This result shows that a busy director is paid 9.5% more than a

non-busy one.[21] Based upon the sample mean (median) of the total compensation in my sample, this is equivalent to $144,252 ($45,790), supporting my hypothesis that busy directors are paid more than non-busy directors. The finding is in match with that of Ferris et al. (2018) and their panel of international countries.

Combining the findings of Field et al. (2013) that busy directors are more qualified than their counterparts and Fedaseyeu et al. (2017) that more qualified directors receive higher pay, I interpret my result as consistent with the notion that busyness is a desirable characteristic for directors. Therefore, in line with my first hypothesis, a busy director is perceived as more valuable to the firm and is compensated accordingly.

On top of that, I obtain significant results for most of the control variables. More precisely, female directors are paid less than their male peers. In fact, the difference is quite high, considering the value of the coefficient. In detail, females are paid approximately 26 per cent less than males, in director level. The results in Table 5 also confirm the contention that firm characteristics affect director compensation. For instance, when I control for firm size, the coefficient of the natural logarithm of sales is positive and significant at the 1% level. This result suggests that bigger firms tend to pay their directors more. By the same token, Tobin's Q yields quite similar results. More complex firms, as measured by Tobin's Q, require more monitoring and thus pay higher levels of director compensation (Dah and Frye, 2017). Capital expenditures on the other hand, are statistically significant, but the economic magnitude is small. Surprisingly the age is negatively related to the total compensation, although the result is not significant enough to draw inferences. Contrary to my expectations, tenure is negatively related to the total compensation of the busy directors. This in turn might suggest that directors with shorter tenures are getting a higher salary because qualified directors are harder to find (Linck et al., 2009). Moreover, board size has a negative impact on compensation but is insignificant. This may suggest that boards with more members are difficult to coordinate when negotiating for higher compensation (Dah and Frye, 2017). Finally, profitability (Roa) seems to be on the right path; notwithstanding, it is not significant enough.

[21] It is important to note here that the economic interpretation is based on exponentiation, since the dependent variable is in logarithmic form.

Table 5: The Effect of Director Busyness on Director Compensation

This table presents the effect of director busyness on the level of directors' compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the log of total compensation. The main independent variable, director busyness, is measured using *Busy*, which is an indicator (dummy) variable that equals 1 if director is busy and 0 if not. Column 1 is a regression of the dependent variable against the main independent variable with robust standard errors, without including the control variables. Column 2 includes the control variables and columns 3 and 4 control for year fixed effects and industry fixed effects respectively. Column 5 is the main regression model for testing the hypothesis. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) LnTotal Comp	(2) LnTotal Comp	(3) LnTotal Comp	(4) LnTotal Comp	(5) LnTotal Comp
Busy	0.085***	0.105***	0.105***	0.092***	0.092***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Tenure		-0.022***	-0.020***	-0.022***	-0.020***
		(0.000)	(0.000)	(0.000)	(0.000)
Age		-0.003	-0.004	-0.003***	-0.003
		(0.211)	(0.213)	(0.000)	(0.268)
Board size		-0.034***	-0.036***	-0.009	-0.011
		(0.000)	(0.000)	(0.239)	(0.151)
Gender		-0.255***	-0.257***	-0.254***	-0.255***
		(0.000)	(0.000)	(0.000)	(0.000)
Tobin's Q		0.059***	0.053***	0.056***	0.049***
		(0.000)	(0.000)	(0.000)	(0.000)
Log (sales)		0.078***	0.076***	0.084***	0.080***
		(0.000)	(0.000)	(0.000)	(0.000)
Capx		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.000)
Roa		0.091	0.147	0.091	0.147
		(0.473)	(0.248)	(0.537)	(0.280)
Constant	6.141***	5.947***	5.895***	6.039***	6.021***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	12,877	12,843	12,843	12,843	12,843
Adjusted R-squared	0.001	0.041	0.042	0.127	0.128
Robust std error	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

P values are reported in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.3.2 Institutional ownership and busy directors' total compensation

In Table 6, estimated results from the panel regression models for directors' total compensation are documented. Particularly, institutional ownership, which is measured by the total equity position of institutional investors, is negatively associated with the level of directors' total compensation. Therefore, all directors in the sample experience a reduction in

pay for each percentage increase in institutional ownership, however this effect is insignificant. However, the interaction term relating to busy directors and institutional ownership is greater in both size and significance, showing a coefficient of -0.358, significant at the 5% level, as column 5 of Table 6 shows. Specifically, if institutional investors increase their stake by one percentage point, the level of busy directors' total compensation will decrease by approximately 0.43%[22]. This shows that busy directors are more impacted by a percentage increase in institutional ownership compared to the sample as a whole; which includes non-busy directors. Accordingly, these results lead me to accept hypothesis 2, which proposed that the institutional ownership would decrease total compensation levels of busy directors. Therefore, they can help ensure that busy directors do not expropriate excessive pay from the firm and thus from shareholders. This in turn, suggests that institutional investors act as monitors over minimizing the amount of compensation extracted by the busy directors. The rationale behind this finding is that institutional investors act as a governance mechanism and can help alleviate potential agency costs (Hartzell and Starks, 2003).

Furthermore, it is also important to mention some insightful information that can be extracted from the results of my model. To be more precise, the positive and statistically significant coefficient of the natural logarithm of sales illustrates the influence that the size of the firm can have on busy directors' total compensation. Specifically, if the log of sales increase by 1directors' total compensation increases by approximately 0.64%. Additionally, age is significantly negatively related to compensation and female busy directors have somewhat lower pay and the economic magnitude is quite large, by about 25 per cent. Lastly, the corporate governance variable, board size, is negative, but seems to not add too much explanatory power to the model.

[22] The calculation that leads to this number is $e^{0.358} - 1 = 0.43$

Table 6: The effect of Institutional Ownership on Busy Directors' Total Compensation
This table presents the effect of institutional ownership on the level of directors' compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the log of total compensation. The main independent variable *B*I* is the interaction between institutional ownership, which is measured using *Inst_ratio* and represents the total equity holdings of the institutional investors, and director busyness, measured by the dummy variable *Busy*. Column 1 is a regression of the dependent variable against the main independent variable with robust standard errors, without including the control variables. Column 2 includes the control variables and columns 3 and 4 control for year fixed effects, industry fixed effects respectively. Column 5 is the main model for testing the hypothesis and includes everything. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) LnTotal Comp	(2) LnTotal Comp	(3) LnTotal Comp	(4) LnTotal Comp	(5) LnTotal Comp
Inst_ratio	-0.144*	-0.045	-0.056	-0.095	-0.108
	(0.051)	(0.600)	(0.519)	(0.281)	(0.258)
Busy	0.459***	0.423***	0.426***	0.422***	0.424***
	(0.000)	(0.000)	(0.000)	(0.004)	(0.004)
B*I	-0.413***	-0.355***	-0.357***	-0.356**	-0.358**
	(0.001)	(0.004)	(0.004)	(0.038)	(0.034)
Tenure		-0.023***	-0.021***	-0.023***	-0.021***
		(0.000)	(0.000)	(0.000)	(0.000)
Age		-0.003	-0.003	-0.003***	-0.003
		(0.213)	(0.214)	(0.000)	(0.268)
Boardsize		-0.036***	-0.038***	-0.008	-0.011
		(0.000)	(0.000)	(0.284)	(0.172)
Gender		-0.255***	-0.257***	-0.249***	-0.251***
		(0.000)	(0.000)	(0.000)	(0.000)
Tobin's Q		0.056***	0.050***	0.057***	0.049***
		(0.000)	(0.000)	(0.000)	(0.000)
Log (sales)		0.070***	0.068***	0.069***	0.064***
		(0.000)	(0.000)	(0.000)	(0.000)
Capx		0.000***	0.000***	0.000***	0.000***
		(0.000)	(0.000)	(0.000)	(0.001)
Roa		0.092	0.144	0.122	0.174
		(0.478)	(0.273)	(0.422)	(0.210)
Constant	6.358***	6.080***	6.037***	6.256***	6.253***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations[23]	12,450	12,422	12,422	12,422	12,422
Adjusted R-squared	0.005	0.043	0.044	0.132	0.134
Robust std error	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

P values are provided in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4.3.3 Institutional ownership and busy directors' equity-based compensation

Hypothesis 3 suggests that institutional investors promote more equity-based compensation in

[23] I lose approximately 400 observations from the merging with the Thomson Reuters database and the exclusion of institutional ownership above 1.

the form of stock options and restricted stock grants, to the busy directors. Thus, there will be a positive association between institutional investors' ownership and the structure of compensation of busy directors. A closer look at the coefficient of institutional ownership in column 5 at Table 7, reveals a negative relation between the variables of interest. Therefore, all directors in the sample seem to experience a reduction in the fraction of equity for each percentage increase in institutional ownership, however this effect is insignificant and economically small. On the other hand, if I examine the interaction term relating to busy directors and institutional ownership, the influence is greater in both size and significance. More precisely, the coefficient is 0.152 whereby the effect is significant at the 5% level, as column 5 of Table 6 shows. In other words, this means that when an institutional investor increases its stake by 1 percentage point the fraction of equity-based compensation increases by approximately 0.15%. This shows that busy directors are more impacted by a percentage increase in institutional ownership compared to non-busy ones. Consistent with my expectation, institutional investors' intervention on the compensation of busy directors is in the form of more long-term equity-based compensation. Lastly, it is imperative to note that the results are getting stronger when I add both control variables and fixed effects.

What is more, busy directors' tenure is negatively associated with the percentage of equity. More precisely, if tenure increases by 1 year, the part of equity in their total compensation decreases by 0.004%. A possible explanation may be that the older these directors get, the less productive they become and ergo their compensation package is set accordingly, granted with less use of stock and stock options. I find that director age appears to have a negative impact on the percentage of equity-based compensation, as well. This is consistent with Bryan and Klein (2004) who contend that as directors contemplate retirement, they limit their long-term horizons. Based on the above, I conclude that my third hypothesis is supported, and that institutional ownership increases the fraction of equity-based compensation of buy directors. Those directors are driven, at least in part, by institutional investors in receiving more equity-based compensation.

Table 7: The effect of Institutional Ownership on the Busy Directors' Percentage of Equity Compensation

This table presents the effect of institutional ownership on the structure of director's compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the percentage of equity-based compensation. The main independent variable *B*I* is the interaction between institutional ownership, which is measured using *Inst_ratio* and represents the total equity holdings of the institutional investors, and director busyness, measured by the dummy variable *Busy*. Column 1 is a regression of the dependent variable against the main independent variable with robust standard errors, without including the control variables. Column 2 includes the control variables and columns 3 and 4 control for year fixed effects, industry fixed effects respectively. Column 5 is the main model for testing the hypothesis and includes everything. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) Equity Percent	(2) Equity Percent	(3) Equity Percent	(4) Equity Percent	(5) Equity Percent
Inst_ratio	-0.005	-0.004	-0.006	-0.004	-0.004
	(0.566)	(0.504)	(0.505)	(0.423)	(0.409)
Busy	-0.063***	-0.063***	-0.064***	-0.065***	-0.066***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
B*I	0.136**	0.138**	0.139**	0.150**	0.152**
	(0.037)	(0.027)	(0.021)	(0.019)	(0.014)
Tenure		-0.003***	-0.004***	-0.003***	-0.004***
		(0.000)	(0.000)	(0.000)	(0.000)
Age		-0.001***	-0.001***	-0.002***	-0.002***
		(0.000)	(0.001)	(0.001)	(0.001)
Boardsize		0.001	0.001	0.002	0.003*
		(0.489)	(0.367)	(0.200)	(0.087)
Gender		-0.016***	-0.015***	-0.016***	-0.015***
		(0.000)	(0.000)	(0.000)	(0.000)
Tobin's Q		0.012***	0.013***	0.010***	0.011***
		(0.000)	(0.000)	(0.000)	(0.000)
Log (sales)		-0.007**	-0.004	-0.004	-0.001
		(0.014)	(0.208)	(0.281)	(0.310)
Capx		-0.000	-0.000	-0.000*	-0.000*
		(0.205)	(0.205)	(0.091)	(0.090)
Roa		0.018	-0.004	0.019	-0.005
		(0.427)	(0.573)	(0.399)	(0.426)
Constant	0.682***	0.769***	0.757***	0.815***	0.804***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	12,104	12,080	12,080	12,080	12,080
Adjusted R2	0.045	0.092	0.161	0.168	0.157
Robust std error	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

P values are reported in parentheses

*** p<0.01, ** p<0.05, * p<0.1

5. ROBUSTNESS TESTS

In the previous section the main results were interpreted along with the acceptance of my hypotheses. On this part of the thesis, I consider a range of robustness checks of the results, to investigate whether my results hold for alternative conditions and different specifications of the main models. Following Ferris et al. (2018), I begin by using the number of directorships that outside directors hold, as an alternative measure of busyness for my first hypothesis. Column 5 of Table 8 illustrates that the coefficient of *Outdirboards* is 0.062 and significant at the 1% level. This result indicates that a director is paid 6,2% more for each additional board she acquires. This amounts to an additional $93,895 in total compensation based upon the sample mean of directors' total compensation. I get qualitatively similar results for the other variables, used in the regression, as in Table 5. As can been observed, these findings are in line with hypothesis 1, providing an additional check to the initial variable specification of the busy dummy that I chose.

Table 8: The Effect of Director Busyness on Director Compensation (Alternative measure)
This table presents the effect of director busyness on the level of directors' compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the log of total compensation. The main independent variable, director busyness, is measured using *Outdirboards* which equals the number of board seats an outside director holds. Column 1 is a regression of the dependent variable against the main independent variable with robust standard errors, without including the control variables. Column 2 includes the control variables and columns 3 and 4 control for year fixed effects, industry fixed effects respectively. Column 5 is the main model for testing the hypothesis and includes everything. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) LnTotal Comp	(2) LnTotal Comp	(3) LnTotal Comp	(4) LnTotal Comp	(5) LnTotal Comp
Outdirboards	0.061***	0.059***	0.060***	0.060***	0.062***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log (sales)		0.083***	0.084***	0.063***	0.049***
		(0.001)	(0.003)	(0.000)	(0.000)
Boardsize		-0.008	-0.009	-0.006	-0.002
		(0.573)	(0.568)	(0.615)	(0.723)
Tobin's Q		0.055**	0.050*	0.049***	0.049***
		(0.027)	(0.062)	(0.000)	(0.000)
Age		-0.003	-0.003	-0.000	-0.000
		(0.277)	(0.281)	(0.436)	(0.486)
Gender		-0.253***	-0.254***	-0.268***	-0.314***
		(0.000)	(0.000)	(0.000)	(0.000)
Capx		0.000	0.000	-0.000	-0.000
		(0.604)	(0.608)	(0.646)	(0.646)
Tenure		-0.022***	-0.020***	-0.015***	-0.013***
		(0.000)	(0.000)	(0.000)	(0.000)
Roa		0.087	0.134	-0.070	-0.030
		(0.364)	(0.248)	(0.347)	(0.455)
Constant	6.051***	5.765***	5.627***	5.631***	5.645***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	12,877	12,843	12,843	12,843	12,843
R-squared	0.041	0.190	0.142	0.317	0.317
Robust std error	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	YES	YES
Year FE	NO	NO	YES	NO	YES

P values are provided in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Thus far, the analysis used the total institutional holdings as a proxy for institutional ownership. In further regressions, equation (2) and (3), are re-estimated using the new independent variables, based on two different forms of institutional ownership concentration. First, I use the percentage of shares held by the top five institutional investors. At the same time, I repeat my analysis and examine whether the percentage of shares held by the largest institutional investor affects the level and structure of compensation (Bethel et al.,1998; Khan

et al.,2005; Victoravich et al., 2012). Then, I run the regressions of column 5 of table 6 and 7 for the different specifications of the constructs discussed above. The results contained in Table 9 seem to be somewhat consistent with the theory development. More specifically, both the ownership by the largest institutional investor and by the largest five institutional investors seems to have a positive impact on the level of busy director's compensation. In interpretation with my earlier baseline findings, this might imply that the effect of institutional investors is only visible when the number of shares they hold, and in particular their strength in monitoring, is quite high. However, it is imperative to pinpoint that these results lose their significance and thus no final conclusions should be made.

Table 9: The effect of Institutional Ownership on Busy Directors' Total Compensation (Alternative measures)

This table presents the effect of institutional ownership on the level of director's compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the log of total compensation. In column 1, the main independent variable, institutional ownership, is measured using T*op5ratio* which represents the percentage of shares held by the top five percent institutional investors. Column 2 uses the percentage of equity owned by the largest institutional investor, measured by *Largestratio*. The main coefficient of interest is their interaction with director busyness. Both models include control variables, year fixed effects and industry fixed effects. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) LnTotal Comp	(2) LnTotal Comp
Top5ratio	-0.004	
	(0.140)	
Largestratio		0.001
		(0.210)
Busy	0.353***	0.217***
	(0.006)	(0.008)
Busy*top5ratio	-0.016	
	(0.173)	
Busy*largestratio		-0.012
		(0.229)
Tenure	-0.022***	-0.022***
	(0.000)	(0.000)
Age	-0.002	-0.002
	(0.289)	(0.292)
Board size	-0.004	-0.004
	(0.747)	(0.726)
Gender	-0.258***	-0.259***
	(0.000)	(0.000)
Tobin's Q	0.050***	0.049***
	(0.003)	(0.003)
Log (sales)	0.053*	0.045
	(0.073)	(0.119)
Capx	0.000*	0.000
	(0.088)	(0.103)
Roa	0.089	0.075
	(0.505)	(0.573)
Constant	6.118***	6.296***
	(0.000)	(0.000)
Observations	12,422	12,422
R-squared	0.085	0.088
Robust std error	YES	YES
Industry FE	YES	YES
Year FE	YES	YES

P values are reported in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Furthermore, I use the percentage of shares held by the top five percent of institutional investors and by the largest institutional investors as proxies for institutional ownership, in order to test their effect on the structure of the pay. As can be observed in Table 10, my results appear to have the expected sign with those of model 4 of table 4 for alternative specifications of industries. In detail, I find that ownership by the top five investors is positively associated with the level of equity compensation. The same applies for the largest institutional investor. The signs of the coefficients verify my hypothesis, nonetheless I fail to find a significant result. Taken together and as Black suggests (1992) the level of ownership is quite important when examining the monitoring role of institutional investors.

Table 10: The effect of Institutional Ownership on the Busy Directors' Percentage of Equity Compensation (Alternative measures)

This table presents the effect of institutional ownership on the structure of director's compensation. The variable definitions are provided in the Appendix 1. The dependent variable is the percentage of equity-based compensation. In column 1, the main independent variable, institutional ownership, is measured using T*op5ratio* which represents the percentage of shares held by the top five percent institutional investors. Column 2 uses the percentage of equity owned by the largest institutional investor, measured by *Largestratio*. The main coefficient of interest is their interaction with director busyness. Both models include control variables year fixed effects and industry fixed effects. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) Equity Percent	(2) Equity Percent
top5ratio	-0.067	
	(0.223)	
Largestratio		-0.155
		(0.210)
Busy	-0.036*	-0.034***
	(0.062)	(0.009)
Busy*top5ratio	0.024	
	(0.693)	
Busy*largestratio		0.050
		(0.674)
Tenure	-0.004***	-0.004***
	(0.000)	(0.000)
Age	-0.000	-0.000
	(0.456)	(0.456)
Board size	0.002	0.002
	(0.243)	(0.255)
Gender	-0.015***	-0.015***
	(0.008)	(0.008)
Tobin's Q	0.011***	0.011***
	(0.000)	(0.000)
Log (sale)	-0.003	-0.003
	(0.491)	(0.531)
Capx	-0.000	-0.000
	(0.285)	(0.295)
Roa	-0.007	-0.006
	(0.804)	(0.845)
Constant	0.824***	0.816***
	(0.000)	(0.000)
Observations	12,080	12,080
R-squared	0.064	0.067
Robust std error	YES	YES
Industry FE	YES	YES
Year FE	YES	YES

P values are reported in parentheses

*** p<0.01, ** p<0.05, * p<0.1

To conclude, in my final robustness test, I test what is the effect of institutional ownership on the level and structure of non-busy directors. That means that I exclude busy ones, and therefore my sample decreases alongside with the comparability of this regression. Interestingly, I find that the effect of institutional ownership on the total compensation of non-busy directors is positive and on the fraction of equity negative, yet both are not significant. The explanation why institutional ownership level has a positive effect on compensation levels may be driven by the assumption that those directors are not over-compensated, have more time, less responsibilities and do not need the same monitoring. Since the effectiveness of the monitoring by the institutional investors decreases, directors may have more discretion to take compensation decisions. A possible explanation, regarding the decrease in the percentage of equity is that when the monitoring conducted by institutional investors increases, there is no need to use outcome-based compensation to improve directors monitoring (Ning et al., 2015).

Table 11: The effect of Institutional Ownership on the non-busy Directors' Total Compensation and on the Percentage of Equity

This table presents the effect of institutional ownership on the level and structure of non-busy directors' compensation. The variable definitions are provided in the Appendix 1. The dependent variable in column 1 is the log of total compensation and in column 2 the percentage of equity-based compensation. The main independent variable is institutional ownership. Both models include control variables year fixed effects and industry fixed effects. For industry fixed effects 4-digit SIC codes are employed.

VARIABLES	(1) LnTotal Comp	(2) Equity Percent
Inst_ratio	0.126	-0.002
	(0.387)	(0.371)
Tenure	-0.028***	-0.004***
	(0.000)	(0.000)
Age	-0.001**	-0.000*
	(0.037)	(0.081)
Board size	-0.008	0.001
	(0.554)	(0.557)
Gender	-0.312***	-0.017***
	(0.000)	(0.000)
Tobin's Q	0.051***	0.011***
	(0.003)	(0.000)
Log (sales)	0.030	-0.003
	(0.570)	(0.552)
Capx	0.000	-0.000*
	(0.214)	(0.094)
Roa	0.114	0.001
	(0.601)	(0.973)
Constant	6.855***	0.789***
	(0.000)	(0.000)
Observations	7,703	7,472
R-squared	0.112	0.107
Robust std error	YES	YES
Industry FE	YES	YES
Year FE	YES	YES

P values are reported in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6. LIMITATIONS/ FUTURE AVENUE

This study faces limitations mostly due to data unavailability issues or incomplete observations from the databases. First, I had to cut a lot of observations, since compensation data from Boardex were missing. Additionally, observations with institutional ownership above one were not included in my study. This means that a lot of valuable observations have been deleted due to missing or incorrect variables and could play a role in shaping the relations examined. Reiterating the underlying principle behind my results, I indicate the influence that these large institutional investors bring to the firms. In an optimal choice perspective however, it may be possible that institutional investors exhibit a selection bias. More precisely, investors could choose to invest in firms with optimal compensation packages and lower agency costs. This would provide an alternate explanation of my findings.

Another limitation of my study is that I do not distinguish between different types of institutional investors. It is reasonable to expect that different shareholders have different motivations (Gedajlovic et al., 2005). On the same page, institutional investors should not be treated as an inherently homogenous group, but instead caution should be taken, concerning the heterogeneity among these institutions (Gaspar et al., 2005; Chen et al., 2007). By aggregating all institutional owners in one group and examining their impact on the compensation plans, I ignore the fact that investors time horizons and trading strategies might differ as well (Bushee, 2001). Hence, it is safe to assume that institutional investors are defined by heterogeneity and my study can be meaningfully extended on this point, to generate further insights in the future. An interesting topic in this context could be as well, how the different types of institutional owners interact to shape compensating policies at the director level. To cater for this issue, further studies should consider the effects of specific block holder types in influencing compensation.

To obtain a more comprehensive view about the subject, further research could also focus in different settings and company sizes. For example, (Linck et al., 2009) suggest that the firms' economic stage of development may be instrumental. Their evidence is consistent with the contention that large firms need more independent monitoring than smaller firms because they have complex financial structures. Another extension might focus on a firm's maturity. In a young firm for example, monitoring demands seem to be more salient over the advising demands (Field et. al, 2013). Although my study intentionally examines only directors to get the most transparent result, researchers could also include CEOs when they

are at the same time chairman of the boards. This duality can reveal even more interesting corporate interrelations. Fracassi et al. (2012), for example find that director and CEO entrenchment can lead to weak monitoring, especially when there is an absence of strong shareholders. It would be interesting to examine how the institutional ownership affects the director and CEO ties. Finally, although I control for a variety of important determinants regarding my variables as identified in prior work, there is always the possibility of an omitted variable bias inherent in this study, which would affect the results regarding the effect on the dependent variables. All in all, there are still unexamined avenues that could play a crucial role in defining the importance of institutional investors and their effect on directors.

7. CONCLUSION/ DISCUSSION

Financial scandals and government reforms have put the board of directors on the hot seat. Previous studies provide mixed results when it comes to assessing the importance of busy directors. Extending this topic, and in line with Ferris et al. (2018) I also identify a relation between the director busyness and how this affect their own compensation, in my sample of S&P 1500 between 2010 and 2017. Busy directors are paid more than the non-busy ones. Drawing on this finding, I derive implications for their importance and their value on a firm. However, the current and persistent growth of institutional investors will undoubtedly alter the structure of capital markets and subsequently firm governance itself. As a result, it is of utmost importance to widen the common interpretation on the whole spectrum.

An examination of changes in institutional ownership across my panel is quite revealing, with an important surge on the percentage of their equity. My study departs from previous research by focusing on the interaction between institutional ownership and overboarded directors. More specifically, I try to address the issue of how the firm's institutional ownership influences both the level and structure of compensation of busy directors. Findings of this study suggest that busy directors are more impacted by a percentage increase in institutional ownership than non-busy ones. Although there are no generally accepted optimal practices for governance, the inclusion of institutional investors as the main drivers of the corporates' monitoring would disintegrate the narrow scope of the other mechanisms. Previous studies stress the role of institutional investors in monitoring the firms that they hold shares. By the same token, institutional investors seem to have a profound impact not only on firm performance and on executive managers, as multiple studies acknowledge, but also on the board of directors. Intuitively, since busy directors reap

more equity-based compensation, the conflict of interests of directors and owners of the firm might still exist. Thus, institutional investors might provide the distinct and unique mechanism as catalytic factors of firms' prosperity and stability.

My research implies that the level and structure of compensation for busy directors is contingent upon the level of the institutional ownership. Given the limited academic enquiry into the topic of the compensation of directors, let alone busy ones, an important finding in this context is that, institutional investors may have more say in compensation governance practices than even board committees themselves. The rationale behind this conclusion highlights that institutional investors with high stake of shares, serve as a check on busy directors' compensation in companies. Findings of this study show that institutional investors exert influence on minimizing the total level of pay along with shaping the structure of pay with more equity-based component, extracted from the firm. Thus, they can help ensure that those directors are acting more diligently, with the use of equity. Institutional owners seem to have the ability to conduct more interference on busy directors' compensation decisions.

In order to clarify, in a more transparent way, the consequences of institutional investors in monitoring, one would consider that the rise of institutional investing is likely to affect not only managers, but also prestigious directors. Those directors can still bring their benefits and contribute to firms' advantage, while being appropriately disciplined and overseen. Recently, Withisuphakorn and Jiraporn (2018) encourage the corporate environment to be more cautious and sceptical when blaming the busy directors as harmful factors for the companies. The focus of shareholders should not be in how many boards each director sits, but rather if that director is sufficiently oversighting and performing. With the better understanding of the factors that influence the compensation of busy directors that my study provides, government institutions and corporate policy makers can take wiser decisions related to overboarded directors. As institutional investors are more likely to engage in efficient monitoring as a way of influencing the entire firm, their possible intervention of the compensation of busy directors, is deemed too important to neglect.

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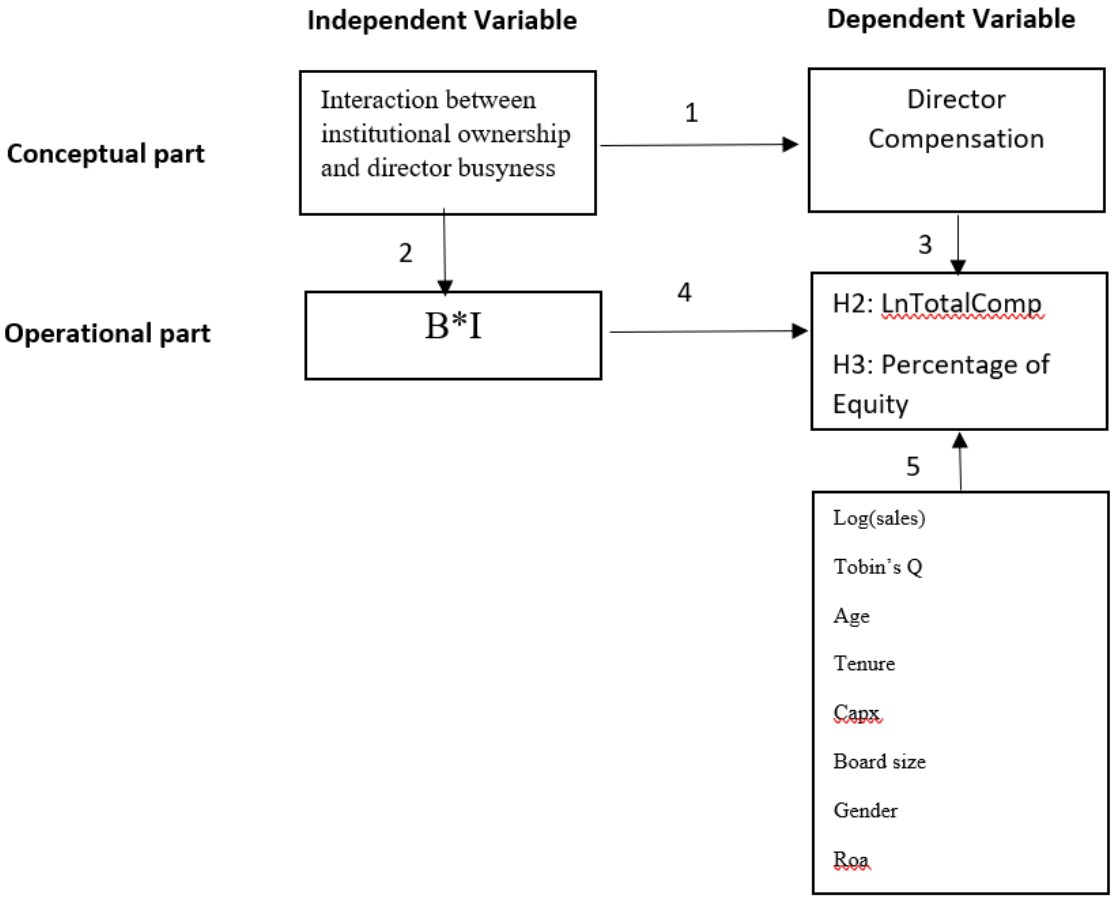
APPENDICES

Appendix 1. List of Variables used in the study, their definition and their data sources

Variable	Definition	Source
LnTotalComp	A director's log of total compensation including cash compensation and equity-based compensation.	BoardEx
Equity Percent	The fraction of equity compensation	BoardEX
Inst_ratio	Represents the equity position held by all institutional investors.	Thomson Reuters
Top5ratio	Represents the percentage of shares held by the top five percent institutional investors.	Thomson Reuters
Largestratio	Represents the percentage of equity owned by the largest institutional investor.	Thomson Reuters
BI	Interaction term between institutional ownership and busy dummy	Thomson Reuters/ ISS
Busy	An indicator variable that equals one if a director who sits on the boards of three or more firms.	ISS

Market_to_book	Total market value divided by total book value of a firm.	Compustat
Log (Sales)	Measures the size of each company by the natural logarithm of total sales.	Compustat
Roa	A firm's net income divided by its total assets.	Compustat
Tobin's Q	The sum of total assets plus the market value of common stocks minus the equity stockholders hold, divided by total assets.	Compustat
Tenure	Busy director's tenure in years as director.	Compustat
Age	The age of a busy director.	ISS
Gender	An indicator variable that equals one if a director is female and zero otherwise.	ISS
Log (Assets)	Natural logarithm of total assets for a specific firm.	Compustat
Capx	A firm's capital expenditures.	Compustat
Mkvalt	A firm's market capitalazation	Compustat
Outdirboards	The number of board seats an outside director holds	ISS
Board size	The number of directors serving on the firm's board of directors	ISS
Leverage	Total Debt/Total Equity	Compustat

Appendix 2. Theoretical framework (Libby Boxes)


Independent Variable
Dependent Variable
Conceptual part
Interaction between institutional ownership and director busyness
1
Director Compensation
2
3
Operational part
B*I
4
H2: LnTotalComp
H3: Percentage of Equity
5
Log(sales)
Tobin's Q
Age
Tenure
Capx
Board size
Gender
Roa