ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis IBEB

Board Activity as a Corporate Governance Practice and Its Impact on Firm Performance and Uncertainty in European Companies: A Crisis Perspective

Name: Lilia Encheva

Student number: 597422

Supervisor: Michael Erkens

Second assessor: Lorenzo Dal Maso

Date final version: 04.07.2024

Abstract

This study focuses on examining the relationships between board meetings frequency as a measure of board activity and firm performance, as well as uncertainty in terms of stock return volatility in European companies. Firm performance is based on two metrics – Return on Equity and Return on Assets. Additionally, as this research is conducted through the perspective of COVID-19, it assumes only virtual board meetings during the crisis period and examines whether this phenomenon alters the above-mentioned relationships. The purpose of this paper therefore is to provide insights on whether the level of board activity as a means of corporate governance can be used to enhance performance and reduce uncertainty in general and during crisis, and specifically in the case of virtual meetings. The results show that there is a significant negative non-linear relationship between board activity and firm performance, where the optimal range to maximize both performance indicators is between 2 and 12 board meetings per year for European companies. The relationship between board activity and uncertainty is positive and significant, thus this range could allow also for lower uncertainty. In addition, neither of the relationships appears to be affected by the crisis and thus by the virtual nature of meetings, indicating that virtual meetings can indeed serve as an effective alternative to traditional face-to-face meetings allowing companies to save on time and costs.

Keywords: board meetings, board activity, frequency, firm performance, uncertainty, stock return volatility, virtual meetings, crisis

Table of Contents

1. Introduction

1.1 Research question and motivation

The past few years have been dominated by the outbreak of the global COVID-19 pandemic and its severe negative effect on both the global economy and daily life. The pandemic is considered to have been the most serious crisis since World War II (Schell, Wang & Huynh, 2020) and caused unprecedented costs for many economic regions with the European Union (EU) bearing some of the highest losses worldwide. According to Mirza, Rahat, Naqvi and Rizvi (2023), this unanticipated hit on the global economy unsurprisingly affected businesses across the EU and was associated with severe disruptions in operations, revenue contractions, and an increasing number of bankruptcies. The study emphasizes the challenges which the pandemic posed for policymakers and corporate managers and the need for proactive measures to ensure business resilience.

Thus, the purpose of this bachelor thesis is to understand whether corporate governance practices can affect firm performance and uncertainty in general and in times of unexpected crisis. The thesis will also aim to examine the differences in the effectiveness of those practices during periods of economic stability as compared to periods of downturn. This comparison is achieved by examining specifically the case of virtual board meetings which are a highly relevant phenomenon as their introduction was imposed by COVID-19 and as they have become a widely accepted alternative to the traditional meetings even after the end of the pandemic. According to Standaert, Muylle and Basu (2022), only 25% of business meetings are expected to take place in person by 2024 which makes the analysis of this peculiar type of communication essential. All of the above-mentioned observations lead to the formulation of the following research question:

'*What is the relationship between the board activity as means of corporate governance and the performance and uncertainty of European companies during COVID-19?*'

The performance metrics on which this paper will be focusing are Return on Equity (ROE) and Return on Assets (ROA) as well as the uncertainty metric stock return volatility. In terms of corporate governance, the number of board meetings per year is chosen as a relevant metric to account for the board activity.

1.2 Scientific and social relevance

This papers' scientific relevance lies in its aim to generate empirical evidence on a relatively recent economic event which has not yet been studied extensively. Focusing on the number of board meetings as a measure of corporate governance also distinguishes the paper considering that previous research mainly employs measures such as board size and independence as well as CEO duality, while the frequency of board meetings is also a relevant way of disciplining employees and monitoring the activities within a company. To my knowledge, this would be the first paper to examine the effectiveness of board meetings on corporate performance of European companies in terms of ROE and stock return volatility during COVID-19. Furthermore, findings from this paper can inform regulators about the significance of the frequency and nature of board meetings as a means to improve resilience and accountability during crises.

In terms of social relevance, the formulated topic is highly relevant as many companies continue to rely on virtual meetings even after the COVID-19 pandemic officially ended. The thesis can thus provide evidence on whether those meetings have a similar level of effectiveness as the traditional face-to-face board meetings and potentially promote them as an approach to save organisational costs and time associated with those meetings. In addition, the paper will aim to provide insights on the optimal level of meeting frequency in order to demonstrate to companies how they can maximize their performance through corporate governance practices. Last but not least, understanding also the relationship between board activity and stock return volatility can help firms mitigate uncertainty during crises, and therefore protect shareholders and maintain their trust.

1.3 Thesis outline

This paper consists of five chapters. In the next chapter – the theoretical framework, previous scientific articles are discussed in order to build the hypotheses for this study. Then, Chapter 3 describes the data, sample and methodology used to yield the results of the paper which are discussed in detail in Chapter 4. Finally, Chapter 5 concludes the paper by summarizing the key findings of the analysis. It also mentions some limitations of this thesis and recommendations for future research.

2. Theoretical Framework

The theoretical framework of this paper will discuss existing literature on the research topic and how it plans to contribute to it. It will firstly review key studies that have examined how board activity as means of corporate governance impacts firm performance and uncertainty of a company. Based on this, four hypotheses will be formulated in order to investigate the impact of board activities in European companies, both during economic stability and crises.

2.1 Board meeting frequency and corporate governance

Corporate governance is a term used to describe the systems by which entities are directed and controlled (OECD, 2004). The board of directors is a crucial part of corporate governance as it is typically required to provide oversight for strategic goals and decision-making while protecting stakeholders' interests (Lipton & Lorsch, 1992). Many corporate governance research papers have studied the oversight role of the board of directors, especially in terms of composition and size. For example, Linck, Netter and Yang (2008) find that companies structure their boards 'based on costs and benefits of monitoring and advising'. However, another, equally vital aspect of corporate governance and the boards' role, is their activity, which can be measured in terms of the frequency of board meetings. Although this has been demonstrated in previous literature (e.g., Vafeas, 1999; Brick & Chidambaran, 2010), research on board meeting frequency and its impact on firms, especially in Europe and in recent years, is still scarce.

There are several channels and mechanisms through which board meetings could be expected to affect a firm. Firstly, as board meetings are associated with oversight, their frequency could be crucial to ensure good performance of management and employees through closer and frequent monitoring. Secondly, frequent meetings can facilitate ongoing discussions about the strategy of the firm and its position in the competitive market. Thirdly, the frequency of board meetings might serve as a tool to improve the communication and collaboration between the board members which in turn could lead to more coordinated decisions. Last but not least, particularly in the case of crises, frequent board meetings could be used to review the risk management policies of the firm on an ongoing basis through the perspective of the particular crisis and identify and mitigate potential issues. This could allow boards to react adequately to the rapidly changing environment and enhance the firm's resilience.

However, the existing research on the topic of board activity is rather controversial on whether the frequency of board meetings is indeed associated with a company's performance.

Firstly, Lipton and Lorsch (1992) observe that the main problem for directors in US companies tends to be the lack of time to effectively control their firms. The authors claim that the board should meet at least every two months in order to particularly enhance their monitoring role in the company and protect the interests of both shareholders and stakeholders. Secondly, Brick and Chidambaran (2010) examine the impact of board activity on company performance and present evidence that increased board monitoring is positively associated with firm value. However, the paper only observes a positive relationship between board activity and the firm value in terms of identifying investment opportunities rather than better operating performance. Thirdly, Vafeas (1999) analyses the significance of board meetings frequency by testing whether companies with more active boards outperform those with inactive boards. The paper suggests that an increase in board meetings frequency can be seen as an approach to maximize firm value as it forces managers to perform their duties in line with shareholders' preferences. In addition, Vafeas (1999) demonstrates that poor performance drives higher board activity, and might even lead to abnormally high meeting frequency, and subsequently better operating performance. On the other hand, Jensen (1993) believes that the level of board activity does not contribute to enhanced corporate performance and perceives board meetings as a reactive instead of a proactive instrument of corporate governance, implying that boards should be rather inactive during economically stable periods, while being forced to increase their activity, and thus number of meetings, in the presence of problems.

In summary, while some academic papers argue that frequent board meetings can enhance corporate performance by providing directors with sufficient time to execute their duties effectively, others suggest that excessive board activity might not necessarily translate into meaningful governance outcomes. This controversy, present in existing research, leads to the formulation of the first hypothesis regarding firm performance:

Hypothesis 1a: There is a relationship between the board activity of European companies and their performance.

This hypothesis aims to examine whether a significant relationship between board activity and firm performance exists. In addition, it will allow me to also determine the direction of this potential relationship in the case of European companies and potentially decrease the existing controversy.

2.2 Impact of external factors on board dynamics

Throughout the years severe economic downturns have been observed several times, with the most recent one being associated with the outbreak of COVID-19. Such crises can be referred to as 'external factors' as they are outside the control of companies. Nevertheless, as such external factors are typically associated with worsening market condition and uncertainty (Mirza et al., 2023), they can harm entities' performance (Mirza et al., 2023) and could thus be expected to induce changes in the behaviour of the board as well as their decision-making in their attempts to effectively manage the posed challenges. As the focus of this paper is the frequency of board meetings, it is vital to investigate whether this frequency could have increased as a response to the pandemic and if so, whether it could have had a positive impact on the examined companies.

2.2.1 Economic crises and increased board meeting frequency

As mentioned above, Vafeas (1999) examines the monitoring role of corporate boards by focusing on frequency of board meetings. The author finds that firms with inactive boards are more highly valued by the market, implying that increased meeting frequency is typically preceded by poor performance. In addition, Brick and Chidambaran (2010) analyse the determinants of board activity and reach similar conclusions. They observe a negative correlation between the activity of the board and the firm's prior performance, meaning that firms which perform badly typically increase the board's monitoring activity. In line with the two papers, as the board's activity is measured in terms of the number of board meetings, an increase in the frequency of those meetings could be expected in times of crisis due to the preceding decline in performance (Mirza et al., 2023) observed across most firms.

In essence, as economic crises like COVID-19 typically lead to poor performance, they could induce higher board meetings frequency as a reactive mechanism (Jensen, 1993) for the board to control firms more effectively and offset the adverse impact of crisis on performance.

2.2.2 Effectiveness of increased board activity in the case of virtual meetings

The COVID-19 pandemic forced the wide adoption of virtual meetings and the home office model of working and thus affected the operations of many spheres such as education, health, as well as the corporate world. As mentioned, an increase in board meetings frequency is a justified expectation during the pandemic. However, it is also equally important to assess whether this

potential increase could indeed serve as an effective governance mechanism even in the unprecedented case of virtual meetings or could rather hinder the well-being of companies.

The rapid shift from face-to-face meetings to virtual communication observed during COVID-19 is a relatively recent topic. As such, there is no conclusive research yet, thus, this paper will consider literature on virtual shareholder meetings (VSM) as well as teleworking (working from distance). Both recent (e.g., Brochet, Chychyla & Ferri, 2023; Rivkin, Moser, Diestel & Alshaikh, 2024) and previous papers (e.g., DiMartino & Wirth, 1990; Hill, Ferris & Martinson, 2003), find evidence in support of the organisational effects of VSMs and teleworking. Firstly, Brochet et al. (2023) show that VSMs are indeed less active than traditional face-to-face meetings as claimed by critics, but this does not result in loss of information and does not seem to harm shareholders as previously supposed. As for teleworking, DiMartino and Wirth (1990) and Hill et al. (2003) observe a positive association between teleworking and job performance and productivity. In addition, both DiMartino and Wirth (1990) and Rivkin et al. (2024) also emphasize that the virtual workspace could allow employees and companies to save time and costs and also reduce distractions. In the case of the board of directors, valuable resources like money and time could be crucial if shifted to solving more urgent matters. Moreover, transferring board meetings into the virtual workspace, along with saving on costs and time, could itself allow for flexibility in their frequency and possibly more easily mitigating the risks associated with economic crises.

By taking into consideration the potential increase in the frequency of board meetings as a result of the COVID-19 crisis, as well as the virtual nature of meetings which most companies were forced to adopt (Rivkin et al., 2024), the second hypothesis is formulated:

Hypothesis 1b: The effect of board activity of European companies on firm performance is different during crisis as compared to economic stability.

This hypothesis will examine whether the potential relationship between board meetings and performance is altered during crises specifically by the virtual nature of meetings. For this purpose, throughout the rest of the paper I will assume that all board meetings for the crisis period 2020-2022 were virtual. This assumption is valid (Rivkin et al., 2024) and especially relevant for the future performance of companies considering that even after the end of the pandemic, virtual meetings shifted from being a necessity to being a widely accepted alternative to traditional meetings (Standaert et al., 2022).

2.3 Board meeting frequency, return on equity (ROE), and stock return volatility

This part of the literature review will focus on examining the relationship between corporate governance in terms of board meeting frequency and the financial performance of companies measured by ROE. Additionally, to increase the robustness of the results, the potential effect of board meetings on another performance indicator, namely ROA, will also be analysed. The paper will also discuss the potential relationship between corporate governance and stock return volatility which indicates the risk associated with holding a firm's stock.

2.3.1 ROE and ROA as a performance indicators

Past studies have examined various corporate governance indicators, most often board size or independence, and have reached the conclusion that some of these indicators are indeed associated with firm performance. For instance, Bhagat and Bolton (2008) observe a correlation between numerous corporate governance practices (e.g., board independence, board ownership, CEO duality) and operating performance proxied by ROA, while Brown and Caylor (2008) suggest that there is a positive relationship between several internal governance provisions (e.g., CEO serves on no more than two additional boards of other public companies) and ROE in particular. However, to my knowledge, there is no previous research on the effect of board meetings frequency and ROE as a performance indicator. Thus, the main relationship on focus here will be the one between board meeting frequency and ROE, while the effect of board meetings on ROA will only serve as a robustness test to ensure that the results are not limited to only one performance metric. This analysis will then show whether Hypothesis 1a should be accepted or rejected.

2.3.2 Stock return volatility

Stock return volatility is defined by Brick and Chidambaran (2010) as *'the annualized standard deviation of monthly stock returns.'* As this thesis will aim to examine the potential relationship between volatility and frequency of board meetings particularly during the COVID-19 crisis, it is relevant to note that economic recessions are the largest factor for stock market volatility, accounting for more than 60% of the variance of stock returns (Schwert, 1989). Therefore, analysing stock return volatility along with changes in board meeting frequency during the COVID-19 pandemic can offer valuable insights on whether governance mechanisms like board meetings can alleviate the consequences of the crisis.

As mentioned, the board of directors is a key part of the corporate governance structure of a firm. The existing literature presents evidence regarding how specific governance instruments affect stock return volatility. For example, Aloui and Jarboui (2018) suggest that the presence of independent directors in the board is associated with a decrease in volatility, while the size of the board – with an increase in volatility. Stemming from findings in this and other papers (e.g., Desender, 2009), this thesis will conduct an analysis to investigate whether increases or decreases in stock return volatility are observed also when accounting for another corporate governance instrument – frequency of board meetings, both during economic stability and crises. To my knowledge, no previous paper has examined this particular relationship. Thus, in an attempt to contribute to existing research, I formulate the following hypotheses:

Hypothesis 2a: There is a relationship between the board activity of European companies and their stock return volatility.
Hypothesis 2b: The effect of board activity of European companies on firm stock return volatility is different during crisis as compared to economic stability.

Similarly to Hypotheses 1a and 1b, these hypotheses aim to examine whether a relationship between board activity and the uncertainty of European companies proxied by stock return volatility exists. The analysis will also determine the direction of this relationship and will demonstrate whether it can be affected by the fact that meetings were conducted virtually during the crisis period 2020-2022.

3. Data and Methodology

This section of the paper discusses in detail the data and methods used in the research. Firstly, sub-section 3.1 describes the data source as well as the process of selecting a sample and specifies the final size of the sample. The next sub-section defines and summarizes all variables used in this paper. Sub-section 3.3 provides information on the methodology and models used and includes a descriptive statistics table which visualizes the characteristics of the sample. Lastly, sub-section 3.4 briefly discusses the potential issue of multicollinearity.

3.1 Data and Sample

The data on the dependent and independent variables used in this research is retrieved from the LSEG Workspace database. This is a database which contains extensive financial and board data on companies worldwide. The collected data from the LSEG Workspace is for the period 2017-2022 where all variables are measured at the end of each fiscal year. Since the paper is focused on analysing solely European companies, the collected data is in euros. Moreover, the chosen time period is particularly relevant for the purpose of this research as it includes the three years of the COVID-19 pandemic as well as three years of economic stability which allows for a comparison between the two periods.

Table 1

Sample selection table

Selection Criteria	Number of Observations
Initial Observations	11,827
Observations with Missing Variables	9,355
Final Sample Size	2,472

Note: This table shows the process of sample selection used in this research. The row 'Initial Observations' refers to the complete dataset extracted from the LSEG Workspace database. The next row shows the number of observations which were excluded because they lacked necessary data. The last row gives the difference between the initial observations and the excluded ones.

As shown in Table 1, the initially collected data for all available public European companies contained 11,827 observations. However, as many of the firms lacked data on key variables, a large number of companies had to be excluded from the analysis. After removing the

missing datapoints, the final sample size comprises of 2,472 observations which means that observations on all datapoints are available for a total of 412 European public companies.

3.2 Variables

This section defines the dependent and independent variables used in this paper, as well as the selection process for control variables and their suitability. The main information from this section is summarized in Table 2 below and then discussed in more detail in the following sub-sections.

Table 2

Definition of variables

Variable	Abbreviation	Definition
Return on Equity	ROE	Ratio of net income and shareholders' equity (%)
Return on Assets	ROA	Ratio of net income and total assets of a firm (%)
Stock Return Volatility	SRV	Annualized standard deviation of monthly stock returns (%)
Board Meetings	BM	Annual number of board meetings per firm
Time Period	CRISIS	Indicates economic condition (0 = stability/1 = crisis)
Board Size	BSIZE	Total number of directors sitting on each firm's board
Board Independence	BINDP	Number of independent directors divided by the total number of board members (%)
Firm Size	FSIZE	Logarithm of firm market capitalization (in millions)
Leverage	LEV	Ratio of long-term debt and total assets (%)
Sector Dummies	GICS	Sector in which the firm operates indicated with dummies

Note: This table provides definitions for all variables used in this research paper, as well as their abbreviations which are used in regression Models (1) and (2). The definitions are in accordance with the LSEG Workspace database.

3.2.1 Dependent variables

The dependent variable used to test the first two hypotheses (1a, 1b) related to Model (1) is ROE. It is used as a proxy for accounting profitability or firm performance as demonstrated by Brown and Caylor (2008). Another widely used measure for profitability is ROA (Bhagat & Bolton, 2008), therefore it is also considered in order to specifically improve the robustness of the results of this research. This is a crucial step of the analysis, as robustness tests can confirm the reliability of the findings and potentially show that the effects of board activity on company

performance are not limited to only one performance metric. Furthermore, ROE and ROA measure different aspects of a firm's performance – ROE is focused on profitability relative to shareholders' equity, while ROA measures how efficiently a company utilizes its assets to generate earnings. Thus, testing both performance metrics can provide a broader understanding of how board activity can affect the overall performance of a company.

For Model (2), which is used to test the last two hypotheses (2a, 2b), another dependent variable is used, namely stock return volatility. Data on this variable is not directly available, thus it is calculated based on the monthly stock returns of firms – an approach previously applied by Brick and Chidambaran (2010). The exact formula for this dependent variable is given below. In the formula, σ (Monthly Returns) stands for the standard deviation of the monthly returns, while the factor √12 annualizes the monthly standard deviation.

$$Stock\ Return\ Volatility = \sqrt{12} \times \sigma\ (Monthly\ Returns)$$

3.2.2 Independent variables

The independent variables are the same for Model (1) and (2), namely number of board meetings, time period, an interaction term between these two as well as a quadratic term for board meetings. The first variable – board meeting frequency represents the number of board meetings per year and is a proxy for board activity. Similarly to Brick and Chidambaran (2010), I expect the board activity data to be non-linear in the sense that it exhibits increasing or diminishing returns to scale and thus I include the quadratic term of board meetings in order to determine the turning point below which the potential relationship changes. Diminishing and increasing returns to scale in this case means that increasing board activity could initially improve or hinder monitoring and decision-making for example, but beyond a certain number of board meetings, those might become less or more beneficial. Particularly this approach is chosen to account for the non-linear relationship, instead of taking the logarithm of board meetings like Brick and Chidambaran (2010), as it will allow for more meaningful and practical interpretation of the results as board meetings will be reported as a whole number.

The second independent variable – time period, is a dummy variable – a variable which only takes a binary value (0 or 1). This independent variable is used to capture the effect of the COVID-19 crisis period and it takes a value of 0 to indicate a period of economic stability (2017-2019), and a value of 1 to account for the COVID-19 crisis (2020-2022). The time period can also

be seen as a moderator variable in Hypothesis 1b and 2b as it is expected to modify the impact that board meeting frequency has on performance and volatility.

Finally, the model will also account for an interaction between a continuous and a binary variable. The interaction term between board meeting frequency (continuous variable) and the time period (binary variable) measures the differential effect of the number of board meetings on the dependent variables – ROE and stock return volatility, during the COVID-19 crisis compared to the preceding non-crisis period. This independent variable will show whether the relationship between board meetings and the respective dependent variable is affected by the crisis.

3.2.3 Control variables

In an attempt to minimize the occurrence of omitted variable bias (OVB), it is also crucial to include several control variables in the regressions. OVB arises when a model fails to include other variables which are simultaneously correlated with the independent variable and are a determinant of the dependent variable (Stock & Watson, 2020). The presence of OVB could then decrease the predictive power of the regression models as they fail to capture all the relevant factors affecting the outcome. Thus, in this section of the paper, the control variables included in the model will be explained and their relevance justified based on previous studies and intuition. Firstly, a good control variable is one which has a theoretical or observed relationship with the dependent and independent variable, but, at the same time, is not affected by either of those. Following this condition, five suitable control variables have been identified.

The first control variable is one which is commonly used in previous research, namely firm size and it is measured as the logarithm of market value of equity (Core et al., 2006). Firstly, Vafeas (1999) analyses the relationship between firm size and board activity and finds a positive correlation. The reasoning behind this finding is that decision-making in larger firms is a more complex and time-consuming process, therefore it is likely that higher firm size will lead to increased board activity, which in this paper is measured in terms of board meetings per year. Thus, firm size is expected to fulfil the first condition for being a good control variable, i.e., influence the main independent variable. Secondly, previous studies (e.g., Bhagat & Bolton, 2008; Core, Guay & Rusticus, 2006) have also used firm size as a control variable due to its observed correlation with profitability. For instance, Bhagat and Bolton (2008) observe that firm size could moderate the relationship between governance practices and firm performance in terms of ROA and ROE and should therefore be accounted for. Lastly, the relationship between firm size as a

control variable and the second dependent variable – stock return volatility, has also been documented. For example, Chen, Wang, Lin and Huang (2022) account for firm size to control for the effect of firm scale on risk and return and observe a negative correlation between firm size and stock return, meaning that larger firms are likely to experience lower stock return volatility. Overall, firm size can be considered a good control variable as it can influence both profitability and volatility without expecting it will be reversely affected by those.

The second control variable in Model (1) and (2) is leverage and is chosen for a number of reasons. Firstly, leverage might influence a firm's financial performance through, for example, requiring higher interest payments and thus impacting net income and ROE. Moreover, firms with higher leverage could require increased board activity and closer monitoring to ensure the financial health of the company. Overall, leverage is related to both risk and return and will allow for comparison between companies with different capital structures. Support for these claims can be found in previous research. For example, Dao and Ta (2020) perform an analysis across different industries and countries and find a negative relationship between leverage and firm performance in terms of ROA and ROE which implies that higher leverage is associated with lower profitability. Furthermore, Aloui and Jarboui (2018) observe that an increase in leverage corresponds to an increase in stock return volatility. Another finding of this paper is that independent directors tend to avoid firms with high leverage which means that leverage could also have an effect on corporate governance although demonstrated only in terms of board independence. Last but not least, a similar paper on corporate governance and firm performance conducted by Bhagat and Bolton (2008) also uses leverage as a control variable. In summary, previous research has demonstrated that leverage could indeed influence the dependent and independent variables of this paper, thereby making it relevant as a control variable.

The next two control variables capture other aspects of corporate governance (besides the one at focus in this paper) with the purpose of isolating specifically the effect of board activity on firm performance and volatility. The most widely used controls for this purpose are board size and board independence (e.g., Bhagat & Bolton, 2008; Brick & Chidambaran, 2010), thus they are also included in Model (1) and (2). These specific proxies for corporate governance are chosen as they have been both shown to influence firm performance, volatility and board activity. Firstly, Larmou and Vafeas (2010) find a positive relation between board size and performance and also observe that changes in board size positively impact annual stock returns. The authors specify that those

findings are valid specifically in the case of companies with poor operating performance which is also typically the case during crisis. Moreover, Vafeas (1999) provides evidence that meeting frequency and thus board activity is determined by the size of the as well as their level of independence, more specifically, larger and more independent boards are likely to be more active. The intuition behind those findings could be that larger and more independent boards may be more diverse and less involved in daily operations and thus require more frequent meetings in order to provide adequate monitoring.

Last but not least, the type of industry in which the firms operate should also be taken into consideration as industries can differ in operations, regulations and level of competition and these factors can in turn affect their performance or governance practices. Subsequently, it is crucial to distinguish and account for industry-specific factors. Previous papers such as Brick and Chidambaran (2010) or Bhagat and Bolton (2008) control for industry due to its effect on performance. Similarly, past research on corporate governance and stock return volatility has also demonstrated the relevance of controlling for industry effects (e.g., Brown & Caylor, 2008). In this thesis, the industry-fixed effects are accounted for based on the Global Industry Classification Standard (GICS) code at the 2-digit GICS level. The GICS is *'a method for assigning companies to a specific economic sector and industry group that best defines its business operations'* (Hayes, 2022) and it includes 11 main sectors which are stated in Table 3 and incorporated in the two regression models as dummy variables. This is an important adjustment of the data as it helps to control for industry-specific factors which might have an effect on the dependent variables.

Table 3

Industry-fixed effect dummy variables according to GICS Sector Codes

GICS Code	Sector	Dummy Variable	Observations	Percentage
10	Energy	GICS_1	102	4.13
15	Materials	GICS_2	294	11.89
20	Industrials	GICS_3	486	19.66
25	Consumer Discretionary	GICS_4	324	13.11
30	Consumer Staples	GICS_5	192	7.77
35	Health Care	GICS_6	150	6.07
40	Financials	GICS_7	378	15.29
45	Information Technology	GICS_8	132	5.34
50	Telecommunication Services	GICS_9	174	7.04
55	Utilities	GICS_10	114	4.61
60	Real Estate	GICS_11	126	5.10

Note: This table presents the sector classification of the companies in the sample according to their GICS Sector code. As this is used to control for industry-fixed effects, each sector code is assigned a dummy variable which is then used in regression models (1) and (2). Column 4 shows the number of observations for each sector, i.e., the number of firms multiplied by the time period of six years. Column 5 presents the observations in percentages.

Source: S&P Global Market Intelligence & MSCI (2016)

In conclusion, control variables are crucial in OLS regressions in order to reduce OVB and ensure more reliable results. However, it is important to include only variables which are expected to increase the predictive power of the model and not simply overcomplicate it. Based on research and intuition, it can be expected that all above-mentioned variables can be considered good controls since they influence performance, stock return volatility and board activity without inducing reverse causality.

3.3 Methodology

The main research method that is applied to analyse the collected data is ordinary least squares (OLS) regression which is a widely used research technique to establish the existence and direction of a relationship between a dependent and an independent variable. This paper will consider two regression models to test the two above-stated hypotheses.

For the first set of hypotheses (1a, 1b), the relationship between the board activity, as measured by board meeting frequency, and the firm performance in terms of ROE, will be examined. As the purpose of this paper is to assess whether board meeting frequency can serve as a governance measure to mitigate the impact of economic crises, it is important to not only determine whether such a relationship exists in normal economic conditions, but also to check if any differences in the strength of this relationship are observed in times of stability as compared to crises. As mentioned, this is achieved by adding an interaction term between the board meeting frequency and the time period to the regression to allow for direct comparison.

To test the first two hypotheses, the following regression will be used:

(1) $ROE_{i,t} = \beta_0 + \beta_1(BM_{i,t}) + \beta_2(CRISIS_{i,t})(BM_{i,t}) + \beta_3(CRISIS_{i,t}) + \beta_4(BSIZE_{i,t}) + \beta_5(BINDP_{i,t}) + \beta_6(FSIZE_{i,t}) + \beta_7(LEV_{i,t}) + \beta_8(BM_{i,t})^2 + Sector\ Dummies + \varepsilon_{i,t}$

To test the last two hypotheses (2a, 2b), a similar approach will be undertaken. The second regression model will examine the potential effect of board activity on the stock return volatility of firms. Stock returns are inherently volatile therefore it is highly important to study their uncertainty comprehensively especially during crises which typically exacerbate this volatility even further (Schwert, 1989). Analysing this potential relationship could provide insight whether and how this uncertainty during crisis could be mitigated through corporate governance measures. Similarly to the first model, an interaction term for board meeting frequency and the time period will be included in the regression in order to determine: firstly, whether stock return volatility could indeed be partially affected and thus managed through board activity and, secondly, whether there is also a change in the effect of board meeting frequency on stock return volatility during periods of economic crisis as compared to economic stability.

(2) $SRV_{i,t} = \beta_0 + \beta_1(BM_{i,t}) + \beta_2(CRISIS_{i,t})(BM_{i,t}) + \beta_3(CRISIS_{i,t}) + \beta_4(BSIZE_{i,t}) + \beta_5(BINDP_{i,t}) + \beta_6(FSIZE_{i,t}) + \beta_7(LEV_{i,t}) + \beta_8(BM_{i,t})^2 + Sector\ Dummies + \varepsilon_{i,t}$

Additionally, Table 4 below presents the descriptive statistics for all key variables used in the above-mentioned regression models. The table includes the number of observations, mean, standard deviation, median, minimum, and maximum values for each variable. The values of all continuous variables stated in the table are obtained after winsorizing at the 1st and 99th percentile as a method to deal with outliers which were initially present in the sample. As the term

'continuous' refers to those variables which can take on infinitely many values, board meetings and board size are not winsorized as they can typically be counted instead of measured which classifies them as *'discrete'* variables. Additionally, the crisis variable as a dummy is also not winsorized. One observation worth noting from Table 4 is that the standard deviations of ROA and ROE indicate substantial variability, however, this variability is considerably lower after winsorizing.

Table 4

Descriptive statistics of the regression variables

Variable	Obs.	Mean	Std. Dev.	Median	Min.	Max.
Return on Assets	2,472	2.038	3.739	0.093	-5.949	17.620
Return on Equity	2,472	5.523	9.648	0.239	-22.160	43.469
Stock Return Volatility	2,472	0.291	0.146	0.255	0.101	0.862
Board Meetings	2,472	9.799	5.011	9.000	2.000	43.000
Crisis	2,472	0.500	0.500	0.500	0.000	1.000
Board Size	2,472	11.029	3.431	11.000	1.000	28.000
Board Independence	2,472	55.578	25.967	57.450	3.759	97.917
Firm Size	2,472	9.044	1.330	9.029	5.843	12.059
Leverage	2,472	0.200	0.135	0.185	0.000	0.617

Note: This table shows the descriptive statistics for the variables that are used in the main regression models. Column 1 shows the different variables. In Column 2 the number of observations can be found, i.e., the total number of companies multiplied by the six-year time period. Column 3 shows the mean and Column 4 – the standard deviation. Lastly, Columns 5 gives the median and Columns 6 and 7 – the minimum and maximum value in the sample. The values of all variables presented in the table (except for Board Meetings, Board Size, and Crisis) are winsorized at the 1st and 99th percentiles to mitigate the impact of outliers.

3.4 Multicollinearity

Multicollinearity occurs when two or more independent variables in a regression are highly correlated which is considered to be the case above the threshold of 0.500. High correlation between explanatory variables could distort the estimates of the regression coefficients and thereby the results of this study, thus it is important to check the values of the correlation coefficients to ensure that multicollinearity is not present. This is examined by using a correlation matrix shown in Table 5. The results from this table demonstrate that none of the independent variables have a correlation coefficient which exceeds the threshold of 0.500, implying that multicollinearity is not

a significant issue. The only observed high correlation coefficient is the one between ROE and ROA (0.888). However, these variables are both performance metrics which are used in separate models, therefore, this observation does not pose an issue for the results of this study.

Table 5

Correlation matrix

Variable	1	2	3	4	5	6	7	8	9
1. Return on Equity	1.000								
2. Return on Assets	0.888	1.000							
3. Stock Return Volatility	-0.124	-0.138	1.000						
4. Board Meetings	-0.171	-0.180	0.120	1.000					
5. Crisis	-0.050	-0.056	0.378	0.123	1.000				
6. Board Size	0.170	0.110	-0.072	-0.057	-0.009	1.000			
7. Board Independence	0.079	0.053	-0.002	0.045	0.073	-0.016	1.000		
8. Firm Size	0.256	0.231	-0.284	-0.077	0.050	0.406	0.214	1.000	
9. Leverage	-0.058	-0.090	0.034	0.081	0.104	-0.054	0.040	-0.038	1.000

Note: This table presents the correlation coefficients between the variables used in this research. The first column shows the variable names ordered by number, while the first row – only the number order of the variables. A correlation coefficient close to 1 indicates a strong positive relationship; a coefficient close to -1 indicates a strong negative relationship; a coefficient close to 0 implies that there is a small or no linear relationship between the variables.

4. Results

In this chapter, the results from the statistical analyses will be discussed. Those results will be used to draw conclusions for the hypotheses. The regression results of Model (1) will be presented in sub-section 4.1 and will be used to reject or accept Hypotheses 1a and 1b. Then, in sub-section 4.2, the results of Model (2) will be presented and will be used to provide a conclusive answer for Hypotheses 2a and 2b. Throughout the results sections, a significance level of 5% is used when discussing whether a relationship is statistically significant or not. The 5% significance level implies that there is a probability of 5% of incorrectly rejecting the null hypothesis.

Before analysing the results, however, it will be assessed whether COVID-19 actually induced an increase in the number of board meetings as mentioned in the theoretical framework. The results of this analysis are given below in Table 6 and imply that a significant increase in the number of board meetings was indeed observed during the crisis period in line with the findings of Brick and Chidambaran (2010). The number of board meetings in European companies increased on average by 1 board meeting per year and the significance of this statement is supported by a two-sample t test.

Table 6

Number of board meetings during the two periods

Period	Observations	Mean
2017-2019 (Crisis = 0)	1,236	9.180
2020-2022 (Crisis = 1)	1,236	10.417
Difference		1.236

Note: This table presents the mean of the number of board meetings split between the two periods. The second row shows the mean of the board meetings for the period of economic stability, while the third row – the mean for the crisis period. The last row gives the difference in the means which is assessed to be statistically significant after conducting a two-sample t test.

4.1 Regression analysis Model (1)

Table 7 presents the results four regressions all related to Model (1). For each performance indicator, ROE and ROA, two regressions are conducted with the purpose of also including the quadratic term of board meetings to determine a potential turning point due to the variable's non-linear nature, where Columns 2 and 4 assume linear relationship and Columns 3 and 5 – non-linear.

Table 7

Linear regression results for the relationship between firm performance and board activity

Variable	Performance Measures			
	ROE	ROE	ROA	ROA
Board Meetings	-0.295***	-0.626***	-0.103***	-0.278***
	(0.055)	(0.124)	(0.022)	(0.047)
Interaction Board Meetings*Crisis	0.093	0.067	0.031	0.018
	(0.074)	(0.072)	(0.029)	(0.027)
Crisis	-1.893**	-1.558*	-0.634*	-0.458
	(0.826)	(0.812)	(0.326)	(0.317)
Board Size	0.260***	0.261***	0.048**	0.049**
	(0.069)	(0.069)	(0.024)	(0.024)
Board Independence	0.025***	0.025***	0.007**	0.007***
	(0.007)	(0.007)	(0.003)	(0.003)
Firm Size	1.451***	1.456***	0.550***	0.553***
	(0.174)	(0.174)	(0.068)	(0.068)
Leverage	-3.579**	-3.745**	-2.829***	-2.916***
	(1.689)	(1.688)	(0.590)	(0.587)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Quadratic Term Board Meetings		0.011***		0.006***
		(0.003)		(0.001)
Constant	-9.279***	-7.427***	-2.413***	-1.436**
	(1.451)	(1.608)	(0.573)	(0.630)
Observations	2.472	2,472	2,472	2,472
R-squared	0.139	0.142	0.168	0.176
F-statistic	27.770	27.220	36.400	36.700

Note: This table shows the results of four OLS regressions which have the performance measures Return on Equity and Return on Assets as dependent variables, and Board Meetings, Crisis, and their interaction – as independent. The variable Crisis indicates a period of economic stability when equal to 0, and a period of economic crisis when equal to 1. Board Size, Board Independence, Firm Size, and Leverage are control variables. The industry-fixed effects are also considered. The regressions in Columns 3 and 5 include a quadratic term to account for the non-linearity of board meetings. The constant, number of observations, R-squared, and F-statistic are also shown. The results from the table are used to deduct conclusions about Hypotheses 1a and 1b. Standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Firstly, the results presented in Table 7 show a significant negative relationship between board meetings and company performance as proxied by ROE. The coefficient suggests that an additional board meeting is associated with approximately a 0.295 percentage points decrease of ROE. Then, the third regression which incorporates ROA instead of ROE as a dependent variable also demonstrates a significant negative relationship between ROA and the number of board meetings. Although this relationship is also significant, it is weaker than the one observed in Column 1 between board meetings and ROE, implying that an increase in the number of board meetings per year by 1 leads to approximately a 0.103 percentage points decrease of ROA. This consistency in the results for both performance metrics indicates that, in general, a higher number of board meetings is associated with a lower firm performance across European companies. This analysis leads to the conclusion that Hypothesis 1a, stating that there is a relationship between board activity and firm performance in European companies, can indeed be accepted due to the statistically significant coefficients of the board meetings variable in both regressions.

Moreover, although the results demonstrate a negative relationship, the inclusion of a quadratic term of board meetings in the regressions shown in Columns 3 and 5 along with its significance indicates that this relationship, as expected, is not strictly linear. The positive quadratic coefficient suggests that the relationship between board meetings and ROE is U-shaped, meaning that it is initially decreasing until a certain point after which it begins to increase. However, after also taking into consideration previous research, which has provided evidence for the existence of a positive relationship between corporate governance practices and firm performance (e.g, Bhagat & Bolton, 2008; Brown & Caylor, 2008), as well as the fact that the variable board meetings cannot take infinitely many values but it has a certain range, in this particular dataset from 2 to 43 (Table 4), I include two fitted line plots to visualize the results and to provide more insight into the practical implications of the results. Those plots are presented in Figures 1 and 2, and indeed show a negative relationship between board meetings and performance as proxied by ROE and ROA. Nevertheless, it is also clearly observable that for this particular range of board meetings both performance metrics are higher for lower values of board meetings. More specifically, ROE exhibits its optimal values in the approximate range between 2 and 18 board meetings per year, while for ROA this range is approximately between 2 and 12, where at the maximum of 18 or 12 board meetings, the values of ROE and ROA are approximately equal to their values at the maximum amount of board meetings in the dataset – 43. Thus, if European companies aim to

maximize both metrics based on the number of board meetings, this is achievable on the range between 2 and 12 meetings per year. This would allow companies to achieve higher performance by conducting a lower number of meetings and by not spending excessive amount of time or resources as they would in case they conduct above 40 meetings per year. The results also indicate that firms with fewer meetings might be more efficient in their operations and governance as fewer but more focused and effective meetings may be better for maintaining higher ROE.
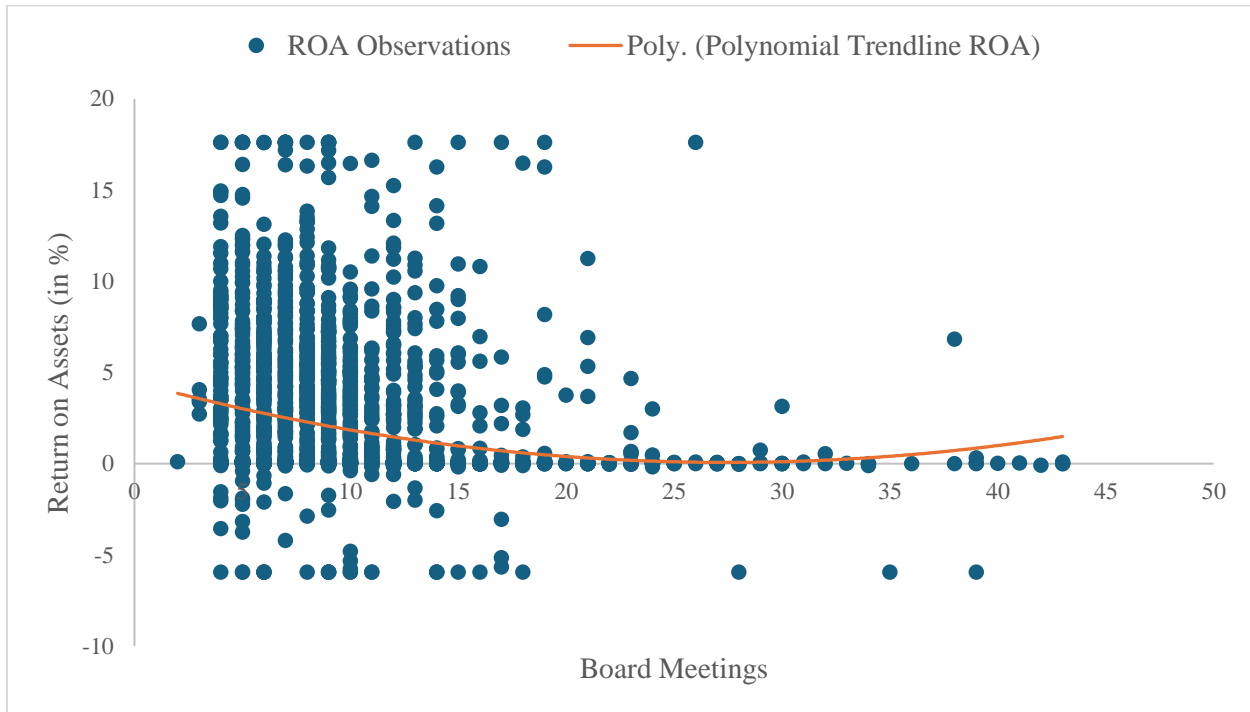
Figure 1

Fitted line plot on the U-shaped relationship between board meetings and ROE
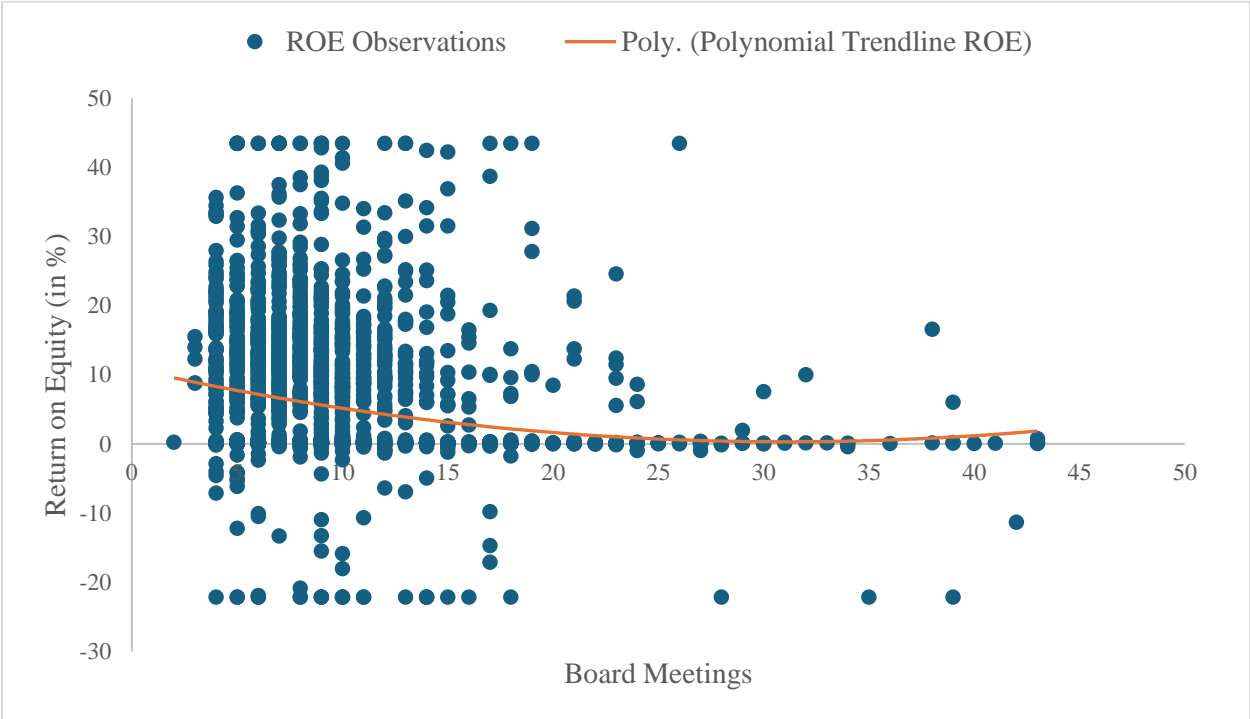
Note: This figure illustrates the U-shaped relationship between the number of board meetings and the performance metric ROE, with fitted values predicting ROE based on the regression model shown in Column 3 of Table 7. The fitted values are given by the polynomial trendline and indicate the expected ROE at different levels of board meetings, accounting for both linear and quadratic effects.

Figure 2

Fitted line plot on the U-shaped relationship between board meetings and ROA

Note: This figure illustrates the U-shaped relationship between the number of board meetings and the performance metric ROA, with fitted values predicting ROA based on the regression model shown in Column 5 of Table 7. The fitted values are given by the polynomial trendline and indicate the expected ROA at different levels of board meetings, accounting for both linear and quadratic effects.

Additionally, to assess whether Hypothesis 1b should be accepted or rejected, the coefficient of the interaction term has to be analysed and interpreted in the context of all regressions presented in Table 7. The obtained number is positive but insignificant in all cases, indicating that the frequency of board meetings does not affect the performance of European firms in a different manner during crisis as compared to economic stability as stated in Hypothesis 1b. This finding holds for both performance indicators ROE and ROA which leads to the conclusion that there is not enough evidence to accept Hypothesis 1b.

In order to ensure the predictive power of Model (1) both regressions also include several control variables such as Board Size, Board Independence, Leverage, Firm Size and also account for industry-fixed effects. The first two controls are also proxies for corporate governance and are positive and significant in all regression models, implying that they have an effect on performance, which is in line with the findings of Bhagat and Bolton (2008). Additionally, it can be observed

that the size of the firm has a significant positive effect on both performance indicators, suggesting that the performance of European firms increases with size. It is also worth noting that, similarly, leverage demonstrates a significant but negative effect on firm performance which is stronger in the case of ROE as compared to ROA. This implies that firms with a higher long-term debt as a percentage of total assets are more likely to experience lower performance.

Lastly, the F-statistic and R-squared which are included in Table 7 should also be interpreted. Firstly, the F-statistic is used for testing the statistical significance of the model. Both the ROE and ROA regression have an F-statistic with a p-value below 5%, indicating that both regressions are indeed statistically significant and at least one of the independent variables contributes to explaining ROE and ROA. Secondly, the R-squared value presents the amount of variance in the dependent variable which is explained by the independent variables in the model. In the first two regressions with ROE as a dependent variable this amount is approximately 14%, while in the second regression it is significantly higher with a value of around 17%, suggesting a better fit. However, both R-squared values are generally low and indicate that there might be other more important variables which influence ROE and ROA but are not included in the regressions.

4.2 Regression analysis Model (2)

Table 8 presents the results from Model (2) which is used to test Hypotheses 2a and 2b. It aims to examine the relationship between stock return volatility as a proxy for uncertainty and board meetings. Table 8, similarly to Table 7, includes two regressions with the same dependent variable due to the expected non-linear nature of the variable board meetings.

Firstly, the results presented in Table 8 show a significant positive relationship between the number of board meetings and uncertainty as proxied by stock volatility. The coefficient suggests that an additional board meeting per year results in approximately a 0.003 percentage points increase in stock return volatility, or in other words, more frequent board meetings lead to a higher volatility of the stock returns of European companies. Those results lead to the conclusion that Hypothesis 2a, stating that there is a relationship between the number of board meetings per year and stock return volatility for European companies, can be accepted, although the relationship is weak. However, in contrast to the previous results shown in Table 6, here the quadratic term is close to 0 and not significant, indicating that there is not enough evidence to assume a non-linear relationship.

Table 8

Linear regression results for the relationship between firm uncertainty and board activity

Variable	Uncertainty Measure	
	Stock Return Volatility	**Stock Return Volatility**
Board Meetings	0.003***	0.004***
	(0.001)	(0.001)
Interaction Board Meetings*Crisis	-0.003**	-0.002**
	(0.001)	(0.001)
Crisis	0.137***	0.136***
	(0.012)	(0.012)
Board Size	0.003***	0.003***
	(0.001)	(0.001)
Board Independence	0.000	0.000
	(0.000)	(0.000)
Firm Size	-0.036***	-0.036***
	(0.002)	(0.002)
Leverage	0.006	0.007
	(0.023)	(0.023)
Industry Fixed Effects	Yes	Yes
Quadratic Term Board Meetings		0.000
		(0.000)
Constant	0.438***	0.431***
	(0.022)	(0.023)
Observations	2,472	2,472
R-squared	0.292	0.292
F-statistic	48.740	46.060

Note: This table shows the results of two OLS regressions which have the uncertainty measure Stock Return Volatility as a dependent variable, and Board Meetings, Crisis, and their interaction – as independent. The variable Crisis indicates a period of economic stability when equal to 0, and a period of economic downturn when equal to 1. Board Size, Board Independence, Firm Size, and Leverage are control variables. The industry-fixed effects are also considered. The regression in Columns 3 includes a quadratic term to account for the non-linearity of board meetings. The constant, number of observations, R-squared, and F-statistic are also shown. The results from this table are used to deduct conclusions about Hypotheses 2a and 2b. Standard errors are in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Then, to assess whether Hypothesis 2b should also be accepted or rejected, the coefficient of the interaction term has to be analysed and interpreted in the context of the regressions presented in Table 8. The coefficient of the crisis variable only indicates that stock return volatility tends to be higher during periods of economic instability by 0.137 percentage points. As for the interaction term between board meetings and the crisis variable, its coefficient indicates that the effect of board activity on stock return volatility is slightly reduced during a crisis like COVID-19 by approximately 0.002 percentage points as compared to periods of economic stability. Thus, Hypothesis 2b, which claims that this relationship is different during times of crises as compared to economic stability, can also be accepted.

Moreover, in order to ensure the predictive power of Model (2), the regression includes the same control variables as Model (1). From the two governance indicators used in the regression, only the size of the board appears to significantly influence the stock return volatility, although weakly, implying that a larger board is associated with higher volatility. Firm size also appears to have an effect on the volatility, suggesting that larger firms have lower volatility with a 1% increase in firm size leading to a 0.036 percentage points decrease in stock return volatility.

Lastly, the values of the F-statistic and R-squared can also be interpreted to assess the statistical significance and predictive power of Model (2). The F-statistic with a p-value below 5% appears to be in general statistically significant, meaning that at least one of the variables in the regression contributes to the explanation of stock return volatility. Moreover, the R-squared with a value of 0.292 indicates that around 29% of the variance of stock return volatility is explained by Model (2). Thus, the regression model is statistically significant and has moderate predictive power for stock return volatility, but there are also other independent variables, not included in the model, which are expected to significantly affect the dependent variable.

5. Conclusion

Severe economic crises like COVID-19 often happen unexpectedly and require companies to take timely actions to minimize the negative impact on the company's performance. This could potentially be achieved through improved corporate governance measures such as increased or more efficient monitoring from the board. To examine whether this is indeed possible, this thesis was built around the following research question:

'What is the relationship between the board activity as means of corporate governance and the performance and uncertainty of European companies during COVID-19?'

To answer this question, four hypotheses were built and analysed using OLS regressions. The results showed firstly that the frequency of board meetings negatively affects the performance of European companies proxied by ROE and ROA. However, there is an optimal number of meetings in this sample, approximately ranging from 2 to 12 per year, for which companies can achieve higher performance. Moreover, this relationship is not significantly altered by crises. Thus, there is enough evidence to accept only Hypothesis 1a, but not Hypothesis 1b. Additionally, the findings from the second regression model suggest that the frequency of board meetings is associated with a higher uncertainty for European companies proxied by stock return volatility. This relationship is significantly, but weakly affected by crises like COVID-19. Thus, there is enough evidence to accept both Hypothesis 2a and 2b.

Based on the hypotheses and results, several practical implications can be outlined. Firstly, European companies need to thoroughly consider the frequency of their board meetings and strive for the optimal range between 2 and 12 meetings per year (irrespective of the economic conditions) if they aim to enhance their performance. This number of board meetings could allow for efficient monitoring without spending excessive costs and time on additional or unnecessary meetings. Secondly, the results suggest that too frequent meetings can also increase stock return volatility and thus uncertainty, which might, for instance, undermine the trust of shareholders. Both of these observations are especially relevant for companies with a current high number of board meetings as those firms can effectively increase their performance and reduce uncertainty by adhering to this optimal range. Additionally, the described relationships between board meetings, performance and stock volatility are either weakly or not affected by crises, implying that in the case of COVID-19, assuming only virtual meetings are held, those meetings do not appear to be less efficient than

the traditional face-to-face meetings. Thus, firms can be flexible when choosing their meeting environment and should rather focus on achieving an optimal number of meetings and increasing their efficiency in order to mitigate performance and volatility effectively even during economic crises.

This paper also has some key limitations which should be discussed. Firstly, the sample only consists of European companies which could hinder the external validity of the results as this sample may not capture global trends or variations in corporate governance practices across different countries. Secondly, the paper only analyses a short time period before and during the crisis, which might not capture the long-term effects of board activity on performance and uncertainty during a crisis. Thirdly, the assumption that all board meetings during the period 2020-2022 were virtual is questionable as statistical data to support this assumption is not available; the assumption is only based on other scientific articles. Last but not least, the performance proxies used in the paper – ROE and ROA, do not capture all dimensions of firm success.

Lastly, based on the above-described limitations, there are several main recommendations for future research. For instance, a larger sample with companies from different countries can be used to improve the generalizability of the results. In addition, a similar study to mine could be conducted once data on the key variables for the post-crisis period is available in order to assess the long-term effects of the analysed relationships. Another recommendation for improvement could be to conduct qualitative research, through interviews for example, to gain more insight into virtual meetings and to assess whether they are indeed as effective as traditional meetings.

References

Aloui, M., & Jarboui, A. (2018). The effects of corporate governance on the stock return volatility. *International Journal of Law and Management*, *60*(2), 478–495. https://doi.org/10.1108/ijlma-01-2017-0010

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance, 14*(3), 257–273. https://doi.org/10.1016/j.jcorpfin.2008.03.006

Brick, I. E., & Chidambaran, N. (2010). Board meetings, committee structure, and firm value. *Journal of Corporate Finance*, *16*(4), 533–553. https://doi.org/10.1016/j.jcorpfin.2010.06.003

Brochet, F., Chychyla, R., & Ferri, F. (2023). Virtual shareholder meetings. *Management Science*. https://doi.org/10.1287/mnsc.2023.4946

Brown, L. D., & Caylor, M. L. (2008). Corporate governance and firm operating performance. *Review of Quantitative Finance and Accounting*, *32*(2), 129–144. https://doi.org/10.1007/s11156-007-0082-3

Core, J. E., Guay, W. R., & Rusticus, T. O. (2006). Does weak governance cause weak stock returns? An examination of firm operating performance and investors' expectations. *The Journal of Finance*, *61*(2), 655–687. https://doi.org/10.1111/j.1540-6261.2006.00851.x

Dao, B. T. T., & Ta, T. D. N. (2020). A meta-analysis: capital structure and firm performance. *Journal of Economics and Development*, *22*(1), 111–129. https://doi.org/10.1108/jed-12-2019-0072

Desender, K. (2009). The relationship between the ownership structure and board effectiveness. *Social Science Research Network*. https://doi.org/10.2139/ssrn.1440750

DiMartino, V., Wirth, L. (1990). Telework: A new way of working and living. *International Labour Review, 129*(5), 529-554.

Hayes, A. (2022, July 1). *What is the Global Industry Classification Standard (GICS)?* Investopedia. https://www.investopedia.com/terms/g/gics.asp

Hill, E. J., Ferris, M., & Martinson, V. K. (2003). Does it matter where you work? A comparison of how three work venues (traditional office, virtual office, and home office) influence aspects of work and personal/family life. *Journal of Vocational Behavior*, *63*(2), 220–241. https://doi.org/10.1016/s0001-8791(03)00042-3

Hsu, Y., & Liao, L. (2022). Corporate governance and stock performance: The case of COVID-19 crisis. *Journal of Accounting and Public Policy*, *41*(4), 106920. https://doi.org/10.1016/j.jaccpubpol.2021.106920

Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, *48*(3), 831–880. https://doi.org/10.1111/j.1540-6261.1993.tb04022.x

Larmou, S., & Vafeas, N. (2009). The relation between board size and firm performance in firms with a history of poor operating performance. *The Journal of Management and Governance*, *14*(1), 61–85. https://doi.org/10.1007/s10997-009-9091-z

Linck, J. S., Netter, J. M., & Yang, T. (2008). The determinants of board structure. *Journal of Financial Economics*, *87*(2), 308–328. https://doi.org/10.1016/j.jfineco.2007.03.004

Lipton, M., & Lorsch, J. W. (1992). A modest proposal for improved corporate governance. *The Business Lawyer*, *48*(1), 59–77. https://www.jstor.org/stable/40687360

Mirza, N., Rahat, B., Naqvi, B., & Rizvi, S. K. A. (2023). Impact of Covid-19 on corporate solvency and possible policy responses in the EU. T*he Quarterly Review of Economics and Finance*, *87*, 181–190. https://doi.org/10.1016/j.qref.2020.09.002

OECD, Paris. (2004). OECD principles of corporate governance. https://doi.org/10.22201/fca.24488410e.2005.562

Rivkin, W., Moser, K., Diestel, S., & Alshaikh, I. A. (2024). Getting into flow during virtual meetings: How virtual meetings can benefit employee functioning in the work- and home domain. *Journal of Vocational Behavior*, 103984. https://doi.org/10.1016/j.jvb.2024.103984

S&P Global Market Intelligence & MSCI. (2016). GICS® Global Industry Classification Standard. In *S&P Global Market Intelligence / MSCI*. https://www.spglobal.com/marketintelligence/en/documents/gics-mapbook-brochure.pdf

Schell, D., Wang, M., & Huynh, T. L. D. (2020). This time is indeed different: A study on global market reactions to public health crisis. *Journal of Behavioural and Experimental Finance*, *27*, 100349. https://doi.org/10.1016/j.jbef.2020.100349

Schwert, G. W. (1989). Why does stock market volatility change over time? *Journal of Finance*, *44*(5), 1115–1153. https://doi.org/10.1111/j.1540-6261.1989.tb02647.x

Standaert, W., Muylle, S., & Basu, A. (2022). Business meetings in a postpandemic world: When and how to meet virtually. *Business Horizons*, *65*(3), 267–275. https://doi.org/10.1016/j.bushor.2021.02.047

Stock, J. H., & Watson, M. W. (2020). Introduction to Econometrics, Global Edition. Pearson Education Limited. https://www.sea-stat.com/wp-content/uploads/2020/08/James-H.-Stock-Mark-W.-Watson-Introduction-to-Econometrics-Global-Edition-Pearson-Education-Limited-2020.pdf

Vafeas, N. (1999). Board meeting frequency and firm performance. *Journal of Financial Economics*, *53*(1), 113–142. https://doi.org/10.1016/s0304-405x(99)00018-5