Corporate Governance and its Impact on Financial Performance on Public Family-owned Firms

Author: Gabriele Calcedonio Affuso (id: 49131)

Work project carried out under the supervision of:

Advisor: Professor António Nogueira Leite

NOVA SCHOOL OF
BUSINESS & ECONOMICS

A Work Project, presented as part of the requirements for the Award of a Master's degree in Management from the Nova School of Business and Economics.

A study of:

Corporate Governance and its Impact on Financial Performance of Public Family-owned Firms

Subtitle:
The evidence from family firms in Denmark and Portugal

Work project carried out under the supervision of:

Professor António Nogueira Leite

16/12/2022

Acknowledgment

We would like to give a big thank you to our supervisor, Professor António Nogueira Leite. His strong guidance and advice supported us from the very beginning of the thesis to the very final product. He has been nothing but outstanding in helping us to form a thesis that gives valuable insights. Additionally, we would like to mention Nova School of Business and Economics for providing the foundation and the necessary tools to write this thesis. Last, we also want to acknowledge each other, as all the authors of this report worked very committed and hard to have a final thesis, of which we can all be proud of.

Abstract

Corporate Governance strongly contributes to the efficient functioning of the market and corporations, not only by providing the right governance architecture, but also by aligning goals and interests between shareholders and management.

Family businesses have been present throughout all of economic history. This work project will be focused on the relationship between family-ownership, firm value, and performance. This is measured separately by using Tobin's Q and Market Capitalization. The sample will be limited to the European Market, more precisely, the Portuguese and Danish Markets, for which we observe a negative effect of family-ownership on firm value in all models.

Keywords

1. Corporate Governance
2. Regression Analysis
3. Family-firm performance
4. European Markets
5. Denmark & Portugal
6. Agency-Theory

This work used infrastructure and resources funded by Fundação para a Ciência e a Tecnologia (UID/ECO/00124/2013, UID/ECO/00124/2019 and Social Sciences DataLab, Project 22209), POR Lisboa (LISBOA-01-0145-FEDER-007722 and Social Sciences DataLab, Project 22209) and POR Norte (Social Sciences DataLab, Project 22209).

Table of Contents

1. Introduction 7

1.1 Narrow Corporate Governance vs. Broad Corporate Governance 8

1.2 Understanding the Difference of Family Firms in Emerging and Developed Markets 8

1.3 The Importance of Family Firms in Today's Economy 9

2. Literature review 11

2.1 Understanding the Family Firm and its Performance 11

2.2 Agency Theory and its Consequences on Firm-Performance 14

2.3 Resource Based View 17

, Y2.4 Hypotheses' Introduction 18

3. Methodology 20

3.1. Problem Recognition 20

3.2 Research Design 20

3.3 Research Methods & Data Selection 21

3.4 Data Rationality 22

3.5 Internal and External Validity 23

4. Regression Analysis 24

4.1 Assumptions of Regression (Gauss-Markov) 24

4.2 Limitations 27

4.3 Variables 28

4.3.1 Firm Performance as Dependent Variable 28

4.3.2 Family Ownership and General Management as Independent Variables 29

4.3.3 Other Control Variables 29

Individual Part - Gabriele Calcedonio Affuso 31

The evidence from family firms in Denmark and Portugal Introduction 31

GROUP PART 42

5. Expectation vs Results 42

6. Conclusion of the Thesis 43

Bibliography 45

APPENDIX 47

APPENDIX 1.1 – Linearity in Parameters 47

APPENDIX 1.2 – Multicollinearity 48

APPENDIX 1.3 – Homoskedasticity 49

APPENDIX 1.4 – Book Values of Portuguese Companies 50

APPENDIX 1.5 – Book Values of Danish Companies 51

GROUP PART

1. Introduction

To start the research and this dissertation, concerning how corporate governance in family businesses can impact firm performance and financial indicators such as market- and book value, the starting point is addressing what is meant by corporate governance as well as good corporate governance, since these are key topics to understand in this dissertation. Additionally, a small introduction to market characteristics of developed and emerging markets is given.

Even though the definitions of "corporate governance" vary widely, there is one main definition that the thesis adopts, due to the comprehensive, yet, easy understandably approach it takes. "Corporate Governance is the integrated system of checks and balances by which public traded companies are managed" (Leite A. N., Corporate Governance, Chapter 1, 2022). However, it is worth mentioning the previous literature review and papers concerning this matter, to understand the many conflicts there have been for previous definitions on the matter. In these regards, Stijn Claessens (2006) found out that the explanation of this topic tends to fall into two categories: the first set of definitions deals with a series of behavioural patterns, while the second set is interested in the normative framework, finding evidence of the legal and judicial rules under which corporations operate. Also, by looking at a broader definition of corporate governance, several studies tend to characterize it as a set of mechanisms through which firms operate when ownership is separated from management. This is like the solution given by the former head of the Committee on the Financial Aspects of Corporate Governance in the United Kingdom, Sir Adrian Cadbury in 1992. He states: "Corporate Governance is the system by which companies are directed and controlled" (1992). Further, the Cadbury Report states that three corporate governance structures are needed to maximize the wealth of owners: a general

assembly of shareholders, a board of directors, and executive management. In this respect, an even more broad definition is the one from Zingales (1998): “the complex set of constraints that shape the ex-post bargaining over the quasi rents generated by the firm”. The implicit objective of corporate governance from this broad definition would be to maximize the contribution of firms to the overall economy, including all stakeholders.

1.1 Narrow Corporate Governance vs. Broad Corporate Governance

Finally, another contribution from Ntim (2018) shows that governance structure can be “narrow” or “broad”. A narrow governance structure mainly concentrates on increasing the benefit of shareholders rather than maximizing the interests of other potential stakeholders, such as customers, employees, or creditors. In contrast, a broad corporate governance structure has its main goal of examining how both internal and external governance mechanisms can be executed to maximize firms’ value and/or both shareholders' and stakeholders’ interests.

1.2 Understanding the Difference of Family Firms in Emerging and Developed Markets

Another point of view from Åsa Björnberg, Heinz-Peter Elstrodt, and Vivek Pandit (2014) states that the majority of the industry-leading companies in developed countries are typically held by a broad mix of shareholders, however, the picture in emerging markets is different. In emerging markets, approximately 60% of the private sector firms with more than $1 billion in revenue or more is owned by founders or families. The main advantage of these family-held companies is a so-called “home field” advantage, meaning a deep understanding of the respective countries and markets is also justified by long and solid relationships with stakeholders across the value chain. Therefore, another important viewpoint is the one from Vikram Bhalla, Dean Tong, and Christian Orglmeister (2016) stating that emerging markets represent such a characteristic context for operating a family-firm, as justified by fast-changing regulations, institutions, and common laws. The three authors found evidence that family

businesses in emerging markets grow faster and differently than their counterparts in developed countries. Furthermore, if family-firms in developed countries mainly focus on resilience and sustaining their business, in emerging markets the picture changes as we witness a business approach much more focused on ambition, pursuit of growth, and willingness to accept risk.

For these reasons family businesses in emerging markets are the leaders across many industries. Moreover, family businesses in emerging markets can benefit from fast working processes since the decision process is speeded up by an owner-manager that has no need to pass decisions up a chain or ask for approval in front of an uncooperative board. Therefore familyowned companies can take long-term decisions quickly even though there is no guarantee this will pay off in the future.

1.3 The Importance of Family Firms in Today's Economy

Alfred Sarbah, and Wen Xiao (2015) in their study stated that family businesses are the supporting pillars of the world's business community, being crucial for the success of the global economy. The global economy is built around family businesses which must face and overtake many issues to grow. Moreover, according to John Ward (1991) family-firms represent a solid and prevalent form of enterprises in the economic and social landscape, as it justifies the importance of dealing with this type of companies. Since family-firms contribute to the creation of wealth and employment in any country of the world, it is of our attention to question their governance structure and the relation with their financial performance. In this regard, if the main corporate governance's goal is to ensure that the shareholders' and stakeholders' concerns are considered and to provide balance between their interests, the attention within these concerns has exponentially grown in the research landscape. In conclusion, Alfred Sarbah has stated (2013), how a good corporate governance structure can provide a productive and beneficial relationship between the family shareholders and the managing directors of the company.

Most of the research on corporate governance and on the impact of family ownership on firm's value and profitability have been focused on the Anglo-Saxon world (mainly the US, Canada, Australia, and the United Kingdom), although there are other relevant papers on the topic that contributed positively to the literature, such as the one from Nusrat Khan and Pallabi Siddiqua (2015).

The differences in capital markets, economies, and firms are significant when we compare the United States with the rest of the world, namely Europe. The European market is characterized by having fewer listed firms widely held (as in contrary to the US), and most of the firms that are present in the mentioned market tend to have a dominant shareholder, such as families. Furthermore, the different legal environments, institutional investing environments, and accounting standards were also one of the reasons why we focused on European countries.

Two of the team members of this Master's thesis are precisely from Portugal and Denmark. This aligned with both lack of literature on the topic and the differences between both countries in terms of financial and economic frameworks, revealing both countries to be a good focus for this study.

In the paper, there are three main hypotheses constructed. They are built upon theory and previous empirical research but presented and structured such that they provide new and additional insight into the fields of investigation. Primarily, it focuses on two dependent variables and one model that captures the effects between Portuguese and Danish companies for each of the two dependent variables.

The remainder of the paper is structured as followed. Section 2 explains the concepts of the family firm in relation to corporate governance and provides a brief synopsis of relevant literature that helps to understand conclusions from previous research. Additionally, it motivates and explains the three hypotheses of the regression models. Section 3 contains a

brief explanation of the methodology, an introduction to the data selection- and rationality, and includes a methodology section. Following that, we discuss in Section 4 assumptions and limitations, and we present and describe the variables that are included in the analyses. The last sections discuss the individual regression models, their methodologies, limitations, and results.

2. Literature review

In the following sections, the thesis will put forward relevant theory, that helps the reader to understand the differences between a family firm and non-family firm and review different research work and the results. Additionally, it provides insights into understanding how conflicts arise in a firm through agency problems. The literature will help to better understand the reasons for the hypothesis, on which the thesis builds.

2.1 Understanding the Family Firm and its Performance

There is still no clarity on what is meant by "family firm". According to the viewpoint of Henrik Harms (2014) a mutual starting point for a common definition is missing, leading to the conclusion that this can jeopardize any work on issues such as financial management or corporate governance in family firms. An early definition of a family business was given by Robert G. Donnelley (1964) in the journal article "The family business", published in the Harvard Business Review. As pointed out by the article, there are specific features of family business such as family members' involvement in the business, consequences of their influence on key business success factors, the composition of the management board, or succession decisions. Thus, Donnelley defined a family business as follows:

"A company is considered a family business when it has been closely identified with at least two generations of a family and when this link has had a mutual influence on company policy and the interests and objectives of the family". Later, James J. Chrisman, Jess H. Chua, and

Pramodita Sharma (2005) stated that all research should start with a common family business definition while emphasizing that "the definition of a family business must be based on what researchers understand to be the differences between the family and nonfamily businesses."

Thus, the discussion about a unified definition of the object of investigation is evidently not a thing of the past but continues to be of great importance also nowadays.

While questioning ourselves whether family ownership per se increase or decrease firm performance, we see this far from being an easy question to be addressed. According to the contribution of Martin Reyna and Duran Encalada (2011), there are different answers. Regarding US firms Anderson Reeb (2003) found evidence that family ownership compared to non-family ownership increases the firm performance, however, the point of view of Clifford Holderness and Dennis Sheehan (1988) is the opposite. Also, these discoveries led Ernest H. O'Boyle Jr., Jeffrey M. Pollack, and Matthew W. Rutherford (2012) to develop a meta-analysis theory stating that whether family-firms have a better or worse firm performance depends on different aspects, including the context of each country and their influence on the ownership structure.

In summary, the relationship between family-ownership, corporate governance, and firm performance is a widely discussed question that results in contrasting theories. As a result, Andrei Shleifer and Robert Vishny (1986) found that there is a positive relationship between ownership concentration and performance, however, Claessens and Djankov (1999), Faccio and Lang (2001), Friend and Lang (1988), Johnson, Magee, Nagarajan, and Newman (1985) and Singell (1997) found evidence that large shareholders can mitigate the managerial expropriation in companies with concentrated ownership and control. This is justified by the fact that family firms hire company relatives who know the firm better.

Several studies are questioning the relationship between firm performance and family or nonfamily ownership, focusing on different markets and leading to different conclusions. Among the literature review of this topic, another crucial opinion is from Martin Reyna and Duran Encalada (2012) claiming that family-owned firms on the Mexican Stock Exchange perform better than their non-family counterparts, concluding that governance practices have different effects on firm performance in family and non-family firms.

Still, on the Turkish market, a paper from Pinar Sener (2014) inquired into firm performance, accounting profitability, and market value, of family and non-family firms. The study has been carried over a panel of 210 publicly listed non-financial companies leading to the conclusion that family companies have higher accounting performance but lower market values.

Furthermore, in the view of Eyup Kahveci and Bert Wolfs (2019) there is a positive relationship between family business and firm performance, and family business and compounded growth rate of financial performance. Moreover, the authors found evidence of a positive relationship between all ownership structures and firm performance. In addition, compounded growth rate scores happen to not have any significant relationship with firm performance. This can be explained by the fact that in an emerging market, such as the Turkish market, higher profitability does not translate into higher market value because of the lack of well-developed legal and regulatory institutions.

Despite several pieces of research have been carried out on emerging markets, as pointed out in the previous paragraphs, the majority of empirical studies have examined the performance of family businesses in developed economies, such as the U.S. (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Miller, Le Breton-Miller, Lester and Cannella, 2007), Germany (Andres, 2008) and Japan (Allouche, Amann, Jaussaud and Kurashina, 2008; Yoshikawa and Rasheed, 2010).

Additionally, Peter Klein, Daniel Shapiro, and Jeff Young (2005), analyzed the relationship between firm value and indices of effective corporate governance over a sample of 263 Canadian firms. The study focuses on understanding whether corporate governance has an impact on firm performance while trying to point out if any governance factors are more important than others. The three authors found evidence that corporate governance does matter in Canada with differences in ownership category. Specifically, the paper shows that for family-owned firms corporate governance has a negative effect, as well as that in Canada ownership type does not affect performance, leading to a result somehow different from recent U.S evidence that shows that firm-performance increases in family-firms over non-family firms (Anderson and Reeb, 2003).

In this respect, the authors Milena J. Schank, Aurora Murgea, and Cosmin Enache (2017) mainly focus on investigating the possible differences in firm performance between familyfirms and non-family firms in Romania and Germany. The work intends to answer the question: does family ownership have a different effect on firm performance in countries with a diverse historical background as Romania and Germany? The paper adds to the literature, especially because of testing this relationship for a relatively big sample of Romanian companies. They conclude that for both countries (Romania and Germany) family ownership is a consistent factor for improved firm performance, suggesting that this type of ownership provides closer supervision of the functioning of the company. Lastly, the authors proved that the link between family ownership and financial performance is weaker for Romanian companies than for German companies. But still significant.

2.2 Agency Theory and its Consequences on Firm-Performance

In 1976, a ground-breaking paper saw the daylight. Michael Jensen and William Meckling published the paper “Theory of the firm: Managerial Behavior, agency costs, and ownership

structure". To this day, it is still one of the most recognized papers about corporate governance regarding agency costs and ownership. Jensen and Meckling suggest that one of the most important things to understand within the firm relates to ownership structure and its relationship over time. "*Indeed, it is likely that the most important conflict arises from the fact that as the manager's ownership claim falls, his incentive to devote significant effort to creative activities such as searching out new profitable ventures falls"* (Jensen & Meckling, 1976). Additionally, Jensen and Meckling identify a negative relationship between an owner-manager's fraction of equity and the corporate resources the owner-manager encourages to pursue perquisites. In turn, other minority shareholders must and will become more aware of the owner-managers and spend more resources monitoring behaviour, than creating new value. As Jensen and Meckling state "*Thus, the wealth cost to the owner of obtaining additional cash in the equity market rise as his fractional ownership falls"* (Jensen & Meckling, 1976).

Since Jensen and Meckling first published in 1976, the theory has developed multi-fold, but still, a lot of research is performed within the areas of corporate governance regarding ownership structure among others. To better understand how conflicts can arise, it is impossible not to mention Agency Theory. Agency theory plays a large part in understanding 'why'. Why do conflicts happen, why do ownership structure and managerial behaviour matter, and most importantly, how do they play a part in firm performance?

Agency problems can be caused either by asymmetry of information, or, by the existence of different goals of both the principal and agent. Asymmetry of information refers to hidden actions or information since the agent has closer contact with real and more detailed information than the principal, who by himself does not have the possibility to oversee every action that the agent takes. With regards to the existence of different goals, it affects the

performance of the agent (free-riding problems, for example), and according to some researchers, it is reduced in family-owned companies. In addition, agency problems can be described as either a Type I or Type II. Type I relates to problems between a principal of a company (owner), and agents of the firm, who may be in management positions, executing on the firm's operations. Type II is in essence the same but refers to the discrepancy between controlling and minority shareholders. Type I conflicts are reduced in firms that family-owned, but an increasing Type II. Vice versa, firms that are not family-owned maybe experience more of Agency Type I, but less of Type II (Purkayastha). While the empirical studies from Purkayastha were from 499 public Indian companies, we expect this to be reflected on a European level, following simple intuition. Indeed, it does make sense that family-owned firms have a better opportunity to manage agents in their company but might incur conflicts dependent on the gap between the family's desired benefits and the minority shareholders. Morck & Yeung found that people of the owning-family holding management positions are more likely to pursue the interest of the owning-family rather than the minority shareholders (Morch & Yeung, 2003). Additionally, Shleifer and Vishny found evidence that family-owned firms may have tendencies to hold on to management if filled by family-members, even when they are deemed incompetent to do so. (Shleifer & Vishny).

From a broad perspective, agency problems occur largely due to differences in motivation, or as put by Michael Brennan "*A major reason for this shift of emphasis is the attention now paid to the role of individually motivated agents in the corporation"* (Brennan, 1995). The role of individuality is hard to deal with. No legally binding contract can (likely) ever capture all instances that may lead an agent of the firm to be able to act in both his own welfare, and the welfare of the principal (Wie, 2001). This leads to dispersion of interests, and so considering the corporate governance, a conflict of interest, or misalignment between corporate managers and shareholders is likely to occur. The gap between 'what could have been' and 'what is

realized' leaves behind a value loss to everyone holding shares in a company. Jensen and Meckling identified three ways in which the value loss can be categorized under agency theory, namely, *monitoring costs, bonding costs, and residual loss.*

In short, *Monitoring costs* are expenditures used to monitor and control an agent's behavior. In the past, they have mostly included expenses for compensation contracts, audits, and even firing agents. *Bonding costs* relate to costs that agents take on, for them to be viewed as acting in the shareholder's interests, or at least not diverging from them. *Residual Loss* describes the un-denying that perfect alignment does not exist. Even though monitoring costs and bonding costs are incurred, there will never be a complete alignment between agent and principal. The losses that may still exist are known as residual losses (Wie, 2001).

2.3 Resource Based View

The main contribution in these regards is from James J. Chrisman (2005) who stated that the resource-based view is a great starting viewpoint in family business research which can be used as a framework to analyze the assets and skills that distinguish family businesses and their performance advantage in relation with non-family-businesses.

The main reasoning behind this theoretical approach is assessing the generic statement that family-firms perform better than non-family-firms, while additionally offering a unified view of family-firm performance.

Moreover, Sabine B. Rau (2013) pointed out that researchers consider the resources of family business distinct from non-family-business. This theory argues that family-firms can have a family-specific advantage and consequently have superior organizational performance since their resources are considered to be valuable, rare, and inimitable compared to those from nonfamily-business. However, there is still missing empirical research based on the research-

based view of family firms, as a result, there is no agreement on whether the results show a family specific theory or not.

, Y2.4 Hypotheses' Introduction

Since Portugal's membership in the EU in 1986, the economy has experienced rapid growth, which is why Portugal has previously been categorized as a converging economy (Tiago Ratinho, 2008). Today, Portugal is still lacking behind several European countries in terms of economic prosperity, Denmark being one of them. However, as both countries largely operate within the frameworks of the European Union, and have produced multiple national and international leading corporations, there is external validity to perform an analysis with a combination of the two countries.

In terms of risk effects both Portugal and Denmark scored higher than the EU & Central Asia average points in Regulatory Quality and Control of Corruption (74, 98, 70 & 78, 99, and 65, respectively) (World Bank, 2021). Additionally, the firms included are listed on the highly regulated stock exchanges of Euronext and Nasdaq.

Hypothesis 1 – Does Family Firms Have Stronger Fundamentals?

A main hypothesis that this report has, is the ability of family firms to be very strong from the foundation and up until a certain threshold of assets. From the literature, we have seen that some countries do experience family-controlled firms outperform non-family-controlled firms, but also vice versa. Primarily, the literature has shown that, especially, undeveloped countries have benefitted greatly from family-firms. As Tobin's Q uses financial fundamentals of assets and liabilities, are part of the derivation, is it used here as the dependent variable. We, therefore, hypothesize that:

$$H0\text{: } Corporate\ Governance\ has\ no\ effect\ on\ Tobin's Q$$

$$H1\text{: } Corporate\ Governance\ has\ an\ effect\ on\ Tobin's Q$$

Hypothesis 2 – Do family firms Struggle to Expand the Business for Future Growth?

Much like hypothesis 1, hypothesis 2 builds upon theories from literature. It has been shown previously, on some occasions, that family firms struggle to create long-term value, especially relating to conflicts described under Agency Theory type I and II (section 2.2). Market capitalization is a great indicator, under the influence of the Efficient Market Hypothesis, as it allows for future growth and expectations to be reflected in a share price that leads to the total market value of the company. Therefore, hypothesis two is as followed

$$H0: Corporate\ governance\ has\ no\ effect\ on\ Market\ Capitalization$$

$$H1: Corporate\ governance\ has\ an\ effect\ on\ Market\ Capitalization$$

Hypothesis 3 – Does Nationality Matter

Investigating firm performance in relation to corporate governance is not new. However, there is still no real consensus on, what can be expected in terms of outcome. Many researchers have found different results, and they often vary when comparing developed with undeveloped countries. Even further, when closely related countries are analyzed, the results differ as well, as it is shown between Peter Klein et al., who investigated Canadian firms, and Andersen & Reeb who investigated American firms. Peter Klein et al., found that there is a negative effect of family-owned firms on firm performance, while Andersen & Reeb found that firm performance increases in U.S. family-firms (Klein, Shapiro, & Young, 2004) (Anderson & Reeb, 2003). Therefore, it is hypothesized:

$H0: Danish\ and\ Portguese\ companies\ are\ equal\ when\ investigating\ firm\ performance\ in\ relation\ to\ corporate\ governance$

$H1: Danish\ and\ Portguese\ companies\ are\ not\ equal\ when\ investigating\ firm\ performance\ in\ relation\ to\ corporate\ governance$

3. Methodology

The methodology part is included in this paper, as it was acknowledged as important to give the reader a sense of validity, and to understand the thought process behind the research. The section deals with different questions, as to understand why the topics are being investigated, and more so, to understand the theoretical approach behind obtaining, analyzing, and using the information.

3.1. Problem Recognition

The authors of this thesis want to investigate the field of corporate governance and how family-owned firms affect the financial performance of corporations. The field of management structures and firm-performance are not new topics to the scene of empirical research. They are, however, subject to very varying results, and typically performed in large, developed countries or undeveloped countries, as these can be of largest contrast to one another. While the EU27 accounts for 14% of the world trade in goods (The European Union, 2021), most studies use Germany or France as a focus. Likely, because of their role as leaders in industry within the EU. But just like Africa, Asia, and any other part of the world, the EU27 countries cannot be seen as one entity. At least not when it comes to economic and corporate structures.

3.2 Research Design

Arguably, there are two big frames of research designs. Natural or social sciences. Natural science concentrates on getting to the ‘one’ correct answer to a research question, where any other results are deemed incorrect. Scientists argue that the field of psychics, is possibly the only field that natural science fits 1-1 (Nelson R. R., 2016). The opposite is social sciences, where there is not one correct answer. Instead, social sciences acknowledge that many factors play a role in understanding how the world works and that it may vary depending on who you ask (Nelson R. R., 2016). As the scope of this thesis is related to uncovering how several

nonquantitative variables affect firm-performance, the scope is solely focused on social sciences.

As the thesis establishes an empirical scope in the literature review, as well as three proposed hypotheses before the data-gathering-process, it takes a deductive approach. As the data will be used to establish arguments and conclude on our main hypotheses. Additionally, to strengthen the discussions and conclusions, theoretical concepts, and frameworks from the world of finance, strategy, and culture are included. Primarily, this aids the qualitative part, of trying to uncover underlying effects and provide an outlook for future elaborations.

3.3 Research Methods & Data Selection

The sample is built upon corporations in the publicly traded lists of the Portuguese Euronext and Danish Nasdaq C25, from 2015 through 2021, hence, secondary data. After removing companies that were not listed prior to 2015 the total number of companies is 37, with 15 Portuguese and 22 Danish companies represented. Additionally, one firm was excluded because of missing data. Hence, we are dealing with a panel data set with 37 observations during the time of 2015-2021. Common traits for the purposive sampling are that they are subject to specific criteria, that ensure a strong data set.

i) Listed as a public firm on either Euronext Portugal or C25 Nasdaq from 2015-2021

ii) Annual reports have been publicly accessible every year

iii) Structure of ownership and board information.

Much of the data is gathered using Bloomberg Terminal for general firm performance, while Annual Reports and Compliance reports are used for metrics such as management structures.

3.4 Data Rationality

Assumptions of the overall models will be discussed in section 2.2. However, to ensure consistency in the dataset, several measures have been taken. First is the concern of measurement error in the dataset. Measurement error relates to the value between the observed value and the true value of the population. Unlike proxy variables, where you look for a variable that is associated with the unobservable variable to describe something, the measurement error can be quantified, but the numbers in the observed number we have may contain errors (Woolridge, Introductory Econometrics: A Modern Approach, 2019). Often this is denoted as $e_0 = y - y*$, in the population. Considering the access to data from Bloomberg and corporate papers, the authors believe the collected data to be strong estimators of true value. However, given the data set size, the true population values may differ slightly. Therefore, it is important that the model also fulfills the error-term assumption, homoskedasticity, to ensure that u has a zero-mean (Woolridge, Introductory Econometrics: A Modern Approach, 2019).

As the dataset is built from the ground and up, this indicates that all data for all firms in the sample-population were included. When running regression analysis, any missing data points in an observation omits the observation. Therefore, any variables that did not contain a full set of observable values were removed, and hence, the thesis operates with a 'complete cases estimator' (Woolridge, Introductory Econometrics: A Modern Approach, 2019), a description for a dataset without any unobservable values. Ørsted and Netcompany were removed to ensure this, as there were too many missing data points. MCAR refers to data that is 'missing completely at random'. There is statistical evidence that it will not cause problems MCAR is present, which also indicates fulfilling assumption 2 of MLR. In data sets of large amounts of missing values, one approach to solving the issue may be the *missing indicator method*, MIM, however, it requires very strong assumptions, and considering the data set in this report, it was

decided that fulfilling a complete cases estimator model would be better. In short, MCAR was preferred over the MIM-method.

Lastly, outliers are also important to denote. Outliers, in essence, can greatly affect a model as they will decrease the sum of squared residuals, as it generates a stronger effect on our dependent variable. Woolridge argues that typically outliers arise for two reasons. Either errors when typing in the data or when sampling from a relatively small population, where one or more of the variables are of some difference compared to the rest. Granted our dataset the only real outlier is Novo Nordisk's market capitalization. Their status as an R&D firm, with an already strong pipeline of products for diabetes, has given them a strong image worldwide.

According to Woolridge "*The decision to keep or drop such observations in a regression analysis can be a difficult one, and the statistical properties of the resulting estimators are complicated".* In our model, Novo Nordisk is included, and the reason for this is simple. As we are measuring two countries in a combination of management structures and firm performance, and later including dummy-variables to distinguish the two countries, it should not be neglected that Denmark has been the foundation for a company such as Novo Nordisk. It might be seen as an outlier but can also be seen as an observation of what their management structure has been able to accomplish.

3.5 Internal and External Validity

The outputs of the model have given useful insights and have followed approaches used in other literature cases. Internally, the model does have a reasonable amount of internal validity. There have been multiple considerations, regarding qualitative and quantitative assessments, building on well-analyzed models with the rationale behind these decisions. Additionally, the data-rationality ensures strong internal validity.

The report is considered to have some degree of external validity. For the choice of variables, they are very universal and can be transferred to another research project. However, the approach followed in this report might not be feasible for other projects. This is regarding the constant-zero model, which will be elaborated on in the next section, Additionally, some elements and variables included might not seem equally relevant to others, such as GDP growth and firm age.

4. Regression Analysis

Section four is concerned with the analysis of this thesis. Three different models will eventually be performed, and the results will be analyzed. The regression analysis is performed using data analysis tools in Excel.

4.1 Assumptions of Regression (Gauss-Markov)

Before each author identifies and analyses an individual model, the assumptions of the variables are run. To ensure a strong dataset we check the assumptions of MLR 1-5, where any concerns within the data are addressed.

MLR 1 Linearity in Parameters:

For the linearity in parameters assumption, we are concerned with the individual relationship between the independent variables and the dependent variable. Running several linear fits, most of the variables do not have a better fit, than the linear goodness of fit. However, Board Members and Firm-age variables both showcase a stronger fit when a polynomial model is made (Appendix 1.1). This was also an expectation, as both firm age and board members can be expected to not to have an infinite linear relationship with Tobin's Q. For firm age the natural logarithmic will be applied.

MLR 2 Normality

For the normality assumption, a Kurtosis-test was constructed. The Kurtosis-test has been widely used, and a precise description is given. "*For symmetric unimodal distributions, positive kurtosis indicates heavy tails and peakedness relative to the normal distribution, whereas negative kurtosis indicates light tails and flatness"* (Carlo, 1997). When running our model, we get a kurtosis score of 4.82. This indicates a heavily tailed right-skewed distribution with *peakedness*. The intuition behind this is that we are dealing with variables that do not go below 0 in the endogenous variables, and partly some of the exogenous variables. In standard empirical theory, a kurtosis-test is said to be valid within [-3;3] (Woolridge, Introductory Econometrics: A Modern Approach, 2019), as it compares to the normal standard distribution, which takes the value of three. The assumption of normality needs to be taken with caution.

However, considering the range of observations is more than 30, we apply the Central Limit Theorem and are confident that it does have some validity inside the model.

MLR 3 Multicollinearity

For the third assumption regarding multicollinearity, the Variance Inflation Factor calculations have been used. Each exogenous variable has been regressed on all the other exogenous variables, and afterward, the VIF equation is used.

$$\frac{\mathbf{1}}{(\mathbf{1}-\boldsymbol{R}^{\mathbf{2}})}$$

The opinions towards a satisfactory level of VIF are divided among the theory, where there are multiple arguments for a level of 3,5, or 10, with 10 giving the largest allowance for collinearity (Woolridge, Introductory Econometrics: A Modern Approach, 2019). Considering the scope of this report, we set a borderline VIF at 10, as it is expected that a level of collinearity is present between one or more variables due to their nature. As shown in

appendix 1.2, only the variable 'Total Board Members' exceeds the threshold of a satisfactory VIF-level. Taking caution while analyzing this variable may be needed. However, it must also be noted that, even though the VIF is above 10, it is still useful. This stems from the fact that the sum of total squares (SST), is used in the VIF-calculations, and this can be increased through a larger sample size (Woolridge, Introductory Econometrics: A Modern Approach, 2019). Woolridge even argues that VIF should be looked at, but not interpreted too much, just as with R^2 in regression.

MLR 4 No Serial Correlation

In regular datasets that are not based on time-panel data sets, the serial correlation assumption is often stated as 'fulfilled', as long as random sampling is present. In essence, what serial correlation checks for, is for any given x_{ij}, whether a lagged version of that variable is correlated. As this thesis is dealing with

MLR 5 Homoskedasticity

To check for homoskedasticity, and whether our error term is = 0, a Breusch-Pagan test is run, as well as graphical illustrations. When running the Breusch-Pagan test, in a scenario of constant-zero and one without constant-zero, both fail to reject the Breusch Pagan test under $\alpha = 0{,}05\ and\ 0{,}1$ with P-values of 0,53 and 0,11, respectively. Therefore, the model implies no problem with homoskedasticity, and it can be assumed that the error-term is constant. A graphical illustration is given in Appendix 1.3 supporting this, showing just three outliers.

Conclusion of Assumptions

Multiple assumption checks show two concerns that needed addressing. I) Two variables may experience a better fitting with a polynomial fit, and ii) a single variable has a collinearity

problem that is slightly above the threshold. Firm_age variable[1] will be changed to a log variable[2]. In effect, this diminishes large outlier effects that may provide an inaccurate picture of the model, and additionally, the effect is now measured in %-change for each additional year of age the firm will be. For the variable concerning Total Board Members, the variable will not be changed into a polynomial. Screening the dataset, there are no outliers, and it is believed that capturing real quantitative numbers of board members may be important for the study. The model needs to be operated with caution, but the internal validity of the model seems intact.

4.2 Limitations

The prerequisites of the dataset have been discussed. Both in terms of how the data has been collected and sorted, and how the MLR assumptions have been run before the outputs. The last thing to point out before starting the analysis of each model is some limitations to acknowledge beforehand.

A limitation of this model is the fact that it will deal with 'constant-zero' models when running the regressions. Previously, it has been mentioned how there may be external validity. In many common research projects, running constant-zero models is not usual. However, for this specific case, considering that the Efficient Market Hypothesis is fulfilled, we cannot expect market capitalization or Tobin's Q values to be below 0 and take on negative values. If this were to happen, it would essentially indicate there exists arbitrage profit opportunities from Tobin's Q, and negative market capitalization. Additionally, small, and middle cap exchanges are not included in the sample. This leaves out smaller and mid-market companies that are traded on, what is typically known as, the growth exchanges. They may experience market capitalization that is relatively small, compared to the larger exchanges included, but Tobin's

[1] Firm-age is the age of the firm since establishment

[2] Log firm-age is the natural logarithmic of firm-age to get a %-change impact

Q could have given potentially relevant insights. However, due to the scope and limitations of the thesis, they are not included.

4.3 Variables

In the following sections, the various main categories of the studies and their belonging variables will be elaborated.

4.3.1 Firm Performance as Dependent Variable

Tobin's Q and Average Market Capitalization are the two main variables used to measure firm performance. Tobin's Q is seen as a catalyst for the book to market-ratios that are present, as it is calculated in two main steps. First, the relationship between Assets & Liabilities, and next the derivation of Tobin's Q.

$$Book\ Value = Total\ Assets - Total\ Liabilities$$

$$\boldsymbol{Tobin's\ Q} = \frac{Market\ Value}{Book\ Value}$$

The average market capitalization is used as another firm-performance metric, as substantial theory suggests that there is a large gap between what a family-firm and non-family-controlled firm can achieve regarding performance, once there is distinguished between book value and market value. This has been elaborated in section 2.2 under Agency Theory. Market capitalization is derived with the following formula.

$$Market\ Capitalization = Share\ Price * Outstanding\ Shares$$

For this study, the values at end-of-year (EOY), were used from Bloomberg.

4.3.2 Family Ownership and General Management as Independent Variables

In the Harvard Business Review in 1964, Donnelley published the article '*The Family Business'* which was trying to give one of the early definitions of a 'family-firm'. Yet, close to sixty years after, and there is yet to be a unilateral definition of a family-firm. Since Donnelley published his article, many peers have contributed with new and different views on family- firms. A wide range of perspectives has been offered such as a research perspective and basing the definition on the current research settings, (Chrisman et al 2005), to a distinguishment in ownership categories (I.E Corporation, LLC, etc.) (Peter Klein, Daniel Shapiro), or even to include measurement of their influence towards critical success factors (Zachary, 2011 [17]).

For this study, the main variable of interest is whether it is a family firm or not. Hence, it is a dummy variable taking the value 1, if it is a family firm, and 0 if not. As there are no clear guidelines to the definition of a family firm, the report has decided that it is a family firm when at least 10% of equity is owned by a member of the family, which includes by blood or marriage. This seems to have a general fit in-between previous theory and literature (Section 2). Additionally, it is above the 5% threshold that the SEC states as being a beneficial ownership, and the 10% threshold where transactions must be reported (SEC, 2022). The general management of the firm is measured through two dummy variables. I) Family Board Member; a dummy variable taking the value 1 if any person with family association is in the board, 0 otherwise, and ii); Family CEO, a dummy variable that takes the value 1 if a person that is family associated is the CEO, 0 otherwise.

4.3.3 Other Control Variables

Agency theory has been a fundamental theory in economics for many years (Li, 2009). It largely reflects on the challenges that can arise between management, shareholders, and

executives within a company, as elaborated in section 2.2. Sometimes, these are referred to as Agency Problem Type 1 & 2. To capture potential governance structure mechanisms related to firm performance two variables are included. In 2011 Bammen et al. defined non-family board members as "Individuals who do not belong to the family", and mutually exclusively, belonging to the family means you are a family member, whether by blood or marriage. (Bammens, 2011). This perspective aligns with the perspective of what a family-owned firm is.

The Family board members variable captures the effect of having family members present at the board of directors. It takes the form of a dummy variable with 1 if the person is a family member, and 0 if not while sitting at the board. Secondly, the total board members are defined as the total number of board members within the company. Last, firm age has previously been known to be a means of innovation, financial performance, growth, and business reputation among others. (Coad, Holm, Krafft, & Quatraro, 2018) (Kowalewski & Talavera). Firm age is included as the natural log of the firm's age since foundation.

Table 1 – Complete List of Variables and their Definitions

Variable Definitions	
Variables	**Description**
Dependent Variables	
Tobin's Q	Market Value / Book Value. Where book value is calculated as Total Assets - Total Liabilities
Market Capitalization	Share Price * Outstanding shares at EOY between 2015/2021. Average taken throughout the years. Any dilution is accounted for.
Explanatory Variables	
Family Owned	The firm is considered to be a family-firm if any member of the family owns more than 10% Equity. Additionally, if a family is the largest shareholder with more than 20% of shares. Dummy variable taking the value 1 if its family owned, otherwise 0
Family CEO	The CEO is associated to the owning-family either by blood or marriage. Dummy variable taking the value 1 if it's family owned, otherwise 0
Family Board Members	A board member is associated to the family either by blood or marriage. Equals 1 if its a family board member, 0 otherwise
Total Board Members	Total number of board members
Age of Firm	Years since the foundation of the firm, natural log
Portugese Company	Dummy variable if the company is portugese or not. 1 if its a portguese company, 0 otherwise.
Average GDP Growth	Average GDP has been taken with the Eurozone average level in the period.

Table 1. Own construction with overview of variables and their description used in the regression analysis.

After having introduced the concept of corporate governance and the definition of family business as well as having presented the main goal of our research, the thesis now develops

into the three main regression models. Until now, the group part has elaborated on the most relevant literature, and hypotheses. The Data set and assumptions are presented. Now will follow three individual sections. Three regression models will be constructed, analyzed, and explained in the following paragraphs as well as a conclusion and results section will be presented in each. This ensures a deep dive to understand the topics to a full extent and highlight the main findings.

Individual Part - Gabriele Calcedonio Affuso

The evidence from family firms in Denmark and Portugal Introduction

The third and fourth regression models of the thesis differ from the other models by adding up to the analysis a new control variable, specifically a new dummy variable which is equal to 1 if the firm is Portuguese or 0 if not.

How can corporate governance increase firm's performance and how does this vary within different countries, namely in Denmark and Portugal? Can the dummy variable "PT_Company" impact the firm's performance and lead to different conclusions in the regression analysis? These are the main questions that this peer-individual part of the thesis will try to address. This section of the study contributes to the whole body of the research by considering a new dummy variable, indicating whether the analyzed company is Portuguese or Danish. Therefore, the main hypothesis that this model will deal with is hypothesis 3 which is stated as:

$H0$: *Danish and Portguese companies are equal when investigating firm performance in relation to corporate governance*

$H1$: *Danish and Portguese companies are not equal when investigating firm performance in relation to corporate governance*

The rest of this section is structured into the following sub-sections. The study's choice of markets is described in the following sub-section of the introduction along with a brief explanation of the main objective of the new regression model and data sources. Section 2 will focus on the model elaboration, main results, and its validity. Finally, section 3 will deal with conclusions compared with the expectations and limitations of the model.

Portuguese market matters

Even though most papers and researchers have been focusing on developed markets such as the U.S (Anderson and Reeb, 2003; Villalonga and Amit, 2006; Miller, Le Breton-Miller, Lester and Cannella, 2007), Germany (Andres, 2008) and Japan (Allouche, Amann, Jaussaud and Kurashina, 2008; Yoshikawa and Rasheed, 2010), the authors found worth it emphasizing on the Danish and Portuguese markets for the reasons mentioned in paragraph 1.3 "The importance of family-firms in today economy".

Additionally, the reasons behind the choice of the dummy variable "PT_Company" are the following. First, according to José Luis Miralles-Marcelo, Maria del Mar Miralles-Quirós, and Inês Lisboa (2014) the Portuguese market is a small and medium-sized market with a growing importance in the world financial market, consequentially it is necessary to focus on this country for this current analyses. Also, the most dominant companies in the Portuguese Euronext are owned or managed by a family, which happened to be the focus of this work. Third, there are significant differences between the Portuguese publicly traded firms and those of the Nordic-model economies. Therefore, it is expected that family-owned firms and nonfamily-owned firms in Portugal and Denmark perform differently when looking at different control variables. The authors focus on running a regression model by considering several control variables, an independent variable, and an error factor.

Finally, another important contribution comes from Peter Klein, Daniel Shapiro, and Jeff

Young (2004) stating that the effects of corporate governance on firm's performance can vary depending on the different institutional environments in any country. Despite the Danish market might be thought of being similar to Portugal, as both appear as developed countries in the MSCI lists of market classifications (Annual Market Classification Review 2022), institutional structures and corporate governance practices tend to be different between these two countries with consequences on how firms conduct their business and perform.

Regression-Model-3 main objective and results

As mentioned before, the control independent variables have been changed by adding a new variable in the regression model. Specifically, the primary objective of regression models three and four is to refer to the dummy variable "Portuguese company or not?" ("PT_Company") in the analysis along with the other variables, determining whether Portuguese-family-owned firms perform better than non-Portuguese-family-owned firms. This variable happened to have a value of 1 when the company is Portuguese or 0 when is not.

The study will therefore focus on the significance levels of the three different models and the potential explanatory power of the dummy variable ("PT_Company") while examining the relation between corporate governance and firm's performance, as measured by Tobin's Q and Market Value.

Moreover, this section of the study intends to address the differences between the four models concerning the impact of the variable on the firm's performance and as already stated, the regression's significance.

While the first and second models mainly focus on how Tobin's Q and market capitalization parameters change in relation to corporate governance and family ownership, revealing that firm's performance (Tobin's Q) is higher in publicly traded family-owned firms than in nonfamily-owned firms and market cap is less in family-owned then in non-family-owned,

the findings of the third and fourth model explain to us that firm-performance is lower in Portuguese companies than in non-Portuguese companies.

Furthermore, again José Luis Miralles-Marcelo, Maria del Mar Miralles-Quirós, and Inês Lisboa (2014) pointed out that these results suggest that in Denmark the positive characteristics of family firms prevail over the negative ones, impacting positively the firm's performance. As expected, the firm's size and age have also an impact on performance results, Tobin's Q, and market cap: the older the company is, the more likely the firm will increase its accountability performance (Tobin's Q) and market capitalization. Furthermore, the smaller the firm is the more struggle it will have to increase its market cap. Finally, has been found evidence that a family founder or any other family CEO has a negative impact on financial and market cap performance. Jörn Block and Joern Hendrich (2008) argued that the impact of family ownership and management on firm's performance vary: results show us that professional managers are better suited to run the company since they might have a college degree, more talent, and avoid family ties to the industry.

In this respect, these results can be explained by pointing out the different contexts that family firms and non-family firms deal with in Denmark and Portugal. Given the different legal mechanisms, institutions, and market sizes between the Danish and Portuguese markets, companies in Denmark tend to have higher market value and profitability accounting parameters.

Finally, it is expected that more differences compared to the other regression analyses stand over R^2 values, meaning remarkable differences in the significance of the models and the proportion of variance in the dependent variable that can be explained by the independent variables. Specifically, we can highlight an increase of R^2 from 0.56 to 0.65 and from 0.31 to

0.36. In these regards, changes in the independent variables correlate with shifts in the dependent variables.

This research will contribute not only to studying the disagreements and agreements between the four models in terms of financial performance and parameters but also to initiating a debate regarding Portuguese and Danish contexts in relation to family firms and non-family firms.

Theoretical contribution and expectations of the model

There are few expectations in this peer regression. The beliefs follow the assumptions of this paper and additional previous literature.

The model uses two financial performance independent variables as also used by Belen Villalonga and Raphael Amit (2006): a market perspective variable – Tobin's Q or market to book value – and a market cap parameter.

Specifically, it is expected that the model will have a higher R^2 coefficient, meaning more explanatory power. While keeping unchanged all the other dependent variables of the analysis, it is likely that the model will better explain the observed data. Moreover, based on the different contexts of Danish and Portuguese markets, we belief that the dummy variable will have a negative impact on the firm's performance, both in Tobin's Q and Market Capitalization. Also, the authors of this paper expect the dummy variable to have a larger negative effect on Market

Capitalization as a measurement of the total value of all company's shares of stock, and of how much is the company worth in the global economy.

The model will be run in the paragraphs that follow, and the results will be shown. A conclusion and limitations sections will follow.

Country dummy variable matters

While analyzing the sample of all 37 companies, the country dummy variable is relevant, justifying the different values of the firm's performance between the two countries. Despite some similarities between the two stock markets such as the big presence of small to medium size enterprises and family firms in both markets, the markets' sizes and liquidity are unique between Portugal and Denmark. In these regards, most of the differences between the two countries arise in politics, institutions, regulations, and legal outlines.

These variations justify the difference in firm's performance between Danish and Portuguese firms and the impact of the dummy control variable "PT_Company".

Results show us that Danish family firms perform better than Portuguese family firms. The reason behind these findings is mostly related to the institutional and economic models of the two countries. Specifically, Denmark's flexible hiring rules and lack of corruption made this country in the last decade one of the first markets where to do business and specifically to start a family-owned business. Moreover, since 2015 the government has promoted new liberal practices on improving investment conditions for family-owned firms as well as on creating growth business opportunities. This goes through a new and simpler systems of taxation for businesses and specifically improvements in the succession framework.

The bigger picture reveals to us that the main goal of the government is to encourage business growth and create jobs.

Nevertheless, the lack of an efficient succession plan is indeed the main issue that Portuguese family firms are facing in growing and investing their capital, as pointed out by a study over a sample of 2802 companies by PricewaterhouseCoopers (PwC). Moreover, has been found evidence that in Portugal banks heavily control firms' exposure to risk, discouraging their willingness of investing and doing business. Furthermore, other factors led to the conclusions just pointed out in the previous paragraphs. Portuguese family firms hold a tradition of organic

growth over inorganic growth, meaning that they increase output and enhance sales internally rather than with mergers or acquisitions. Portuguese family owners usually tend to keep influence over the company operations while foregoing shares or diluting them. As a result, those family-owned companies stop to grow, leading to the conclusions emphasized before.

On the other hand, the Danish government invested DKK 2.1 billion between 2018 and 2020 ensuring growth and investments for family firms. As family businesses are vital for the Danish economy to create job and business opportunities, the government has also strived to eliminate a big number of taxes and duties which were impeding family firms to grow in the market.

Financial Performance

The model uses one dependent variable, Market Capitalization or Tobin's Q, and 7 control variables + an error factor, differently from the other regression models where just 6 explanatory variables are used.

By looking at various models to estimate the financial performance of family and non-family firms the following model has been analyzed.

Especially, the authors defined a new regression model to validate hypothesis 3 ("Danish and Portuguese companies are not equal when investigating firm performance concerning corporate governance") and to understand how the dummy variable impacts the firm's performance, as well as all the other control variables.

$$Firm\ Performance\ Market = \beta_0 + \beta_1 FamilyOwn + \beta_2 FamilyCEO + \beta_3 FamilyBD + \beta_4 TOtalBM + \beta_5 FirmAge + \beta_6 GDPGrowth + \beta_7 PT\_Company + \varepsilon_{ij}$$

Findings and results of the model

The following section will deal with the main findings and results of the regression analysis and how they fit compared to our expectations and literature review.

By looking at the coefficients of the regression regarding the dummy variable "PT_Company", the conclusion is that Portuguese companies are characterized by less firm performance compared to Danish firms. Specifically, the coefficients associated with the dummy variable for Tobin's Q and Market Cap are respectively -5.55 and -12.47. Thus, Danish firms perform better than Portuguese firms for both accounting firms' performance and market capitalization.

Moreover, the rest of the results of the third regression model are similar to those obtained in the first one, by using the same independent variable.

By comparing the models of origin (first and third regression models) the main results are similar except for the variable "Log_Age" which, while in the first model has a coefficient of 3.19 on the firm's performance, in the other one has a positive coefficient, revealing a minor

impact on Tobin's Q. Specifically, "Log_Age" has an impact of 1.33 over Tobin's Q performance in the third model and of 11.43 over market capitalization in the fourth model.

Furthermore, the output tables reveal to us that there are no major differences between the second and fourth models. The coefficients between the two models are not presenting potential interesting differences.

As already stated in the paragraph "Theoretical contribution and expectations of the model" in both cases the R^2 values indicate that the two models fit better the data and the regression model explain better the observed data. Especially the R^2 coefficients change from 56.41% to 65.27% and from 31.03% to 36.07%, meaning an increase in the relationship between the models and the two dependent variables, Tobin's Q and Market Cap. As already expected in

the other peer-regressions, the explanatory power of the model is lower in the model which considers market capitalization as the independent variable. Finally, the results point out Fstatistics of 8.05 and 2.41. Specifically, in the last case, F-statistics is insignificant under $\alpha = 0{,}05$ while significant under $\alpha = 0{,}01$.

Regression Statistics	
Multiple R	0,807931508
R Square	0,652753322
Adjusted R Square	0,549970653
Standard Error	5,312353326
Observations	37

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	7	1591,498193	227,35688	8,0562736	1,94729E-05
Residual	30	846,6329357	28,221098		
Total	37	2438,131129			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Avg_GDP_G%	342,8425267	443,5273123	0,7729908	0,4455759	-562,9610868	1248,6461	-562,9610868	1248,6461
Family_CEO	-4,040305273	3,559820989	-1,1349743	0,2653732	-11,31042963	3,2298191	-11,31042963	3,2298191
Family_Own	-1,601496641	3,360812643	-0,4765207	0,6371561	-8,465191732	5,2621984	-8,465191732	5,2621984
Family_BD	4,480051864	3,845915111	1,1648858	0,2532448	-3,374354637	12,334458	-3,374354637	12,334458
Total_BM	0,017762167	0,30551999	0,0581375	0,9540246	-0,606192893	0,6417172	-0,606192893	0,6417172
Log_Age	1,331910333	2,917351242	0,4565478	0,6512845	-4,626115755	7,2899364	-4,626115755	7,2899364
PT_Company	-5,558868499	2,009728655	-2,7659796	0,0096191	-9,663281976	-1,454455	-9,663281976	-1,454455

Output from regression model. See excel-sheet 'Log-Age Models'

The full model is the following:

$$Firm\ Performance\ Market = \beta 0 * 0 - 4.04 * FamilyCEO - 1.60 * Family\_Own$$

$$+ 4.48 * Family\_BD + 0.01 * Total\_BM + 1.33 * Log\_Age + 3.42\% * GDPGrowth -$$

$$5.55 * PT\_Company + \varepsilon ij$$

As shown in the table, the two main family-related control variables, meaning Family_CEO and Family_Own, have a negative impact on the firm's performance. Specifically, having a family CEO or family ownership negatively influences when it comes to Tobin's Q. Differently, having a family board has a positive impact. This model, among all the 4 models provides the largest positive impact for the control variable "Family_BD" over the firm's performance. Especially, the control variable impacts Tobin's Q by + EUR 4,48 billion.

The coefficients of the control variables do not present any significant differences between the first and the third regression model of this study. Additionally, for both total board members and age of the firm there is no relevant effect on firm's performance, with respectively 0.01 and 1.33 coefficients.

Regression Statistics	
Multiple R	0,6006136
R Square	0,3607367
Adjusted R Square	0,1995507
Standard Error	21,44842
Observations	37

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	7	7787,93689	1112,5624	2,4184315	0,044314
Residual	30	13801,04101	460,0347		
Total	37	21588,9779			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95,0%*	*Upper 95,0%*
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Avg_GDP_G%	-1268,2128	1790,724239	-0,7082122	0,4842802	-4925,3596	2388,934	-4925,3596	2388,933977
Family_CEO	-3,1494527	14,37263851	-0,2191284	0,8280341	-32,502297	26,203391	-32,502297	26,20339101
Family_Own	-10,392229	13,56915007	-0,7658718	0,4497369	-38,10413	17,319673	-38,10413	17,31967266
Family_BD	7,7236761	15,52773239	0,4974117	0,622525	-23,988184	39,435536	-23,988184	39,43553622
Total_BM	1,6353725	1,233525052	1,3257716	0,1949225	-0,8838217	4,1545668	-0,8838217	4,154566766
Log_Age	11,438901	11,77869195	0,971152	0,339238	-12,616397	35,494199	-12,616397	35,49419894
PT_Company	-12,478553	8,114201125	-1,5378658	0,1345631	-29,049962	4,0928568	-29,049962	4,09285682

Output from regression model. See excel-sheet 'Log-Age Models'

The full model follows as:

$$Firm\ Performance\ Market = \beta_0 * 0 - 3.14 * FamilyCEO - 10.39 * Family\_Own$$

$$+ 7.72 * Family\_BD + 1.63 * Total\_BM + 11.43 * Log\_Age - 12.68\% * GDPGrowth$$

$$-12.47 * PT\_Company + \varepsilon ij$$

Surprisingly, the family's own control variable reveals a much bigger negative coefficient than the previous model. The model as in the case of the second regression of this study shows a large negative relationship between family ownership and market capitalization. Moreover, having a family CEO is also decreasing the market capitalization of the company by - EUR 3,14 billion. Among the 4 models, in the current one having a family board has the largest positive impact on the market cap. By having a family board member, the market capitalization is increased by EUR 7,72 billion because of the same reasons explained in the paragraph

"Family firm's and its Impact on Market Capitalization". Finally, the remaining control variables have similar coefficients to the second model of this study, explaining an almost null coefficient for total board members and a large coefficient for Log_Age.

In both cases, the models provide valuable results: three negative and three positive relationships within the coefficients.

Conclusions and limitations

The main goal of these two peer-individual-models of the work was to determine if family firms and non-family firms perform better in Portugal or Denmark. Specifically, this work filled a gap in the field of qualitative research by explaining our understanding of whether the Portuguese market could be an incentive for a firm's performance or not.

Our finding that the dummy variable "PT_Company" has a negative impact on firm's performance is surprising. This result reveals that the Danish market and economic context might be a better fit for family-owned-firms and non-family-owned-firms due to circumstances that we can relate to the legal and institutional outline of the country, as already pointed out in the section "Country dummy variable matters", among other explanations showed by the authors. As already presented in "Findings", non-Portuguese companies perform better than Portuguese firms in Tobin's Q and Market Cap. Additionally, the other coefficients and results align with the overall findings of our study explained in the general thesis paragraphs and the other two peer sections.

Moreover, surprisingly there are differences between the models concerning the age factor. The age variable positively affects firms' Tobin's Q and market capitalization in the first two models. The finding of this peer-regression model reveals that the firm's age leads to better

performance, specifically better Tobin's Q and market capitalization, by including a new dummy variable in the analysis.

In conclusion, this work outlines a deeper line for future research in the same field. Furthermore, the authors defined two regression models with a new dummy variable, providing previous studies and research with a theoretical and empirical background. Nevertheless, most of the contributions are theoretical more than methodological, as previous studies have already been using regression models similar to the ones used in this work.

GROUP PART

5. Expectation vs Results

As the literature review highlighted, the results within firm-performance and corporate governance structure have yielded very different results. Therefore, no specific expectations were set for the models, but perhaps, there was a tendency to think that it may be more like western hemisphere countries, largely due to the effects measured between developed and undeveloped countries. But even then, Germany showed vastly different results than Canada, for instance (Peter Klein, Daniel Shapiro), (Andres 2008). Germany did show the positive significance of having family-controlled firms for stronger firm performance, while Canada did not. For all models in this thesis, it shows that family-controlled firms do not increase firm performance, and therefore, it aligns with most of the theory from other western countries, but as shown, not all. As the topic has been uncovered in many countries, it gave the authors reason to believe, that each nation surely will have a certain effect on the model constructed. This expectation was fulfilled. Adding a variable that distinguishes between Portuguese or Danish firms leads to significantly higher explanatory power for both models. This favors the reason to believe that, to fully understand how family-controlled firms affect firm performance, we must analyze each country. Generalizing and conclusions of larger areas

such as ‘in the EU’, or ‘in Africa’, will not be accurate statements. Even Denmark and Germany, which are very closely related when it comes to trade and border lines are different when it comes to how firms perform under different governance structures.

6. Conclusion of the Thesis

Throughout the thesis, there has been a structured approach, which now ends in an overall conclusion for the thesis. First, literature from various areas within the topic of firm governance and family-performance was reviewed. Here, it was found that conclusions from research are very country-specific, and especially, undeveloped countries benefitted from strong family management in firms. In contrast, results from developed countries were less aligned.

Hypothesis 1 showed that family ownership negatively impacts firm value. Family CEO and the Total Number of Board members also contribute negatively to the company’s performance, while the Age of the Firm, Family Board Members, and Average GDP Growth for the Eurozone have a positive impact. Furthermore, by using Tobin’s Q as the dependent variable, the model presented itself with the highest coefficient of determination and significance value, when compared with the others.

Hypothesis 2 showed that market capitalization is indeed affected by family involvement in the management and executive board positions. Family board members had a positive effect, while family-related CEOs and family-ownership were negatively impacting market capitalization. Danish executives have previously argued that during times of crisis board members and management tend to move closer together, which may be a factor at display for the positive coefficient of family-related board members.

Hypothesis 3 showed that Tobin's Q and market capitalization of family-owned-firms is impacted by country-specific contexts. The dummy country variable had a negative impact on the two dependent variables of the models. Family ownership and family CEO negatively impacted the firm's performance, on the other hand, family board members and the total number of board members had positive coefficients for both Tobin's Q and market capitalization.

Common traits for all the models are the negative relationship that family-ownership and family CEOs have towards any dependent variable in firm-performance, which was a key topic of investigation in this thesis. Additionally, family-board members have a positive coefficient in all models. Summing it all up, the main conclusions are; family-ownership and management are not necessarily equal to better firm-performance. On the contrary, it may create large gaps in alignment and decision-making, as well as structural challenges when family members are kept in play even though they are incompetent or lack leadership tools.

Finally, the work carried over the third and fourth regression models of the thesis showed that Denmark is a better fit for family-owned firms in terms of performance. The authors found evidence of different institutional, governmental, and economical practices between the two countries. As mentioned before, this explains the different performance values and coefficients between the analyzed firms, by initiating a debate over different future research on how country-specific contexts can impact firms and especially family-owned firms' performances.

Bibliography

Tiago Ratinho, E. H. (2008). The role of science parks and business incubators in converging countries: Evidence from Portugal.

World Bank. (2021). Worldwide Governance Indicators.

Li, Y. (2009). Fundamental and Ethics Theories of Corporate Governance. Euro journals.

Bammens, Y. (2011). Boards of directors in family businesses: A literature review and research agenda.

Cadbury, A. (1992). Cadbury Report.

Coad, A., Holm, J. R., Krafft, J., & Quatraro, F. (2018). Firm age and performance. Journal of Evolutionary Economics.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial Behavior, agency costs and ownership structure.

Ntim, C. G. (2018). Defining Corporate Governance: Shareholder Versus Stakeholder Models.

Åsa Björnberg, Heinz-Peter Elstrodt, and Vivek Pandit. (2014). The family-business factor in emerging markets.

Alfred Sarbah, W. X. (2013). Corporate Governance Practices in Ghanaian Family Businesses: A Conceptual Frame- work.

Brennan, M. J. (1995). Corporate Finance over the Past 25 Years.

Wie, V. (2001). Agency Theory.

Morch, R., & Yeung, B. (2003). Agency Problems in Large Family Groups.

Klein, P., Shapiro, D., & Young, J. (2004). Corporate Governance, Family Ownership and Firm Value: The Canadian Evidence.

Anderson, R., & Reeb, D. (2003). Founding-Family Ownership and Firm Performance: Evidence from the S&P 500.

Harms, H. (2014). Review of Family Business Definitions: Cluster Approach and Implications of Heterogeneous Application for Family Business Research.

Andrei Shleifer, R. V. (1986). Large shareholders and Corporate Control. Journal of Political Economy.

Peter Klein, D. S. (2005). Corporate governance, family ownership and firm value: the Canadian evidence.

European union. (2021). Facts and figures on the European Union economy.

Nelson, R. R. (2016). The sciences are different, and the differences matters.

Sarbah, A., & Xiao, W. (2015). Good corporate governance structures: a must for family businesses.

José Luis Miralles-Marcelo, Maria del Mar Miralles-Quirós, and Inês Lisboa (2014). The impact of family control on firm performance: Evidence from Portugal and Spain.

Woolridge, J. M. (2019). Introductory Econometrics: A Modern Approach. Pearson.

Nusrat Khan, P. S. (2015). The Impact of Family Ownership on Firm Value and Corporate Governance:

Leite, A. N. (2022). Corporate Governance.

Chrisman, J. J. (2005). Trends and Directions in the Development of a Strategic Management Theory of the Family Firm. Entrepreneurship: Theory and Practice.

Rau, S. B. (2013). Resource based view of family firms.

Ward, J. (1991). Creating Effective Boards for Private Enterprises: Meeting the Challenges of Continuity and Com- petition.

Donnelley, R. G. (1964). The family business. Harvard Business Review.

Martin Reyna, D. E. (2011). The relationship among family business, corporate governance, and firm performance: evidence from the Mexican stock exchange.

Clifford Holderness, D. S. (1988). The role of majority shareholders in publicly held corporations: an explanatory analysis. Journal of finance economics.

Ernest H. O'Boyle Jr., J. M. (2012). Exploring the relation between family involvement and firms' financial performance: A meta-analysis of main and moderator effects. Journal of business venturing.

Martin Reyna, D. E. (2012). The relationship among family business, corporate governance, and firm performance: Evidence from the Mexican stock exchange. Journal of family business strategy.

Sener, P. (2014). Influence of family ownership and management on firm performance: evidence from public firms in turkey.

Eyup Kahveci, B. W. (2019). Family business, firm efficiency, and corporate governance relation: the case of corporate governance index firms in Turkey. Academy of strategic management journal.

Milena J. Schank, A. M. (2017). Family ownership and firm performance: Romania versus Germany.

Jörn Block, J. H. (2008). Family Management, Family Ownership, and downsizing: Evidence from S&P 500 firms. Family Business Review.

Belen Villalonga, R. A. (2006). How do family ownership, control, and management affect firm value? Journal of Financial Economics.

Claessens, S. (2006). Corporate Governance and Development.

MSCI. (2021). Does positive GDP growth lead to strong stock returns?

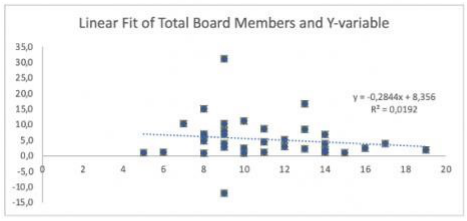
Woolridge, J. M. (2019). Introductory Econometrics: A Modern Approach. Pearson.

Carlo, L. T. (1997). On the meaning and use of kurtosis. American Psychological Association.

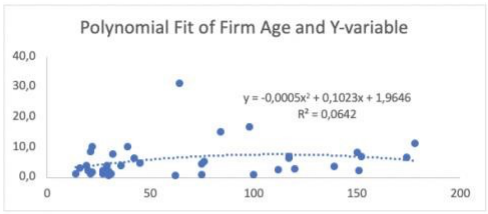
SEC. (2022). Officers, Directors and 10% Shareholders.

APPENDIX

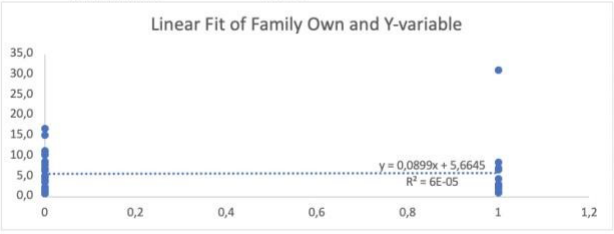
APPENDIX 1.1 – Linearity in Parameters



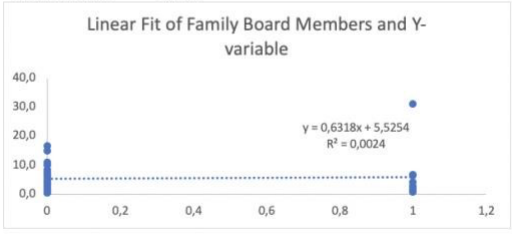
R^2	
Linear Fit	0,0192
Polynomial Fit	0,0365



R^2	
Linear Fit	0,0069
Polynomial Fit	0,0269



R^2	
Linear Fit	0,003
Polynomial Fit	0,003



R^2	
Linear Fit	0,0069
Polynomial Fit	0,0069

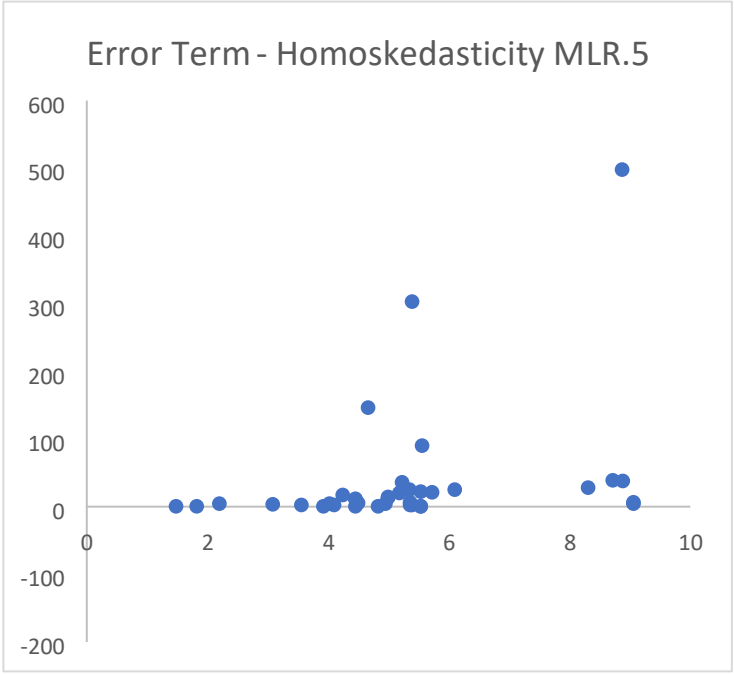
APPENDIX 1.2 – Multicollinearity

Equation for calculation:

$$\frac{\mathbf{1}}{(\mathbf{1}-\boldsymbol{R}^2)}$$

	R^2	VIF
Family Ownership	0,8071684	**5,18587203**
Family Board Member	0,808562026	**5,22362403**
Total Board Members	0,929437382	**14,1718098**
Firm Age	0,704756287	**3,38703233**
Family CEO	0,441034023	**1,78901765**

APPENDIX 1.3 – Homoskedasticity



APPENDIX 1.4 – Book Values of Portuguese Companies

Sample of book-values calculated for Portuguese companies. For full table see Excel Sheet 'Portuguese_Book Values.

BCP							
Total Assets	74 884 879,000	71 264 811,000	71 939 450,000	75 923 049,00	81 643 408,000	85 714 963,000	92 904 812,000
Total Liabilities	69 204 308,000	65 999 630,000	64 759 714,000	68 959 143,000	74 262 154,000	78 328 693,000	85 842 755,000
BCP Book Value	5 680 571,000	5 265 181,000	7 179 736,000	6 963 906,000	7 381 254,000	7 386 270,000	7 062 057,000
BCP Book Value (€,Million)	**€568,06**	**€526,52**	**€717,97**	**€696,39**	**€738,13**	**€738,63**	**€706,21**

Corticeira Amorim							
Total Assets	667 219,000	726 873,000	869 407,000	966 074,000	994 152,000	1 005 684,000	1 081 289,000
Total Liabilities	313 086,000	299 930,000	409 417,000	467 840,000	169 866,000	429 029,00	458 007,000
Corticeira Amorim Book Value	354133	426943	459990	498234	824286	576655	623282
Corticeira Amorim Book Value (€,Million)	**€ 354,13**	**€ 426,94**	**€ 459,99**	**€ 498,23**	**€ 824,29**	**€ 576,66**	**€ 623,28**

CTT Correios De Portugal Group							
Total Assets	1 316 697 213,000	1 608 765 392,000	1 854 469 655,000	3 585 198 598,000	2 894 902 626,000	2 894 902 626,000	3 585 198 598,000
Total Liabilities	867 637 454,000	1083370431	1 424 774 442,000	1 718 582 469,000	2 382 025 972,000	2 744 627 532,000	3 410 652 529,00
CTT Book Value	449059759	525394961	429695213	1866616129	512876654	150275094	174546069
CTT Book Value (€,Million)	**€ 449,06**	**€ 525,39**	**€ 429,70**	**€ 1 866,62**	**€ 512,88**	**€ 150,28**	**€ 174,55**

EDP Renovaveis							
Total Assets	15 736 157,000	16 734 469,000	16 223 803,000	17 538 710,000	17 692 653,000	18 162 555,000	22 031 576,000
Total Liabilities	8 902 048,00	9 161 455,000	8 328 651,000	9 416 306,000	9 357 953,000	9 538 724,000	11 856 669,000
EDP Book Value	6834109	7573014	7895152	8122404	8334700	8623831	10174907
EDP Book Value (€,Million)	**€ 6 834,11**	**€ 7 573,01**	**€ 7 895,15**	**€ 8 122,40**	**€ 8 334,70**	**€ 8 623,83**	**€ 10 174,91**

Energias De Portugal							
Total Assets	42 536 965,000	44 083 746,000	42 075 049,000	41 626 960,000	42 361 646,000	43 271 418,000	50 994 152,000
Total Liabilities	30 415 472,000	30 347 374,000	28 594 789,000	28 726 633,000	29 729 633,000	30 200 442,000	37 016 587,00
Energias Book Value	12121493	13736372	13480260	12900327	12632013	13070976	13977565
Energias Book Value (€,Million)	**€ 12 121,49**	**€ 13 736,37**	**€ 13 480,26**	**€ 12 900,33**	**€ 12 632,01**	**€ 13 070,98**	**€ 13 977,57**

APPENDIX 1.5 – Book Values of Danish Companies

Sample of book-values calculated for Danish companies. For full table see Excel Sheet 'Danish_Book Values'

AP Møller-Maersk							
Total Assets	62408	61118	63227	62690	55399	56117	72271
Total Liabilities	26669	29028	31802	23244	26562	25263	26683
AP Møller-Maersk Book Value (DKK, M)	35739	32090	31425	39446	28837	30854	45588
AP Møller-Maersk Book Value (€,Million)	**€4 803,63**	**€4 313,17**	**€4 223,79**	**€5 301,88**	**€3 875,94**	**€4 147,04**	**€6 127,42**

AMBU							
Total Assets	2252	2364	2500	4234	4558	4926	5740
Total Liabilities	1273	1308	1129	2352	2376	2554	1788
AMBU Book Value (DKK,M)	979	1056	1371	1882	2182	2372	3952
AMBU Book Value (€,Million)	**€ 131,59**	**€ 141,94**	**€ 184,27**	**€ 252,96**	**€ 293,28**	**€ 318,82**	**€ 531,18**

Bavarian Nordic							
Total Assets	1404	2823	3152	3060	7047	8759	12089
Total Liabilities	646	806	646	880	5171	3864	4714
Bavarian Nordic Book Value (DKK, M)	758	2017	2506	2180	1876	4895	7375
Bavarian Nordic Book Value (€,Million)	**€ 101,88**	**€ 271,10**	**€ 336,83**	**€ 293,01**	**€ 252,15**	**€ 657,93**	**€ 991,26**

Carlsberg							
Total Assets	124901	126906	114251	117700	123120	118816	126383
Total Liabilities	77670	73256	64726	69811	77085	75454	77627
Carlsberg Book Value	47231	53650	49525	47889	46035	43362	48756
Carlsberg Book Value (€,Million)	**€ 6 348,25**	**€ 7 211,02**	**€ 6 656,59**	**€ 6 436,69**	**€ 6 187,50**	**€ 5 828,23**	**€ 6 553,23**

Chr. Hansen Holding (EUR)							
Total Assets	1444,6	1715,3	1802,1	1861,1	2057,8	2853,6	3114,2
Total Liabilities	843,8	985	1033,6	1089,5	1260,6	1860,2	1488,1
Chr. Hansen Holding Book Value (€,Million)	**€ 600,80**	**€ 730,30**	**€ 768,50**	**€ 771,60**	**€ 797,20**	**€ 993,40**	**€ 1 626,10**