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The Impact of Corporate Governance and Organizational Ambidexterity in Performance: Evidence from European Banks

Gonçalo Filipe Mendes Pereira

Master in Management

Supervisor:
Prof. Pedro Fontes Falcão, PhD., Invited Assistant Professor,
ISCTE Business School

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Resumo

Ao longo da última década, o sector bancário europeu enfrentou diversas mudanças, que contribuíram para o surgimento de novos temas no âmbito da gestão bancária. Por um lado, as alterações na regulação em vigor fizeram com que a *corporate governance* se tornasse num tópico recorrente para fazer face aos problemas causados por objectivos desalinhados. Por outro lado, o progresso e a inovação fizeram com que os bancos repensassem as suas estratégias, tendo, por sua vez, facilitado a popularização da ambidestria organizacional como uma abordagem estratégica com vista a obter uma vantagem competitiva num ambiente dinâmico. Neste estudo, procurámos investigar o papel que os dois tópicos supramencionados desempenham em atingir uma performance financeira superior. Os resultados obtidos, demonstraram que, enquanto que aparenta existir uma relação entre a *relative exploration* e o ROA, as conclusões sobre os mecanismos de *corporate governance* são ambíguas. Não foi encontrada uma influência significativa por parte da pontuação de ESG na performance, no entanto, as características do conselho de administração mostraram ter um efeito no ROA. Adicionalmente, este estudo contribui para o tópico da possível relação entre a ambidestria organizacional e a *corporate governance*, para os quais não obtivemos resultados estatisticamente significativos.

Palavras-chave: ambidestria organizacional, banca, corporate governance, performance

JEL Classification: G34, L25

Abstract

The banking sector in Europe has met several changes during the latest decade, which brought to light new subjects into the field of banking management. On one hand, the change in regulations caused corporate governance to become a recurring topic to address agency problems arising from misaligned objectives. On the other hand, progress and innovation made banks rethink their strategies, with organizational ambidexterity gaining popularity as a strategic approach to gain competitive advantage in a dynamic environment. In this study, we sought to investigate the role of the two subjects mentioned above in achieving a superior financial performance. Our results demonstrate that whilst there seems to be a positive effect of relative exploration on ROA, the conclusions regarding the corporate governance mechanisms are mixed: we did not find a significant influence of the ESG score on performance, but we did find that board characteristics have an effect on ROA. Additionally, our research contributes to the rather unexplored theme on whether there is a connection between organizational ambidexterity and corporate governance, which did not yield statistically significant results.

Table of Contents

Tables Index

Abbreviations

ATM Automated Teller Machine

D/E Debt-to-Equity ratio

BoT Bank of Things

BIS Bank for International Settlements

CEO Chief Executive Officer

CLT Central Limit Theorem

e.g. for example (Latin: *exempli gratia*)

EU European Union

DEA Data Envelopment Analysis

i.e that is (Latin: *id est*)

HC Heteroscedasticity-Consistent

IoT Internet of Things

OECD Organization for Economic Co-operation and Development

OLS Ordinary Least Squares

PSD2 Payment Services Directive 2

R&D Research and Development

ROA Return-On-Assets

ROE Return-On-Equity

1. Introduction

1.1. Contextualization

The importance of the role played by banks in the economy has been widely discussed and agreed upon in the literature (e.g., Casolaro & Gobbi, 2007; Campanella et al., 2016; Pennings & Harianto, 1992; Altunbas et al., 2011; Levine, 1997; Frame & White, 2002). As financial intermediaries, these organizations have a pivotal role in ensuring adequate levels of savings and, consequently, of investments, essential to keep other sectors functioning. Thus, ensuring a robust banking sector is of utmost importance for any nation as to avoid instability.

Mainly propelled by the turbulent environment arising from the financial crisis of 2007-2008, the sector experienced considerable changes over the past decade. In Europe in particular, the distress at which banking institutions were exposed helped fuelling the European sovereign debt crisis (Lane, 2012), which would cause instability in the continent for several years. Consequently, such events led policymakers to improve regulation in an attempt to avoid a similar situation from unfolding in the future, placing a larger emphasis in risk management and underlining the importance of effective monitoring mechanisms (BIS, 2015; Aebi et al, 2011). For instance, the reform made to the Basel Accords immediately after the beginning of the financial crisis – which yielded the commonly known Basel III – gave greater attention to systemic risk thus aiming to increase banking resiliency (Gehrig & Iannino, 2021).

However, this enhanced focus on reducing risk exposure often conflicted with some of the firms' own interests (De Andres & Vallelado, 2008). This agency problem brought to light the importance of corporate governance, whose previous failures, as argued in Kirkpatrick (2009), had had a considerable impact in the severity of the financial crisis. According to Mehran et al. (2011), having good corporate governance mechanisms and practices in banking has become more important with the years, as banking groups have become much larger and now encompass a broader range of activities.

As the *Corporate Governance Principles for Banks* elaborated by the Bank for International Settlements (BIS) states, ensuring sound corporate governance is crucial for banking institutions as to avoid problems in the sector and consequent spill-overs to the rest of the economy. Additionally, that ensures more efficiency in addressing the alignment of the stakeholders' interests with the public interest, whilst easing the process of external supervision

as it increases transparency. Furthermore, the document also gives great emphasis to the role played by the board of directors *vis-à-vis* promoting good management, corporate culture and values, and a responsible risk management approach.

At the same time banking was going through this new environment of regulatory changes, another subject was having its share in the process of restructuring the sector: innovation, and specifically the question of how to manage it. Even in the period of deregulation that preceded the financial crisis, the sector was already experiencing a rapid transformation (Altunbas et al., 2011), especially regarding improvements in communications and data processing, mainly due to the growing computerization of finance (Levine, 1997). These changes and improvements continued after the financial crisis, with technological advancements propelling the digitalization of the banking sector, which caused rather traditional services to subside (Niemand et al., 2020; Pousttchi & Dehnert, 2018). Furthermore, the introduction of legal acts such as the European Union's Payment Services Directive 2 (PSD2) in 2015, helped liberalizing the sector thus contributing for its modernization (Polasik et al., 2020). This facilitated the emergence of fintechs which brought cutting-edge financial technologies to the market (Huebner et al., 2019; Saksonova & Kuzmina-Merlino, 2017). As a result, the sector experienced a boost in competition, both from within the sector but also from the exterior, with non-banking institutions increasing their presence in providing financial services.

Thus, for a bank to be successful in such environment, it had to be able to effectively manage these two issues: on one hand to be aligned with a new era of stricter regulations and on the other to thrive in a growingly dynamic sector. In order to balance these two issues, that is to comply with the established norms to ensure stability and solvency but also to be ready to undergo changes as needed to remain relevant, some authors (e.g., Campanella et al., 2016; Jansen et al, 2012) propose a new approach that drifts away from the more classic strategies defined by Michael Porter, called organizational ambidexterity, or simply, ambidexterity. This strategic approach would combine elements associated with a cost strategy and with an innovation strategy as to ensure that a firm – or in this case a bank – is able to be both stable and competitive at the present time and in the future.

The purpose of this dissertation thus stems from the call to further investigate the role of corporate governance and organizational ambidexterity as means to achieve superior performance in the banking sector. Regarding the latter, as noted in Junni et al. (2013), albeit a link between organizational ambidexterity and performance has been generally established, it

does not always hold as it largely depends on the sector that is taken in account. The banking sector in particular has not been so widely analysed as other sectors have, which further justifies the importance of conducting this study. Additionally, this dissertation also has the purpose to investigate the connection between corporate governance practices and organizational ambidexterity, which is a topic that has largely been left unexplored.

1.2. Research Questions and Objectives

Accordingly, we aim at assessing whether an organization exhibiting signs of ambidexterity and having a superior performance holds true for the European banking sector, as it does for other sectors and industries in the literature analysed. Furthermore, we intend to explore how corporate governance indicators impact a bank's financial performance. Lastly, this dissertation further aims at understanding the nature of the connection between corporate governance and organizational ambidexterity, shedding some light on a rather unexplored subject. Thus, with the consequent results yielded, we expect to provide some insights on whether European banks demonstrating remarkable scores on corporate governance indicators tend to demonstrate more aptitude to maximize the resources while exploring new forms of business or new types of innovations which will allow them to compete in the medium and long run.

Therefore, the research questions for this study are the following: *are good corporate governance indicators related with better performance in European banks? Are ambidextrous banks more prone to have better performances? Is corporate governance related with organizational ambidexterity?*

Bearing in mind the importance attributed to the sector, which was extensively illustrated during this chapter, it is our belief that studying these dimensions will foster a more thorough understanding of the relations between the bank's internal frameworks and decision mechanisms and the strategies followed as well as their role in the prosperity of the sector in question.

1.3. Structure

This dissertation is divided into six sections: the next chapter, which corresponds to Section 2, presents a review of the existing literature on the subjects in question. It commences with the concept of innovation and its role in changing the sector, both for commercial banks and in

investment banks, highlighting the importance of managing it properly as to yield the desired competitive advantage. It proceeds to introduce organizational ambidexterity as a mechanism for managing it whilst ensuring it does not compromise the bank's current operational performance and stability. We then present evidence found in the literature on the connection between organizational ambidexterity and corporate governance, concluding this section with the literature on the latter, focusing on its description, models, impact in performance and importance for the banking sector. Section 3 departs from this extensive analysis, formulating the hypothesis to be tested in the following chapters. In Section 4 we describe the methodology followed to conduct the study, where the sample and the set of variables used are described as well as the models to be used to test the hypothesis. Section 5 encloses the analysis and discussion of the obtained results. The dissertation then closes with Section 6 where the main conclusions are drawn, and the limitations to our research and future research topics are presented.

2. Literature Review

2.1. Innovation and Changes in the Banking Sector

Pennings and Harianto (1992) defines innovation as the implementation of disruptive ideas, technologies or procedures originating from an internal or external source. Baregheh et al. (2009) further describe it as a process through which a firm can materialize ideas, by improving existing products, services or processes, or by creating new ones with the aim of being ahead of competition. This concept is discussed in Scott et al. (2017) where innovation is presented as an important component to achieve a superior performance, also enabling cost optimizations and increases in the quality of the products and services provided.

For the banking sector in particular, several papers have established the same connection, such is the case of Dos Santos and Peffers (1997) which analysed the specific impact caused by the adoption of automated teller machines (ATM), concluding that banks who pioneered the innovation benefited from increases in profit and market share. Another example is Del Giudice et al. (2016) where it is argued that banks who invested in innovations that enabled the Internet of Things (IoT) – and thus originating the Bank of Things (BoT) – tended to experience higher levels of performance as measured by the Return on Equity (ROE) when compared to other more traditional banking institutions.

Since banking is mainly based on gathering and treating large stacks of data, the effects caused by the incursion of state-of-art innovations are prone be more notorious than in other sectors (Casolaro & Gobbi, 2007). Accordingly, innovation has caused substantial changes in the financial industry over the decades, first with the expansion of internet usage and improvements in telecommunications (Levine, 1997); with the development of new techniques such as credit scoring (Frame & White, 2002); and more recently, with the digitalization of banking which is diminishing the need of providing more traditional services who required physical interaction (Niemand et al., 2020).

When discussing the role of digitalization in the sector, Niemand et al. (2020) argued that said innovation by itself does not yield the desired superior performance. Thus, it highlights the idea that the way a bank responds and manages innovation is what enables it to achieve that objective. Therefore, having a well-designed strategy to manage innovation is essential to obtain a competitive advantage and ensure the firm's survival in the long run.

2.2. A Way of Managing Innovation

As mentioned in Dos Santos and Peffers (1995), there are some aspects that constrain firms from capturing innovation on time. One of them is the organization's dimension. It is thus argued that albeit larger firms tend to be better at capturing scale economies arising from innovation, they are also much slower to adapt to transformations caused by it. This is confirmed in Warner and Wagner (2019), where the fierce competition of fintechs is cited as a threat leveraged by the amount of time a large bank takes to adapt to a disruptive innovation, which often results in a cooperation between the two. Furthermore, Niemand et al. (2020) argues that disruptive solutions may trigger unbearably high costs, which can deter banks from achieving the desired increase in profitability that introducing and exploring an innovation should enable. Therefore, firms should pay close attention to its structure (Kyriakopoulos & Moorman, 2004) and to its innovation management, as the importance of these elements to maximize the benefits of innovation is regarded in the literature, especially in service-based industries (Junni et al., 2013), such is the case of banking (Ahammad et al., 2015).

Considering that banks also face the constant – and previously mentioned – pressure to remain efficient as their stability is of utmost importance to the economy (e.g., Casolaro & Gobbi, 2007), organizational ambidexterity has been gathering interest as a line of thought to face these constraints and successfully respond to innovation on time (Turner et al., 2013). In fact, Campanella et al (2016) argues that because of the highly globalized and dynamic environment of today, organizational ambidexterity comes as a strategic approach that enables firms to be quicker to adapt to changes, thus resolving some of the flaws that more traditional strategies tend to have. This view is also shared by Chebbi et al. (2015) which further emphasises that having an ambidextrous management is essential for innovation to stem the desired results.

2.3. Organizational Ambidexterity

2.3.1. Defining the concept

The notion of organizational ambidexterity was first described in Duncan (1976) as the implementation of structures with the aim to create a balance between being aligned and being able to adapt if the conditions alter significantly (Fiset and Dostaler, 2013; Monferrer et al.,

2019). Nevertheless, it was March (1991) who further developed the concept defining it as the challenge to balance the improvement of existing knowledge and competences, designated as exploitation, and the search for new technologies and alternatives, designated as exploration. Since resources are scarce, March (1991) emphasizes that organizations must assess the correct balance for them, bearing in mind that only focusing on exploitation may lead the firm to eventually become outdated, and only focusing on exploration can make the costs unbearably high without retaining all the intended benefits. Even though defining a universally adequate mixture of the two is a rather difficult task since it largely depends on the firm (Kyriakopoulos & Moorman, 2004), if the balancing is done correctly, it can lead a firm to achieve a comparably higher performance (Uotila et al., 2008).

March (1991) further argues for the existence of a bias that disrupt this process, as firms tend to allocate more focus to exploitation since it generally yields immediate returns. This contrasts with the returns from exploration which are only materialized in the medium or long run, thus posing a higher degree of uncertainty. Additionally, O'Reilly and Tushman (2013) note that exploration is often regarded as inefficient due to the amount of sunk costs associated with it. In accordance with this, when analysing firms from the S&P 500, Uotila et al. (2008) concluded that only one fifth of their sample was putting the right emphasis on exploration. Furthermore, the market where a firm operates also plays a role in this bias, as firms competing in more stable environments tend to become settled with their existing knowledge and technologies, thus favouring exploitation (Burns & Stalker, 1961; O'Reilly & Tushman, 2013).

This trade-off balance between exploitation and exploration generally presupposes that the two concepts are two opposing ends. However, part of the literature presents a slight different view, which argues that this relationship is orthogonal, and thus firms can invest on both simultaneously (Uotila et al., 2008; Campanella et al., 2016). Commenting on this issue, Gupta et al. (2006) argues the answer on whether their relationship is orthogonal or not depends on the context, thus stating that it depends on how scarce the resources are and the characteristics of the markets where the firm is operating.

2.3.2. Types

The way an organization becomes ambidextrous has also been thoroughly debated over the years. Initially, Duncan (1976) presented a sequential approach, arguing that firms become ambidextrous by adapting their structures gradually when needed (O'Reilly & Tushman, 2013).

However, this view is challenged in Tushman and O'Reilly (1996), where it is argued that sequential ambidexterity may not be efficiently quick to adapt in case of a sudden change in the panorama. It is thus purposed that firms should seek both simultaneously, which is defined as structural ambidexterity. This method would require a firm to have separate units with different structures, some of which dedicated to exploitation whilst others to exploration (O'Reilly & Tushman, 2013), which then ought to be connected at senior level to ensure their alignment with the firm's strategic objectives (Benner & Tushman, 2003).

Gibson and Birkinshaw (2004) purposes a different point-of-view, where a unit can pursue both exploitative and exploratory activities, which they defined as contextual ambidexterity. The main difference from the previous type relies on the level at which ambidexterity occurs, switching from firm-level to individual-level (O'Reilly & Tushman, 2013). Therefore, instead of having separate units dedicated to one type of activity, by implementing the right procedures, firms could enable employees within the units to be both aligned and prepared to adapt to changes (Gibson & Birkinshaw, 2004). A common method to achieve said objective is through the adoption of incentive schemes to reward employees based on their performance and motivation (Ahammad et al., 2015).

Whilst these three types of organizational ambidexterity may be perceived as opposing ways of addressing the issue of balancing exploitation and exploration, they are actually all feasible (O'Reilly & Tushman, 2013) and depend on the market where a firm operates or the market that is targeting (Markides, 2013). For instance, if an organization is pursuing a disruptive technology or targeting a new type of customers, a structural approach to ambidexterity would be more favourable as to avoid its current culture and procedures from constraining the process (Bower & Christensen, 1995; Markides, 2013). Additionally, the three types mentioned can be interchangeable, as there are several cases where firms switch from one type of organizational ambidexterity to another in order to respond to its needs as it moves along its life cycle (O'Reilly & Tushman, 2013; Markides, 2013).

2.3.3. How to measure it

The appropriate methodology to measure this phenomenon has been widely discussed in the literature, with some authors denoting the difficulties in measuring exploitation and exploration properly (O'Reilly & Tushman, 2013; Junni et al, 2013), whilst other advocate for a greater research on the topic as to develop a more complete methodology (Marabelli et al., 2012).

Notwithstanding, the most common method utilized in the literature (e.g., Gibson & Birkinshaw, 2004; Monferrer et al., 2019; Jansen et al., 2012; Campanella et al., 2016) has been to gather data on exploitation and exploration through questionnaires, interviews or a combination of both. These are generally aimed at middle or top managers – depending on the level at which it is aimed to measure organizational ambidexterity – and include specifically designed questions to assess common practices who are prone to enable ambidexterity. However, there have been other approaches presented in the literature. One of those is the methodology followed in Uotila et al. (2009) and Oehmichen et al. (2016) which is based on text analysis. In both papers, a set of key word roots was established based on the fundamental concept of exploitation and exploration activities, which are posteriorly searched for in corporate documents with the aim of building a score for each of the two activities or a combined score.

Dranev et al. (2020) follows a different methodology from the majority of the literature, providing three approaches: one using market-to-book growth and investment intensity, another comparing revenues and investment in new products and services and a third one comparing financial goals and sustainability goals. Due to the data availability, only the first method was utilized through means of a Data Envelopment Analysis (DEA) in order to obtain a score for ambidexterity for each of the firms analysed.

2.3.4. Impact in Performance

Ambidexterity deals with building the proper structures and following the right strategy to ensure future survival (O'Reilly & Tushman, 2013) by avoiding the risk of not adapting to changes in the market (Campanella et al., 2016), while remaining viable today (March, 1991). Ultimately, this would enable a firm to achieve a competitive advantage and exhibit a good financial performance (Turner et al., 2013). Despite the lack of a consensual answer to the connection between the two concepts (De Clercq et al., 2013), most empirical evidence found in the literature supports the premise that organizational ambidexterity tends to be positively correlated with performance and firm growth (O'Reilly & Tushman, 2013; Gibson & Birkinshaw, 2004; Junni et al., 2013). For instance, in Campanella et al. (2016), performance in European banks was measured through the ROE, where it is used as a dichotomous dependent variable conditional on whether it is above or below the industry average. Their research

concluded that banks who had high values of ROE, tended to exhibit some ambidexterity traits, such as high expenses in Research and Development (R&D).

Withal, Kyriakopoulos & Moorman, 2004 presents a critique to this conclusion, arguing that this generally relies on the assumption that resources are easily available when needed. In addition, the conditions through which this increment in performance can be achieved are still in debate (Campanella et al. 2016; Junni et al., 2013). Jansen et al. (2012) put forward another critique, which relates to the way performance is measured, noting that a substantial portion of the literature does not take into account possible discrepancies in performance between firm units. In their study, it is demonstrated that this disparity is substantially influenced by the way support and resources are allocated within an organization, whilst also recognizing that in a firm with a less concentrated structure, organizational ambidexterity has a higher contribution to its performance.

By conducting an extensive analysis on the literature, Junni et al. (2013) presents a crucial conclusions regarding the two concepts. They demonstrate that most models contemplate two dimensions: one focusing on firm growth and its ability to generate revenue; and the second taking into account whether performance is being measured in absolute terms or being compared with the competition. Their research also concluded that the relationship between the ambidexterity and performance is highly influenced by moderators and significantly affected by the level at which is measured. For instance, in Uotila et al. (2009), when measuring the market value through the Tobin's Q and considering the amount of exploration over exploitation at firm-level, it was concluding that there is an inverted U-shape relation between relative exploration and performance, which was moderated by investment in R&D.

2.3.5. Ambidexterity in the Banking Sector

The nature of the products and services transitioned and the fast pace at which its innovation is occurring – as it is largely dependent on financial markets – makes the banking sector considerably different from others (Campanella et al., 2016). Furthermore, the impact of organizational ambidexterity in performance is viewed as particularly important in dynamic environments (Tamayo-Torres et al., 2017) and in service-driven industries (Ahammad et al., 2015), hence the literature being very incisive on the importance of banks to be one step ahead of competition (Niemand et al., 2020; Lumpkin & Dess, 1996).

By conducting a study on Italian banks, Marabelli et al. (2012) concludes that banks who operate in a greater number of countries tend to be display more ambidextrous traits as they require an simultaneous adaptation to the different environments. Their study also sheds some light on the challenge to manage distinct branches due to discrepancies in performances and goals, thus proposing a contextual approach to address the issue. Additionally, Monferrer et al. (2019) notes that having a market orientation tends to soothe this issue as it foments the development of ambidextrous capabilities, thus affecting branch performance and ultimately increasing the overall bank performance.

2.4. Linking Ambidexterity and Corporate Governance:

The management and the board of directors are responsible for conceptualizing the firm's strategy and ensure alignment with it, which directly affects the degree of ambidexterity within a firm (Oehmichen et al., 2016). Kwee et al. (2011) builds on this ideas by denoting that corporate governance has a substantial impact on strategy renewal which in turn is intrinsically related to exploitative and explorative activities. Furthermore, in large firms, such is generally the case of banks, organizational ambidexterity is considerably influenced by the characteristics of its management and consequent decisions (Marabelli et al., 2012).

2.5. Corporate Governance

2.5.1. Defining the Concept

As argued in Turnbull (1997), corporate governance contemplates a large number of elements and may be viewed from different perspectives, thus resulting in different definitions for the concept. Nonetheless, said paper presents a definition by describing corporate governance as the collection of influences that play a role in a firms' managing and controlling processes. Schmidt and Tyrell (1997) add on to the concept, defining it as the set of mechanisms that act as a mean to handle the different interests of the stakeholders. These differences are created by the dichotomy between management and ownership (Singla & Singh, 2019), which prompts an agency problem between the managers' benefits and the overall firm's benefits (Chen et al., 2012) or the investors' benefits (Shleifer & Vishny, 1997).

Thus, corporate governance involves both internal and external agents (Huse, 2005) and is generally put into practice through a series of rules and procedures aiming at protecting the interests of each of the stakeholders (Gulati et al., 2020). At the heart of this framework, there is the board of director which serves as a centrepiece entity that, apart from its operational functions, it establishes a connection between the management team and shareholders thus contributing to balance its interests with the firm's own interests (Ooghe & De Langhe, 2002).

Therefore, corporate governance practices and mechanisms ensure transparency and information quality which are key in avoiding frauds (Balachandran & Faff, 2015), guarantee adequate levels of investment and promote stability in the long run (OECD, 2015). Thus, when these are not correctly implemented within a firm, or when they are implemented but with deficiencies, it generally causes information asymmetries (Rani et al., 2016). These can be particularly detrimental for the firm's performance, as, for instance, can aggravate the already existing lag between changes in the market value and shocks in R&D and the consequent corporate governance response (Lehn et al., 2007; O'Connor & Rafferty, 2012).

Furthermore, as argued in O'Connor and Rafferty (2012), it also has an effect in managing innovation, since flaws in corporate governance lead to the previously mentioned agency problems, which can deter firms from embarking on more innovative projects. Additionally, improvements in corporate governance have been associated with better monitoring, which by its turn tends to increase the organization's propensity to innovate (Sapra et al., 2014), and especially pursue sustainable innovations that are capable of creating new products or services whilst avoiding negative externalities (Scherer & Voegtlin, 2020).

2.5.2. Models

As noted in Ooghe and De Langhe (2002), the environments where firms operate vary considerably across the world. Thus, they argue that some distinguishable differences exist between firms operating in Anglo-Saxon countries and European nations. These differences tend to be related with the characteristics of shareholders: whilst in the first they tend to be dispersed and mainly be financial institutions, in the second they are rather concentrated and mainly composed of private firms. In its turn, this has an impact on the composition and size of the boards. Thus, they asserted the existence of two main models: the Anglo-American, or shareholder, model, and the Continental Europe, or stakeholder, model. Cernat (2004) further elaborates the difference, noting firms following the latter tend, for instance, to have two-tier

boards in order to guarantee a higher inclusion of other stakeholders such as employees in the firm's decision making.

Barroso et al. (2016) provides more insights on how firms following each of the models function in regard to their investors. They argue that the ones following the first model generally utilise publicly disclosed information to address possible information asymmetries between the firm and the shareholders, whilst firm following the second model tend to make higher usage of private information to solve those flaws.

There are however several other possible models identified in the literature, such is, for example, the case presented in Thomsen (2015), which analysed the ownership structures and corporate governance scores of a sample of Scandinavian firms. Having identified several similarities and overall top tier results amongst their sample, they thus theorize that it is plausible to consider a Nordic model as well.

2.5.3. Corporate Governance and Performance:

When studying the connection with financial performance, there are several corporate governance elements that can be taken into account (Kyere & Ausloos, 2020). For instance, De Andres and Vallelado (2008), focus on board size, number of outside directors and number of board meetings per year to measure corporate governance. One of their conclusions was that there tends to be an optimum number of directors in a board, thus concluding for the existence of an inverted U-shape connection between board size and performance. Kyere and Ausloos (2020) used similar mechanisms, also adding insider shareholders and CEO duality to the equation. Their conclusions were slightly different, as board size had a positive impact on performance as well as board independence, whereas the remaining did not show much influence over performance. Another example is Erkens et al. (2012) which through an analysis of several firms before and after the 2007 financial crisis, argued that higher institutional ownership was related to lower stock performance, which was mainly explained by the level of risk-taking.

Other authors however focus on a corporate governance score, which is the case of Rani et al. (2016), where it a direct relationship between a higher score and a superior performance was found. The same is verified in Beiner et al. (2006), where a positive relationship between corporate governance and firm valuation was established. For the banking sector in particular,

Simpson and Kohers (2002) used another score to analyse a sample of commercial banks, having concluded that the exact same relationship seems to exist in this sector.

Furthermore, Bhagat and Bolton (2019) centre their study on the noxious effects that misaligned incentive schemes for managers can have for the firm's financial performance and stability, highlighting the importance of stockownership to soothe the problem. These results were in accordance with the earlier conclusions of Jensen and Meckling (1976). Additionally, Beiner et al. (2006) and Balachandran and Faff (2015) argue that addressing the issue of conflicts between stakeholders results in a decrease in the cost of capital, since there is less uncertainty about future cash flows, which consequently increases firm value.

2.5.4. Corporate Governance in banks:

As mentioned in the previous chapter, corporate governance has become a recurring theme in banking, especially after the financial crisis, as a means to resolve the misalignment of objectives. The topic became so relevant for the sector that resulted in the formulation of the set of principles presented by the BIS in 2010, in an attempt to promote good practices of corporate governance and avoid another financial crisis (BIS, 2015). De Andres and Vallelado (2008) highlights the importance of resolving agency problems in this sector due to the already established importance of the banking sector for the economy.

Furthermore, De Haan and Vlahu (2016) and Mehran et al. (2011) argue that it is crucial that corporate governance mechanisms in banks take into account the interests of stakeholders due to the differences between banks from other non-financial firms, for instance in terms of their capital structure. However, Anginer et al. (2018) denote that, for banking institutions, having a good set of corporate governance practices and structures may not be enough due to the existence of financial safety nets and guarantees in case of bankruptcy. Thus, they argue for the need of better regulation aiming at reducing possible cases of taking excessive risk in order to complement good corporate governance practices.

14

3. Hypothesis

As discussed in the previous chapter, the vast literature on organizational ambidexterity is generally inclined towards the premise that the concept is positively correlated with financial performance. However, as noted in De Clercq et al. (2013) and in Junni et al. (2013) a definitive answer has not yet been provided, with some studies yielding a negative correlation and others even failing to find any connection at all. Thus, first hypothesis aims at providing an answer to this issue considering the European banking sector:

H1: Higher scores of organizational ambidexterity in banks is positively related with banks' higher levels of financial performance.

For corporate governance, the literature analysed seemed to point towards a positive correlation between the concept mas measured via a score and performance (e.g., Beiner et al. 2006; Simpson & Kohers, 2002). Thus, our second hypothesis intends to assess if we can conclude the same for our sample:

H2: Higher scores of corporate governance in banks is positively related to banks' higher levels of financial performance.

The hypothesis above aims at understanding the relationship between the two concepts at a broader level. However – and as mentioned in a previous chapter – specific board characteristics have been linked with the quality of corporate governance (e.g., Ooghe & De Langhe, 2002; Bhagat & Bolton, 2019). John and Senbet (1998) further adds that board characteristics have a considerable effect in the adequateness of its monitoring role which consequently has an impact in governance. In Millet-Reyes and Zhao (2010) three main characteristics are presented: one being its size, another its independence and finally its structure. In line with this, we decided to conduct our analysis using these features.

Thus, our next hypothesis relates to board size. Some authors have proposed that there is an inverse relationship with financial performance (e.g., Beiner et al., 2006, Mehran et al., 2011). Thus, our third is the following:

H3: Banks with larger boards display lower levels of financial performance.

Regarding board independence, there is evidence in the literature that points towards a positive connection between this variable and performance, thus indicating that boards with a

higher number of independent directors tend to display better financial performances (e.g., Kyere & Ausloos, 2020). Consequently, our fourth hypothesis aims at investigating if we arrive at the same conclusion when analysing our sample:

H4: Greater board independence in banks is related with higher levels of financial performance.

When initially analysing our sample, it was denoted that the board structure differs between banks, with some having a one-tier board (also called unitary board) systems whereas others have a two-tier board (also called dual board) systems. In the latter, there was a separation between an executive board and the supervisory board. Thus, our fifth hypothesis intends to assess if there are significant differences between the models:

H5: Banks with a one-tier board system have higher levels of financial performance.

As previously mentioned in this dissertation, the connection between corporate governance and organizational ambidexterity has been left rather unexplored. Nonetheless, there has been reports regarding a possible connection between the two concepts (e.g., Oehmichen et al., 2016; Kwee et al., 2011), since corporate governance is intrinsically connected with the bodies in charge of a defining the strategic direction of a firm, and thus are the ones with the means to decide whether to pursue an ambidextrous approach. Thus, our sixth and final hypothesis intends to shed some light on this relationship:

H6: There is a correlation between corporate governance and organizational ambidexterity in banks.

4. Methodology

4.1. Sample

For our study, we had initially composed a list of 52 major European banks for a five-year period, between 2015 and 2019, based on their size and geographical distribution across the continent. The choice not to include data from 2020 is explained by the fact that it was a rather atypical year due to the pandemic, which could cause some distortions in our results. Furthermore, due to the lack of availability for certain data elements, the sample was reduced to a total of 38 banks. This final sample still includes most of the largest banks operating in the region, which contributes for the final sample's relevance in effectively capturing the dimensions we aim to analyse.

4.2. Variables

4.2.1. Performance

The literature presents a wide varieties of proxies considered appropriate for measuring financial performance in a firm. As noted in Monferrer et al. (2019), this happens because there is no universal consensus on which method is better at capturing performance. Thus, following De Andres and Vallelado (2008) and the meta-analysis presented in Gulati et al. (2020), we resorted to the Return on Assets (ROA) – computed through the ratio of the net income by the total assets – as a proxy of bank performance. The choice for this indicator is further cemented in Simpson and Kohers (2002) where it is argued that the ROA is one of the most appropriate methods to measure performance in this sector, as it is able to capture a large amount of the dimensions that affect financial performance. Kyere and Ausloos (2020) further argue that the ROA is an extensively reliable indicator that is less affected by other dimensions, such as leverage.

Another reason for choosing this ratio as our performance proxy is the relevance of analysing the ROA in light of the organizational ambidexterity literature. This is, whilst for studies on corporate governance and performance this indicator has been broadly taken into consideration (Gulati et al., 2020), it has not been so commonly utilized in research regarding

organizational ambidexterity. Therefore, by including the ROA as a proxy for performance in our models, we aim at shedding some light on this relationship. For the data regarding this variable, we extracted the reported year-end values for the annual ROA from the Refinitiv DataStream database.

4.2.2. Organizational Ambidexterity

Bearing in mind that ambidexterity relates to the balancing between exploitation and exploration, we followed the method presented in Uotila et al., (2009) which aims at measuring the relative amount of exploration through content analysis and use it as a proxy for organizational ambidexterity. For this, a dictionary of key word-roots was developed, taking into account the original concepts of exploration and exploitation as described in March (1991), which serve as indicators for the amount of exploitation and exploration a firm exhibits. All words in the dictionary and the overall model were validated in Uotila et al., (2009) in order to ensure its effectiveness, having yielded positive results. In addition, contrary to other dictionaries presented in the literature (e.g., Oehmichen et al., 2016), this one was developed as to be applicable to a broader number of industries, thus contributing for its relevance in being applied to our research.

As to the source of our word counting, we followed Oehmichen et al. (2016) and Heyden et al. (2018) and based our research on the analysis of annual reports – or equivalent documents issued by the institutions in our sample – as these are fundamental and objective sources for understanding the firm's strategy that provide meaningful insights into their operations, culture and most concerning issues.

However, after a few initial tests, we decided to make one change to the original dictionary of words presented by Uotila et al., (2009), by removing the word "risk", which was significantly distorting the results. The reason for this change is explained by "risk" being a common word found in annual reports of financial institutions, since it is a key component of the banking business model and thus it is generally required by legislation for financial institutions to deliver risk reports. Thus, in order to avoid distorting the dimension we aim at capturing with this variable, we decided to remove it. The final dictionary utilized in our research can be found in Annex B. Additionally, whilst in Uotila et al., (2009), citing Laver et al. (2003) and Porac et al. (1999), it is established that performing a textual analysis without analysing the context where the word is employed yields similar results to performing the

18

analysis taking the context into consideration, we did analyse the words for context and excluded the occurrences that were irrelevant.

After obtaining the word counts for both the exploitative characteristics and for the explorative characteristics separately, we computed the score for relative exploration as described in Uotila et al. (2009), which is obtained by dividing the amount of exploration by the total amount of exploration plus the amount of exploitation.

4.2.3. Corporate Governance

The literature provides several methodologies for measuring corporate governance. This is easily understood in Gulati et al. (2020), which through a meta-analysis of the literature on the subject, presents an overview of the most commonly used indicators. Thus, the set of variables used in our research to capture corporate governance features of each of the European banks in our sample were chosen taking into consideration its conclusions.

The first variable is related with the level of corporate governance, and it is crucial to address H2. Since sustainability has been gaining importance amongst investors and firms, the ESG score has become a common tool (Khan, 2019). This indicator analyses three dimensions (environment, social and governance) by looking at a wide range of categories inside each pillar to yield a score. Thus, since for our hypothesis we are looking for the data on corporate governance, our first independent variable for this topic is the corporate governance pillar score from the ESG, which will be mentioned throughout the dissertation as corporate governance score and represented in the models as *CorpGov_ESG*. All data regarding the variable was extracted from the Refinitiv DataStream database.

Bearing in mind that the remaining hypothesis for corporate governance focuses on the effects caused by the board characteristics, we followed Kyere and Ausloos (2020) and considered the board size, measured by the number of directors in the board as reported at the year-end reports. Additionally, following Erkens et al. (2012) and Bhagat and Bolton (2019), we consider board independence, which was calculated through the ratio between the number of independent directors and the total number of directors in the board, as reported at the year-end reports. As previously mentioned, some banks in our sample have a one-tier board systems whereas others have a two-tier board systems. In the case of the latter, we considered the size and independence of the supervisory board. Additionally, in order to account for this situation

and provide an answer to H5, we follow Millet-Reyes and Zhao (2010) and consider a dummy variable which is represented in the models as *Board_Unitary*, and referred to hereafter as board structure, that assumes the value of 1 if the bank has a one-tier board and 0 if it has a two-tier board or a mixed system. All data regarding these variables were also extracted from the Refinitiv DataStream database and validated through the analysis of the annual reports.

4.2.4. Control Variables

We considered two of the most commonly used control variables in other to capture a larger number of dimensions affecting the ROA. Following De Andres and Vallelado (2008), Erkens et al. (2012) and Dranev et al. (2020), we control for differences in bank's structures by considering the firm size, as measured by the logarithm of the bank's total assets, in Euros. Additionally, we considered leverage as another control variable (Erkens et al., 2012). Considering the available data, we decided to use the debt-to-equity (D/E) ratio as a proxy, since it has been widely regarded as an important tool in leverage research (Hull, 1999).

The data for both variables was also extracted from the Refinitiv DataStream database. In the case of firm size, all data regarding the total assets was extracted in Euros, thus all banks whose data was in other currencies was automatically converted by Refinitiv DataStream upon the extraction.

In addition, since we are working with panel data for a period of five years, we have accounted for the time effects of having data for the same institutions for different years. The variable in the models was named *Time_Effect*, which represents a set of four dummy variables (*Year2*, *Year3*, *Year4*, *Year5*), where the first year (2015) is the reference year, thus assuming the value of 0 in all dummy variables. All the other variables assume the value of 1 when the data refers to the year to which each was allocated to (i.e., *Year2* refers to 2016 whilst *Year5* refers to 2019).

4.3. Regression Model

In order to proceed with testing our hypothesis, we constructed two Multiple Linear Regression (MLR) models. As described in Chiarini and Brunetti (2019), an MLR is a statistical mechanism that provides information regarding the relation between a dependent variable and the independent variables, further allowing us to test and understand the connections amongst the

20

latter. The equations also include the residuals (ε), which represent the discrepancies between the predicted values and the actual values.

Thus, our main model, named Model 1, which aims at capturing the effects of organizational ambidexterity and corporate governance in performance, is as follows:

$$ROA_{i,t} = \beta_0 + \beta_1.Rel\_Exp_{i,t} + \beta_2.CorpGov\_ESG_{i,t} + \beta_3.Board\_Size_{i,t} + \beta_4.Board\_Indep_{i,t} + \beta_5.Board\_Dual_{i,t} + \beta_6.Firm\_Size_{i,t} + \beta_7.Leverage_{i,t} + Time\_Effect_{i,t} + \varepsilon \tag{1}$$

where,

    i represents one of the banks in the sample

    t represents the year

    Time_Effect$_{i,t}$ is given by the following equation:

$$Time\_Effect_{i,t} = \beta_8.Year2_{i,t} + \beta_9.Year3_{i,t} + \beta_{10}.Year4_{i,t} + \beta_{11}.Year5_{i,t} \tag{2}$$

Furthermore, in order to test H6 we need another equation which allows us to understand the explanatory effect that corporate governance has in organizational ambidexterity. Consequently, Model 2 is as follows:

$$Rel\_Exp_{i,t} = \gamma_0 + \gamma_1.CorpGov\_ESG_{i,t} + \gamma_2.Board\_Size_{i,t} + \gamma_3.Board\_Indep_{i,t} + \gamma_4.Board\_Dual_{i,t} + \gamma_5.Firm\_Size_{i,t} + \gamma_6.Leverage_{i,t} + Time\_Effect_{i,t} + \varepsilon \tag{3}$$

where,

    i represents one of the banks in the sample

    t represents the year

    Time_Effect$_{i,t}$ is given by the following equation:

$$Time\_Effect_{i,t} = \gamma_7.Year2_{i,t} + \gamma_8.Year3_{i,t} + \gamma_9.Year4_{i,t} + \gamma_{10}.Year5_{i,t} \tag{4}$$

The complete analysis of both models was then conducted through the IBM SPSS Statistics, version 27.

5. Results and Discussion

5.1. Descriptive Statistics

Table 5.1: Descriptive statistics of all variables in the models.

	N				Std.					Percentiles		
	Valid	Missing	Mean	Median	Deviation	Skewness	Kurtosis	Minimum	Maximum	25	50	75
Return On Assets	190	0	,004411	,004350	,0054329	-,424	7,088	-,0230	,0240	,002550	,004350	,006300
Relative Exploration	190	0	,254946	,244284	,0918173	,414	-,245	,0455	,4878	,189886	,244284	,313674
Corp. Gov. ESG Score	190	0	,677802	,705350	,1857291	-,397	-,898	,2383	,9552	,534425	,705350	,853550
Board Size	190	0	13,97	14,00	3,584	,181	-,701	6	21	11,75	14,00	17,00
Board Independence	190	0	,614991	,600000	,2086559	-,162	-,668	,1875	1,0000	,500000	,600000	,769200
Is the Board Unitary?	190	0	,52	1,00	,501	-,064	-2,017	0	1	,00	1,00	1,00
Firm Size (Log of Total Assets)	190	0	8,543535	8,674010	,5401401	-,618	-,404	6,9343	9,3614	8,235176	8,674010	8,927076
Leverage (Debt-to-Equity)	190	0	4,459999	3,608500	2,8612593	1,145	,809	,3325	13,4598	2,572050	3,608500	5,713725
Year 2 (2016)	190	0	,20	,00	,401	1,512	,289	0	1	,00	,00	,00
Year 3 (2017)	190	0	,20	,00	,401	1,512	,289	0	1	,00	,00	,00
Year 4 (2018)	190	0	,20	,00	,401	1,512	,289	0	1	,00	,00	,00
Year 5 (2019)	190	0	,20	,00	,401	1,512	,289	0	1	,00	,00	,00

As showed in the first two columns, all our variables have the same number of observations (190), thus lacking any missing values. Looking at the dependent variable, the data implies that, on average, the banks in our sample had a ROA of 0.44%, with a standard deviation of 0.54%. The variable also presents a negative skewness (-0.42), indication that the distribution of its values is skewed to the left, a positive kurtosis (7.09) indicating its distribution is leptokurtic, and a range that varies from a negative value (-2.30%) to a positive value (2.40%).

The independent variables present varied behaviours. On average, the banks obtained a score for relative exploration of 0.255, with a standard deviation of 0.09. The positive value in the skewness (0.41) indicates that it is slightly skewed to the right and the negative kurtosis that it is a platykurtic distribution, thus being flatter than a normal distribution. Regarding the corporate governance score, the banks in the sample displayed an average score of 0.68, which corresponds to a B+, according to the Refinitiv ESG Methodology (see Annex C). The standard deviation is 0.19, the skewness of -0.40 – thus being slightly skewed to the left – and the negative kurtosis (-0.90) implies it is platykurtic.

Regarding the board variables, on average, the banks had 14 directors in their boards, with a standard deviation of 3, 61.50% of which (approximately, 8 directors) were independent, with a standard deviation of 20.87%.The first is skewed to the left (0.18) whilst the second is skewed to the right (-0.16) and both have a platykurtic distribution (-0.70 and -0.69, respectively). Worth noting the large discrepancies between the maximum and minimum values, which are

explained by the differences in the board characteristics, which is captured by the board structure variable and where 51.6% of the observations presented a one-tier board system.

Regarding the control variables, on mean, the banks in our sample displayed a size of 8.54 as measured by the logarithm of their total assets. This is accompanied by a standard deviation of 0.54. Additionally, on average, banks displayed a debt-to-equity ratio of 4.46, with a standard deviation of 2.86. Bearing in mind the value for the mean and further looking to the maximum value (13.46) it informs us about the high amount of debt that is present in the capital structure of the organizations in the sample.

5.2. Correlations

Table 5.2: Pearson R correlation coefficients.

		Return On Assets	Relative Exploration	Corp Gov. ESG Score	Board Size	Board Independence	Is the Board Unitary?	Firm Size (Log of Total Assets)	Leverage (Debt-to-Equity)	Year 2 (2016)	Year 3 (2017)	Year 4 (2018)	Year 5 (2019)
Return On Assets	Pearson Correlation	1											
	N	190											
Relative Exploration	Pearson Correlation	,194	1										
	Sig. (2-tailed)	,007											
	N	190	190										
Corp Gov. ESG Score	Pearson Correlation	-,212	-,081	1									
	Sig. (2-tailed)	,003	,266										
	N	190	190	190									
Board Size	Pearson Correlation	-,078	,040	-,043	1								
	Sig. (2-tailed)	,283	,580	,553									
	N	190	190	190	190								
Board Independence	Pearson Correlation	-,170	-,242	,423	-,263	1							
	Sig. (2-tailed)	,019	,001	,000	,000								
	N	190	190	190	190	190							
Is the Board Unitary?	Pearson Correlation	-,292	,147	,312	,106	-,130	1						
	Sig. (2-tailed)	,000	,043	,000	,144	,075							
	N	190	190	190	190	190	190						
Firm Size (Log of Total Assets)	Pearson Correlation	-,156	-,102	,385	,225	,478	,017	1					
	Sig. (2-tailed)	,031	,161	,000	,002	,000	,811						
	N	190	190	190	190	190	190	190					
Leverage (Debt-to-Equity)	Pearson Correlation	-,104	-,095	-,186	-,136	,028	-,494	,129	1				
	Sig. (2-tailed)	,154	,190	,010	,061	,699	,000	,076					
	N	190	190	190	190	190	190	190	190				
Year 2 (2016)	Pearson Correlation	-,041	-,033	-,018	,012	,021	-,016	-,026	,002	1			
	Sig. (2-tailed)	,574	,655	,810	,872	,773	,829	,725	,979				
	N	190	190	190	190	190	190	190	190	190			
Year 3 (2017)	Pearson Correlation	,080	,035	,004	-,014	,010	,011	,002	-,013	-,250	1		
	Sig. (2-tailed)	,270	,629	,955	,848	,892	,885	,980	,859	,001			
	N	190	190	190	190	190	190	190	190	190	190		
Year 4 (2018)	Pearson Correlation	,100	,028	,071	-,018	-,010	,011	,004	,003	-,250	-,250	1	
	Sig. (2-tailed)	,171	,705	,328	,809	,895	,885	,958	,971	,001	,001		
	N	190	190	190	190	190	190	190	190	190	190	190	
Year 5 (2019)	Pearson Correlation	,040	,047	,033	,004	-,010	,011	,020	-,011	-,250	-,250	-,250	1
	Sig. (2-tailed)	,583	,524	,647	,952	,891	,885	,788	,885	,001	,001	,001	
	N	190	190	190	190	190	190	190	190	190	190	190	190

Since the variables in our model are metric – with the exception of the dummy variables –, a bivariate correlation analysis was conducted using the Pearson R correlation, which assumes values from -1 (negatively correlated) to 1 (positively correlated). Looking at Table 5.2, we denote that relative exploration is the only explanatory variable positively correlated with the performance proxy (ROA), with an r=0.19 at a significance level below 0.01, which seem to indicate that banks with higher scores of exploration relative to exploitation tend to exhibit a

higher ROA. Contrarily, all the corporate governance variables bear negative values of r, with the dummy variable achieving the lowest value of r=-0.29 at a significance level below 0.01, followed by the corporate governance score with an r=-0.21 at a significance level also below 0.01, thus indicating negative correlations. The same tendency is observed with board independence, with an r=-0.17 at a significance level below 0.05. On the other hand, the value for the relation between board size and ROA has a significance higher than 0.05 (0.28) and thus lacks statistical significance. Denote that all correlation values mentioned so far are below 0.3 which indicates weak correlations.

Regarding the correlation between relative exploration and the corporate governance variables, board independence with an r=-0.24 at a significance level below 0.01, indicating a weak negative correlation and thus implying that less independent boards tend to generate better scores of relative exploration. The same tendency is verified for the board structure variable with an r=0.15 and a p-value=0.04. The remaining two variables, board size (r=0.04 and sig.=0.58) and corporate governance score (r=-0.081 and sig.=0.27) seem to lack correlation with the variable.

Amongst the corporate governance variables, it is worth noting that the corporate governance score displays two moderately positive correlations, one with board independence with an r=0.42 and another with board structure with an r=0.32, both at a significance below 0.01. Furthermore, there is a weak negative correlation between board size and board independence, which displays a value of r=-0.26 and a p-value below 0.01. All the other relations are not statistically significant.

5.3. Models' Validity

5.3.1. Model 1

In order to guarantee that the model presented is appropriate and relevant, we underwent a set of verifications, which can be consulted in Annex D. Thus, we began with the ANOVA test for the MLR, which displayed a p-value below 0.01 thus ensuring with a 99.9% confidence that our model is valid.

The next step to ensure we can conduct statistical inferences regarding the population from where our sample was extracted, was to test some conditions relating to the model's residuals.

From Table D2, we ensure that residuals have a mean equal to zero and even though through the Kolmogorov-Smirnov test we may reject the existence of normality, since our sample is composed of 190 observations – and thus being above 30 observations –, we resort to the Central Limit Theorem (CLT) to ensure its asymptotic normality.

Additionally, all values for the Variance Inflation Factors (VIF) are below 2 – and thus below 10 – which ensures the inexistence of multicollinearity amongst our independent variables. Furthermore, we also tested the model for the presence of homoscedasticity (i.e., the equality of variances) in the residuals. Looking at the scatter plot graph in Annex E, we may consider that this assumption is met, since the data is relatively well distributed between a range from -2 to 2, even with the presence of some outliers. Nonetheless, in order to validate our preliminary conclusion, we conducted a Breusch-Pagan test, which rejected the existence of linear forms of heteroskedasticity. However, in order to account for the presence of non-linear forms of heteroskedasticity, we also conducted a White Test. Since the significance value in this second test was 0.003 – and thus below 0.01 – we can conclude that we do have the presence of non-linear forms of heteroscedasticity.

If this situation is not corrected or accounted for, the failure to ensure the equality of variances amongst the residuals will affect the reported standard errors, even though the parameters will not be affected (Long & Ervin, 2000). Therefore, we resorted to the estimation of the heteroscedasticity-consistent (HC) standard errors (often called robust standard errors) in order to accommodate the effect. To do so, we followed the HC3 methodology as our sample is lower than 250 (Long & Ervin, 2000; Hayes & Cai, 2007).

5.3.2. Model 2

Contrary to the previous model, the ANOVA test for Model 2 did not initially guarantee its significance, as the p-value obtained was 0.09, which was above 0.05. In order to resolve this issue, some variables were removed based on their lack of statistical significance. We began with the time effect dummy variables, since all of them displayed high p-values which were far above 0.05, thus indicating lack of statistical significance in explaining the variability in the relative exploration. This seemed to indicate that contrary to Model 1 this model is not so much affected by time.

After conducting a new ANOVA test, the p-value (0.089) was still above 5%. Thus, another variable was removed: this time the control variable that was less statistically significant, this is, the firm size. As a result, the model's p-value was lowered to 0.012. Since this value was below 0.05, we could finally guarantee the model's significance via the ANOVA test and thus proceeded to the remaining tests.

Regarding the analysis of the residuals, the mean displayed a value of zero and whilst through the Kolmogorov-Smirnov test we did reject the existence of normality (considering $\alpha=0.05$), we once again resorted to the CLT to ensure its asymptotic normality. Furthermore, as it had happened with Model 1, there were no signs of multicollinearity – since the VIF were below 2 –, and the scatter plot seemed to indicate that there was no heteroscedasticity present (see Annex E). Nonetheless, to validate this initial conclusion we conducted the same tests as the previous model. As a result, the White Test again indicated the presence of non-linear forms of heteroscedasticity in the residuals. Thus, in order to account for the issue, we resorted to same methodology used in Model 1, this is, the calculation of the robust standard errors through the HC3 methodology. All the tests described along this section can be found in Annex F.

5.4. Empirical Results & Discussion

The main model in this dissertation, Model 1, aims at understanding the effect of organizational ambidexterity and corporate governance in financial performance as measured by the ROA. When looking at the Adjusted R^2, which informs us about the goodness-of-fit corrected for parsimony, we conclude that our independent variables explain 26.9% of the variability registered in the dependent variable (see Table 5.3).

Table 5.3: Model 1 summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,558	,312	,269	,0046440

Since the model was already validated in the previous section, we proceeded to estimate the parameters for the MLR. In order to do so, we resorted to the Ordinary Least Squares (OLS) approach, which minimizes the sum of squared residuals. The results for each independent variable and the constant – which is displayed in the table as "Intercept" –, already including the robust standard errors to account for the presence of heteroscedasticity in the residuals, are

displayed in Table 5.4. For purposes of comparison, the original estimations without the robust standard errors can be found in Annex G.

Table 5.4: Effects caused by the independent variables on ROA (Model 1).

Dependent Variable: Return On Assets

Parameter	B	Robust Std. Error[a]	t	Sig.	95% Confidence Interval Lower Bound	95% Confidence Interval Upper Bound
Intercept	,006	,008	,775	,439	-,010	,023
Rel_Exp	,010	,004	2,447	,015	,002	,018
CorpGov_ESG	-,002	,003	-,690	,491	-,008	,004
Board_Size	,000	,000	-1,976	,050	-,001	-3,552E-7
Board_Indep	-,006	,003	-2,402	,017	-,012	-,001
Board_Unitary	-,005	,001	-4,774	,000	-,008	-,003
Firm_Size	,001	,001	,941	,348	-,001	,003
Leverage	-,001	,000	-4,403	,000	-,001	,000
Year_2	,002	,001	1,078	,283	-,001	,004
Year_3	,003	,001	2,048	,042	9,859E-5	,005
Year_4	,003	,001	2,242	,026	,000	,006
Year_5	,002	,001	1,675	,096	,000	,005

a. HC3 method

By first looking at the proxy for organizational ambidexterity, the results obtained make us conclude that relative exploration is statistically significant (considering an α=0.05) and has a positive effect on the performance variable, since the parameter displays a positive value of 0.01. Thus, we confirm H1. These results validate some of the conclusions presented in the literature analysed (e.g., Junni et al., 2013; Tamayo-Torres et al., 2017; Dranev et al., 2020), which denoted a positive relation between organizational ambidexterity and performance. Furthermore, the usage of the ROA as a proxy for financial performance has proven be significant and yields similar results to other more common measures used in organizational ambidexterity research such as the ROE (e.g., Campanella et al., 2016) and the Market-to-Book ratio (e.g., Dranev et al., 2020).

Regarding the corporate governance score, we obtained a negative coefficient (-0.02) which, additionally, has a p-value above 0.05 (0.49), thus not being statistically significant to explain the variability in the ROA. As a consequence, we reject H2. To some extent, these findings are similar to some findings of Yoon et al. (2018); however, they contradict those of Velte (2017). Additionally, if we look at other corporate governance indexes besides the ESG,

we denote that the general consensus amongst the literature analysed is that firms exhibiting better scores and performances in matters of corporate governance tend to have better financial performances (e.g., Beiner et al., 2006; Simpson & Kohers, 2002; Rani et al., 2016).

As for the board variables, all three are statistically significant in explaining the variability in the financial performance variable. Board size displays a very small coefficient of -0.0003 (not shown in the table due to formatting reasons), which leads us to conclude that a high number of directors in a board has a small but negative impact on ROA. Therefore, these results allow us to accept H3. This inverse relation between the two variables is reported in Beiner et al. (2006), partially in Bhagat and Bolton (2019) and is aligned with Gulati et al. (2019) in which it was concluded that board size has a negative effect in performance, when measured by the ROA. Furthermore, this conclusion is in accordance with Mehran et al. (2011) where it is mentioned that this inverse relation is widely reported in the literature. Nonetheless, the question regarding the relation between board size and firm performance is not entirely clear and has had conflicting results (Mehran et al., 2011; Kyere & Ausloos, 2020). For instance, in Adams and Mehran (2008), no connection between ROA and board size was found to be significant in banks. And when testing the same hypothesis with Tobin's Q as a proxy for performance, the same conclusion was reached, which directly contradicts the findings of Beiner et al. (2006) where it was reported a positive relation between board size and performance utilizing that same proxy.

A similar result was obtained for board independence. As displayed in the table, its parameter (-0.006) indicates the existence of an inverse relationship between the variable and the ROA, which allows us to reject H4. Our findings contradict some results presented in the literature analysed (e.g., Kyere & Ausloos, 2020; Gulati et al., 2019) which point in the opposite direction: this is, for a positive effect of board independence in performance. Gulati et al. (2019) justifies this as a larger number of independent directors tend to improve monitoring capabilities and decrease agency costs. Nonetheless, some papers have in fact pointed in the same direction that our results point to. This is the case of Adams and Mehran (2008), which partially validates this relation when using the ROA, Singla and Singh (2019), when measuring performance with Tobin's Q, and Erkens et al. (2012), measuring it via stock returns. However, regarding the discussion on whether there is a positive or a negative relationship between the variables, Singla and Singh (2019) argue that independent board members may indeed bring a positive effect to firm performance but that will largely depend on the effectiveness to which those members are allocated through the different board committees.

Regarding the board structure dummy variable, it displays a value of -0.005. This result seems to indicate that banks with one-tier board systems tend to display slightly lower values of ROA when compared to its counterparts that have a two-tier board systems. Consequently, we reject H5.

Aligned with the literature, the control variable for leverage displays statistical significance, considering $\alpha=0.01$. Furthermore, it displays a negative coefficient (-0.001), which seems to imply that banks with lower D/E ratio tend to display higher ROA. This negative effect of leverage, as measured by the D/E ratio, in financial performance is in accordance with the findings of Bhagat and Bolton (2019), which measured leverage as the ratio between debt and assets. However, it does not validate the findings of Kyere and Ausloos (2020), which by using also using the debt-to-assets ratio, reported a positive effect of leverage on ROA. On the other hand, firm size as measured by the logarithm of the total assets has a p-value of 0.35 – and thus above 0.05 – which indicates that it is not statistically significant in explaining the variabilities in the dependent variable. These results do not validate the findings of Kyere and Ausloos (2020) and De Andres and Vallelado (2008) which found a significant relation between the ROA and the logarithm of total assets.

Considering now the time effect variables, the dummy variables for 2016 (*Year_2*) and for 2019 (*Year_5*) are not statistically significant since their p-values are 0.28 and 0.09 respectively, which are both above 0.05. Nonetheless, the remaining two dummy variables have p-values below 0.05 thus confirming the effects caused by time in the dependent variable. These two variables display positive parameters (both of 0.003) which seem to indicate that there was an tendency for the ROA to be higher for each of those years when compared to the base year, which is 2015.

In order to test our last hypothesis (H6), which regards the relationship between organizational ambidexterity and corporate governance, we need to analyse the results obtained from Model 2, which assumes relative exploration as the dependent variable and the corporate governance score and board variables as the independent variables.

When compared to Model 1, this second model displays a much lower value of R^2 and consequently a significantly lower of Adjusted R^2, which in this model displays a value of 5.1% (see Table 5.5). This implies that the corporate governance variables included in Model 2 only explain roughly 5% of variability in the values obtained for the scores of relative exploration through our MLR.

Table 5.5: Model 2 summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	,275	,076	,051	,0894683

Since the model was already validated in the previous section, we proceeded to the estimation of the parameters through the same methodology followed for Model 1, this is, via the OLS approach. The results obtained are displayed in Table 5.6, alongside the respective robust standard error for each of the variables. For purposes of comparison, the original estimations without the robust standard errors can be found in Annex G.

Table 5.6: Effects caused by the independent variables on relative exploration (Model 2).

Dependent Variable: Relative Exploration

Parameter	B	Robust Std. Error[a]	t	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Intercept	,336	,058	5,737	,000	,220	,451
CorpGov_ESG	-,015	,044	-,341	,733	-,103	,072
Board_Size	-,001	,002	-,459	,647	-,005	,003
Board_Indep	-,098	,036	-2,714	,007	-,170	-,027
Board_Unitary	,020	,017	1,187	,237	-,013	,053
Leverage	-,001	,003	-,470	,639	-,008	,005

a. HC3 method

By analysing the results displayed in Table 5.6, we denote an overall lack of statistical significance, which is common to four out of five corporate governance variables, as they display substantially high p-values which are far above 0.05. If we consider the results obtain for board size in particular, it validates the findings of Oehmichen et al. (2016), in which one of the models presented rejected the existence of a relationship between the number of directors in the board and organizational ambidexterity.

The only statistically significant variable is board independence, with a p-value of 0.007 and whose parameter displays a negative value of -0.098, which seems to indicate the existence of an inverse relationship between this variable and the dependent variable. Thus, according to this result, a greater number of independent directors in the board does have an impact on the relative exploration, by reducing the amount of exploration activities and/or by increasing the amount of exploitation activities.

Nonetheless, the sixth hypothesis aimed at investigating whether there was a relationship between corporate governance and organizational ambidexterity. Considering that the majority of the corporate governance variables that we have considered for our models – both the corporate governance score and the variables that captured the characteristics of the board of directors – revealed a clear lack of statistical significance in explaining the values obtained in the relative exploration, we can reject H6.

As for the only control variable in Model 2 (leverage, as measured by the D/E ratio), it also indicates lack of statistical significance in explaining the variabilities in relative exploration, as it displays a p-value of 0.64, which is therefore significantly above 0.05. This contrasts with the findings of Oehmichen et al. (2016), which measured leverage via the financial leverage ratio, and reported a significance of leverage in explaining the variability in organizational ambidexterity.

6. Conclusions

6.1. Conclusions

In this dissertation, our primary focus was on addressing the issue of whether organizational ambidexterity and corporate governance have an impact on financial performance, considering a panel of large European banks.

Our findings indicate that banks with higher levels of relative exploration tend to display higher levels of Return-On-Assets, which is in accordance with a common hypothesis put forward in the literature. Additionally, we found that larger boards with a greater number of independent directors tend to have a negative impact in performance, since both variables presented a negative impact on the performance variable. Since the literature on the subject has yet to arrive to a consensus, our results contribute to the ongoing discussion on which characteristics of the board of directors enable a superior performance. Furthermore, we have also found that the banks in our sample that displayed a two-tier board structure performed better as compared to their counterparts with one board. One particularly interesting result obtained was the lack of correlation between the corporate governance score – as measured by the ESG score – and financial performance.

Our second focus was to address a rather unexplored subject of the effect that corporate governance has in organizational ambidexterity, or in this case, in relative exploration. The results showed a generalized lack of a relationship between the corporate governance score and the board variables with relative exploration. The exception, however, was the board independence which was the only variable to indicate that there was a considerable significance in explaining relative exploration. This relationship was found to be inverse, thus indicating that a larger number of independent directors in the board is associated with a diminished focus on exploration activities.

This dissertation has academic implications, as it contributes to the ongoing discussion regarding the impact that the top management has in the stability and future prosperity of a firm; and in this case specifically to the banking industry, which was established previously to be a cornerstone for a well-functioning economy. Our research validates the significance of analysing board characteristics to understand their impact in performance. Additionally, it contributes to expanding the research on organizational ambidexterity, a topic that has been

gaining popularity over the last two decades whilst shedding some light on its relationship with achieving a higher performance. This is particularly interesting as our research used the ROA as a proxy for performance, which, although being a solid indicator, it is not commonly found in papers on organizational ambidexterity.

Furthermore, there are also managerial implications as this dissertation validates the importance that management characteristics and strategic decisions have in banking operations and performance. The significant effect that board characteristics displayed, poses as an important beacon that a well-designed structure can have a tremendous impact on the outcome. It further demonstrated how in a world with a high pace of progress and innovation it is of utmost importance to conduct an efficient management of innovation and have a strategy that is suitable for today but also to be ready for tomorrow.

6.2. Limitations

As with any other dissertation, there were some limitations encountered during the research which should be considered. Firstly, the lack of information regarding some of our variables did not allow for a larger sample. Furthermore, there was also the scarcity of information regarding other important variables that could have been included in our models – such as investment in R&D – which could have resulted in even higher goodness-of-fits. This inclusion would have allowed us to explore more relations, especially with organizational ambidexterity to which the link with investment in R&D has been widely mentioned in the literature. Furthermore, this research focuses solely on large European banks, and thus different conclusions could be obtained if a different sample was used, containing banking institutions from other parts of the globe or even samples which include smaller European banks.

6.3. Future Research

Despite the considerable breakthroughs and expansions of both literatures in organizational ambidexterity and corporate governance during the last decades, there is still plenty of room for improvements. Regarding the former, future research should focus on the development of new methods to assess the level of ambidexterity within an organization. This would help in constructing a bridge between the academic concept of ambidexterity and its application to practice, in order to draw more accurate conclusions regarding the concept and its actual

influence in a firms' operations. Additionally, in line with what is called for in some of the papers analysed (e.g., Junni et al, 2013), future research should go beyond exploring a possible relationship between the subject and performance and focus on understanding the conditions under which organizational ambidexterity enables a superior performance. Findings on this subject would bring a great value-added to organizations.

Regarding corporate governance, the lack of connection between the corporate governance pillar score of the ESG and performance should be further investigated. It was an unexpected result that ought to be tested with larger samples and other industries. Regarding the characteristics of the board of directors, more variables could be included in order to capture a greater number of dimensions which would thus provide a broader picture into which factors contribute the most to achieve a greater firm value.

Additionally, it would be interesting to explore how banks in other regions would behave in a similar study, which would provide useful insight to infer more robust conclusions. Furthermore, other forms of relationships between the variables could be explored, by employing polynomial regressions to study the possible existence of non-linear relations between the variables considered. Lastly, research could also focus on testing for the existence of moderators, which would vastly contribute to paint a clearer picture on the relationship between organizational ambidexterity, corporate governance, and performance.

7. References

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8. Annexes

Annex A

Table A1: Final sample used in the research.

Name	Country
ABN AMRO	Netherlands
Alpha Bank	Greece
Banco Sabadell	Spain
Banco Santander	Spain
Bank of Ireland	Ireland
Bank Polska Kasa Opieki	Poland
Bankinter	Spain
Barclays	UK
BAWAG PSK	Austria
BBVA	Spain
BNP Paribas	France
CaixaBank	Spain
Commerzbank	Germany
Credit Agricole	France
Credit Suisse	Switzerland
Danske Bank	Denmark
Deutsche Bank	Germany
Erste Bank Group	Austria
Handelsbanken	Sweden
HSBC	UK
ING Bank	Netherlands
Intesa Sanpaolo	Italy
Jyske Bank	Denmark
KBC Bank	Belgium
Lloyds Bank	UK
Metro Bank	UK
Millenium BCP	Portugal
National Bank of Greece	Greece
Natixis	France
NatWest	UK
Nordea	Finland
OTP Bank	Hungary
SEB	Sweden
Societe General	France
Standard Chartered	UK
Swedbank	Sweden
UBS	Switzerland
UniCredit	Italy

Annex B

Table B1: Word root dictionary for computing the relative exploration score.

Exploitation	Exploration
exploit∗ refine∗ choice∗ production∗ efficien∗ select∗ implement∗ execut∗	explor∗ search∗ variation∗ experiment∗ play* flexib∗ discover∗ innovat∗

Annex C

Table C1: Refinitiv ESG methodology scores.

Score	Range
A +	]0.9167; 1]
A	]0.8333; 0.9167]
A -	]0.75; 0.8333]
B +	]0.6667; 0.75]
B	]0.5833; 0.6667]
B -	]0.5; 0.5833]
C+	]0.4167; 0.5]
C	]0.3333; 0.4167]
C -	]0.25; 0.3333]
D +	]0.1667; 0.25]
D	]0.0833; 0.1667]
D -	[0; 0.0833]

Annex D

Table D1: ANOVA test of model significance (Model 1).

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	,002	11	,000	7,333	,000
	Residual	,004	178	,000		
	Total	,006	189			

Table D2: Residual statistics (Model 1).

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-,002372	,013452	,004411	,0030340	190
Residual	-,0238008	,0126936	,0000000	,0045068	190
Std. Predicted Value	-2,235	2,980	,000	1,000	190
Std. Residual	-5,125	2,733	,000	,970	190

Table D3: Kolmogorov-Smirnov test of normality (Model 1).

	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
Standardized Residual	,093	190	,000

a. Lilliefors Significance Correction

Table D4: Multicollinearity test (Model 1).

Model		Collinearity Statistics VIF
1	Relative Exploration	1,094
	Corp Gov. ESG Score	1,569
	Board Size	1,373
	Board Independence	1,951
	Is the Board Unitary?	1,572
	Firm Size (Log of Total Assets)	1,795
	Leverage (Debt-to-Equity)	1,464
	Year 2 (2016)	1,609
	Year 3 (2017)	1,617
	Year 4 (2018)	1,632
	Year 5 (2019)	1,624

Table D5: Heteroscedasticity tests (Model 1).

Breusch-Pagan Test for Heteroskedasticity				White Test for Heteroskedasticity		
Chi-Square	df	Sig.		Chi-Square	df	Sig.
,523	1	,470		101,447	66	,003

Annex E

Graph E1: Scatterplot (Model 1).

Dependent Variable: Return On Assets
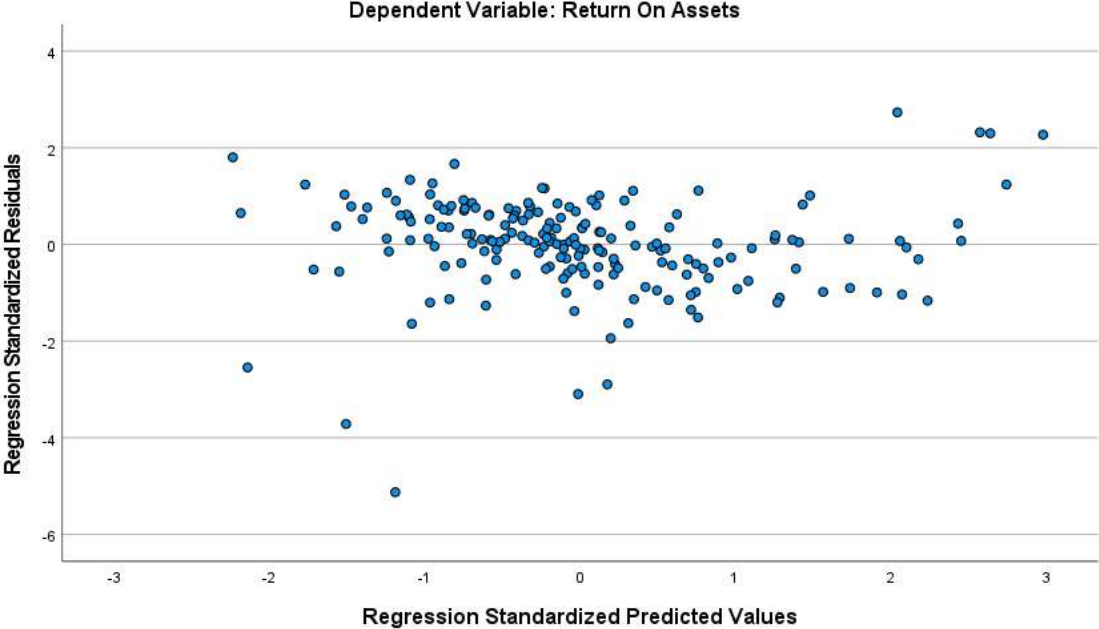
Graph E2: Scatterplot (Model 2).

Dependent Variable: Relative Exploration
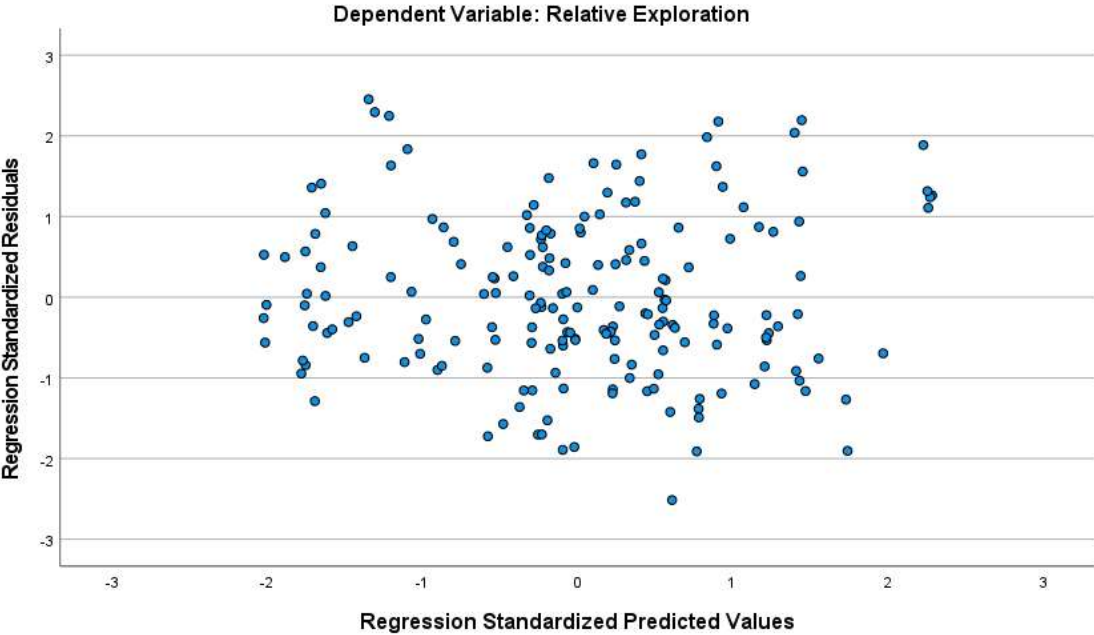
Annex F

Table F1: ANOVA test of model significance (Model 2).

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	,121	5	,024	3,011	,012[b]
	Residual	1,473	184	,008		
	Total	1,593	189			

Table F2: Residual statistics (Model 2).

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	,203871	,312630	,254946	,0252507	190
Residual	-,2248617	,2195525	,0000000	,0882770	190
Std. Predicted Value	-2,023	2,284	,000	1,000	190
Std. Residual	-2,513	2,454	,000	,987	190

Table F3: Kolmogorov-Smirnov test of normality (Model 2).

	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
Standardized Residual	,069	190	,026

a. Lilliefors Significance Correction

Table F4: Multicollinearity test (Model 2).

Model		VIF
2	Corp Gov. ESG Score	1,465
	Board Size	1,097
	Board Independence	1,431
	Is the Board Unitary?	1,539
	Leverage (Debt-to-Equity)	1,342

Table F5: Heteroscedasticity tests (Model 2).

Breusch-Pagan Test for Heteroskedasticity

Chi-Square	df	Sig.
3,114	1	,078

White Test for Heteroskedasticity

Chi-Square	df	Sig.
65,630	19	,000

Annex G

Table G1: Coefficients without robust standard errors (Model 1).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,006	,006		1,088	,278		
	Relative Exploration	,010	,004	,167	2,561	,011	,914	1,094
	Corp Gov. ESG Score	-,002	,002	-,075	-,960	,338	,638	1,569
	Board Size	,000	,000	-,168	-2,309	,022	,728	1,373
	Board Independence	-,006	,002	-,245	-2,817	,005	,513	1,951
	Is the Board Unitary?	-,005	,001	-,498	-6,384	,000	,636	1,572
	Firm Size (Log of Total Assets)	,001	,001	,099	1,192	,235	,557	1,795
	Leverage (Debt-to-Equity)	-,001	,000	-,373	-4,957	,000	,683	1,464
	Year 2 (2016)	,002	,001	,112	1,419	,158	,621	1,609
	Year 3 (2017)	,003	,001	,199	2,523	,013	,618	1,617
	Year 4 (2018)	,003	,001	,220	2,772	,006	,613	1,632
	Year 5 (2019)	,002	,001	,165	2,087	,038	,616	1,624

a. Dependent Variable: Return On Assets

Table G2: Coefficients without robust standard errors (Model 2).

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
2	(Constant)	,336	,045		7,450	,000		
	Corp Gov. ESG Score	-,015	,042	-,031	-,357	,722	,683	1,465
	Board Size	-,001	,002	-,038	-,509	,612	,912	1,097
	Board Independence	-,098	,037	-,224	-2,639	,009	,699	1,431
	Is the Board Unitary?	,020	,016	,109	1,240	,217	,650	1,539
	Leverage (Debt-to-Equity)	-,001	,003	-,046	-,562	,575	,745	1,342

a. Dependent Variable: Relative Exploration