

**THE HIDDEN LINKAGES BETWEEN
THE FORMAL AND THE INFORMAL STRUCTURES
OF THE BOARD OF DIRECTORS:
A TRANSNATIONAL EMPIRICAL STUDY ON BOARDROOM
BEHAVIOUR**

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LIST OF ABBREVIATIONS AND ACRONYMS

AktG	<i>Aktiengesetz</i>
CalPERS	California Public Employee's Retirement System
CEO	Chief Executive Officer
CNMV	<i>Comisión Nacional del Mercado de Valores</i>
CFA	Confirmatory Factor Analysis
DAX	<i>Deutscher Aktien Index</i>
EFA	Exploratory Factor Analysis
FTSE	Financial Times Stock Exchange
GICS	Global Industry Classification Standard
IBEX	Iberia Index
IAS	International Accounting Standards
IFRS	International Financial Reporting Standards
ISCED	International Standard Classification of Education
KMO	Kaiser-Meyer-Olkin
MGA	Multi-group analysis
MIMIC	Multiple Indicators and Multiple Causes
OECD	Organisation for Economic Co-operation and Development
PLS	Partial Least Squares
PSOE	<i>Partido Socialista Obrero Español</i>
R&D	Research and Development
SOX	Sarbanes-Oxley Act
SWOT	Strengths Weaknesses Opportunities Threats
SEM	Structural Equation Modeling
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organization
VIF	Variance Inflation Factor

ABSTRACT

Due to the corporate collapses in the past, regulations on formal structures of corporate governance and especially the board of directors have been tightened all over the world. As those regulations did not bring about the expected improvement in board effectiveness, the idea of a missing piece in the puzzle of board effectiveness emerged. The focus shifted towards the behaviour of directors as individuals and the board as a group. It is claimed that the gap between what board roles suggest and what boards really do is the human side of corporate governance. Hence, it is the behavioural factors that determine whether positive or negative board dynamics emerge and how they affect the decision-making process. In order to analyse the reasons behind their emergence, widening the scope from agency theory to a pluralistic or multidisciplinary approach of corporate governance is necessary, taking into account especially theories from the field of social psychology, such as decision-making theories and theories on group effectiveness. Also, instead of focusing too much on agency theory by addressing mainly the monitoring role of the board, stewardship theory could lead to more promising outcomes focusing also on the board's advisory and strategy role. Furthermore, behavioural factors cannot be measured directly in a quantitative way, which has led previous studies to use qualitative research methods with small sample sizes. In order to bring more light into boardroom behaviour, research on a large scale is needed.

Therefore, this doctoral dissertation addresses the behavioural side of corporate governance by using the method of Structural Equation Modeling (SEM) applying the Partial Least Squares (PLS) approach to a large sample of 87 listed companies of 3 different countries. As a result, and based on the literature-supported idea that cohesiveness is the driver behind all board dynamics having a positive effect on the monitoring and the advisory board tasks, a measurement model for behavioural factors is proposed: informal or behavioural characteristics are connected to formal and directly measurable characteristics. The model is also tested for cultural differences between the United Kingdom, Germany and Spain as representatives of the Anglo-American system, the Continental European system and the hybrid system, respectively.

Keywords: Board behaviour, board dynamics, cohesiveness, Continental European model, hybrid model, interdependencies, Partial Least Squares, pluralistic approach, stewardship theory, Structural Equation Modelling, transnational study.

CHAPTER 1: INTRODUCTION

In recent years, corporate governance has become a key topic of interest for academics, regulators and the corporate world due to collapses of several major corporations all over the world. Many of these corporate collapses could have been prevented if directors and auditors would have asked questions more critically. The pioneer work of the Milgram experiment¹ and also other works on social psychology suggest that loyalty is hardwired into human behaviour (Morck, 2008). Applying the Milgram experiment to corporate boardrooms, policy makers suggested to tighten laws and regulations about independent directors because their misplaced loyalty is seen as the most frequent reason for the corporate scandals of *Enron*, *WorldCom* and so on (Morck, 2008). Companies all over the world introduced corporate governance guidelines to protect minority shareholders. Most countries decided to introduce their codes on a ‘comply or explain’ base suggesting principles for best practice based on self-regulation to increase transparency and disclosure as well as to foster good corporate governance. Unlike most countries, the United States has established a system which is rule based, inflexible and legal statute by introducing the Sarbanes-Oxley Act (henceforth SOX). However, the well-known corporate scandals such as *Enron* and *WorldCom* have occurred, although their boards of directors were established in an – according to today’s corporate governance codes – suitable manner. In the year before its collapse, *Enron* was elected one of the best companies in the United States in terms of their corporate governance (Bakan, 2004). Therefore, it is suggested that many corporate

¹ Milgram constructed a box with electric switches labeled with „15V“, „30V“, up to „450V“. Those switches were also labeled with different intensity ranks from „slight“ to „danger severe“ and „XXX“. A teacher had to ask questions to a professional actor who was told the teacher to be his student. The teacher was told, that the learner was the subject of the experiment and asked to assist the experimenter. In return he was promised to get a financial payment for his participation. The teacher’s task was asking questions to the student. For each incorrect answer, the teacher was told to apply an electric shock to the student, with an increase in intensity for each further incorrect answer. The actor was told to feign his increase in pain by screaming more loud or even demanding to be released from the experiment. At this point, still 80% of all tested teachers applied the electric shocks when they were told to do so by the experimenter as they felt an obligation towards the experimenter being their authoritarian person. The Milgram experiment was repeated in different countries to test for cultural differences and gender differences. Milgram concluded that there are neither cultural nor gender differences. Rather, his conclusion was that human beings have an „urge to obey authority“ (Morck, 2008:182).

scandals have happened irrespective of the formal board structure. Nevertheless, companies have followed the new regulations and laws and changed their board structures.

The result after almost 25 years of the so-called corporate governance reform – beginning with the United Kingdom’s Cadbury Report in 1992 as the first corporate governance report published – is that there are no significant changes neither in the effectiveness of boards nor in firm performance. The reason is that regulations on formal structures do not encourage compliance with the spirit of the law but just with the letter of the law with regulations being treated as a checklist. Researchers have to admit that there is still very limited understanding of the board of directors and its effectiveness despite the large amount of empirical studies (Roberts *et al.*, 2005). The wrong focus in research and reforms on the board of directors might be the reason for the lack of knowledge. Analysing the situations which had led to those corporate scandals, it can be concluded that many emotional factors – such as loyalty – played an important role in the decision-making process. Academics started to assume that formal changes cannot change what has a real impact on board effectiveness – the behaviour of directors. Therefore, instead of focusing solely on the formal structures of the board of directors, such as the formal independence of directors, board structure and composition, recently some academics have started to research in the field of social psychology focusing on the actual board behaviour and the attitudes of board members. There is now more and more agreement that the informal part of corporate governance and especially the board of directors with all its behavioural characteristics is the missing piece in the puzzle of board effectiveness (Forbes and Milliken, 1999; Gabrielsson and Winlund, 2000; Huse, 2007; Jonnergard and Svensson, 1995; McNulty and Pettigrew, 1999; Pettigrew, 1992; Zahra and Pearce, 1989). Some researchers nowadays assume regulators preferred to stay away from regulating behavioural characteristics when they introduced the codes on corporate governance as those characteristics cannot be mandated or audited and consequently make the establishment of new theories difficult (Maharaj, 2008). Furthermore, the importance of the informal part of the board of directors is usually also ignored in the nomination process of directors which might be a reason why many researchers still do not believe in the necessity of researching on the informal characteristics (Hilb, 2012).

The most essential requirement for the well-functioning of an organisation is effective decision-making. Forbes and Milliken (1999:502) state that “*understanding the nature of effective board functioning is among the most important areas of management research.*” Instead of treating the corporate board as a ‘black box’, some few academics – one of the most important ones to mention here is Morten Huse – started to open this ‘black box’ in order to get more insight in the actions and interactions of directors. Coffee (2001:2151) states: “*that corporate behaviour may be more shaped and determined by social norms than by legal rules seems to be an idea*

whose time has come” and also Verhezen (2010:187) claims that “*formal codes and other internal formal regulations that emphasize compliance are necessary, although informal mechanisms that are based on relationship-building are more likely to achieve moral excellence.*” And so do Forbes and Milliken (1999:492) explain what board effectiveness is all about in that they claim there are two criteria for board effectiveness: “(1) *board task performance, defined as the board’s ability to perform its control and service tasks effectively and (2) the board’s ability to continue working together, as evidenced by the cohesiveness of the board.*”. This definition is used in this doctoral dissertation to explain board effectiveness.

There have been several calls for a better understanding of boardroom behaviour and boardroom effectiveness. Opening up the ‘black box’ of the boardroom is inevitable to reach the goal of understanding boards, their behaviour and their attitudes (Daily *et al.*, 2003; Hambrick *et al.*, 2008; Hermalin and Weisbach, 2003; Huse, 2007; Roberts *et al.*, 2005; Vandewaerde *et al.*, 2010). Unfortunately, empirical research is still very rare in this area because it is difficult to measure the informal structures as they are entangled in the complex concept that determines the board of directors. Consequently, there remains limited understanding of board processes and board effectiveness. For example, Huse (2005) as well as Huse and Gabrielsson (2004) argue that one out of eight articles of the very limited total amount of articles on board behaviour published in the leading scientific journals studies actual board behaviour. The reason for the difficulty in accessing these data on behaviour of directors is that directors usually deal with sensitive information which should stay inside the boardroom. Another reason for the lack of studies is that investigating the linkages between board members and the organisation requires a multidisciplinary approach which takes more preparation and time and probably also needs a more sophisticated way of research (Hambrick *et al.*, 2008; Huse *et al.*, 2011). Yet, there are no established theories on the informal structures of boards. Even well-known consulting firms such as *PwC* and *SpencerStuart*, which yearly publish detailed corporate governance reports on several countries, focus mainly or exclusively on the formal structures. *McKinsey Quarterly* frequently addresses corporate governance issues; however, all of them are studying the formal structures. Top-notch universities such as *Harvard* and *Stanford* do have research centres on corporate governance but research is mainly focused on corporate governance from the law and the finance perspective (Harvard Law School Forum on Corporate Governance and Financial Regulation, 2015; Stanford University Rock Center for Corporate Governance, 2015). Research from the management perspective only focuses on the typical characteristics such as insider/outsider ratio, CEO-chairman duality, board composition and structure (Daily *et al.*, 2003).

Although it remains rare, there is some research on the hidden informal structures of board behaviour. The few existing empirical studies capture only a small sample of companies without being representative.

For instance, in one of the studies on the informal part of corporate governance conducted by Huse *et al.* (2005), the researchers observe one Scandinavian board in its meetings for one year. Another study in this field by Samra-Fredericks (2000) focuses on recording and observing the board of directors in order to see how directors really behave in the boardroom. An empirical study conducted by Boytsun and colleagues (2011) suggests that informal rules do have an important impact on corporate governance and therefore have to be taken into account by policy makers in order to make corporate governance and especially the board of directors effective. The researchers of that study conclude that a corporate governance reform focusing exclusively on the formal rules will result in an inefficient and limited reform (Boytsun *et al.*, 2011). The few existing studies have not succeeded in establishing valid theories which is the reason why there are so many calls for further empirical studies in this field.

In sum, quantitative research on the formal structures of the board of directors is the most common way of research. However, quantitative research gives only a partial view on the characteristics of corporate boards as behavioural factors of the board members are claimed to have a larger impact on board effectiveness. Those behavioural factors are studied by applying qualitative research techniques, such as interviews and observations resulting in small sample sizes. From the above explained, it can be concluded that the full picture can only be captured once behavioural factors can be tested quantitatively and on a large scale in order to be able to establish theories on boardroom behaviour (Leblanc and Schwartz, 2007).

1.1. Objectives

For all these reasons, the general objective of this doctoral dissertation is to bring more light into the field of boardroom behaviour by contributing to the existing literature and by analysing the impact of the informal board structures on board behaviour. Unlike most empirical research on boards of directors, this dissertation attempts to measure such informal characteristics influencing boardroom behaviour in a new manner.

In order to reach this general goal, the following concrete objectives have been set:

(1) Describe the relevant theoretical context and provide a detailed and complete picture of the research problem which is the question of how to better understand boardrooms and their behaviour as a working group. This goal includes the clarification of the formal structures of boards of directors and their limitations for a better working group.

(2) Identify key characteristics of the informal structure of boards of directors and analyse their impact on boardroom effectiveness. The identification of the key characteristics of the informal board structures gives the answer to why the improvement of only formal structures is not enough to make boards effective. The linkage between the formal and informal structures is the basis for the empirical research, as the integration of both is the key to boardroom effectiveness.

(3) Suggest a model as a measurement tool for informal structures assessment. Considering the difficulties found in measuring the informal structures of boards, and considering the linkages between formal and informal structures of boards as well as the relevance of both for board effectiveness, a measurement model will be proposed that may help work on the hidden informal structures through formal and measurable traits.

(4) Analyse for cultural differences between the paradigmatic cases of the United Kingdom, Germany and Spain and test for cultural differences between the countries of analysis. An analysis of differences between the United Kingdom, Germany and Spain including the different socio-economic and historical backgrounds is conducted. Country-specific differences in board structures are clarified, major recommendations of the corporate governance codes are addressed and their compliance analysed in order to get a first picture on the differences between the three countries of analysis. The established model is also tested for cultural differences between the United Kingdom, Germany and Spain.

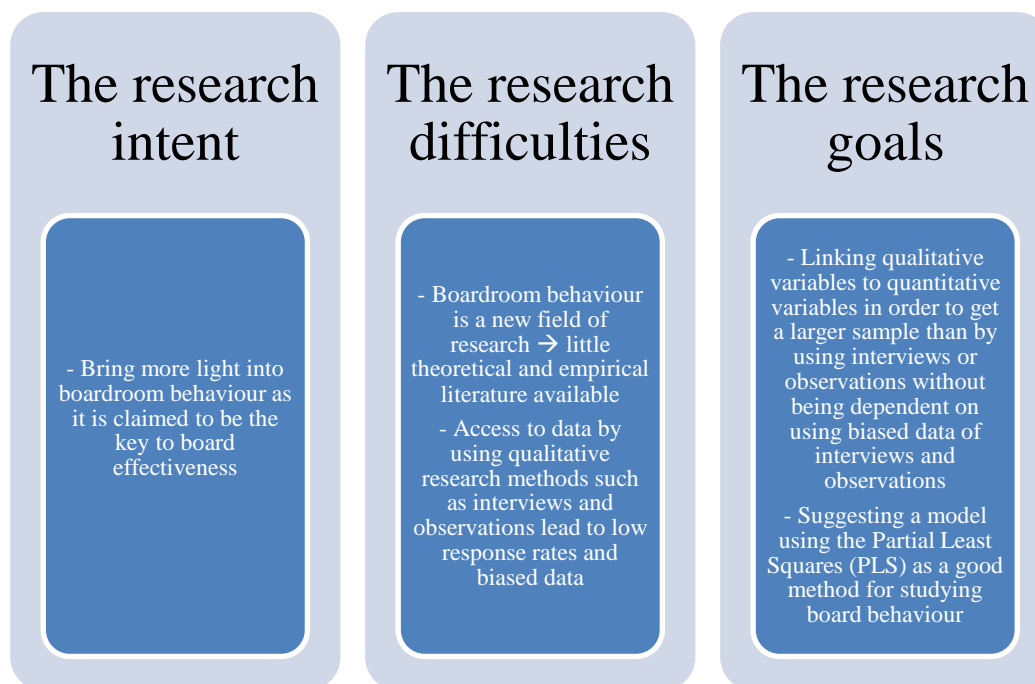
1.2. Methodology

The informal structure of the board of directors is still a barely tested area in empirical research, although there have been several calls for research. Existing empirical research uses interviews, case studies and direct observations in order to bring light into this area. This brings about the problem of getting too small samples in order to be able to make meaningful conclusions which might lead to new behavioural theories in the field of corporate governance and boardroom behaviour. Another disadvantage of using qualitative research methods is that response rates are low as boards deal with highly sensitive information and director time is very limited. People tend to behave differently when they now they are being observed, which is why direct observation leads to biased information. Therefore, this doctoral dissertation follows a new approach of research with the goal of getting a more complete picture of boardroom behaviour by using a larger sample of companies than it is usually the case in researching on qualitative variables. The detailed methodological steps designed and implemented in this research are as follows:

The methodology can be divided into two main parts – theoretical and empirical. The theoretical part is an extensive and descriptive research of the relevant theoretical basis for the empirical part. The most important theories are explained as well as the state of the art in research on boardroom behaviour. Innovative ways of thinking have led to a change in the paradigm of corporate governance and the board of directors, as, nowadays, not the formal structures but the informal characteristics of the board of directors are recognised as having a bigger impact on boardroom effectiveness which is the key message of this doctoral dissertation and the starting point for its empirical research.

The empirical part involves a new and innovative methodology on the board of directors. As the informal characteristics are not directly measurable by applying statistical techniques and the methods of interviews, direct observations and case studies do not bring about a meaningful sample size, this dissertation has used a technique that allows connecting the informal characteristics of boards to formal and directly measurable variables in order to be able to indirectly measure the impact of the former. The conceptual basis for building such connections between the informal and the formal variables is the existing literature on corporate governance, and more precisely on board dynamics and board decision-making. The Partial Least Squares (PLS) technique as part of the Structural Equation Modeling (SEM) statistical methodology is then used to build a conceptual model that statistically measures the linkages between the formal and the informal variables. Figure 1 summarises the dissertation methodology, including the intent of the research carried out in this dissertation, its goals and difficulties.

Figure 1: The dissertation methodology



1.3. Scope

The scope of this dissertation can be identified as follows:

- **Geographic scope:** Three countries are analysed which are the United Kingdom, Germany and Spain. The rationale for selecting those three countries is that they are well-recognised for having different corporate governance systems. Whereas the United Kingdom has a strict shareholder governance perspective, Germany follows a strict stakeholder governance perspective. Those differentiating perspectives have led to differences in the formal establishment of their boards of directors. Whereas the United Kingdom has a unitary board, German companies do all have a two-tier board, consisting not only of executive and non-executive directors, but also of shareholder representatives as well as employee representatives. This leads to a joint decision-making. Spain is recognised by literature for having a mixed corporate governance approach with some characteristics of the system in the United Kingdom as well as some characteristics of the German or so-called Continental European system. However, overall it is more similar to the system in the United Kingdom (Aguilera, 2004; Clarke and Chanlat, 2009; Gospel and Pendleton, 2003; Schmidt, 2003; Tricker, 2009).
- **Temporal scope:** For the temporal scope, the financial year of 2012 has been chosen as the goal was to analyse the most recent year possible at the time of starting this research. Due to the fact that the data gathering is based exclusively on data published in the annual reports of the companies studied in this dissertation, the year 2012 was the most recent year possible to choose in order to make sure that all companies had published their annual reports at the time of starting the data gathering process in 2013.
- **Conceptual scope:** The informal and formal structures of the board of directors are addressed from the behavioural perspective as it is suggested to be the missing piece in the puzzle of board effectiveness. Much research has been done on board effectiveness, however, with contradicting results as most of the research focuses only on the formal characteristics of the board which is, for example, its composition in terms of diversity and its formal independence. Informal characteristics, which decide on the types of board dynamics to emerge, do play a minor role in most research settings. Consequently, in order to open up the 'black box' of the board of directors, it is suggested to focus more on actual board behaviour than on its formal structure.
- **Epistemological scope:** The positivism approach is used for this empirical study as human behaviour is analysed and explained by drawing conclusions from the results of the quantitative study conducted. It is searched for relationships between formal (observable) and informal (unobservable) characteristics of the board of directors using

quantitative techniques to uncover patterns within the board of directors. The decision in favour of this approach is explained by the necessity of studying board behaviour on a larger scale rather than just by using the method of interviews or observations with smaller sample sizes. This approach helps providing an overview of behavioural trends within the boardroom as this is a necessary step to lay a foundation for further research with the ultimate objective of being able to build new theories on boardroom behaviour someday.

1.4. Structure of the Dissertation

This doctoral dissertation consists of an introduction (Chapter 1), a conclusion (Chapter 8) and 6 chapters in between which focus on the theoretical clarification of the research questions as well as on the empirical testing of the model established. In the following lines, the outline of the dissertation structure will be presented.

Chapter 2 is a review of the theoretical background and the state of the art of corporate governance research. It provides an overview of the evolution of corporate governance as well as a clarification of the most relevant corporate governance theories with an impact on the effectiveness of the board of directors.

Chapter 3 focuses on the explanation of the formal characteristics of the board of directors. In detail, the board of directors is defined and explained, including its fiduciary duties and its roles – the monitoring role, the advisory role and the strategy role. Then, director independence and its downsides are clarified. The last part of this chapter emphasises board composition and the role of diversity. It is explained which attributes are crucial for board effectiveness.

Chapter 4 focuses on the informal characteristics – the behavioural side of the board of directors – where positive and negative board dynamics as well as their effects on board effectiveness are defined and clarified.

Chapter 5 is the last chapter of the theoretical part of this doctoral dissertation. It clarifies the three main corporate governance systems – the Anglo-American system, the Continental European system and the hybrid system – based on the three paradigmatic cases of the United Kingdom, Germany and Spain. For each country, the evolution of its system well as the cultural and socio-economic context is addressed in order to understand why countries develop different

systems. Also, differences in board structure and compliance with their corporate governance codes of best practice are analysed.

With chapter 6, the empirical part of this dissertation begins. The goals of this empirical study are clarified and the hypotheses established. Then, the sample and the variables as well as the data gathering are explained. What follows is an analysis on the descriptive statistics of the whole sample before moving on to a comparison between countries. Afterwards, both a correlation analysis and a factor analysis are conducted. In the last step, Structural Equation Modeling (SEM) with the method of Partial Least Squares (PLS) is explained in detail as it is the method used to empirically test the theoretically established model on board effectiveness.

Chapter 7 presents the results of the PLS-SEM model, including a separate analysis of the structural model, the measurement model and the overall model. An analysis on the differences between countries is conducted by using the multi-group analysis (MGA) approach. The last step is the analysis of the hypotheses based on their statistical results.

Chapter 8 draws conclusions on the theoretical foundations as well as on the empirical study. Further, it addresses the limitations of this dissertation and the implications for practice and future research.

CHAPTER 2: THEORETICAL FOUNDATIONS OF CORPORATE GOVERNANCE: STATE OF THE ART

This chapter focuses on the state of the art of corporate governance research. First, the evolution of corporate governance is presented as it is an essential factor for understanding why corporate governance systems have been established and why they have been established in their specific ways. Also, theories from different perspectives, which are playing an important role in the establishment of corporate governance, are clarified. Special focus is put on decision-making theories as board behaviour and emerging board dynamics highly influence the way directors make decisions. The last part of this chapter suggests that a pluralistic approach on corporate governance should be considered in order to capture all interdependencies of corporate governance. The ideas of this chapter build an essential part of the theoretical basis for the development of the empirical study conducted in this dissertation.

2.1. The emergence of corporate governance concerns

The following paragraphs clarify the origins of contemporary corporate governance concerns, including the evolution of corporate governance as well as agency theory and its downsides.

2.1.1. The origins of contemporary corporate governance concerns

Historically, companies were set up by a single person or a small group of people who trusted each other and accumulated their financial resources to both run and own the company (Bakan, 2004). In times of the industrialisation, when mass production techniques such as

assembly lines were developed, economies of scale made it more profitable to produce on a large scale. And as the industry grew, so did the number of corporations. Between 1781 and 1790, in the United States the number of corporations grew from 33 to 328 (Bakan, 2004). However, the companies' owners realised that they had not enough funds to finance their companies' growth so the idea of selling shares to the public was born. Whereas at the beginning only few wealthy men invested in corporations because they realised the advantage of making money by investing in those promising entities, by passing limited liability into law even the majority of the middle-class started to invest in corporations. The early twentieth century was the era of mergers and acquisitions. From 1.800 individually owned companies only 157 survived and grew to huge and widely-held corporate entities by absorbing the other small and medium-sized companies. This new era of corporate capitalism emerged in less than a decade between 1898 and 1904 (Bakan, 2004).

With this new widely-held ownership, managers with enough knowledge and time had to be hired to run those 'modern' corporations as described by Berle and Means (1932). Investors started to fear those enormous corporations over which they were about to lose control, as the famous comparison of corporations to *'Frankenstein's monsters'* clearly demonstrates (Bakan, 2004). The main threat of those manager-controlled corporations was that dispersed ownership also meant that shareholders owned too little of the whole pie so that they had basically no rights or power to affect managerial decisions other than withdrawing their capital (Bakan, 2004; Berle and Means, 1932; Eisenhardt, 1999; Fama and Jensen, 1983; Jensen and Meckling, 1976). The 'modern' corporation faced the so-called 'agency problems'² which Adam Smith recognised early and claimed that professional managers could not be trusted because they would not manage other people's money as if it were their own (Smith, 1776 cited in Solomon, 2007).

Nowadays, the *'Frankenstein's monsters'* are still there. As a consequence, shareholders do not only lack the ability to monitor decisions made by management but also the desire of monitoring decisions as in many cases their main goal has turned into simply getting an appropriate return on their investment. Many shareholders feel they invest in the market, not in the company itself anymore (Shleifer and Vishny, 1997) which is what Ireland (2000) refers to when calling shareholders *'rentiers'*. And this is where one of the main issues concerning corporate governance emerges from: by law, shareholders, as being the owners of the corporation, have a right to obtain the company's profits. However, managers have the right to decide what will happen with these profits. In other words, it is the managers who decide whether profits are reinvested or paid back as a return to the company owners' investment (Bainbridge, 2008).

² Agency theory is explained in detail in Chapter 2, where also the term 'agency costs' is clarified.

At the time when the ‘modern’ corporation emerged, a more sophisticated control mechanism had then to be established in order to reduce those agency problems, so the idea of the board of directors emerged. As agency theory supporters argue, the board of directors is “*an economic institution that helps to solve agency problems inherent in managing any organization*” (Hermalin and Weisbach, 2000:1). However, the new established boards of directors were no more than ‘rubber stamps’ to management. Corporate governance was managerialism-dominated.

Since then, several changes have certainly improved corporate governance to some extent. In accordance with agency theory, some other control mechanisms, such as director compensation or the market for corporate control, among others, have helped aligning the interests of management with those of shareholders. Codes on corporate governance have been established after the collapses of several major corporations, such as *Enron* or *WorldCom*. Stock exchange listing rules have been tightened. Board performance has also been receiving greater attention in order to improve the supervision of managers’ work. As a result, nowadays boards are in many cases smaller, meet more often and have more formally independent members. Also, boards have independent audit committees as well as nomination committees and compensation committees.

But the question is: are boards now actually more effective?³ Is this what corporate governance is ultimately about? In order to establish effective corporate governance systems, it is essential to take into account what corporate governance originally was meant to be and what it was meant to improve. This is, however, a difficult question to ask, as corporate governance depends much on the eye of the beholder (Bainbridge, 2008). Therefore, the different views of corporate governance are explained in the rest of Chapter 2.

2.1.2. Agency theory and its downsides

Agency theory has had much influence on the establishment of corporate governance and its reforms over the years and it is the theory that still dominates corporate governance research (Aguilera *et al.*, 2008; Daily *et al.*, 2003; Fama and Jensen, 1983; Jensen and Meckling, 1976; Minichilli *et al.*, 2012). In response to the corporate collapses of *Enron*, *WorldCom* and other huge corporations, most countries passed corporate governance codes into law, with the United States’ SOX being the best known. The codes focus mainly on formal structures, such as director independence or board size in order to address the problems explained by agency theory. Not only executives but also independent directors and external auditors were blamed for being responsible for the corporate failures and according to agency theory assumptions, an independent board is

³ Board effectiveness is defined in Chapter 1.

the key to board effectiveness. Corporate governance structures and especially board structures do focus mainly on the monitoring of executives as their behaviour is seen, through the agency lens, as an opportunistic one. Hence, the independent director has been considered as the “*target for both blame and reform*” in each new regulation (Roberts *et al.*, 2005:7). Close relationships between executives and non-executives should be avoided as much as possible, leading in many cases to the separation of the roles of CEO and chairman. This second power base is established in order to underpin the opportunistic behaviour of the top executive team further. Independent audit, nomination and compensation committees have been established to make the corporate governance system even more watertight with no loopholes. Not only codes have been established, also the stock exchanges and big public pension funds, such as *CalPERS* (California Public Employee’s Retirement System), have been requesting firms to adapt to the new independence requirements (Daily *et al.*, 2003). Unfortunately, corporate scandals have not been prevented by these regulations.

On the academia side, a wide variety of empirical research has been done on those formal characteristics of board effectiveness. However, research has not been able to conclude on whether or not those characteristics are crucial for boardroom effectiveness. Also, according to assumptions made by agency theory, managers must be monitored by independent directors in order to make them act in the interests of shareholders as an agent is one whose interests *are not* aligned with the interests of the principal. It is argued that the agent behaves opportunistically in order to maximise his own wealth due to the information asymmetry between managers and shareholders (Huse, 2008; Huse *et al.*, 2011; Roberts *et al.*, 2005; Wearing, 2005). However, it is also argued that independent directors do not necessarily have a motivation to monitor the executive team effectively. Neither can it be argued that independent directors use their knowledge in board decision-making nor that they are motivated to work as a team. All this depends on the dynamics that emerge on the board (Forbes and Milliken, 1999; Huse *et al.*, 2011). From this point of view, the question that arises is: who watches the watchers? Any ultimate watcher must have another watcher who watches his actions. Consequently, an effective monitoring is not feasible as long as there is no watcher who has a strong incentive to monitor strictly without having to be monitored himself (Bainbridge, 2008). Much criticism on the assumptions made by agency theory has been arising with the main reason that its simple assumptions are unsophisticated and reflect a closed system approach without considering any interdependencies (Hoskisson *et al.*, 1994; Huse *et al.*, 2011). For example, agency theory assumes complete contracts which is not feasible. The contract consists of the shareholder’s need for the manager’s human resource and the manager’s need for the shareholder’s financial resource which are both necessary to run the company. A complete contract should describe the exact action the manager has to take in every possible situation in order to act in the interest of the

shareholders. Shareholders are not qualified enough to decide in every situation what the best solution is. This was the reason why managers had to start running corporations in the first place. Therefore, the manager gets residual control rights from the shareholders leading to many opportunities for opportunistic behaviour. The gap between the return shareholders would get under complete contracting and the return they really get is the 'agency cost'. This is the reason why the board of directors was established as a monitoring mechanism and the bridge between shareholders and managers with the main goal of aligning the interests of both parties (Shleifer and Vishny, 1997). Many researchers argue that changing this assumption to one that considers incomplete contracts between all parties, provides access to stakeholder theories⁴ (Hoskisson *et al.*, 1994; Huse *et al.*, 2011). Agency theory is also built on the assumption that there is no trust between board members and the CEO. However, nowadays, corporate behaviour is not anymore determined by McGregor's theory X, but by his theory Y (McGregor, 1960). Thus, also corporate executive directors do not have to be controlled all the time because they have motivations which make them seek for satisfaction through appreciation and success. In other words, it is suggested that the main goal of CEOs is to increase and then maintain a high level of reputation in the managerial elite which is achieved by having a good economic performance. According to theory Y, self-control is an essential characteristic for this success and satisfaction as motivation decreases while control increases (Dalton *et al.*, 1997; Davis *et al.*, 1997; Donaldson and Davis, 1994; McGregor, 1960 cited in Schein, 2004). Is the CEO acting not only in his own interest but also in the interest of the shareholders? If so, we face a strong argument in favour of stewardship theory (Chen, 2007).

Due to the lack of improvement under agency theory and the criticism on its unrealistic assumptions, the idea of a change in the focus on corporate governance has emerged. The focus of corporate governance reformers solely on the monitoring model – that is, agency theory – seems to be incomplete and other theories and mechanisms have to be considered to improve board effectiveness. It is also suggested that the scandals happened not only due to board failures but due to governance malfunctions which means that the system as a whole does not work. By searching for the key problem, management and governance should have been rethought leading to a shift in the corporate governance paradigm instead of only tightening laws and regulations. In order to establish and maintain an effective board, executives must stay within a framework of accountability towards shareholders and other stakeholders, but they also must be free enough to run the company in a way that brings it forward. This is important considering that in the vast majority of corporate scandals, the board of directors met regularly and also assessed the CEO's

⁴ Stakeholder theories will be explained in detail further on.

performance which is either an indicator for the CEO’s power over the board or for the huge failure of corporate governance structures (Morck, 2008).

Considering the above said, economic theories cannot neglect anymore that human behaviour plays an important role; at the same time, research is not able to verify agency theory with sufficient evidence. Due to these agency theory downsides and the resulting new ways of thinking and researching, the paradigm of corporate governance is in change and therefore research has started to take informal characteristics – such as trust –into account. New and alternative theories, such as stewardship theory, resource dependence theory and especially theories from the field of social psychology, such as social identity theory and decision-making theories have gained on importance in order to finally open up the ‘black box’ of board conduct and board effectiveness. Unfortunately, until now only limited knowledge is gained on this topic.

2.2. From agency theory to a pluralistic theory of corporate governance

Figure 2 provides an overview over the corporate governance theories and their disciplines which are essential for the understanding of this doctoral dissertation.

Figure 2: Overview of corporate governance theories and their disciplines

Economics	Management	Sociology	Psychology
Agency theory (Fama and Jensen, 1983; Jensen and Meckling, 1976) Transaction cost economics (Williamson, 1985) Team production theory (Blair and Stout, 1999)	Stewardship theory (Donaldson and Davis, 1991) Stakeholder theory (Freeman, 1984) Managerial hegemony theory (Galbraith, 1974; Mace, 1971; Mintzberg, 1983)	Resource dependence theory (Pfeffer and Salancik, 1978)	Bounded rationality (Simon, 1959) Unstructured decision process theory (Mintzberg <i>et al.</i> , 1976) Small group effectiveness theory (Zander, 1994) (Social) identity theory (Hillmann <i>et al.</i> , 2008; Hogg <i>et al.</i> , 1995; 2011)
Paradox approach (Cornforth, 2004)			

Source: Adapted from: Hough *et al.* (2005).

As agency theory is the dominant theory within the economics field (see Figure 2) and because it has already been defined and clarified previously in this chapter, the following lines will therefore not focus on any other of the economic theories of corporate governance. Rather, the focus lies on corporate governance theories from the management perspective, the sociology

perspective and the psychology perspective. As explained previously, most research on corporate governance focuses on the economics and finance perspective and factors influencing firm financial performance without considering psychological factors or board dynamics as a part of board functioning. CEO duality, diversity and director independence are the predominant factors studied to measure their impact on firm performance metrics, such as the Tobin's q . The focus of this doctoral dissertation lies on the impact different board dynamics have on board effectiveness or board functioning. The contrasting of agency theory and the management theories is an essential step to understand the different corporate governance approaches of the countries of analysis in this doctoral dissertation (see Chapter 5). The sociological and psychological theories build the foundation for the understanding of the different kinds of board dynamics and the resulting decision-making on the board. For those reasons, the focus of this dissertation lies on the clarification of the theories from the management perspective, the sociology perspective and the psychology perspective.

2.2.1. Management theories


Whereas agency theory as well as transaction cost theory and team production theory belong to the disciplines of economics and finance, which have long time dominated corporate governance research, management theories are becoming more and more important in corporate governance development. Management theories set on the planning and decision-making processes as well as the organising, leading and controlling functions of companies. As a consequence, management theories propose a wider perspective on corporate governance than economic theories. Many relevant contributions to the understanding of corporate governance have been made by management theories, such as the stakeholder theory, the stewardship theory and the hegemony theories (Hough *et al.*, 2005).

Stewardship theory is usually classified as a management theory (Hough, A. *et al.*, 2005), but it has its roots in psychology and sociology (Sundaramurthy and Lewis, 2003). It claims that the steward acts in the interest of the principle, trying to explain board processes and board behaviour in accordance with McGregor's theory Y, suggesting a close relationship between CEO and the board with not only disadvantages but also benefits as it can foster trust and openness (Dalton *et al.*, 1997; Davis *et al.*, 1997; Donaldson and Davis, 1994). Many researchers even suggest that inside directors and even a CEO-chairman duality favour board effectiveness because the superior inside knowledge is helpful for a higher quality decision-making and a unified leadership in one person (Baysinger and Hoskisson, 1990; Dalton *et al.*, 1997; Hoskisson *et al.*, 1994). Therefore, according to stewardship theory, the board's main role is not the control role but the strategy role.

According to Dalton *et al.* (1997) empirical results confirm this argument. However, stewardship theory has also received some criticism. Tricker (1994:56) argues that stewardship theory assumes legal and also rational behaviour and therefore it "ignores, the dynamics of boards, interpersonal perceptions of roles and the effect of board leadership." Also, Hung (1998) claims that it fails to consider relationships of power and conflict.

Figure 3 compares agency theory and stewardship theory.

Figure 3: Contrasting approaches to corporate governance

Control		Collaboration
Agency theory (economics and finance)	Theoretical basis	Stewardship theory (management)
Individualist Opportunism	<u>Assumptions</u> Human tendencies	Collectivist Cooperation
Extrinsic Goal conflict (risk differential) Distrust	Motivation Management-owner relations	Intrinsic Goal alignment (firm identification) Trust
Discipline and monitor Outsiders No CEO duality Reduces goal conflict, avoids increasing risk differential Constrains self-serving behaviour	<u>Prescriptions</u> Board's primary role Board structure Executive stock ownership Market for corporate control	Service and advisory Insiders, social ties CEO duality Fosters firm identification and long- term relations Curbs psychological commitment

Source: Sundaramurthy and Lewis (2003:398).

Stakeholder theory is also a management theory as it is developed within the context of business (Hough *et al.*, 2005). Board responsibility is not limited to shareholder value, rather it focuses on a wider perspective to improve stakeholder value. In other words, stakeholder theory shifts the efficiency argument towards a broader definition of effectiveness which is having multiple objectives to benefit various stakeholders. Freeman (1984) is the pioneer of stakeholder theory. Whereas he first suggested to be aware of stakeholder interests, later Freeman and Evan (1990) argued in favour of a stakeholder representation on corporate boards. One of the main arguments against shareholder value and in favour of stakeholder theory is that most shareholders have no moral but only financial interests in the company, as explained previously. Therefore, many scholars see no reason to make decisions solely in favour of shareholder value. Critics on stakeholder theory claim that it is a weak theory as it limits the effectiveness of managers because it is not feasible to balance the benefits of all stakeholders (Aguilera *et al.*, 2008). Also, "telling

a manager to maximize current profits, market share, future growth in profits, and anything else one pleases will leave that manager with no way to make a reasoned decision. In effect, it leaves the manager with no objective. The result will be confusion and lack of purpose that will fundamentally handicap the firm in its competition for survival” (Jensen, 2002:238).

Managerial hegemony theory is part of the managerial theories and reflects the different power relations that appeared when family capitalism was replaced by managerial capitalism because of the fact that managers had the time and knowledge to run the growing companies better than the owning families. The origin of managerial hegemony lies in Berle and Means’ (1932) ‘modern’ corporation, where it is argued that management rather than shareholders – as being the owners – control the company. Due to information asymmetries between management and the board (who represents shareholders), management can control the decisions made by the board. Furthermore, the board is in many cases a passive decision maker or ‘rubber stamp’, just approving the decision proposal given by management (Mintzberg, 1973). Critiques on this theory argue that it is more of a descriptive theory as it offers no solutions to agency problems and therefore it is inefficient (Hough *et al.*, 2005).

2.2.2. Sociological theories

Resource dependence theory derives from sociology and considers outside directors an important bridge between management and the outside world. According to resource dependence theory, directors can bring essential advantages to the executive team and the firm: provide expertise, experience, advice and counsel, special access to resources outside the firm, communication between the firm and outside stakeholders, legitimacy or improving the public image of the firm (Hillmann *et al.*, 2008). Consequently, prestige plays a significant role in director election according to resource dependence theory. It is probable that many management teams only use the board as an instrument for obtaining critical resources such as finance or knowledge on the sector through the director’s access to those resources. This theory further argues that new board members in most cases are elected after the approval of the top management team and therefore they feel loyal to them which makes management able to control the board (Pfeffer, 1972). Pfeffer (1972) suggests, management does not necessarily want to make full use of the board of directors by receiving its advice. Directors with several board mandates are the means by which companies manage the environment because they are supposed to have better access to different kinds of resources than directors who just hold one mandate. Critiques on resource dependence theory claim that first of all, the theory is too complex to be measured as a whole. Only single hypotheses may be tested. Consequently, it is not possible to prove resource

dependence theory. Second of all, from the conceptual perspective, criticism arises as it is not sufficiently justified why organisations should be viewed as political systems rather than economic systems where efficiency is the ultimate objective, particularly because economic theories are able to explain the same phenomena and even more from the economic perspective. In addition, they only present empirical results for the case of mergers, not for studies on behaviour on the board. Moreover, Pfeffer and Salancik (1978) do not measure power relations directly in their empirical studies and consequently, they only assume their propositions might be valid for power relations (Nienhüser, 2008). However, some theoretical advances of Casciaro and Piskorski (2005) allowed them to empirically measure power imbalance and mutual dependence which help explaining resource dependence theory further on both the theoretical and empirical basis.

2.2.3. Psychological theories

The following theories focus on decision-making in general as well as on specific aspects of decision-making in groups in order to apply those theories to the board of directors. The understanding of the decision-making process within the board is a core objective of this doctoral dissertation as it is essential for being able to bring more light into board effectiveness. Therefore, theories which have an impact on the dynamics emerging within the board, will be explained in more detail than the previously mentioned theories.

Originally, the 'economic man' has been introduced to explain human decision-making. This simplistic model, however, assumes that the decision maker has no preferences on the available options, that all necessary information is available, as well as that he or she has the cognitive ability and the time to make rational decisions. At the time the 'economic man' has been considered a theory that is far from being adoptable to reality, the field of behavioural economics gained on importance. The behavioural theories of the firm have been developed and have become essential perspectives in both corporate decision-making and the research on boards of directors (Bainbridge, 2008). The pioneer of today's understanding of organisational behaviour and particularly decision-making is Herbert Simon (1959) with his theory of bounded rationality. He takes the 'economic man' and develops it further to the 'administrative man' by introducing aspects of sociology and cognitive psychology to the economic theory of the firm. Herbert Simon acknowledges that goals are defined at the individual level, rather than at the firm level which brings about cognitive conflicts. In other words, the 'economic man' has cognitive limitations and therefore cannot make rational decisions because the human brain does not allow to understand the complexity of reality immediately. According to Simon (1959), the decision-making process

is a three-step-sequence. The first step is intelligence in which all information that is important for the decision-making is gathered. The second step is design. This is when all the information is structured and where alternative solutions are developed. Analysing those alternative solutions, the decision maker is able to filter out the good decision options, reducing those until there is only one last option left which is the decision maker's choice and the third step in Simon's sequence. Later on, Simon includes the time manner in his theory as he argues that the decision maker does not fully work out all possible decision options due to time restrictions. Rather, the decision maker takes the first decision option, that satisfies the achievement of his or her goal.

Between the development of Simon's theory on bounded rationality and today, there have been several attempts to develop a new theory or to enhance Simon's theory further towards a closer approximation to real decision-making. Nowadays, the following four prevailing behavioural concepts of decision-making can be distinguished (Huse, 2007):

(1) Bounded rationality

Human beings have cognitive limitations and therefore cannot make rational decisions because the human brain does not allow to understand the complexity of reality immediately (as explained above).

(2) Satisficing⁵

The concept of satisficing refers to the idea that decision makers do not take into account all possible options to make the best decision, but accept the first option that they judge as good enough according to their needs (as explained above).

(3) Organisational routines

Organisational routines are built through repeatedly doing the same thing, so that it becomes a routine. Routines need stability in order to keep existing.

(4) Bargaining among coalitions of actors

All corporations have several goals and conflicts, the reason why decision makers have to bargain on the decision to be made.

Mintzberg *et al.* (1976) established a theory taking the linear sequence of Simon's model and including dynamic factors, such as organisational politics or external influences (Langley *et al.*, 1995). In other words, the decision maker starts with a problem to solve and tries to follow the rational and logical steps as explained by Simon's theory. However, the real world with its unpredictable happenings intervenes in the rational and straightforward track that the decision maker would take. Langley, Mintzberg and colleagues (1995) argue that the most important

⁵ The term 'satisficing' has been introduced by Simon (1959) as a combination of the words 'satisfy' and 'suffice'. The term 'satisficing' has since then been used by various scholars (Huse, 2007 and Mintzberg *et al.*, 1976 among others) to refer to the above clarified cognitive heuristic.

conclusion of their work is that all models are far from being realistic approximations to real-life decision-making. The reason is that too many important factors are not taken into account by researchers. Although we all know that decisions are not made the same way all the time, research has not been successful in modelling this phenomenon. Additionally, individual differences are not included in the decision-making models. This means that human emotions and imagination, experiences as well as personal cultural and historical backgrounds form who we are and the way we make decisions. For instance, due to the differences in preferences on information gathering human beings have, only a certain part of the information available is captured. Then, this part of the whole information is interpreted according to the human being's psychological attributes (for example, cognitive abilities, values) and personal attributes (for example, age, nationality) (Finkelstein and Hambrick, 1996). It is also necessary to consider that a decision is often the sequence of previous decisions. For this reason, previously made decisions impact the way the current decision is made as interrelations between those decisions exist (Langley *et al.*, 1995). Mintzberg and Westley (2001) clarify three approaches to decision-making, called 'thinking first', 'seeing first' and 'doing first'. They argue that the 'thinking first' approach, which is the one Simon developed in his theory, does not reflect reality in most cases. The problem has to be very clear, the world structured and the data essential for making reliable decisions possible. Much of our decision-making, however, is beyond conscious thought due to various reasons. Consequently, the 'seeing first' or the 'doing first' approaches are more commonly used. The 'seeing first' approach is best applied for decision-making seeking for creative solutions where many elements have to be combined into a complex concept. Mozart once stated how to create a new symphony: "*see the whole of it as a single glance in my mind*" (cited in Mintzberg and Westley, 2001:90). It is more about seeing and realising what others do not realise. In other words, it is about creativity or connecting factors in a creative way, rather than trying to find solutions by thinking the conventional way. It takes experience to do so. Lastly, the 'doing first' approach is an inevitable step when something new and not straightforward has to be worked out. This applies in new industries or for new technologies. In those cases, there is no previous experience which might help to figure it out. Learning by doing is the appropriate approach in those cases. Mintzberg and Westley (2001) argue that a combination of all three approaches leads to the best decisions.

Traditionally, emotionality has been defined as the opposite of rationality and rationality as the requirement for effectiveness (Huse, 2007; Mintzberg *et al.*, 1976; Roberts *et al.*, 2005). Emotions have been considered dangerous for decision-making as they have influence on the way information is processed by the brain during the decision-making process. This also leads to a cognitive judgment according to the nature of feelings which means that positive feelings tend to lead to a positive judgment whereas negative feelings tend to lead to a negative judgment. Those

feelings are affected by various aspects, such as the momentary mood of the decision maker. In the first place, the personal mood influences not only the decision, but also the outcome (Huse, 2007; Roberts *et al.*, 2005). For example, a negative mood tends to make decision makers favour very systematic decisions underlying a short-term view whereas a good mood tends to favour more flexible decisions underlying a long-term view which also enhances creativity and can be defined as "*the development of ideas*" (Cropley *et al.*, 2011:14). Contrary to the widely accepted belief to keep the head cool in order to make optimal decisions, the above suggests that feelings may have both a positive and a negative influence on decision makers. Research also suggests that people react differently in different situations. Some people tend to react more than others to positive or negative changes in their environment (Seo and Barrett, 2007). The reason might be that decision choices depend to a large extent on individual differences, such as the decision-maker's cultural, historical and environmental background as well as his or her age, education and professional experience (Haley and Stumpf, 1989). Literature suggests that personality types show different preferences for data gathering, generating and evaluating responses. Those arguments are consistent with identity theory and social identity theory which will be explained in the following lines. Also, when people become closer, their behaviour starts to change. They are suggested to behave more morally towards the other person, addressed in the following paragraphs (Bainbridge, 2008; Mathisen *et al.*, 2013; Williams and O'Reilly, 1998).

After having clarified general decision-making theories, the following paragraphs explain the theory on small group effectiveness as well as identity theory and social identity theory. Forbes and Milliken (1999) argue that group effectiveness depends strongly on psychological processes, where cognitive conflict as well as knowledge, skills and cohesiveness between group members play a crucial role. It is also suggested that there are some psychological threats resulting from group decision-making. Therefore, it is essential to address the question whether or not group decision-making is superior to individual decision-making. Groups tend to seek for consensus, which might not always result in optimal decision-making as compromises have to be made. When several creative ideas reach the boardroom discussion, all those ideas have to be processed by each member with dropping the 'bad' ones and further developing the 'good' ones. This information processing is a subjective task, which may cause time loss and decision quality loss due to different preferences, different levels of cognition as well as conformity, such as social loafing, herding, pluralistic ignorance or groupthink⁶ (Forbes and Milliken, 1999; Horwitz and Horwitz, 2007; Shin *et al.*, 2012). Nevertheless, it is also argued that groups do not only make better decisions than the average group member but even better decisions than the best decision maker within the group. The reason is the development of a 'collective memory' which outperforms the individual memory by far (Bainbridge, 2008). It is claimed that groups detect

⁶ Those cognitive biases will be explained in detail in Chapter 4.

individual biases and errors made by a group member fast. Decision proposals are rejected three times more likely by another group member than by the group member who proposed the solution. Furthermore, inadequate solutions are rejected five times more than correct ones within a group (Bainbridge, 2008). Also, Blinder and Morgan (2000) argue that groups make faster decisions than individuals, although with no statistically significant difference. The importance of this finding is, however, huge as it was argued for a long time that decision-making within a group takes longer due to cognitive conflict. It has to be beard in mind that faster decisions only do bring about an advantage in case they are better. Therefore, Blinder and Morgan (2000) also test the quality of group decision-making within a group versus individual decision-making. Their findings support the argument that group decision-making is superior to individual decision-making (Hough *et al.*, 2005). This theory can be applied to the board of directors as it is a small group of highly-skilled people whose task is solely of cognitive nature and decision-making usually requires deep know-how in a variety of fields of expertise in order to be able to make the best decisions within both its advisory role and its monitoring role. Consequently, although negative board dynamics might emerge within the boards of directors, the advantages of shared decision-making outweigh the possible disadvantages.

Identity theory and social identity theory are both theories of normative behaviour. They address both the self as it is represented by society (Hogg *et al.*, 1995). Identity theory focuses on individual behaviour and describes behaviour between self and society, which means that society has an impact on self in which it affects social behaviour. In other words, the self is a reflection of society. Identity theory considers interaction with others and consequently, people are also suggested to have various different selves as they interact with different groups and have several roles in society. For example, a person can be a father, a teacher and a blood donor at the same time. All of those roles imply different kinds of behaviour in society. Identity theory argues that individuals are the sum of their identities which emerge according to their roles in society (Hillmann *et al.*, 2008). According to identity theory, individuals behave differently in the same context due to differences in the strength of identification with a certain identity (Hillmann *et al.*, 2008; Hogg *et al.*, 1995).

Social identity theory is a socio-psychological theory referring to the group members' attitudes that define who they are. In other words, social identity theory groups individuals into categories, such as nationality, gender or ethnicity (Hillmann *et al.*, 2008; Hogg *et al.*, 1995). The stronger the individual's identification with a certain identity, the greater the probability that the individual's behaviour will be determined by that identity. Social identity theory is about intergroup relations or group behaviour. It focuses on role behaviour and goes further than identity theory as it focuses not only on the self but on the self within the context of a group. Therefore, it defines intergroup behaviour of the self or individual behaviour in the group context. Due to

the focus on individual behaviour within a group, social identity theory might be more appropriate than identity theory in the context of the board of directors (Hogg *et al.*, 1995). Whereas identity theory classifies individuals according to their roles in society, social identity theory classifies individuals according to their social categories. Nevertheless, both theories support the view that behaviour in a certain context depends on the personal identities. Personal identities should be examined in the context of both theories in order to understand both the role and the social group based identities because only considering those theories separately does not lead to the understanding of their interdependencies (Hillmann *et al.*, 2008).

In the context of boards of directors, for example, outside directors, who are also CEOs of other companies, are suggested to have a stronger identification with the CEO identity and therefore might be less strict in monitoring them. Another example is that directors whose main job is being a director in various companies are suggested to have a strong identification with being a director because they seek for a favourable reputation as directors in order to foster their attractiveness for further directorates. Those directors probably have a stronger identification with this job than directors whose directorships are more of a side job additional to their jobs as, for example, executives of other companies. Identity theory disagrees with an important assumption made by agency theory as agency theory assumes that directors are motivated to monitor the CEO due to their fiduciary duty towards shareholders. However, as explained above, their strength of identification with each identity does not necessarily support agency's assumption (Hillmann *et al.*, 2008). Also, resource dependence theory makes assumptions, which are not realistic for all directors, such as the assumption that directors make use of their human and social capital in order to provide special access to resources to the company. A weak identification with the organisation or with the job as a director might imply directors not to do so (Hillmann *et al.*, 2008). According to identity theory, a group member's behavioural characteristics decide on his or her level of acceptance within the group. Similar attitudes, values, backgrounds or interests help making someone part of the in-group. The greater the differences are between two members, the greater is the probability that one of them becomes part of the out-group. Social distancing⁷ prevails towards the out-grouped members. In the context of a board of directors, grouping members in or out decides on the level of interaction or conflict, which in the end decides on the quality of decision-making (Mathisen *et al.*, 2013).

⁷ Social distancing is explained in more detail in Chapter 4.

2.2.4. The paradox approach – towards a pluralistic theory

Due to the criticism put on agency theory, different disciplines, such as psychology and sociology have gained on attention to such an extent that nowadays we can clearly see that they apprehend corporate governance and its problems from a quite different perspective, which is the behavioural side of it. However, neither of the theories explained previously is able to address all situations.

Although the paradox approach is usually classified as an approach from the management perspective, it fits perfectly for explaining the need of a pluralistic theory of corporate governance. It suggests that all the other theories previously mentioned have a simplistic epistemology as organisations are all but simplistic; they are paradoxical (Cornforth, 2004). In other words, it is essential to see corporate governance beyond the 'either/or' approach. Rather, contradicting theories have to be combined in order to capture the whole picture of corporate governance (Hough *et al.*, 2005). The paradox approach is a good starting point for further development because it captures the idea of combining several theories in order to get a complete approximation to a complex reality. Some researchers argue in favour of a combination of *all* theories in order to address the problem mentioned by the paradox approach (Hambrick *et al.*, 2008; Huse *et al.*, 2011). An example of the paradox approach is given by Sundaramurthy and Lewis (2003) who adopt both agency theory and stewardship theory in that they claim that an organisation has cycles in which control should dominate and other cycles in which collaboration should dominate. They stress the importance of admitting that trust and distrust as well as cohesion and diversity at the same time have to be acknowledged in order to understand corporate governance completely (Hough *et al.*, 2005; Sundaramurthy and Lewis, 2003). While agency theory calls for control, stewardship theory calls for collaboration. Although both theories have different arguments and outcomes, they both consider trust to be a key factor, as visualised in figure 3. There are several trust relationships between the board and the CEO. For example, in accordance with agency theory and its anti-trust assumption on the relationship between the CEO and the board members, the board is mainly seen as a governance mechanism in charge of monitoring the management team. However, taking a closer look at the situation, one must admit that the board has to trust the CEO to some extent as the CEO is able to filter out information when setting the board's agenda for the meetings (Chen, 2007). This trust between both parties may increase due to repeated satisfactory situations where one party trusted the other. On the other hand, if one of the parties took advantage of this trust in the past, the level of trust will decrease rapidly (Mayer *et al.*, 1995; Chen, 2007). An over-emphasis on the control role is as counterproductive as an under-emphasis on the control role. The same happens with an over-emphasis or under-emphasis of trust. This recognised, nowadays researchers start to focus on the characteristics that determine the board dynamics, which have an impact on both the monitoring

as well as the advisory or strategy role of the board, in order to address actual board conduct for bringing more light into the effectiveness of board processes and decisions.

The argument in favour of developing a multi-disciplinary theory has also implications for policy makers. Due to the well-known corporate scandals, debates have been emerging over whether the different policy approaches are appropriate or not. As mentioned previously, after introducing codes of best practice or even codes as hard laws as it is the case in the United States with its SOX, it does not seem that corporate governance gets any more efficient. The reason might be a wrong focus on the establishment of corporate governance principles. As a result, theories, on which corporate governance is based, should be reconsidered (Aguilera *et al.*, 2008). The board of directors can play different roles depending on the current situation, suggesting the need for taking interdependencies into account. The essential question is not whether the assumptions made by a theory are realistic, but whether those assumptions are a good approximation to the reality of the current situation capturing the whole picture of corporate governance with all its interdependencies (Aguilera *et al.*, 2008; Bainbridge, 2008; Coase, 1991; Hung, 1998; Mace, 1971; Sundaramurthy and Lewis, 2003).

As none of the discussed theories can provide a solution to all situations, the missing piece in the puzzle becomes evident; instead of substituting one theory by another, a pluralistic and interdisciplinary approach on corporate governance is what many researchers now suggest to be the key to the 'black box' of boardroom behaviour (Daily *et al.*, 2003; Dalton *et al.*, 1997; Hambrick, *et al.*, 2008; Sundaramurthy and Lewis, 2003; Vandewaerde *et al.*, 2010). Bridging disciplines in order to establish a pluralistic theory is an essential yet challenging task because it requires enough insight into all disciplines used and the understanding of the main theories of each of those disciplines. This doctoral dissertation takes the above discussed arguments as one of the baselines for the development of its empirical work by drawing upon theories from different disciplines. Although theoretical research on the combination of theories in corporate governance matters is essential for demonstrating the limitations of a single-focus approach – such as agency theory – the empirical support becomes the key to build and test new theories on corporate governance and boardroom effectiveness. This suggests that more empirical studies in this area are needed (Roberts *et al.*, 2005).

2.3. Various perspectives on corporate governance

In accordance with all that has been explained in previous lines, it becomes clear that there is no agreement between scholars, researchers and the economic world about what good corporate governance is. As clarified in Section 2.2., the main reason is that different theories are used as the starting point for the explanation of corporate governance with the result of corporate governance being defined in various ways. For example, Friedman, Drucker and Sternberg as some of the most well-known shareholder value supporters argue that corporate governance has to ensure shareholder value as a corporation's main goal because each step towards the stakeholder view has a financial disadvantage for the owners (Bakan, 2004). Others, such as Freeman and Ireland argue in favour of stakeholder value in order to get back to what the original purpose of a corporation was - providing and improving access to resources to the whole society as it was the case especially in times of the industrialisation, as explained in Section 2.1. All the previously clarified theories lead to different approaches. And so differs the purpose of a company and the definition of board effectiveness. Huse (2007) groups the previously explained theories and explains corporate governance from four different perspectives: the managerial perspective, the shareholder supremacy perspective, the stakeholder perspective and the firm perspective.

The managerial perspective

The managerial perspective has its origin in Berle and Means' (1932) 'modern' corporation, where managerial capitalism replaced family capitalism in times when companies grew to an extent that families were not able anymore to run their companies themselves. Although the board dominates formally management, it is management that has power over the board. Resulting from this power relation, the board's true accountability is serving management instead of shareholders. In this respect, the board is no more than a 'rubber stamp' to management. One of the techniques applied by management is appointing directors to the board who provide management with access to important resources. Consequently, resource dependence theory is one of the main theories favoured by the managerial perspective of corporate governance. The era of managerial hegemony in the 1970s and 1980s, in which managers paid themselves exaggerated salaries and benefits at the cost of shareholders, demonstrates the problem of the management definition: the conflicts of interests between management and shareholders (Bainbridge, 2008; Huse, 2007).

The shareholder supremacy perspective

The board is accountable to all shareholders, suggesting that the board's main task is preventing both management's opportunistic behaviour and the majority shareholders' exploitation of minority shareholders. Shareholder supremacy emerged from the separation of

ownership and control. The board of directors was established as the main governance mechanism to align interests of shareholders with those of management by monitoring management behaviour and providing management with incentives through compensation in share options. In other words, management and the board are the instruments for shareholders and this perspective emerged as a response to both management's opportunistic behaviour as well as shareholders who started to invest in order to obtain financial benefits (Bainbridge, 2008; Berle and Means 1932; Huse, 2007).

The stakeholder perspective

This perspective argues that the interaction of stakeholders influences the company's decision-making. The board's main accountability is balancing the interests of all stakeholders, which might lead to conflicts due to different interests of different stakeholder groups. The focus lies on the interests of *each* stakeholder group. One possible solution is stakeholder participation on the board (Bainbridge, 2008; Huse, 2007).

The firm perspective

The firm perspective makes the firm itself the center of attention as it is suggested that its ultimate goal is *creating value* throughout the whole value chain instead of only focusing on the *distribution of value* to various actors. The board of director's accountability is doing what is best for the company while acting *impartially* when representing stakeholders. The purpose of the company is monitoring management and resolving conflicts between stakeholders, which explains the importance of board independence in this corporate governance approach (Bainbridge, 2008; Huse, 2007).

As visualised in Figure 4, those perspectives can be grouped into external and internal, suggesting that external perspectives (shareholder and stakeholder) focus on value *protection* whereas internal perspectives (managerial and firm) focus on value *creation*. Another way of grouping them is whether they represent a unitary or a balancing view. The unitary view is usually short-term oriented, where the board acts on behalf of one certain actor, either the shareholders or management (shareholder and managerial). The balancing view focuses on the long-term (stakeholder and firm), where the board acts on behalf of various actors, balancing their interests (Huse, 2007).

Figure 4: Contrasting definitions of corporate governance

	<i>Unitary view</i> - short-term	<i>Balancing view</i> - long-term
<i>External view</i> - value distribution and protection	Shareholder perspective What is best for the shareholders - shareholders	Stakeholder perspective What is best for the stakeholders - triangulation
<i>Internal view</i> - value creation	Managerial perspective What is best for the management - circumventing stakeholder control	Firm perspective What is best for the firm - value creation throughout the whole value chain

Source: Adapted from: Huse (2007).

Essential to note from Chapter 2 is that different perspectives of corporate governance have influenced the approaches used in corporate governance. This is especially important when comparing differences in international corporate governance. As this doctoral dissertation presents the results of a transnational empirical research done on the United Kingdom (shareholder value approach), Germany (stakeholder value approach) and Spain (mixed approach), this chapter is an essential step for the later understanding of the different evolutions and ultimate objectives of the companies in each country (see Chapter 5).

Furthermore, Chapter 2 is a reminder of the importance to search for the missing piece in the puzzle of effective boards of directors as corporate scandals all over the world suggest that focusing on only one of the approaches does not lead to effectiveness. Rather, nowadays there is more agreement on focusing on a multidisciplinary approach of corporate governance, which means that both control and collaboration in the main roles of advisory and monitoring have to be applied collectively (Forbes and Milliken, 1999; Nielsen and Huse, 2010; Sundaramurthy and Lewis, 2003). As board tasks are of cognitive nature, board effectiveness depends to a large extent on socio-psychological processes. Consequently, interaction, participation and group dynamics play essential roles.

For those reasons, the following chapters address the formal structures of the board of directors (Chapter 3) as well as the informal ones, that is, the positive and negative board dynamics, which might emerge within the board and influence boardroom decision-making (Chapter 4). Also, the systems in the United Kingdom, Germany and Spain are discussed to analyse for differences between those countries (Chapter 5).

CHAPTER 3: THE FORMAL STRUCTURES OF THE BOARDS OF DIRECTORS

The formal structures of board of directors refer to the rules and regulations supposed to help boards function effectively (Bainbridge, 2008). They have been the centre of attention in the process of establishing codes on corporate governance. Those formal structures include elements such as the composition of the board, the establishment of an independent board and independent board committees, appropriate evaluation and rotation routines and the establishment of appropriate compensation plans, which align interests of executive directors with those of shareholders. As most corporate governance codes build on agency theory, one of the most important factors considered in their elaboration was director independence in order to monitor executives' actions and decisions effectively and to facilitate objectivity on the board. Trust within the boardroom was considered dangerous and the control role of independent directors was assumed to be the answer to good corporate governance (Bainbridge, 2008; Balsam, 2004; Bebchuk and Weisbach, 2009; Eisenhardt, 1999; Fama and Jensen, 1983; Forbes and Milliken, 1999; Huse, 2007; Jackson et al., 2003; Monks and Minow, 2008a; Williams and O'Reilly, 1998).

Carrying this elaboration process of codes in mind, the following paragraphs focus on the elements that nowadays build the formal structures of boards all over the world, that is, its tasks and fiduciary duties as well as its composition focusing especially on diversity and director independence by emphasising the downsides of independence.

3.1. The board of directors: nature, duties and roles

The following paragraphs clarify what the board of directors is by addressing its nature or type of group. Furthermore, the board of director's fiduciary duties – the duty of loyalty and the duty of care – are explained. Afterwards, the main board roles, which are the monitoring role, the strategy role and the service role, are discussed in detail.

3.1.1. What is the board of directors?

According to all corporate statutes, the board of directors is the main decision-making mechanism as the whole board is empowered to make shared decisions, not just the management team (Bainbridge, 2008). As mentioned before, according to agency theory, the board of directors is the 'bridge' between shareholders, who are the owners of the company, and the executive team who runs the company. Due to problems of power abuse by executives as explained by agency theory, the board is a mechanism established to act according to shareholders' interests with the ultimate goal of aligning interests of shareholders and managers. Under the stakeholder definition, which has a long-term view and is based on the idea that corporate governance is "*the outcome of interactions between multiple stakeholders or actors*", the board of directors is seen as the stakeholders' instrument (Huse, 2007:21).

The dominant corporate governance theory, agency theory, brings some light on the nature of boards, but reveals it only partially, as discussed in Chapter 1 and Chapter 2. As decision-making theories are on the basis of this doctoral dissertation's research, approaching the nature of boards from the decision-making lens becomes essential.

First of all, it has to be defined what kind of group the board of directors is. Many researchers use literature on teams to study boards of directors. Although, this is an important step and much of this literature is useful to come a little closer to the understanding of boards of directors, boards cannot exactly be defined as teams because several characteristics do not fit in the definition of a team. For instance, most outside directors have regular jobs in other companies and come to work for the board only few times per year with a total of a few hours as board meetings are usually the only get-together and those take place only between 7 and 10 times a year on average.⁸ This also implies limited knowledge on firm-specific issues. Consequently, board members spend much less time together than teams which reflects also their lower

⁸ For the calculation of the average, the sample of companies studied in this doctoral dissertation has been used. Average of the sample of DAX30 companies: 7 times a year; average of the sample of FTSE100 companies: 9 times a year; average of the sample of IBEX35 companies: 10 times a year.

cohesiveness and trust level in comparison to teams. Interpersonal relationships need much more time to be built. Another essential difference is that the board is established to monitor management which means that some members have to control others and hope to get all information by the monitored ones in order to be able to do their work well. In a team, however, usually members come together to obtain the same goal. Moreover, there is a lack of a tangible outcome as the input made by board members in a board meeting is entirely cognitive (Forbes and Milliken, 1999; Minichilli *et al.*, 2012; Vandewaerde *et al.*, 2010). This is especially important to consider in the context of group effectiveness. Whereas the advantages of group decision-making have been explained in Chapter 2, there are also several cognitive biases, such as social loafing, herding or groupthink, that might emerge. Those will be explained in more detail in Chapter 4. Consequently, a board cannot be defined as a team and considering all the above mentioned characteristics, it seems more appropriate to define the board of directors as a *"large, elite, episodic decision-making group that face complex tasks pertaining to strategic issue processing"* (Forbes and Milliken, 1999:492).

In order to better understand the board, Forbes and Milliken (1999) claim that board research has to follow the tracks of research on decision-making groups, clarifying the board's working style, the board's composition and the characteristics of each board member. Some other authors, such as Pettigrew (1992) agree to consider boards as open systems taking into account the power relations within the board as well as between the board and society or institutions. According to Roberts *et al.* (2005:6), the behaviours argued to be the right ones for board members in order to be effective decision-making groups are: *"challenging, questioning, probing, discussing, testing, informing, debating, exploring, encouraging"*. The authors go on and argue that in order to capture the whole picture of board accountability and board effectiveness, both formal and informal characteristics of boardroom behaviour must be taken into account. Hence, board members should be *"engaged but non-executive, challenging but supportive, independent but involved"* (Roberts *et al.*, 2005:6) which is consistent with the argument by Sundaramurthy and Lewis (2003) that collaboration and control or trust and distrust should coexist.

3.1.2. Board duties

The major fiduciary duties of the board of directors are the duty of loyalty and the duty of care. The former refers to the duty of acting in good faith and honesty in the best interest of the company and its shareholders as required by agency theory. A breach of the duty of loyalty is when a director puts his or her own interests before the interests of the company and its shareholders. This is the case in companies governed according to the managerial perspective,

where the main focus is put on serving management instead of serving shareholders. The latter requires directors to exercise due diligence in decision-making which makes them responsible for gathering all information needed by accessing all possible information channels to make an adequate decision. In case of legal issues, the director will be judged according to the ‘business judgement rule’ making the court investigate whether the director has acted and decided according to his or her fiduciary duties. If this is the case, the decision cannot be questioned by the court (Monks and Minow, 2008a).

3.1.3. Board roles

Throughout the years of research on corporate governance, several board roles have been defined (Forbes and Milliken, 1999; Huse, 2005; Huse, 2007; Vandewaerde *et al.*, 2010; Zahra and Pearce, 1989; Zhang, 2011). According to the extensive literature, the two main board roles are the control role and the service role. Recently, a third board role, which is the strategy role, has been included (Hilb, 2012; Huse, 2007; Ricart *et al.*, 2005; Sundaramurthy and Lewis, 2003). To some extent, strategy has always been a part of the board of director’s work. However, in recent years, it has gained on importance, and therefore it is nowadays defined as a separate role. The following paragraphs explain the three main board roles in detail.

(1) The control role

According to Forbes and Milliken (1999:492), in terms of the control role, the board’s “*legal duty [is] to monitor management on behalf of the shareholders.*” The control role has its roots in agency theory as it is argued that corporate managers will put their own benefits before the benefits of the shareholders which is the reason they have to be controlled (Jensen and Meckling, 1976). Therefore, the board of directors, especially the independent directors are assigned to monitor the executive team with its decisions and actions. As the non-executive directors are not employees of the company, agency theory suggests they are effective monitors as they are not supposed to be influenced by cultural aspects of the organisation (Westphal and Bednar, 2005).

The control role is accepted in all corporate governance systems. Board independence is considered to be the most important characteristic favouring the control or monitoring role of the board. Usually, countries with a unitary board are favouring the monitoring role most because they focus on agency theory and maximisation of shareholder value as the ultimate objective of the firm. The level of board independence is argued to represent the level of board power over the CEO (Fama and Jensen, 1983). However, theory and practice are drifting apart because having power does not mean that the board wants to execute this power over the CEO. One example is

when negative board dynamics emerge and the board neglects its monitoring role (Brown, 2009; Brudney, 1982). Another example is the information asymmetry between the CEO and the board, as the CEO sets the agenda for board meetings and is able to filter out information. In a relationship of much harmony and strong trust, the CEO tends not only to behave less opportunistically but even accept the board's guidance to a greater extent (Chen, 2007; Zhang, 2011).

The control or monitoring role of the board is part of the internal control system and includes the auditing function, the risk management function, the communication function and the evaluation function of the board (Hilb, 2012). The board as a whole has the final responsibility of reviewing the internal audit and risk management. The audit and risk management committee supervises the internal control system, including the internal audit reports and the professionalism and independence of both the internal audit members and the external auditor. Furthermore, annual reports and interim reports are analysed by the committee as well as all issues concerning risk management (Hilb, 2012). The communication function refers to the communication process between the board and the top management team and is part of the control role because getting information directly from the management team is the first step in being able to monitor it. A proper implementation of this function requires the following to be defined: “*who informs whom, about what, how, using what means and with what success*” (Hilb, 2012:166). Issues to be discussed regularly between board and management are compliance, strategy, people and operational effectiveness (Charan, 2005:69, cited in Hilb, 2012:167). The evaluation function is the last step to complete the process of controlling and monitoring. It is argued that legal directors or corporate governance specialists – such as board secretaries – are usually effective board members for monitoring board processes as their competencies are highly process-oriented (Huse, 2007). The argument of inviting legal directors to the board is explained further on.

(2) The service role

This board role is supported by several corporate governance theories but especially by resource dependence theory and hegemony theory. The service role includes two main tasks: the mentoring task that “*refers to its [the board] potential to provide advice and counsel to the CEO and other top managers and to participate actively in the formulation of strategy*”, (Forbes and Milliken, 1999:492) and the networking task which implies that the company's reputation is enhanced and that contacts with external stakeholders are established and maintained (Ricart *et al.*, 2005).

As most empirical research on the board of directors has been carried out on Anglo-American companies, which have a strong shareholder perspective, it mainly focuses on the control role. However, countries with a two-tier board, such as Germany and the Netherlands, are countries with a strong stakeholder perspective and consider the strategy and service roles as important as the control role. Consequently, those countries integrate employees in the supervisory board who actively take part in the decision-making process. Actually, according to Johnson *et al.* (1996) a considerable amount of time is spent on advising executives rather than controlling them, suggesting that the service role has an essential impact on strategic decision-making as values define the culture which is shaped through the communication and advisory tasks of the board. Directors with their social networks provide important access to critical resources for the company such as capital, human resources and technology (Chen, 2007). The service role is strongest where board control is less important. A high level of trust leads to less monitoring, and board members feel more committed to help each other, increasing teamwork, creativity and motivation (Chen, 2007).

Traditionally, the control role has been separated strictly from the service role as it has been argued that both roles contradict each other. Whereas the control role calls for a board with a high degree of independent directors, the service role calls for much interaction and openness between the board and the executive team. Nevertheless, scholars have addressed the need for both roles, and started to combine the different board roles. Consequently, the multi-task theory has gained support as researchers have realised there is a need to communicate in an open manner and to cooperate in order to be effective, but also to control when needed (Zhang, 2011). Summarising the above said, both trust and distrust can be effective governance mechanisms. Whereas board distrust is usually related to the board's control task and agency theory, board trust is frequently related to the board's service task and stewardship theory as well as resource dependence theory (Zhang, 2011). Consistent with this new literature, the research of this doctoral dissertation will be founded on the belief that joint control and trust roles within the board is the key for an effective performance of both roles and in the best case also of the strategy role (Hilb, 2012; Huse, 2007; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003).

(3) The strategy role

Strategic decision-making involves resolving uncertainty, complexity and conflict. Uncertainty evolves due to incomplete information about the economic, legal, technological and social future as well as from incomplete knowledge about the type and degree of effects decisions have on outcomes. Complexity refers to interrelations between several events and several actors. Conflict arises from diverse ideas and preferences of board members (Rindova, 1999).

The board's strategy role refers to the board's contribution to strategy formulation and the monitoring of its implementation (Ricart *et al.*, 2005). Empirical evidence suggests that directors consider their involvement in strategic decision-making one of their most important board roles. Interviews with directors show how disappointed they are about their exclusion from strategic decision-making, suggesting that too little emphasis is put on strategy while too much emphasis is put on monitoring: "*the fiduciary duty, the making sure that the management in place doesn't screw up, tends to be overglamorized, and the thinking through of where the company is going is underemphasized among director's roles*" (Lorsch and McIver, 1989, cited in Rindova, 1999:954). Although this quote is almost three decades old, things have not changed too much (Hilb, 2012; Huse, 2007; Rindova, 1999; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003). Directors should be more involved in the strategic decision-making process than it is the case in most companies, as their contribution is an important asset due to their expertise and their distant and objective perspective to strategic problems. The first step for the board as a whole is to define core values for the company. Then, the management's role should be the initiation of the strategic process based on the approved vision of the business with its core values. The management team should develop the strategy and propose various alternatives to the board. Even though directors have limited time, information and firm-specific knowledge, the board is in theory totally capable of not only approving or disapproving the strategic proposals but of constructively and critically analysing the proposals in order to find the best strategic option with the highest value for the company. As soon as the board approves the proposal, the management team implements it and the board monitors the progress effectively in every board meeting (Hilb, 2012; Huse, 2007; Rindova, 1999).

Among others (Hilb, 2012, Huse, 2012), Sundaramurthy and Lewis (2003) argue in favour of involving the board more in strategic decision-making as it is essential for the collaboration between management and non-executive directors. A shared strategic decision-making helps fostering formal and informal interactions between board members and has several advantages, such as an increase in trust between board members by reducing tensions between non-executive directors and the CEO who this way does not always feel only monitored. Rather, the collaboration in strategic planning make both sides feel more at eye level. Better solutions are claimed to emerge as collaboration and trust lead to an increase in motivation and therefore to creative thinking and also a culture of shared understanding (Sundaramurthy and Lewis, 2003).

Research on the roles of the board of directors has certainly been carried out, but there is still a huge gap between theory and practice. Literature explains in detail how to optimise board processes in order to increase board task accomplishment (Ricart *et al.*, 2005). However, what boards really do, does not exactly correspond to the theory on board roles and at the end, *“the work of the non-executive director is almost completely invisible to all but fellow board members and as a result poorly understood”* (Roberts *et al.*, 2005:11). And also Zahra and Pearce (1989: 325–326) state that *“the tendency of researchers to prescribe changes in boards without a clear understanding of current board behavior is also evident in discussing board roles. There are countless lists of what boards should do. Yet, evidence on what boards actually do is not well documented. The few case studies that exist highlight the necessity of a systematic effort to articulate how directors, shareholders, and executives value different aspects of boards’ roles. Similarly, there is a pressing need to document what boards actually do.”* Although the article of Zahra and Pearce is quite old, not much has changed until this date. And this gap is an old one. One of the most important works on boards of directors is ‘Directors: Myth and Reality’ written by the Harvard Business School Professor Miles Mace in 1971, where he claims that there is a disparity between what board task expectations are and what the real board task performance is. He argues that the gap between both is the human side of corporate governance, in this dissertation also referred to as the informal structures of the board of directors. For example, theory on the board of directors defines strategy as one of the board’s responsibilities and even though directors start recognising strategy direction, delegation, implementation and monitoring as well as setting and implementing the corporate culture with its mission, vision and values among their responsibilities, in practice, corporate boards are seldom sufficiently involved in strategy formation and implementation, as explained previously (Hilb, 2012; Huse, 2012; Rindova, 1999; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003). Heracleous (1999) claims that corporate directors themselves are probably not clear about their exact roles. For example, they are often not up to date regarding changes in legislation (Heracleous, 1999).

The main reason for the gap between theory and practice is that empirical research on boards of directors is a challenging exercise due to the difficulty of accessing the board. Boards of directors deal with sensitive ‘insider’ information and are therefore not willing to risk the leaking out of this information as it might harm the director’s reputation as well as the company’s reputation (Leblanc and Schwartz, 2007). Therefore, empirical research on the informal structures of the board of directors is rare and what directors really do keeps being a myth.

As a consequence, in recent years, there is a significant increase in calls for more empirical research on board processes in order to be able to establish theories on boardroom behaviour. Therefore, in this doctoral dissertation, the main goal is to contribute to the existing literature by introducing a model that indirectly measures informal characteristics of the board by

linking them to formal and measurable characteristics. Consequently, the formal structures of the board of directors are clarified in detail in the following part of Chapter 3.

3.2. Director independence and its downsides

As previously mentioned, Roberts *et al.* (2005:7) claim that the independent director became “*the target of both blame and reform*” due to the well-known corporate collapses of 2002. The pressure on listed companies to establish independent boards consistent with agency theory is nowadays stronger than ever as an independent board – and in many countries even an independent chairman – is required. The downside of these requirements is that many corporate boards have functioned well before the introduction of the codes and without being independent. Tightening the listing rules leads not only to excessive costs for companies and a situation of radical change within the board, its impact on the outcome is also controversial (Dalton *et al.*, 1997). Although independent directors usually have enough know-how and experience to make good strategic decisions, they have to prepare well for meetings in order to be able to capture the whole strategic problem. This might include much work in certain cases and stand in contrast to the limited time of non-executive directors. Also, in cases where a strategic decision has to be made fast, non-executive directors might lack the sufficiently deep insight into the day-to-day business to be a good strategic advisor. Therefore, at least in certain cases, it is more probable that boards make certain decisions according to financial controls rather than according to strategy. This may prevent executives from investing in research and development (henceforth R&D) in the long-term and force them to keep the share price high without considering what is best for the company in the long-term and according to its strategy. Therefore, those rational controls may decrease flexibility in decision-making (Bebchuk and Weisbach, 2009; Sundaramurthy and Lewis, 2003). But even if we assume that having independent directors within the board is something ‘good’ – and it seems that this is the prevalent thought as a consequence of codes spread all over the world – the main, but barely faced problem is that *real* director independence cannot be assured, even if the board is formally independent. The following paragraphs focus on addressing various factors that explain the gap between being formally independent and being able to make decisions professionally and objectively. Roberts and colleagues refer to this real independence as ‘independence of mind’ which is an apt term and therefore will be used throughout this dissertation (Roberts *et al.*, 2005:16).

3.2.1. The definition of independence

Monks and Minow (2008a:264-265) state: „... *in order to be ‘independent’, a director must have no connection to the company other than the seat on the board. This excludes not just full-time employees of the company, but also family members of employees and the company’s lawyer, banker, and consultant. Some include ... suppliers, customers, debtors or creditors...*”. Not excluded from this definition are, for example, in-law family members or friends because it is not possible to make restrictions by law on this kind of social relationships. Also, the more independent directors get to know each other, the more trust and cohesiveness between them evolves as friendship ties are considered to change behaviour in that people start behaving more morally towards each other (Bainbridge, 2008). Those friendship ties evolve because directors usually share a same economic or social background and have much in common which reduces their ‘independence of mind’ significantly (Brudney, 1982). This argument is consistent with social identity theory and the similarity-attraction argument. Therefore, it is obvious that the independence definition cannot guarantee ‘independence of mind’ (Osadnik, 2012).

3.2.2. Director nomination, rotation and evaluation

The appointment of a suitable director is inevitable for efficient board processes and effective decision-making. If independent directors, who have the function of supervising the executive team according to agency theory, are appointed to the board without being truly independent, the entire corporate governance system fails (Heidrick & Struggles, 2011). In many cases, the nomination committee as part of the internal control system does not work adequately; empirical evidence shows that often, independent directors are appointed after the approval by the CEO (Heidrick & Struggles, 2011). Consequently, candidates often feel loyal to the CEO and lose their ‘independence of mind’ which is suggested by the Milgram experiment⁹ and other works on social psychology. According to Brown (2009), more than half of the boards start searching for new board members within their social networks without putting too much focus on the needs of the board. This is an easy and comfortable way of working together on the board but it might also place the company at a competitive disadvantage due to the negative board dynamics that might evolve and have a negative impact on effectiveness (Osadnik, 2012). Therefore, an adequate nomination process is essential for board effectiveness (Balsam, 2004).

⁹ The Milgram experiment is explained in Chapter 1.

The process of rotation of directors should be linked to the process of searching for new directors. An efficient process involves long-term planning, the selection process and the selection criteria. The nomination committee should take into account the future needs of the board and adjust the board composition, for example, by using a skills matrix to identify which skills are lacking in order to establish the most efficient board possible (Errity and Stuckey, 2012; Hilb, 2012). Other selection criteria are typical leadership characteristics but most important is the nomination of a candidate who matches the rest of the members (Dysart and Gwin, 2011; Hilb, 2012). The United Kingdom's Higgs Report (2003) suggests to broaden the field of potential candidates and to consider also experts from the fields of human resources, change management and risk management. Also legal directors and experts from the field of corporate governance, such as board secretaries, should be appointed more frequently because beside their legal know-how, they are also suggested to be process-oriented and therefore effective monitors (Edwards, 2015; Enriques, 2003; Heidrick & Struggles, 2011; Hilb, 2012; Huse, 2007; Mead, 2014). However, it cannot be concluded which the best composition is since this depends on several parameters and differs between industries and companies. Therefore, this should not be regulated by law (Heidrick & Struggles, 2011; Osadnik, 2012).

It is argued that the independence of directors begins to decrease after the first year of tenure. The United Kingdom defines the maximum period of appointment before having lost independence as nine years because in most cases these directors have too many social relationships with one another after so many years working together (The UK Corporate Governance Code, 2010). Germany recommends an even tighter time span of 5 years (German Corporate Governance Code, 2010). The Spanish code does not explicitly regulate it, however, it refers to the tenure regulated in bylaws which is a maximum of 12 years (Jefatura del Estado, 2014).

A system to regularly evaluate directors anonymously has to be established (Heidrick & Struggles, 2011). From the beginning of the hiring, evaluation criteria should be determined based on responsibilities of the directors which typically are defined by the nomination committee. The evaluation should consider not only the formal requirements but go beyond the experiences and skills. The director's motivation and participation in debates has to be considered instead of just using standardised questionnaires as formal processes cannot take into account all the features and qualitative factors that decide over the values of an individual, especially as the lack of participation might be the result of the negative board dynamics that have emerged on the board (Heidrick & Struggles, 2011).

The question arises whether a director, who is independent from the top-management team, improves decision-making. Rindova (1999) suggests there must be mediators for the link between board independence and board effectiveness. Literature suggests that it is not compliance with the requirements of the codes that leads to a sound decision-making, but the informal characteristics of the board (Hilb, 2012; Huse, 2007; Maharaj, 2008; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003) which might be the mediators Rindova (1999) refers to. Behaviour has to be considered the most influential variable in this ‘formula’ of board effectiveness as behaviour decides on the kind of dynamics that emerge within the board which then influences the decision-making on the board and results either in an effective board or an ineffective board.

3.3. Board composition: the relevance of diversity

Board composition has a considerable impact on ‘independence of mind’, critical thinking and the quality of decision-making. Social identity theory is claimed to predict group behaviour and therefore it is used to predict the impact of diversity attributes on group members’ behaviour and on the group dynamics (Forbes and Milliken, 1999; Hillmann *et al.*, 2008; Hogg *et al.*, 1995; Huse, 2007; Mathisen *et al.*, 2013; Minichilli *et al.*, 2012; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003). Codes on good corporate governance suggest having diverse boards, however, they do not specify much. The ‘UK Corporate Governance Code’ only mentions “*sufficient diversity on the board*” is beneficial (The UK Corporate Governance Code, 2012:2). Furthermore, it is argued that a policy on board diversity should be included in the annual report as well as its measurable objectives and progress on achieving the objectives. The ‘German Corporate Governance Code’ (2010:6) only claims: “*when appointing the Management board, the Supervisory board shall also respect diversity.*” It goes on suggesting to “*aim for an appropriate consideration of women*” (German Corporate Governance Code 2010:9). A target in terms of the share of women shall be determined. The Spanish code provides the most detailed guidance on diversity recommendations. It suggests that “*the board of directors should approve a director selection policy that favours a diversity of knowledge, experience and gender*” (Good Governance Code of Listed Companies, 2015:23). None of the codes seems to put much attention on diversity as they only mention it briefly without much detail or explanation.

Diversity is claimed to be both an important factor to stimulate cognitive conflict within the boardroom and a key driver of innovation and groupthink prevention. It is also claimed to foster creativity which results from “*the ability to think divergently, see things from different perspectives, and combine previously unrelated processes, products, or materials into something*”

new and better" (Shin *et al.*, 2012:198). Moreover, diversity is suggested to improve group performance due to the accumulation of knowledge, skills and perspectives within a group which is usually measured as the quality of problem solving, the quality of developing creative ideas and the quality of decision-making (Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson *et al.*, 2003; Shin *et al.*, 2012; Williams and O'Reilly, 1998). In the best case, it even fosters a competitive advantage as not only mainstream ideas but also innovate ideas come along with diverse boards (Rose *et al.*, 2013). Important to bear in mind is that diversity is not the opposite of cohesiveness as both can coexist when there is openness and confidence between (diverse) board members (Eisenhardt, 1999; Hilb, 2012).

But what does diversity exactly mean and to what extent is it beneficial? Diversity is defined in various ways. There is no accordance of researchers and scholars about its definition. Often it is defined in a very vague way which leaves much space for interpretation. However, many scholars group diversity into two categories: demographic diversity or salient attributes of diversity and human cognitive diversity or non-salient attributes of diversity (Jackson *et al.*, 2003; Solanas and Selvam, 2012; Williams and O'Reilly, 1998). The former includes attributes such as gender, age and nationality and others that can be detected upon first meeting someone. Those attributes are also explained as surface-level diversity or relations-oriented diversity, as they shape interpersonal relationships, but they do not have any direct effect on group effectiveness. The latter includes education, experience and personal characteristics which are underlying attributes and become only evident by getting to know someone better. Those attributes are also known as the task-related attributes or informational/ cognitive diversity, as they are related to skills, knowledge and expertise and are therefore crucial for group performance (Jackson *et al.*, 2003; Kang *et al.*, 2007; Kearney *et al.*, 2009; Martin-Alcazar *et al.*, 2012; Solanas and Selvam, 2012; Williams and O'Reilly, 1998). What seems obvious according to social identity theory is that directors will have fewer conflicts with the ones, who are similar and more conflicts with the ones who have nothing in common with them which is the so-called similarity-attraction argument (Mathisen *et al.*, 2013). As board members usually do not have too close relationship ties, they are less vulnerable to relationship conflicts than other organisational groups or teams are (Minichilli *et al.*, 2012).

No news is that agency theory suggests to mix the board by functional area (Forbes and Milliken, 1999; functional competence as referred to by Huse [2007]), such as finance, accounting, marketing, law, but also does the board need members with sound knowledge and specific skills, referring to members with knowledge of the company and industry (Forbes and Milliken, 1999; Harrison and Klein, 2007; Horwitz and Horwitz, 2007; Williams and O'Reilly, 1998). Huse argues that the firm-specific competence has to be gained continuously through training programs. Eisenhardt (1999) argues that having diverse groups in terms of age, culture,

discipline, gender, core competencies and board roles leads to the best decisions possible as diverse groups have access to different kinds of information from outside the group (Bebchuk and Weisbach, 2009; Hilb, 2012), consistent with resource dependence theory. However, dissimilarities between group members also tend to foster negative social categorisation which might result in dysfunctional effects (Kearney, 2009; Mathisen *et al.*, 2013; Williams and O'Reilly, 1998).

Huse (2007) also defines the process-oriented competence which is the knowledge of how to run a board. Usually, lawyers and corporate governance specialists have this competence which is why they should be invited to become board members, as mentioned previously. Relational competence is about the ability to acquire resources from outside the company, such as financial capital from banks. It is directly related to networking as explained by resource-dependence theory. The last competence is the leadership competence which refers to critical thinking, creative thinking and negotiating well among others (Huse, 2007). Several leadership characteristics define several different kinds of members. However, literature on leadership is not clear as there are too many opinions and studies which make one get lost quickly (Heracleous, 1999). Important to remember is that candidates might have the needed technical skills but might lack the appropriate personality to fit the board. Another scenario is that they might have the technical skills but lack the multicultural competence necessary to be able to work in an appropriate manner within an international board (Dysart and Gwin, 2011; Hilb, 2012). The first step in selecting adequate board members is defining what kind of board member is needed. Knowledge skills, experience and other competencies lacking on the board have to be defined prior to starting the search of new members (Cascio, 2004; Dysart and Gwin, 2011; Errity and Stuckey, 2012; Hilb, 2012). However, many scholars argue in favour of acknowledging the existence of multiple identities in accordance with social identity theory. This means that individuals do not only differ in terms of age, gender, nationality but also in terms of values, way of thinking, personalities and abilities and that all of those attributes have to be considered equally in order to 'define' a person and the interactive effects of group diversity.¹⁰ Therefore, although it is an important step, it cannot be argued that a group's performance increases only because the members are sufficiently diverse as their different identities play a role in the way they make decisions. Ultimately, 'independence of mind' and the types of board dynamics that emerge are the core elements that decide on the quality of decision-making (Hilb, 2012; Huse, 2007). Therefore, the question arises which level of diversity is optimal. In order to find an answer to this question, the following paragraphs clarify the most important diversity attributes for the purpose of this doctoral dissertation as well as their possible impact on board effectiveness,

¹⁰ See Chapter 2.2. for the example of the director who is also CEO of another company. This director is supposed to understand CEO viewpoints better than a director who is not CEO of another company as he or she has not to deal with the same issues in the day-to-day business.

beginning with the surface diversity attributes age, gender and nationality, before moving on to experience and expertise which are considered the most important attributes of deep diversity.

3.3.1. Age

Age diversity is directly connected to experience and expertise as the typical corporate director is well-educated with much experience and expertise. Not surprisingly, reaching this level of professionalism takes much time. Consequently, most non-executive directors, of whom a large part has previously served as executive directors, can be categorised somewhere between middle-age and retirement. Rindova (1999) concludes that more experienced directors are better strategic decision makers. However, due to the claimed advantages of diversity on corporate boards, age range is increasing nowadays. Different age groups have different perspectives and therefore also different ideas. Top management has realised this and appoints younger age groups to the boards as part of their succession planning. Whereas the older end directors are brilliant due to their deep knowledge and experience as well as their wisdom and their wide networks, younger directors have the necessary power, energy and the will to succeed (Kang *et al.*, 2007). Although the number of directors under 40 on corporate boards is increasing, many surveys or interviews with board members suggest that the vast majority does not give any importance to director age without the connection to director tenure, independence or another characteristic or skill important for the board (Hodgson, 2011; Kramer, 2011; Shaw, 2011). They claim, for example, that "*some of your oldest directors are the most technically savvy*" (Shaw, 2011:39). In another survey, a respondent argues that "*some board members at age 45 are too old, and some at age 70 are still vibrant*" (Kramer, 2011:31). Although younger members have a fresh mind and creative ideas, wisdom usually comes with experience. To advice a CEO on decisions, much experience is needed. Particularly from older directors as many of them have served as CEOs for much of their professional life (Kramer, 2011). Therefore, many argue that the largest part of the board should not be too young, even though a few young and fresh minds might be beneficial for each board.

Also, the company's industry plays a core role in the question of what should be the average age of the board. Whereas dynamic and creative industries – such as media – need younger board members, traditional and more conservative industry sectors – such as steel – need more experienced directors. On one hand, niche expertise is always a factor that can open the door to the boardroom more easily and it is usually young directors who hold such expertise as their education did not take place too long ago, and universities as well as business schools focus on adapting quickly to the current needs of the market and the industry. Consequently, new degrees emerge and new experts with niche expertise develop their careers with valuable knowledge for

corporate boards (Kramer, 2011). On the other hand, an important reason why the average director age keeps being high, is that although there are more than enough qualified younger candidates, usually they have fulltime jobs. Many directors are developing their professional careers or they are CEOs of other companies which significantly limits their time for further appointments (Kramer, 2011; Shaw, 2011).

3.3.2. Gender

The debate about inviting more women to the boards of directors has emerged and then significantly increased in the last few years. According to the *Fortune's* 1998 'Most powerful Women', within a decade the number of female CEOs increased from 3 to 13 (Bernardi *et al.*, 2009). Also, on average women have nowadays higher academic qualifications than men (Bernardi *et al.*, 2009). Nevertheless, women face a glass ceiling when trying to enter corporate boards. A large percentage of the few companies that have female directors, have only one women on the board which is often seen as tokenism (Adams and Ferreira, 2008). Some countries have regulated the quota of female directors by law. Norway, for example, requires corporate boards to have at least 40% of female directors on the boards of listed companies. France has followed with a law requiring 40% of female directors by 2015. Germany has passed a quota of 30% into law (Armstrong and Walby, 2012). However, some of those countries do not regulate sanctions in case of noncompliance and see the quote more as soft law rather than a formal requirement (Kang *et al.*, 2007; Rose *et al.*, 2013). The issue of women on corporate boards is especially timely due to the current movement in Europe. A study conducted by the executive search firm *Heidrick & Struggles* (2007) suggests that European boards have increased female representation from 5,0% in 2001 to 8,4% in 2007, suggesting that the acceptance of women on corporate boards is still quite low. In comparison, 87% of the United States' Fortune500 companies have at least one women on their boards (Kang *et al.*, 2007). One argument for including women on the board is surely that they deserve equal opportunities when applying for jobs. However, it is also suggested that women bring about much innovation and an improvement in boardroom effectiveness (Huse, 2007; Nielsen and Huse, 2010). Gender is a surface diversity attribute; therefore, it should not have a direct impact on effectiveness. However, according to resource dependence theory (Pfeffer and Salnacik, 1978), the different kinds of networks might provide advantages for the company and therefore be an essential benefit for the board. Also, social identity theory suggests that different identities might come along with different viewpoints. For instance, it is claimed that women listen better than men and for women it is usually important to hear all opinions. Also, women think differently and value other factors than men (Fondas and Sassalos, 2000; Huse, 2007; Mathisen *et al.*, 2012). It is also argued that women tend to communicate more effectively

than men, because they place higher value on interpersonal skills, such as leadership and communication, ask tougher questions and move boardroom discussions forward (Fondas and Sasselos, 2000; Nielsen and Huse, 2010; Huse, 2007; Mathisen *et al.*, 2013). Also women are supposed to have greater empathy and emotional intelligence (Groysberg and Bell, 2013). In addition, women tend to be more ethical and more concerned about justice in the boardroom than men which is considered an indicator for their effective performance in monitoring and might improve overall ethical board behaviour (Bernardi *et al.*, 2009; Stedham *et al.*, 2007). Another argument in favour of women as effective monitors is that they do not belong to the 'old boys club' which moves them closer towards the concept of directors who are 'independent of mind' (Adams and Ferreira, 2008). They are claimed to be soft-hearted and concerned with social activities; social performance is higher when there are women on the board (Kang and Payal, 2012). Also, do women have higher levels of board meeting attendance than men. They are also suggested to make men attend more meetings and prepare better, having an overall positive effect on boardroom behaviour (Adams and Ferreira, 2008). Nevertheless, there are also studies suggesting no impact or a negative impact of women on effectiveness, addressed further on in this chapter.

Some scholars claim, that women often feel excluded from the decision-making by male directors who tend to make decisions outside the boardroom or within their 'old boys club' (Huse, 2007; Jackson *et al.*, 2003; Kang *et al.*, 2007; Konrad *et al.*, 2008; Mathisen *et al.*, 2012; Summers *et al.*, 1988; Tsui *et al.*, 1992). This also suggests that women might feel more conflict within the group when male members try to protect other male members' opinions and ideas (Mathisen *et al.*, 2012; Rose *et al.*, 2013). The surface diversity attributes face this social categorisation only at the beginning and diminish over time. Women are the most frequently used example of the effects that social identity theory has within a group. However, the same applies to all minorities (Mathisen *et al.*, 2013).

3.3.3. Nationality

Diversity in nationality gains on importance as companies are changing towards being more open and more globalised. Especially within the European Union, the business landscape has changed dramatically with the creation of a single internal market. Free movement and free trade with neither legal nor bureaucratic barriers for job-seekers have resulted in a higher internationalisation of European corporate boards. The importance of appointing international board members for a better understanding of foreign markets, its values and cultures, has been discussed by researchers and practitioners (for example, Bartlett and Ghoshal, 1989). Nationality

is one of the most salient diversity attributes and it is more vulnerable to social categorisation. Different nationalities may result in different belief structures (different values, priorities or expectations) which also might result in excessive conflict due to different ways of processing information, resulting in process losses and suboptimal decisions (Dahlin *et al.*, 2005). However, as nationality is a surface diversity attribute, it is suggested to diminish over time. Within a group – or board in this case – an own culture emerges with group norms and some behaviours being accepted and others not being tolerated. Consequently, nationality itself is not a diversity attribute that brings about special values or attributes in the long-term. However, it might be important for understanding foreign market operations. In this case, directors national to that market might bring about the important advantage of better cultural understanding and easier access to special resources consistent with resource dependence theory. Nevertheless, this applies above all to nationalities that differ each other in terms of culture, behaviour and attitudes. When, for example, Austrians sit on German boards or Swedes sit on Danish boards, the above explained value diminishes largely as those cultures are similar to each other (Rose *et al.*, 2013).

3.3.4. Expertise and experience

Experience and expertise are the most important attributes as they have a direct impact on group performance (Jackson *et al.*, 2003; Kang *et al.*, 2007; Solanas and Selvam, 2012; Williams and O'Reilly, 1998). Education is one of the most important sources of knowledge which builds one's expertise (Bunderson and Sutcliffe, 2002; Dahlin *et al.*, 2005). Expertise is claimed to increase know-how in a certain area, awareness of the main problems and risks in this area as well as skills for solving those problems. Directors are able to process information efficiently and make effective decisions in the absence of complete information as they are suggested to have developed those problem-solving skills over their career. Consequently, corporate directors are suggested to be expert decision-makers. Findings in cognitive psychology research claim that experts are able to structure and solve problems more efficiently than novices, suggesting that more experienced directors are better (strategic) decision makers than less experienced directors (Rindova, 1999). This is also an argument in favour of the appointment of older directors.

Diverse boards in terms of education and function are essential when groups work on complex cognitive tasks where deep knowledge, experience and expertise from different areas is needed (Jackson *et al.*, 2003; Kang *et al.*, 2007; Solanas and Selvam, 2012; Williams and O'Reilly, 1998). Educational and functional diverse boards are suggested to develop clearer strategies and to be faster in implementing changes than homogeneous boards which might help

gaining a competitive advantage. Education is claimed to influence the way in which information is processed by a person. Consequently, board members from different educational backgrounds develop different skills which help them coming up with different ideas (Dahlin *et al.*, 2005; Williams and O'Reilly, 1998). Furthermore, the more diverse the board is in terms of education, the more different kinds of information are supposed to enter the board as the range of information widens. It follows that, when many directors have the same educational background, the information reaching the board is supposed to overlap to a large extent as many board members will have the same information (Dahlin *et al.*, 2005). However, as mentioned previously, educational and functional diversity can also increase cognitive conflict and result in slower decision-making (Bunderson and Sutcliffe, 2002).

The agency view suggests the monitoring relationship between management and the board which is elected to serve the shareholders' interests. In this respect, board members are responsible for taking part in the corporate strategy formulation. Connecting this to resource dependence theory, directors can contribute significantly to the quality of strategic decision-making if they have large and essential networks which are vital resources they can bring to the company (Rose *et al.*, 2013). Usually, directors with several board mandates (or directors close to retirement) do have those large networks due to their long experience (Kang *et al.*, 2007; Kramer, 2011; Shaw, 2011). The advantage of having those directors is that the company might benefit from the director's network and access to additional resources, for example, the director's knowledge of the industrial sector in which the company is operating (Hung, 1998). The additional information reaching the board might lead to better decision-making and therefore better group performance (Williams and O'Reilly, 1998). The disadvantage is that it is the director's responsibility to ask tough questions which requires preparation. Directors with several board seats often lack the time to prepare properly which is essential to understand complex issues in order to prevent groupthink and other negative board dynamics as there is a danger of conformity within a group when individuals are less prepared (Forbes and Milliken, 1999; Geletkanycz and Hambrick, 1997; Huse, 2007; Maharaj, 2008; Monks and Minow, 2008b). Moreover, directors with several board seats also tend to be more distracted and busy due to their numerous responsibilities (Schnake and Williams, 2008). Therefore, executives might gain power in pushing through their own ideas and interests. This distraction – the so-called 'busyness hypothesis' – might lead to insufficient monitoring in spite of the additional information and resources brought to the board (Schnake and Williams, 2008). In order to be able to effectively perform the task of a corporate director, the director must prepare the information provided in advance, inform himself or herself sufficiently to understand all issues to be discussed in the board meeting (the director's duty of care), to ask critical questions as well as to participate actively in

board meetings. This ensures constructive discussions and high quality decision-making (Forbes and Milliken, 1999).

However, it is also argued that not every director is appointed to have the same responsibilities. It is often claimed that directors with large networks are appointed particularly to make access to those resources easier, even though they might not be as prepared as others for executive monitoring (Kramer, 2011; Shaw, 2011). Also, directors with several mandates might be better strategic advisors as they have knowledge on board work of other companies and maybe other industries leading to a different mind-set which processes problems differently, as explained above. This might lead to an increase in decision options (Rindova, 1999). There is little empirical research done on the link between multiple directorships and board effectiveness or board performance, despite the controversial theoretical arguments. Pritchard and colleagues (2003) suggests that directors holding several mandates serve on more board committees than their counterparts with no other mandates which rejects the 'busyness hypothesis'. Also Fama and Jensen (1983) argue that multiple directorships may be an indicator of director quality as more companies invite those directors to become board members. In other words, the reputational capital of those directors is suggested to be higher than the reputational capital of directors holding only one board mandate (Fama and Jensen, 1983; Pritchard *et al.*, 2003).

Sufficient director training is essential for good boardroom performance and prevention of negative board dynamics to emerge. Especially, because outside directors do not always have the technical knowledge necessary to evaluate every decision made by executives, director training has to be improved (Eisenhardt, 1999; Errity and Stuckey, 2009; Garratt *et al.*, 2004; Heidrick & Struggles, 2011; Hilb, 2012; Huse, 2007). Training at the beginning of the hiring – director induction – is important but, unfortunately, often underestimated (Hilb, 2012; Huse, 2007). The better the new board member gets prepared for his or her role by receiving all the important information about the company, the board members and their functions, the mission and vision of the company and the specific role of the director, the better and faster the new member will be able to integrate in the company and the board (Anderson *et al.*, 1996; Errity and Stuckey, 2009; Hilb, 2012) which is important to build enough knowledge to be able to participate actively in board meetings as well as to build cohesiveness within the board (Eisenhardt, 1999; Huse, 2007). Continuous training is necessary to further strengthen the knowledge on, for example, risk management, industrial, legal and economic changes (Heidrick & Struggles, 2011). Frequent ethics and whistleblowing training is also important for maintaining the directors' sensitivity for both behaving ethically and detecting fraud as well as for counteracting pluralistic ignorance in case of fraud.¹¹ Training is necessary to build enough knowledge to be able to

¹¹ Pluralistic ignorance will be explained in detail in Chapter 4.

participate actively in board meetings and think critically to prevent group conformity (Eisenhardt, 1999; Huse, 2007). The more experience and expertise, the higher is the probability of critical thinking and the use of knowledge (Williams and O'Reilly, 1998).

The 'UK Code on Corporate Governance' recommends that companies should offer their directors training about their specific roles and responsibilities as a director in that company. The United Kingdom has also introduced a professional certificate (Certificate of Chartered Directors) to improve the directors' professionalism. This certificate includes not only formal training, but also access to networks, documentation, conferences and other events (Garratt *et al.*, 2004) which is considered an effective solution for improving director knowledge and consequently their professionalism to perform their tasks with an adequate level of up-to-date know-how.

3.3.5. Empirical research on diversity

There has been much empirical research on various kinds of group diversity. Researchers on ecology, sociology, demography, economics and organisational behaviour have been researching on group diversity (Williams and O'Reilly, 1998). However, empirical research is inconsistent in its results about the effectiveness of diversity.

One underlying reason of this inconsistency is that most studies on group dynamics or group diversity take individual psychology as the theoretical foundation for explaining group dynamics, without taking into account the intergroup relations which means that most studies focus only on one or two attributes, for example, gender or gender and nationality (Jackson *et al.*, 2003). This might in fact, have an impact on group behaviour or attitudes of single group members but it might not capture the whole picture of diversity with all its interdependencies. Nevertheless, empirical research considering the above explained attributes is a good starting point for recognising tendencies of the importance of those attributes. A study conducted by Huse (2007) suggests that the effects of diversity on board task performance or board effectiveness are moderated by the decision-making culture, in other words, by the board dynamics evolving within the board which is also a core argument of this doctoral dissertation.

Another reason for the inconsistency of empirical findings is of methodological nature. The approach to scaling educational or functional diversity is often too broad resulting in inconsistent findings in this field of diversity research. Most studies on educational diversity do not use scales based on the knowledge field of the member's education which is an indicator of the specific technical skills a group member has. Rather, most of the small number of empirical

studies in this field use scales based only on the general level of the member's educational background, that is, bachelor's degree, master's degree or doctoral degree (Hoffmann *et al.*, 2011).

Furthermore, the empirical studies found on educational diversity do not focus on groups which are supposed to hold degrees in different fields of knowledge in order to show creativity and innovation in their dynamics. Rather, most studies pick groups of much specified professions, where deep knowledge in only one field is needed. Consequently, the diversity level in terms of education is very low (for example, Hoffmann *et al.*, 2011 who empirically test educational diversity in investor relations where deep finance knowledge is supposed to be inevitable to perform the job. Consequently, the vast majority holds a business or finance degree).

Interesting empirical results on diversity are summarised by Williams and O'Reilly (1998), who, for example, argue that age diversity leads to less conflict than age homogeneity within a group. Empirical studies on the effect of women on board effectiveness are not conclusive. Whereas some studies conclude that there is a link between women and an increase in board effectiveness (Erhardt *et al.*, 2003; Campbell and Miguez-Vera, 2008; Carter *et al.*, 2003) others conclude that there is no connection (Farrell and Hersch, 2005; Rose *et al.*, 2013). According to Rose *et al.* (2013), there are even studies suggesting a negative effect between women on boards and firm performance. Many authors argue regulation by law does not bring about the required effect as companies are only 'window-dressing' their boards by including women as tokens (Rose *et al.*, 2013).

Another difficulty in studying diversity is the role of the context. Each case has many interdependencies and many factors that may play an important role in the specific context, such as the organisational culture, the group culture, norms, the temporal context and other factors that shape behaviour. As mentioned above, there are three phenomena that have an impact on diversity and performance: communication, conflict and group integration. More diverse groups tend to be less cohesive, less integrated, communicate less and have more conflicts (Horwitz and Horwitz, 2007; Williams and O'Reilly, 1998). However, also problem solving creativity is less marked in homogeneous groups. When group members are diverse in their expertise, and expert language or jargon is used in meetings, negative side effects may occur because group members with less knowledge on the current problem are indirectly excluded from the group discussion and even cognitive biases such as groupthink or herding might occur (Horwitz and Horwitz, 2007; Williams and O'Reilly, 1998). The large amount of interdependencies combined with the specific context of a board makes it difficult to bring about results with a strong approximation to reality (Jackson *et al.*, 2003). In sum, it can be claimed that researchers are still struggling to bring about some multi-dimensional research in order to bring more light into group diversity and its impact on group performance.

As a result of those contradicting arguments, diversity needs to be viewed as more differentiated which means that not all attributes of diversity are probably equally important in each group, team or board. This doctoral dissertation supports the idea that literature treats diversity as a black-and-white issue by either arguing for the most diverse boards possible or arguing against diversity at all as no distinction is made between diversity attributes and their effects (Jackson *et al.*, 2003). However, that all diversity attributes have a similar impact on effectiveness is not grounded in theory. Quite the contrary, different theories suggest different effects of different diversity attributes (Williams and O'Reilly, 1998).

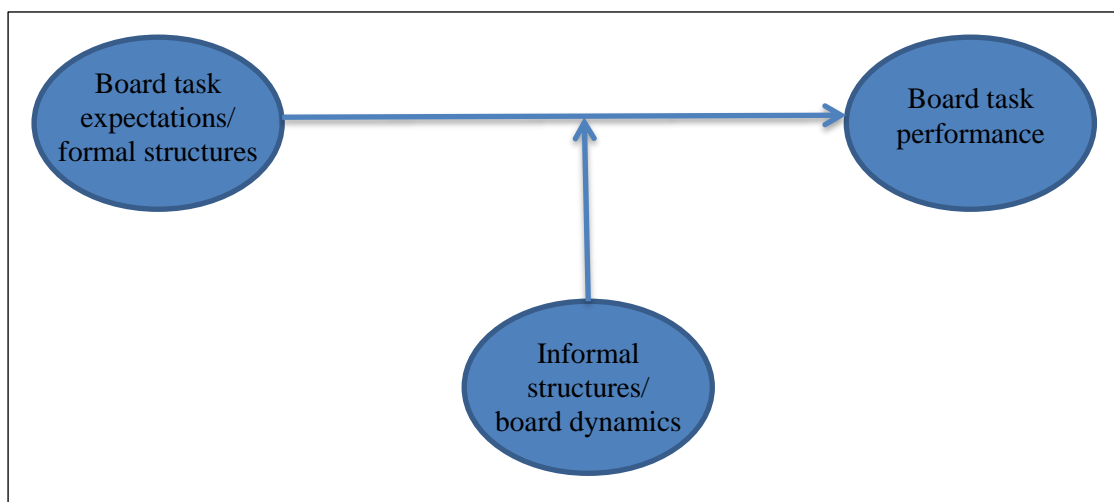
This doctoral dissertation suggests that a more accurate approach would be to define which attributes of diversity are advantageous in a board of directors according to the company's peculiarity and complexity. Just like Hilb (2012: 75-77), who stands up for "*diversely balanced boards*", this doctoral dissertation defends the view that a board should be as much diverse as necessary, but as little diverse as possible to balance the advantages and disadvantages of diversity. This allows composing the board only of directors who really are beneficial to the group. For this reason, the idea of using a diversity index including all typical diversity variables to measure its impact on performance or effectiveness within a group, such as the commonly used Blau's index of heterogeneity, is not supported by this doctoral dissertation.

With this ending, Chapter 3 has tried to clarify that the board of directors is the main decision-making mechanism of each company. Analysing the main roles of the board, it is suggested that trust and distrust are equally important for the well-functioning of the board. This means that control and collaboration have to coexist, reflecting that both monitoring and strategic advice are the main board roles which is consistent with the idea of a pluralistic approach on corporate governance as explained in Chapter 2.

In terms of board composition, it is suggested that the right mix has to be found to make a board effective because neither too homogeneous nor too diverse boards are the most effective ones. According to the diversity-in argument, it is the deep diversity attribute of experience and expertise that makes the most part in effectiveness. However, certain factors of surface diversity might also improve decision-making, although not directly. The plain inclusion of, for example, a certain age group might not be beneficial if it does not bring about an advantage other than only being different in terms of age. Those arguments clarified in Chapter 3 build an important part of the basis of the model development further on in this dissertation. It provides essential background knowledge on the formal characteristics.

Mace (1971) draws attention to the gap between board task expectations (the formal board tasks) and the board task performance, which is what the board really does. Huse (2007) explains that this gap is the human side of corporate governance or the board dynamics which have a mediating effect on the relationship between board task expectations and board task performance – a core argument of this doctoral dissertation. This relationship is visualised in figure 5 and it clarifies the importance of the board dynamics on board effectiveness or the board task performance. Those board dynamics or informal characteristics are explained in the following chapter (Chapter 4).

Figure 5: Board dynamics as the mediator of board task expectations and board task performance



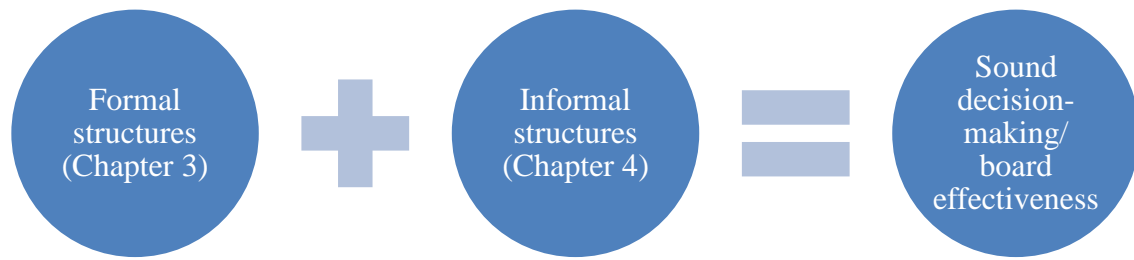
Source: Adapted from Huse (2007) and Mace (1971).

CHAPTER 4: THE INFORMAL STRUCTURES OF THE BOARD OF DIRECTORS – TOWARDS A NEW PARADIGM

The informal part of the board of directors refers to the behaviour and the attitudes of board members and the resulting board dynamics. It is strongly connected to boardroom culture and has an impact on the decisions made by the board and consequently on the effectiveness of the board. Most research on board behaviour treats the work of the board as a ‘black box’ which means trying to explain board behaviour by studying only demographic characteristics. Gabrielsson and Huse (2004:24) clarify that the conceptualisations of existing research “*largely neglect board processes, such as interactions among groups of actors inside and outside the boardroom, board leadership, the development of rules and norms, and the board decision-making culture.*” They claim that those interrelations cannot be successfully studied by using only proxies for board behaviour. Therefore, they call for more research on the relationships, different abilities and motivations of various kinds of directors and actual board processes in order to open up the ‘black box’ of board behaviour (Gabrielsson and Huse, 2004; Huse, 2005). This doctoral dissertation tries to give some answers on actual board behaviour by studying those interrelations in form of board dynamics.

Due to several socio-psychological reasons, directors cannot always act and decide according to their responsibilities and the established formal rules and characteristics, that is, the formal structure of the board. Instead, also informal rules and personal values play an essential role. This means that the informal structure of the board goes far beyond what the formal structure dictates and consequently, it is crucial to include it in the theories on boardroom decision-making and in the policies on corporate governance (Boytsun *et al.*, 2011; Hilb, 2012; Huse, 2007; Maharaj, 2008; Vandewaerde *et al.*, 2010). Figure 6 visualises the argument that formal and informal structures are both essential to reach board effectiveness.

Figure 6: The main components of board effectiveness



Roberts *et al.* (2005) and Huse (2007) define the roles and tasks of directors as well as the dynamics of power, trust and influence inside the boardroom as fundamental for the understanding of boardroom behaviour. This makes it imperative to use theories from the fields of psychology and sociology on group dynamics to understand how boards function and how to make boards and their decision-making effective. It is argued that the difference between a ‘good’ board and a ‘bad’ board is whether or not it acts well as a social system with board members communicating effectively and trust as well as openness playing a significant role. According to Roberts *et al.* (2005:9) agree with Forbes and Milliken (1999) on that the most effective boards are the ones with “*high levels of interpersonal attraction (cohesiveness) and task-oriented disagreement (cognitive conflict).*” The essence of this is that the executive team knows there is some kind of control, however, in a supportive and helpful way, combined with good communication and use of knowledge leading to an effective board.

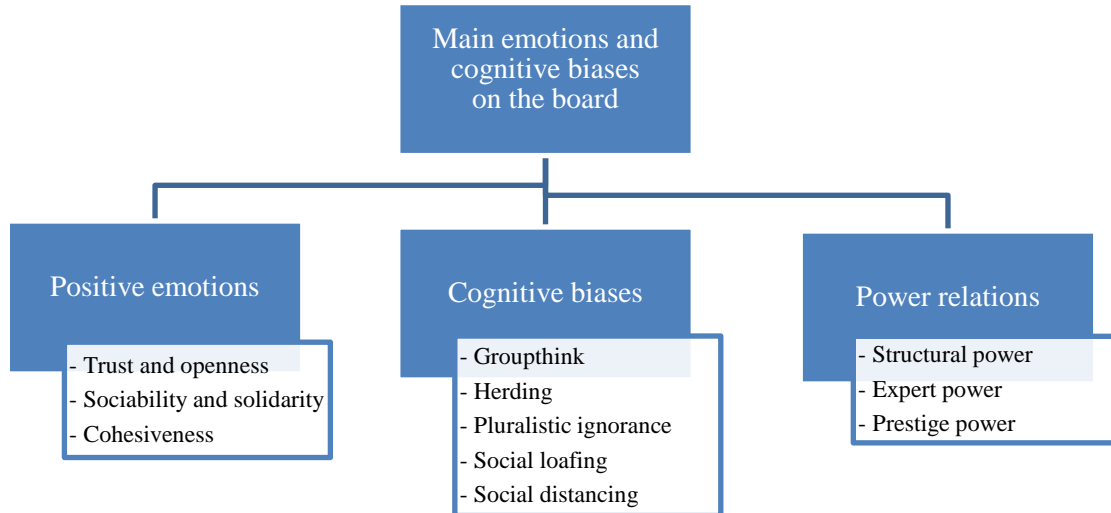
The following paragraphs will delve into the informal board structures, that is into the essence of board dynamics.

4.1. Dynamics of board behaviour

According to Herbert Simon's theory on bounded rationality combined with the theories on group decision-making, it is now clear that groups make decisions on the base of consensus rather than making the ‘best’ rational decision. In other words, the best decision proposal might be rejected only because the majority of the group does not like the solution. Also, some individuals might reject an idea because they want to prevent the proposal of another group member to get chosen. There might be directors feeling loyal towards the CEO who therefore do not disagree with the CEO's opinion (Bainbridge, 2008). Those are just a few examples of the

variety of emotions and cognitive biases playing important roles in board decision-making. Those are visualised in figure 7 and explained in the following paragraphs.

Figure 7: Main emotions and cognitive biases on the board of directors



4.1.1. The role of (positive) emotions in board behaviour

Emotions are nowadays accepted to be part of board decision-making. There are short-term emotions which are dramatic and interruptive, such as anger and surprise. Long-term emotions are stable and persistent, such as confidence and trust. Another classification is whether an emotion is positive or negative. Positive emotions are, for example, satisfaction, trust and confidence, whereas negative emotions are depression as well as lack of motivation and initiative (Hilb, 2012; Huse, 2007). The result of negative emotions is isolation from the other board members. Positive emotions foster affiliation of board members (Brundin and Nordqvist, 2008) and result in positive board dynamics.

4.1.1.1. Trust and openness

Trust is defined as “a psychological state comprising the intention to accept vulnerability based upon positive expectations on the intentions or behaviour of another” (Rousseau et al., 1998:395).

As mentioned in Chapter 2, trust plays an essential role in both agency theory and stewardship theory. Whereas agency theory assumes that there is no trust between the CEO and the board,

stewardship theory assumes that the CEO (steward) acts in the best interest of the principle (shareholder), suggesting that the CEO does not have to be monitored at all time as he can be trusted. Both theories accept trust as a crucial factor, although in different ways, therefore the importance of considering trust becomes clear. Different kinds of trust might emerge within the board which are explained in the following lines.

Various kinds of trust are built through various ways. Trust in someone's competence and expertise is established through the person's knowledge. For example, not the whole board participates actively in the decision-making process of each board decision. Usually, the expert on finance gets the trust of the other board members to decide adequately in financial problems, whereas the marketing expert might have more saying on the problems related to marketing decisions. This kind of trust is difficult to establish in a board culture dominated by agency theory as trust in other directors' expertise is likely to be less evolved where control and distrust predominate (Forbes and Milliken, 1999; Huse, 2007). Also, little or no competence-based trust within the board is positively related to high monitoring and control and therefore suggest a lower level of director involvement in strategic advice and strategic decision-making.

Another kind of trust is the one established towards the other board members, so that each and every board member has sufficient confidence to be able to disagree with other opinions, to share information with other board members and to have an 'independent mind'. This doctoral dissertation calls this kind of trust 'openness'. More interaction between board members might lead to better decisions as interaction means that more information reaches the board and more knowledge gets accumulated. Interactions can take place both inside and outside the boardroom. In fact, passive boards – which are also known in literature as 'aunt boards', 'paper boards' or 'rubber stamps' – with no or little involvement in discussions and decision-making, are dangerous as the CEO can exert excessive power over the board in that he or she is able to push through the own ideas without an interference of the board. According to Gabrielsson and Winlund (2000) the level of involvement is therefore directly connected to the level of 'independence of mind', use of knowledge and skills as well as commitment to the board. According to interviews by Roberts *et al.* (2005), respondents argue that debate and dialogue lead to the best possible decisions while having a shared concern. Openness within the boardroom also leads to creative thinking which is inevitable to make innovative decisions.

Huse (2007) also defines integrity-based trust which is moral trust towards the other board members. This kind of 'blind trust' can be dangerous as it evolves due to sympathy, not due to other members' know-how. Well-placed trust is important as it fosters collaboration and the use of knowledge whereas 'blind trust' is dysfunctional and can easily lead to a lack of critical thinking as well as the emergence of cognitive biases which will be clarified later on (Roberts *et*

al., 2005). Distrust encourages team members to realise that human cognitive limitations exist as explained by Simon's (1959) theory on bounded rationality and therefore assumptions made have to be questioned by the team which is an important prevention of task cohesion. Furthermore, team members recognise that not every person can be trusted in every situation, leading not to cognitive distrust as in the previous explanation but to emotional distrust or the prevention of social cohesion. Both types of distrust are essential for a prevention of excessive cohesion as – without any conflict in the boardroom – excessive cohesion is dangerous and might result in negative board dynamics (Sundaramurthy and Lewis, 2003) which are explained in the following paragraphs. Trust should come hand in hand with control to foster effectiveness. Probably the most important challenge is to balance trust and control adequately (Sundaramurthy and Lewis, 2003). If monitoring outweighs collaboration, negative board dynamics emerge which are highly counterproductive. The result might be that the CEO stops being open or even starts withholding information from the board. If collaboration outweighs monitoring, in the extreme case, it might also result in negative board dynamics as 'blind trust' would evolve. However, as mentioned before, boards meet only a few times a year, so that too close friendship ties are not supposed to emerge. According to Hilb (2012), constructive-critical trust inside the boardroom can be achieved by *"keeping the heart warm and the head cool"*. Hilb (2012:88-89) suggests the following basic guidelines for board processes:

- 1) *"engage in constructive conflict and avoid destructive conflict"*
- 2) *work together as a team*
- 3) *know the appropriate level of strategic involvement*
- 4) *address decisions comprehensively."*

4.1.1.2. Sociability and Solidarity

An adequate board culture has to be established and maintained because people's values are the starting point for strategy, direction and the purpose of the company as well as for the level of ethical behaviour which is an essential aspect concerning the monitoring role. According to Goffee and Jones (1996), the basis of corporate culture is formed by the level of sociability and solidarity.

Sociability is a measure of social interaction and comes naturally as people want to socialise with others and build networks, friendships and social relationships. The main goal is not obtaining some kind of advantage from those interpersonal relationships but enjoying shared attitudes, interests and values (Kautt, 2006). In a board with a high level of sociability, board members do favours for one another and work closely as a team. Openness and information

sharing or the use of knowledge are the most important characteristics of a highly sociable team which often boosts creativity leading to new and innovative ideas. However, the drawback of sociability is that poor performance is often tolerated due to sympathy (Kautt, 2006).

Solidarity on the other hand is guided by common interests and common strategic goals. Roles and tasks are clearly separated and poor performance is not tolerated. Due to the lack of social ties within the group, members are very competitive and the value of fairness is very high. However, excessive collective goal seeking might result in excessive competition and the focus on winning might get more important than obtaining the goal as a team. Also, if the wrong objectives are chosen, the team may work hard and efficiently to achieve the objectives – but the wrong ones which might end badly for the company (Kautt, 2006).

According to Goffee and Jones (1996; 2011), the most successful teams retain a high level of both sociability and solidarity. However, depending on the business model, companies or teams might be better on establishing and sustaining another combination of sociability and solidarity. A football team, for example, should have a high level of solidarity, whereas the level of sociability is less important (Kautt, 2006). In the case of boards of directors, solidarity is less of a problem as board members are not suggested to be too competitive. Quite the opposite, often they are too passive. Therefore, solidarity is suggested to apply less to boards of directors.

Sociability is a favourable board dynamic as it fosters the use of knowledge which is essential for debate and good decision-making. As boards do not meet often, the level of sociability is not supposed to reach a ‘dangerously’ high level. An example of sociability within the board is that decisions are often made outside the boardroom in an informal talk between only few members instead of going the official way and discussing the issues in the board meeting (Goffee and Jones, 1996; 2011).

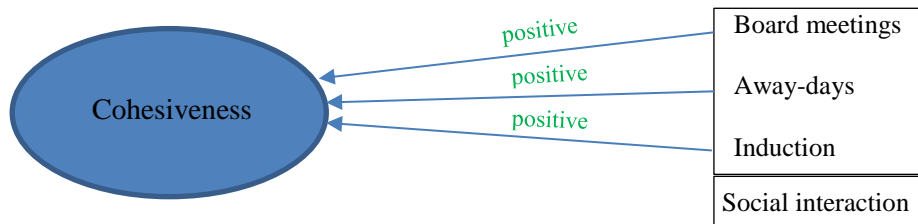
4.1.1.3. Cohesiveness

Janis (1982:245) defines cohesiveness as the “*degree to which members value their membership in the group and want to continue to be affiliated.*” Alcalde-Unzu and Vorsatz (2013:965) define cohesiveness as “*the similarity of preferences in a group of individuals.*” Horwitz and Horwitz (2007: 995) define group cohesion as “*the extent to which team members attempt to remain intact to achieve team goals.*” The definition of Chan *et al.* (2006:290) seems to be a more detailed one: “*Social cohesion is a state of affairs concerning both the vertical and the horizontal interactions among members of a society, as characterized by a set of attributes and norms that include trust, a sense of belonging, and the willingness to participate and help, as well as their behavioural manifestations.*” Summarising, cohesiveness is about shared

understanding of social norms, beliefs and ideas and encourages team members to be more open in sharing ideas and opinions within the group. In other words, it is the degree to which directors are attracted to each other (Forbes and Milliken, 1999; Mathisen *et al.*, 2013). Rajulton *et al.* (2007:462) claim that although there is no agreement on the definition of cohesiveness, all scholars agree on the fact that it is "*something that glues us together*", where he refers to any kind of group when talking about 'us'.

Cohesiveness inside the group is the most essential group dynamic and might be understood as the level of openness and sociability or the level of social interaction within the board in the context of this doctoral dissertation. Cohesiveness depends to a large extent on the diversity level of the group (Alcalde-Unzu and Vorsatz, 2013; Zander, 1979). Therefore, not only diversity but also cohesiveness should be viewed as multidimensional with the necessity to consider various interdependencies between board members (Chan *et al.*, 2006; Dickes *et al.*, 2010; Rajulton *et al.*, 2007). Politeness plays a much smaller role in a team in which trust between board members dominates than in a group of strangers. Rather, ideas are shared in an honest and more direct way (Eisenhardt, 1999). According to Leana (1985), groups with team members, who have worked together previously, are often cohesive; they discuss more within the group than groups with members who work together for the first time and are therefore not considered as being cohesive. In the context of the board of directors, a cohesive board consists of board members who feel affiliated to each other; they are pleased to attend the board meetings and are open and friendly to each other which is consistent with social identity theory (Mathisen *et al.*, 2013).

All kinds of social interaction between board members are suggested to have an impact on cohesiveness. According to research on group effectiveness, the time spent together has a significant impact on board dynamics and board processes (Cohen and Bailey, 19997). Consequently, the most obvious interactions are board meetings and eventual away-days. Another factor fostering cohesiveness within the board is induction training as one of the main reasons for providing such programs is explaining cultural values and board processes to the new board member. Furthermore, new board members are introduced to the board, exact tasks and responsibilities are explained, making first steps towards the integration of the new board member. Therefore, this dissertation argues that the main interaction factors are board meetings, away-days and induction as visualised in figure 8.

Figure 8: The linkage of social interaction on cohesiveness

The following paragraphs clarify the different cognitive biases that might emerge inside the boardroom.

4.1.2. Cognitive biases inside the boardroom

Due to socio-psychological reasons, it cannot be assumed that independent directors use their knowledge in order to contribute actively in the boardroom decision-making (Forbes and Milliken, 1999; Minichilli *et al.*, 2012). Consequently, the underlying argument behind those psychological and cognitive biases is that independent boards (according to the definition of independence) are not necessarily ‘independent of mind’ as those biases might offset their true independence. This is particularly important as the independent board is a core concept of corporate governance according to agency theory and recommended by codes of corporate governance around the world. Once all concepts regarding cognitive biases that offset true independence become sufficiently accepted in corporate governance and board behaviour research, the corporate governance paradigm is supposed to change entirely and the independent board as the main monitoring mechanism has to be rethought (Bainbridge, 2008). Consequently, the following concepts build the core arguments of this doctoral dissertation and are essential for the establishment of the conceptual model in Chapter 6.

4.1.2.1. Groupthink

The best known cognitive bias occurring in group dynamics is groupthink. Janis (1972:45) argues that groupthink is dangerous for an effective decision-making because “*concurrency seeking becomes so dominant in a cohesive ingroup that it tends to override realistic appraisal of alternative courses of action*”. In other words, groupthink makes it impossible to evaluate all relevant aspects for the decision to be made because group members – or in this case board members – hold back their opinion to prevent conflict.

Janis argues that individuals worry about their importance within the group and that they think the more their ideas differ from the ideas of the other group members, the less useful is one for the group. Therefore, group members tend to be consensus-seekers, not *wanting* to disagree with the group's opinion to stimulate well-being and harmony (Laster, 2012). As evidenced by the Milgram experiment¹², human beings have a natural propensity to obey authority without questioning the moral sense which explains, at least partially, the lack of 'independence of mind'. In other words, loyalty is physically integrated in human behaviour (Forbes and Milliken, 1999). The Milgram experiment also concluded that hearing someone contradicting is often enough to overcome loyalty and raising the voice as well. Regulators on corporate governance recognised and incorporated this knowledge into the codes on corporate governance and other regulations in that they recommend a second power base – the independent chairman (Morck, 2008).

Cognitive conflict between board members is a useful and necessary stimulator of critical thinking and diminishes groupthink. However, excessive conflict might also undermine social ties, trust and information sharing between board members. Therefore, as mentioned above, promoting trust and distrust is the key to increase board effectiveness as it makes board members collaborate but also monitor each other when necessary (Sundaramurthy and Lewis, 2003).

4.1.2.2. Herding

Herding occurs *"when an individual makes a decision imitating another's actions and ignoring his or her own private information, even when his or her information suggests a different course of action. Additionally, individuals who perceive themselves as lacking sufficient information in complex and uncertain situations tend to follow the actions of others, disregarding their own information and knowledge"* (González *et al.*, 2006:388).

Reasons for herding behaviour are consensus-seeking, excessive cohesiveness inside the boardroom but above all, following a trend. An example is an individual who hopes for a gain in reputation by following a group decision and disregards whether or not the decision was a good one. Keynes (1936, cited in Bainbridge, 2008:96) states *"it is better to fail conventionally than to succeed unconventionally."* This explains herding behaviour well as it suggests that following a group decision – although with a bad outcome – is not harmful for the director's reputation which is one of the reasons why herding occurs. Another reason for herding behaviour might be bounded rationality and information asymmetries. Board members might rely on the other members' decision proposals without analysing and evaluating the trend. Herding behaviour can therefore be seen as 'blind trust' in someone else's decision because incomplete information makes human

¹² A detailed explanation of the Milgram experiment is provided in Chapter 1.

beings trust more in the opinion of others than in the own one. Whereas groupthink emerges because a person holds back his or her opinion to obey authority, in herding behaviour, the other person's opinion is considered superior to the own one and therefore followed (Bainbridge, 2008). An example is when a marketing expert suggests a solution to a marketing issue and directors with no marketing expertise and therefore not sufficient knowledge to accurately understand follow this solution which actually is common practice on corporate boards. According to an empirical study by González *et al.* (2006), the impact an average non-executive director has on the decision-making of the board is very low, suggesting that the average independent director acts according to herding behaviour. An exception tends to be a non-executive director with a high prestige status as those directors do not tend to follow the CEO or chairmen as the leader. Rather, they feel themselves as leaders and they are seen as leaders by other directors. The impact herding behaviour might have on board behaviour is essential. Herding behaviour might offset the advantages group decision-making has as neither the monitoring role nor the advisory role might be performed adequately if the board follows a board proposal without objectively making own decisions (Bhagat and Black, 2002; González *et al.*, 2006). Studies on herding, however, have not been conclusive. There are also studies disagreeing with the results of González and his colleagues.¹³ A diverse board as well as a second power base are suggested to counteract herding behaviour (Bainbridge, 2008; González *et al.*, 2006).

4.1.2.3. Pluralistic Ignorance

Pluralistic ignorance is a social cognitive error, defined as "*the extent to which group members (plural) underestimate the degree to which others share their concerns*" (Westphal and Bednar, 2005:266). In other words, groups run the risk of continuing along with group norms and practices that the majority of the group disagrees with only because no group member speaks out loud the own concerns. This means, that pluralistic ignorance is guided by avoidance instead of action; it emerges from the fear of embarrassment (Miller and Nelson, 2005). Research in social psychology confirms the existence of pluralistic ignorance (Westphal and Bednar, 2005). It explains how wrong perceptions of group norms by individuals might lead to the acceptance of norms and practices which most group members think to be wrong. Pluralistic ignorance can also be applied to unethical behaviour. As Halbesleben and colleagues (2005) argue, misperception of ethical behaviour might result in justifying unethical behaviour because members think everyone is doing it, making unethical behaviour the group's normative behaviour (Halbesleben *et al.*, 2005:387). Strong cultures are characterised by shared beliefs and values. Therefore, employees in organisations with strong (positive) cultures have less need to engage in social comparison. On

¹³ For a detailed overview see Bhagat and Black (2002).

the other hand, in organisations with weak cultures, cohesion, friendship ties and trust are less strong. As a result, employees and also board members do not know each other well enough to be able to predict the other team or board member's opinion. Consequently, pluralistic ignorance is more likely to occur (Halbesleben *et al.*, 2005).

There are some socio-psychological behaviours in group decision-making that foster pluralistic ignorance. Voicing a minority opinion is connected to social risks. Evaluation on group members, who express minority opinions, is likely to be less positive than the evaluation of group members who express the majority opinion. Also, group members who express minority opinions are more likely to be exposed to social distancing which is explained in the following paragraphs (Westphal and Bednar, 2005). In that case, group members with minority opinions become out-group members so that their opinions are no longer valued or asked for. Conversations and informal meetings take place without them and the group starts ignoring them. The risk of voicing a minority opinion is therefore seen as jeopardising the own social status. Outside directors want to maintain their high status and their reputation as 'easy-going' directors because this might secure them further directorships. Therefore, voicing minority opinions involves high risk for outside directors. Literature on group decision-making suggests that group members, who do not know whether or not their opinion is shared by others, start to focus in more detail on what other group members say in order to find out whether they share the same opinion or not. In other words, unless other group members express a similar opinion, the group member with the minority opinion keeps silent. However, when all group members proceed in a similar way, group practices and norms which nobody agrees with will not change and a 'spiral of silence' emerges.

An important decelerator of pluralistic ignorance is demographic homogeneity and friendship ties between board members as those lead to openness and trust between board members. Usually, it is argued that outside directors are less likely to build trust relationships and friendships with one another as they see each other less frequently and do therefore not spend enough time together to build close friendships. However, these social ties between directors have the positive effect of facilitating frequent informal conversations with one another in which concerns are more easily spoken out. This might break though the vicious circle of the 'spiral of silence' within the board suggesting that trust and openness should be forced. Consequently, in order to counteract pluralistic ignorance, social interaction and therefore also cohesiveness should be fostered on the board.

Although both are decision-making failures, pluralistic ignorance is clearly distinguished from groupthink by the social psychology literature. An important difference is that social cohesion is argued to foster groupthink whereas social cohesion and homogeneity is clearly suggested to help blocking pluralistic ignorance as explained in the previous paragraphs. When

groupthink occurs, the group's perception about something is biased whereas pluralistic ignorance occurs when group members think their opinions are not shared by the rest of the group which means that their perception about the group's beliefs is biased (Westphal and Bednar, 2005). This essential difference is another reason why trust and distrust, cohesiveness and diversity or control and collaboration should be fostered in the boardroom.

4.1.2.4. Social loafing

A famous experiment of 1913 where teams of two, teams of three and teams of eight people had to pull a rope, explains very well the effect of social loafing on groups. The study provides evidence that whereas in a group of two, each group member pulled to 93% of each member's full capacity, in the groups of three members, each group member pulled to 85% and in the group of eight only to 49% of each group member's full capacity. Explained in other words, 'too many cooks spoil the soup'. The underlying argument is that individuals are less productive when they are working in a group (Simms and Nichols, 2014). Where productivity of each group member is difficult to measure, it is argued that social loafing is more present as individuals do not receive neither credit nor blame for their performance (Bainbridge, 2008).

Consequently, the core argument of social loafing is that individuals make better decisions than groups. However, it has to be distinguished between low difficulty tasks and high difficulty tasks. Whereas tasks, which are claimed to be simple, are usually better performed alone, complex tasks, which require, for example, different fields of knowledge, are claimed to be better performed within a group context. Therefore, within the context of boards of directors, it makes sense to have a shared group decision-making as board decisions require a wide range of expertise (Simms and Nichols, 2014).

An interesting variable that counteracts social loafing is gender. The presence of women is claimed to lower the risk of social loafing as women tend to loaf less than men because they tend to prepare well for meetings, and participate in meetings, communicate effectively, as explained in Chapter 3 (Huse, 2007).

Moreover, uniqueness is found to impact social loafing. When the abilities of a group member are unique, this group member is suggested to work harder and therefore this member usually does not loaf (Simms and Nichols, 2014). An explanation could be that this director is the only expert in his or her field of knowledge and consequently has to respond alone to all matters regarding his or her field of expertise. Therefore, preparation is always necessary. Consequently, continuous training is essential in order to assure each director has updated knowledge on the own field of expertise.

Group cohesiveness is found to counteract social loafing effectively. The more cohesive the group, the less social loafing is suggested to occur. It is argued that communication and information sharing as well as openness and trust diminish the danger of social loafing. Members of highly cohesive groups work as hard in a group context as they do individually. The reason is claimed to be the high level of social identity within cohesive groups. Group members want to help each other and are motivated to accomplish tasks together. They are concerned about the well-being of the group and take all the necessary effort to reach the team goals and ensure a high group performance (Goffee and Jones, 1996; Simms and Nichols, 2014).

4.1.2.5. Social distancing

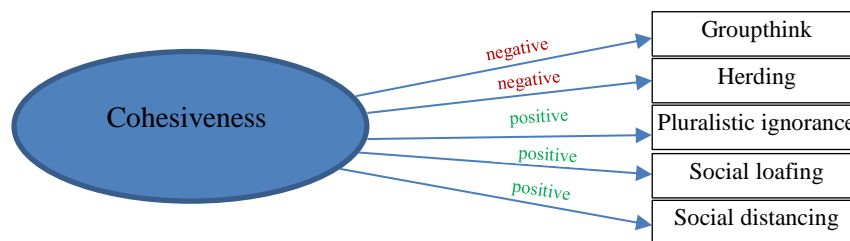
Social control inside the boardroom has always been an important factor of corporate governance research as it was a crucial factor in the establishment of agency theory. However, nowadays, the focus has changed and it is now seen as a different type of social phenomenon. It is argued that executives and other directors do not necessarily exercise social control to enforce their own interests as agency theory argues. Rather, social distancing might occur due to psychological reasons of group dynamics. For example, social distancing can occur when a director whose actions threaten the goals of the CEO (which might be in the interest of the company), is excluded in an informal way from the rest of the board. Such social sanctioning may prevent the director from speaking out loud his opposition with the CEO's opinion in the future. Certain types of behaviour can be recognised as social distancing, for example, not asking for someone's opinion and not inviting the excluded person to informal meetings. Consistent with the literature on anthropological and sociological research, the study of Westphal and Khanna (2003) suggests that social distancing is also common when a new member enters a highly cohesive group. Social distancing is usually a temporary phenomenon; therefore, people tend to behave according to the social norms of the group in order to get involved in the group's social life. Literature on psychology suggests that people try to avoid being the victim of social distancing. The result of social distancing may be emotional distress or anxiety. Worthwhile mentioning is that social distancing seldom occurs to high-status directors known from prestigious companies as they have more social control over the other board members (Huse, 1007; Westphal and Khanna, 2003).

Size is a factor that is claimed to have an impact on all board dynamics. Whereas smaller boards foster cohesiveness, larger boards are claimed to foster herding, groupthink, pluralistic ignorance, social loafing and social distancing due to their increased diversity level. Some authors

argue in favour of large boards and their high level of diversity as it brings about more innovative ideas, encourages conflict and requires compromise between the board member’s ideas (Cheng *et al.*, 2009; Rose *et al.*, 2013). However, other authors argue that decision-making on large boards is difficult and time consuming as many ideas come up when many board members are present. Also, large boards require a greater focus on debate, consensus seeking tends to take longer and be more difficult. In long states of disagreement, executives might gain power to push their interests through (Hermalin and Weisbach, 2003; Rose *et al.*, 2013).

Figure 9 visualises the impact the previously addressed negative board dynamics have on cohesiveness.

Figure 9: The linkage of cognitive biases on cohesiveness



4.2. Power relations inside the boardroom

Power is the ability of someone to execute control over someone else (Huse *et al.*, 2011). Power is not a board dynamic, rather different power relations emerge due to the previously mentioned board dynamics. Although power can be grouped into different kinds of subgroups, most researchers group them in a similar way.

McNulty *et al.* (2011), for example, define structural power as the power of hierarchy. It refers to the CEO power over the board, chairman power over the board or the board power over the CEO. In theory, the board is more powerful than the CEO as it is the governance mechanism established specially to monitor the CEO and the whole executive team in order to align their interests with those of the shareholders and other stakeholders. However, in practice, the CEO has several options of executing power over the board. An example is selecting which information the board receives and which will be kept away from it as the CEO sets the agenda for board meetings (Daily and Johnson, 1997; Mace, 1971). The board should have structural or hierarchical power over the CEO through the establishment of an independent board. However, as mentioned previously, the CEO often nominates new directors and the board only approves the nomination. This way, the newly appointed directors feel loyal to the CEO and therefore do not contradict him

or her. This indicates a certain type of indirect power the CEO has over the board (Daily and Johnson, 1997). Previously mentioned negative board dynamics may also foster CEO power over the board.

Expert power refers to the power a board member has due to his or her education, work experience, knowledge and expertise. Many board members have made an impressive career with much breath in their managerial positions, making them experts in their fields. Other board members often feel less prepared in comparison to the expert which gives him or her power over the other board members, for example, in decision-making (Daily and Johnson, 1997; Finkelstein, 1992). It is common practice that an expert has more saying on everything related to his or her field of expertise as previously explained.

Prestige or status power is another important type of power inside the boardroom. Many directors are appointed to the board because of their prestige. They become part of this managerial elite through graduating from elite universities or through serving on another prestigious board of directors. This gives them the power to signal their importance on the board but also outside the company. Prestige power is an important asset for the company as prestige board members have highly important networks with other prestigious individuals which they can give the company access to. Also, through those networks, those board members get much important information from the outside world which might be of importance for some board decisions as, for example, interlocking directorates are claimed to be a major mechanism for information sharing (Finkelstein, 1992). Daily and Johnson (1997) argue that many prestigious CEOs left companies in the last five years before they filed bankruptcy. The reason is argued to be the withdrawal of support from the prestigious board member and his or her network. Also, inside the boardroom, a director's prestige plays an essential role as less powerful board members often try to build alliances with powerful board members resulting in loyalty and groupthink or herding behaviour (Brudney, 1982; Huse, 2007; Mathisen *et al.*, 2012). Social distancing occurs towards board members outside the alliance of the powerful director and his or her followers. Empirical evidence shows that board members with high reputations experience less social distancing than board members without high reputations, as previously mentioned (Huse, 2007; Westphal and Khanna, 2003).

Additionally, to the three power dimensions defined by McNulty and colleagues (2011) – the types of power that have just been explained – Finkelstein (1992) defines ownership power as a fourth power dimension. However, as ownership power is not relevant for the purpose of this doctoral dissertation, the focus lies only on structural, prestige and expert power. Ownership power will not be explained in more detail.

Not much literature can be found on the informal structures of corporate governance or the human side of corporate governance. As mentioned in previous chapters, Forbes and Milliken (1999), Gabrielsson *et al.* (2007), Huse (2007), Hilb (2012), Minichilli *et al.* (2012), Nielsen and Huse (2010), Roberts *et al.* (2005), Sundaramurthy and Lewis (2003) as well as Vandewaerde *et al.* (2010) make a large part of the whole literature on this topic. Also Maharaj (2008) researches on boardroom behaviour and groups the informal structures into three main areas: Director knowledge, values and groupthink. Directors need an in-depth knowledge of the business to be able to ask critical questions. The individual values of the board members determine their behaviour, which builds the corporate values and the corporate culture, expressed in the company's code of ethics and determining "*the way we do things around here*" as referred to by Schein (2004:13). Groupthink is the level of engagement, questioning of other board members and thinking independently which means not to habitually conform with the group consensus. Many authors claim that it is not effective to adapt the composition of the board to the danger of negative board dynamics. Instead, the board should better elect adequate board members with sufficient knowledge as well as the right values. Furthermore, the board should structure board processes in a way that eliminate the danger of negative board dynamics, such as forcing board members to participate in board meetings, build up more confidence, 'independence of mind' and cohesiveness because it is the informal structures that have the bigger impact on board decision-making than the formal ones (Maharaj, 2008).

4.3. Linking informal structures to formal structures

According to Huse (2007:298), "*the key to good corporate governance is human or social factors and not structural factors, and what distinguishes the best boards is that they are robust, effective social systems.*" Huse explains that the outcomes of board efforts depend on the well-functioning of the board, with the following factors being indicators of an effective board:

- *"Criticality and independence*
- *Creativity*
- *Cohesiveness*
- *Openness and generosity*
- *Preparation and involvement*
- *Cognitive conflicts"*

The factors mentioned by Huse are a summarised reflection of the formal and informal characteristics of the board of directors clarified in Chapter 3 and Chapter 4 of this doctoral dissertation. Figure 10 summarises the most important key messages of Chapter 3 and Chapter 4 and visualises the linkages between the formal and informal characteristics which are the baseline for the establishment of the model suggested in Chapter 6.

Figure 10: Key messages of the theoretical part

Informal	Formal	Connected to Cohesiveness	Authors
Sociability	<p>Size The larger the board, the less cohesive the board</p>	<p>Board effectiveness: A pluralistic approach to corporate governance theories is better than an „either/or“ approach. Both trust and distrust, control and collaboration or cohesiveness and diversity combined are claimed to be a better approach in order to capture the whole picture of corporate governance. Effective boards „perform distinctive service and control activities successfully (task effectiveness) and yet continue working together (cohesiveness)“</p> <p>Cohesiveness: The lack of cohesiveness leads to passive boards who lack motivation to participate and prepare, which makes it easier for the CEO to push through the own ideas. The level of involvement is therefore directly related to the level of ‚independence of mind‘, the use of knowledge, commitment and preparation.</p>	<p>Anderson <i>et al.</i>, 1996; Bebchuk and Weisbach, 2009; Berman <i>et al.</i>, 2002; Brudney, 1982; Eisenhardt, 1998; Errity and Stuckey, 2009; Forbes and Milliken, 1999; Geletkanycz and Hambrick, 1997; Hilb, 2012; Huse, 2007; Klimoski and Mohammed, 1994; Monks and Minow, 2008b; Roberts <i>et al.</i>, 2005; Sanders and Van Emmerick, 2004; Van Woekom and Sanders, 2010.</p>
	<p>Away-days fosters interaction</p>		
	<p>Board meetings fosters interaction</p>		
	<p>Training</p> <p>Induction training fosters interaction</p>		
Know-How	<p>Size The larger the board, the more accumulated knowledge on the board</p>	<p>Cohesiveness: Know-How has no direct impact on cohesiveness. Rather, Know-how and cohesiveness together build the main building blocks to counteract negative board dynamics as the culture of an effective board is determined by constructive-critical trust, the use of knowledge and cohesiveness.</p>	<p>Edwards, 2015; Forbes and Milliken, 1999; Hilb, 2012; Huse, 2007; Kramer, 2011; Maharaj, 2008; Mead, 2014, Monks and Minow, 2008b; Shaw, 2011.</p>
	<p>Training</p> <p>Continuous training: Training is essential to ensure directors have up-to-date know-how</p>		
	<p>Education: Economics: Economics and business related areas are crucial for running companies. Therefore, know-how in those fields is crucial for a well-functioning of the board</p> <p>Law Lawyers are trained to ask tough questions and think critically which suggests they bring important process-oriented know-how to the board and makes them effective monitors</p>		
	<p>Diversity</p> <p>Age: Oldest directors Oldest directors are suggested to have the widest networks and the most experience making them both, effective monitors and good advisors</p> <p>Non-executives with several mandates They often work as CEO's themselves. Also, due to their several mandates, they have an important insight into other firm's processes, operations and strategies. Consequently, they can compare and improve: Also do they have access to wide networks through their directorships. However, those directors often have less time to prepare for meetings. Nevertheless, it is argued that those directors are appointed to the board because of their special know-how and networks</p>		

Figure 10: Key messages of the theoretical part (continuation)

Informal	Formal	Connected to Cohesiveness	Authors
Groupthink	<p>Size Group members tend to be consensus-seekers and human beings tend to obey authority which make large boards more easily controlled by the CEO, especially because trust and openness or the use of knowledge tend to be lower in large boards as the level of sociability is usually lower</p>	<p>Cohesiveness Groupthink occurs more easily in cohesive boards, however, the lack of critical thinking is the underlying factor deciding whether or not groupthink emerges</p> <p>As groupthink occurs mainly because human beings tend to obey authority, trust, openness and social ties which increase the level of sociability on the board should be fostered as sociability makes board members feel more at eye level and therefore increase their use of knowledge and openness and counteracts groupthink</p>	<p>Bainbridge, 2008; Groysberg and Bell, 2013; Forbes and Milliken, 1999; Janis 1972; Kang and Payal, 2012; Laster, 2012; Maharaj, 2008; Minichilli <i>et al.</i>, 2012; Morck, 2008; Sundaramurthy and Lewis, 2003.</p>
	<p>Power CEO duality Accumulated power in one person leads to conformity and groupthink because human beings tend to obey authority</p>		
	<p>Diversity Female directors Women are effective monitors due to their different way of thinking, asking tough questions and being more ethical than men</p> <p>Non-executive directors The independent board is the core concept of corporate governance according to agency theory as it is suggested to counteract groupthink because being independent from the executive team is an effective tool for independent decision-making</p>		
	<p>Education: A high level of crucial know-how fosters critical thinking and counteracts groupthink</p> <p>Economics: A high level of crucial know-how fosters critical thinking and counteracts groupthink</p> <p>Law Lawyers are trained to ask tough questions and think critically which suggests they are less vulnerable to groupthink</p>		
	<p>Training Continuous training It increases knowledge and critical thinking which decreases groupthink</p>		

Figure 10: Key messages of the theoretical part (continuation)

Informal	Formal	Connected to Cohesiveness	Authors
Herding	<p>Size The larger the group, the higher the danger of herding as sociability is lower which is a factor counteracting herding</p>	<p>Cohesiveness: As herding behaviour occurs mainly because directors tend to follow a trend, in case they think their other members' information is superior to their own. Consequently, openness and trust should be fostered.</p> <p>However, the most effective tool to counteract herding behaviour is an up-to-date know-how so board members do not follow decision proposals because they think the other member's information is superior to their own.</p>	<p>Bainbridge, 2008; Bhagat and Black, 2002; Edwards, 2015; Eisenhardt, 1999; Errity and Stuckey, 2009; González <i>et al.</i>, 2006; Groyaberg and Bell, 2013; Heidrick & Struggles, 2011; Huse, 2007; Kang and Payal, 2012; Mead, 2014.</p>
	<p>Female directors Women tend to prepare well for meetings, ask tough questions which makes them less vulnerable to herding behaviour</p>		
	<p>Non-executive directors The independent board is the core concept of corporate governance according to agency theory as it is suggested to counteract herding as following the CEO as the leader. However, it is also argued that the typical non-executive director acts according to herding behaviour</p>		
	<p>CEO duality Accumulated power in one person makes it easier to push through the own ideas</p>		
	<p>Education: Economics: A high level of crucial know-how fosters critical thinking and counteracts herding Law Lawyers are trained to ask tough questions and think critically which suggests they are less vulnerable to herding behaviour</p>		
	<p>Non-executives with several mandates They are often directors with a high level of prestige feel themselves as leaders, consequently, they herd less. In case they disagree with the CEO, they contradict. However, it is also argued, that they lack the time to prepare well so that they might rely on the information of others</p>		
<p>Training Continuous training It increases knowledge and therefore critical thinking which decreases herding</p>			

Figure 10: Key messages of the theoretical part (continuation)

Informal	Formal	Connected to Cohesiveness	Authors
Pluralistic ignorance	<p>Female directors As they are claimed to be more ethical, concerned about ethical behaviour, ask tough questions and participate, they are suggested to counteract pluralistic ignorance</p> <p>CEO duality: Accumulated power in one person makes it easier to push through the own ideas as a second power base is missing who contradicts the CEO</p> <p>Education: Economics: A high level of crucial know-how fosters critical thinking and counteracts pluralistic ignorance Law Lawyers are trained to ask tough questions and think critically which suggests they are less vulnerable to pluralistic ignorance</p>	<p>Cohesiveness: As pluralistic ignorance occurs mainly of the fear of embarrassment, trust, openness and social ties which increase the level of sociability on the board should be fostered as sociability makes board members feel more at eye level and builds a strong board culture. Therefore, sociability increases the use of knowledge and openness on the board and counteracts pluralistic ignorance</p>	<p>Edwards, 2015; Groysberg and Bell, 2013; Halbesleben <i>et al.</i>, 2005; Huse, 2007; Kang and Payal, 2012; Mead, 2014; Miller and Nelson, 2005; Westphal and Bednar, 2005.</p>
	<p>Continuous training It increases knowledge and critical thinking which decreases pluralistic ignorance</p>		
Social loafing	<p>Size The larger the group, the higher the danger of social loafing as sociability is lower which is a factor counteracting social loafing</p>	<p>Cohesiveness: Highly cohesive groups tend to loaf less as the social attraction makes them feel as a team so that they want to perform well</p>	<p>Bainbridge, 2008; Brudney, 1982; Eisenhardt, 1999; Errity and Stuckey, 2009; Forbes and Milliken, 1999; Goffee and Jones, 1996; Groyaberg and Bell, 2013; Heidrick & Struggles, 2011; Huse, 2007; Kang and Payal, 2012; Simm and Nichols, 2014.</p>
	<p>Education: Economics: A high level of crucial know-how fosters critical thinking and counteracts social loafing Law: Lawyers are trained to ask tough questions and think critically which suggests they are less vulnerable to social loafing</p>		
	<p>Female directors Women tend to prepare well for meetings, ask tough questions. Consequently, they loaf less comparing to men</p>		
	<p>Non-executive directors Non-executives often build social ties as they come from the same economic and social background and might even know each other from previous board mandates. Those social ties build strong culture and counteract pluralistic ignorance</p>		
<p>Continuous training Training increases knowledge and therefore critical thinking which decreases social loafing</p>			
Social distancing	<p>Size The larger the board, the higher the probability of social distancing as small sub-groups emerge.</p>	<p>Cohesiveness: Social distancing occurs mainly when a new member enters a group. Consequently, actions to include the new member to the board should be taken to make the whole board cohesive and counteract social distancing towards a few. Therefore, sociability has to be fostered.</p>	<p>Brudney, 1982; Eisenhardt, 1999; Forbes and Milliken, 1999; Goffee and Jones, 1996; Hilb, 2012; Huse, 2007; Huse and Solberg, 2006; Mathisen <i>et al.</i>, 2013; Summers <i>et al.</i>, 1998, Westphal and Khanna, 2003.</p>
	<p>Female directors At the beginning of the appointment, women often feel excluded from the board. However, over time this effect is suggested to diminish.</p>		
	<p>Non-executives with several mandates The 'old boys club' is an alliance that excludes other directors from their prestige circle</p>		

Cultural differences will be clarified in the next Chapter (Chapter 5) as this doctoral dissertation researches on the boards of companies embedded in different national cultures; in order to better understand these companies' board organisations – and therefore their board dynamics – the chapter recaps the national differences, including the cultural and socio-economic background, the corporate governance codes and other formal structures of corporate governance between the United Kingdom, Germany and Spain.

CHAPTER 5: CULTURAL DIFFERENCES IN CORPORATE GOVERNANCE AND THEIR IMPACT ON THE BOARD OF DIRECTORS

The literature on economics, legal systems, sociology and political science has contributed significantly to the explanation of corporate governance systems. However, the cultural factor has been neglected for a long time, although it is the cultural, historical, legal and political context that has established the main conditions for corporate governance in each country. The result is a lack of profound improvement in corporate governance systems (Licht, 2000). In recent years, not only academics but also the business world and legislators have recognised the significance of culture in the development of corporate governance (Licht, 2000). National structures with the values, behaviours and attitudes of their population greatly influence the organisational cultures of firms, although obviously organisational cultures within a country can also show significant differences in values, norms and behaviours. Policies, laws and the economic system can be modified by changes in methods and practices while the national culture, so much linked to laws, policies and the corporate governance system, can only be changed by changes in values and attitudes - something considered almost impossible (Schein, 2004).

While the Anglo-American system is based on agency theory and maximising shareholder value, many European and Asian countries focus on theories which give much importance to the participation of stakeholders. Therefore, understanding the purposes and responsibilities of companies in each cultural setting has become a fundamental issue for the study of national corporate governance systems. As the starting point for the development of corporate governance is different in each country, it has been clarified that different perspectives of corporate governance have evolved from different theoretical backgrounds (as explained in Chapter 2), and therefore different corporate governance systems have been built.

Due to the internationalisation of financial markets, there has been the need to harmonise regulations in order to facilitate international business. Regulations such as the international accounting standards (IAS and IFRS) have been developed which to some extent have led to an ‘international culture of corporate governance’, establishing a framework for international business in which each country can develop its own system in accordance with its culture and values (Atrill and McLaney, 2008; Osadnik, 2012). This is especially important as it cannot be concluded that one system of corporate governance outperforms another. Rather, every country needs to adapt to its specific context and culture when developing its corporate governance system in order to have the possibility to be effective (Licht, 2000). For example, if Austria has a set of cultural values more similar to Germany than to the United Kingdom, implementing the Anglo-American system would not be efficient. On the contrary, the implementation of the Continental European system would probably be a better choice. Applying cross-cultural psychology and particularly the concept of values, differences between cultures and their effect on corporate governance can be evaluated (Licht, 2000).¹⁴

Based on the previous ideas, countries have been grouped by researchers in terms of their own corporate governance systems and according to their cultures and values as well as their historical background leading to differences in government policies, business practices and employment relations (Aguilera, 2004; Schmidt, 2003). Although there are some differences between the studies carried out, most authors agree that the Anglo-American countries are quite similar in their cultures and values, while not all European countries can be grouped together. Some scholars have tried to classify countries according to their cultural similarities. Hofstede (1980) and Schwartz (1999), for example, identify the following eight groups: Nordic, Anglo, Germanic, Near Eastern, Asian less developed, Asian more developed, Latin less developed and Latin more developed. According to the authors, countries in the same group should have similar values and behaviours and thus could probably use a similar system of corporate governance. Another way is to classify countries according to their socio-economic systems or capital markets which also have been established according to their cultural and historical backgrounds. While the classification of countries into liberal market economies (for example, Anglo-American countries) and coordinated market economies (for example, Germany, Austria, Netherlands, Denmark, Sweden) is very clear, there are mixed economies belonging to a third group, the hybrid economies which are the Latin countries (for example, France, Italy, Spain). Therefore, this system is also called the ‘Latin model’ (Aguilera, 2004; Schmidt, 2003; Solomon, 2007).

¹⁴ Licht (2000:170) suggests that creating a single definition on values is difficult. Therefore, Licht provides a summary of many definitions on values: “1. Values are beliefs. But they are not objective, cold ideas. Rather, when values are activated, they become infused with feeling. 2. Values refer to desirable goals (for example, equality) and to the modes of conduct that promote these goals (for example, fairness, helpfulness). 3. Values transcend specific actions and situations. Obedience, for example, is relevant at work or in school, in sports or in business, with family, friends or strangers. 4. Values serve as standards to guide the selection or evaluation of behavior, people, and events. 5. Values are ordered by importance relative to one another. The ordered set of values forms a system of value priorities. Cultures and individuals can be characterized by their systems of value priorities.”

Countries belonging to this group are characterised by their state-intervention, concentrated ownership and weak labour participation. The hybrid model is an evolving model; countries adopt characteristics of both the liberal market economy as well as the coordinated market economy. However, most countries tend to be closer to the Anglo-American model, liberalising financial markets, increasing privatisation and decentralising labour markets to some extent (Aguilera, 2004; Schmidt, 2003). It has to be mentioned that the hybrid model does not represent one specific model. Rather, countries follow their different paths towards their own models somewhere between the liberal market economy and the coordinated market economy, path-dependent on their institutional, economic and political backgrounds.

In 1998, the *OECD* established a team of 29 members from the *OECD*, the *European Commission*, the *World Bank*, the *International Monetary Fund*, such as companies and investors to develop the first intergovernmental corporate governance principles, published in 1999. These first principles were not prescriptive but aimed to assist countries so that they could develop their own systems, adapted to their own laws, their historical context and culture (Collier and Zaman, 2005). The *OECD* regulations focus particularly on transparency, financial statements and audit. Throughout its updates, many of the *OECD* corporate governance regulations have been imported from the United States' SOX regulations on committees and independent directors (European Commission, 2006). One of the most significant recommendations is the introduction of an audit committee composed entirely of independent directors following not only SOX but also the United Kingdom's Smith Report (2003) and Higgs Report (2003) (European Commission, 2003). Thus, according to agency theory, conflicts of interest are minimised and decision-making is improved. The codes of the United States, the United Kingdom and many European countries recommend having at least one member who is an expert in accounting and finance.

All corporate governance code recommendations are only attempts to force companies' decision-making become more effective by making power abuse more difficult. However, there will never be a system capable of preventing all kinds of abuse. The first reason is that those who want to manipulate, will always find ways to do so and secondly business should not be overregulated by law and inflexible regulations because it needs the freedom to regulate itself to some extent in order to be able to thrive (Moohr, 2003).

Under the following chapter heading, the corporate governance systems in the United Kingdom, Germany and Spain are clarified as those are the countries of analysis in this doctoral dissertation.

5.1. Corporate governance systems within the cultural and socio-economic contexts of the United Kingdom, Germany and Spain

The study of corporate governance is directly linked to the socio-economic system of each country. It is argued that efficient socio-economic systems or capital markets lead to an efficient allocation of resources. Weak socio-economic systems and weak corporate governance structures, however, might lead to a misallocation of resources resulting in corporate power abuse. As a consequence, it is claimed that it is the quality of (formal and informal) corporate governance structures that determines whether a country displays more characteristics of efficient capitalism or more inefficient characteristics resulting in misallocation of resources (Salomon, 2007; Osadnik, 2012).

As mentioned above, it is suggested that Anglo-American countries can be grouped together although there are some minor differences in their socio-economic structures. European countries, however, cannot be grouped together as they display too many cultural and historical differences. While Anglo-American countries, Ireland and some others focus mainly on shareholder value, many European countries have a strong stakeholder participation in decision-making. Other countries display characteristics of both systems. Therefore, countries can be grouped into three main systems of corporate governance: (1) The Anglo-American system, (2) the Continental European system and (3) the mixed or hybrid system. Denmark, Sweden, Germany and Austria among other countries have a strong stakeholder orientation; Spain, Italy and France among others have hybrid structures (Clarke and Chanlat, 2009; Osadnik, 2012). To compare the major systems, the United Kingdom as an example of Anglo-American corporate governance has been chosen, because it is the pioneer in corporate governance since it was the first country to publish several reports with international relevance and because it is the most significant European country of the Anglo-American system. Germany has been chosen as the representative of the Continental European system as it is the most representative one of the Rhenish capitalism or coordinated market economy with its strong stakeholder perspective and its ‘co-determination’, being the most representative characteristic of the networking economy. Spain is an interesting example for the hybrid system. As the other Latin countries, it lies somewhere between the liberal market economies and the coordinated market economies, although closer to the liberal market economies. Out of the 5 largest economies of the European Union in terms of GDP (Germany, France, United Kingdom, Italy, Spain), from the three Latin countries (France, Italy, Spain), Spain is the only one which allows only one board structure. For reasons of comparability, Spain has therefore been selected.¹⁵

¹⁵ For a detailed explanation of the selection process, see Chapter 6.

The literature on corporate governance focuses predominantly on corporate scandals in the United States and the United Kingdom. The reasons are that the scandals in the United States are at a much larger scale than European scandals which is a consequence of its 'casino capitalism' demonstrated by its low risk aversion. However, Europe has also had several corporate scandals, such as *ENTV*, and *Comroad MobilCom* (Germany), *Swiss Life*, *BZ Group* and *ABB Group* (Switzerland), *Vivendi* and *France Telecom* (France), and *Bipop* and *Parmalat* (Italy), *World Online* (Holland), *Banesto* and *BBVA* (Spain) (Clarke and Chanlat, 2009, Osadnik, 2012). One reason for the lower impact of corporate scandals in Europe is that European governments often take actions to save companies, while a significant feature of the liberal market economy is that government intervention in the market is rare, also when companies are about to go bankrupt (Enriques, 2003). Clarke and Chanlat (2009) argue that the ownership structure could be another reason that explains why there are more scandals in the United States than in Europe as significant shareholders (and in some countries also employees) – as part of the boards – could be more efficient monitors than independent directors are in the Anglo-American system (Clarke and Chanlat, 2009).

In recent years there has been a shift towards the Anglo-American model in some aspects of corporate governance due to the pressure towards the convergence of corporate governance systems and the globalisation of financial markets (Bhangwati, 2004; Schmidt, 2003). The reforms resulted in a loss of influence for the state and the banks over companies as those sources of financing were reduced while equity financing became more important. However, the level of investing in shares remains different between countries and consequently, also the level of financial relations between companies and the state as well as between companies and banks remains different among countries. This leads to different levels of hostile takeover activity, different ownership structures and consequently to differences in corporate governance (Schmidt, 2003). Beside the liberalisation of financial markets, labour markets have been decentralised and state-owned companies have been privatised.

While the Anglo-American countries are characterised by individualism (that could be depicted as what Adam Smith called 'the invisible hand'), Continental European countries are often characterised by their community or network culture. These differences are consistent with the approach to corporate governance in Anglo-American countries (shareholder theory) and Continental European countries (stakeholder theory) (Bilbao Calabuig and Rodriguez Carrasco, 2008). Therefore, many scholars argue that a high level of convergence in Europe is unlikely to succeed due to the different contexts (Bilbao Calabuig and Rodriguez Carrasco, 2008; Cernat, 2004; Deeg and Perez, 2000; Osadnik, 2012).

The main differences between the United Kingdom, Germany and Spain with focus on privatisation, employment relations and financial market deregulation from the post-war era until now are explained in the following paragraphs.

5.1.1. The United Kingdom

In the United Kingdom, government decided to liberalise the financial markets in the 1980s. It also focused on privatisation especially of the state-owned monopolies as well as on the decentralisation of the labour market through cutting union power to strike while providing companies with more power to hire and fire. As a consequence, the already liberal market economy became even more liberalised (Schmidt, 2003).

In contrast to the social market economy of many European countries, in the United Kingdom and other Anglo-American countries, corporate networks among various companies or between companies and banks are uncommon; therefore, the stock market plays the most important role as the source of financing. There is a long culture of investing in stocks by private households with the main goal of achieving a fast return on investment. Consequently, if needed, companies are able to raise large amounts of external capital through the market resulting in a highly dispersed ownership structure (Gospel and Pendleton, 2003; La Porta *et al.*, 1999; Solomon, 2007). In return for investing their capital in a corporation, shareholders expect transparency and adequate corporate governance structures and regulations aiming for a maximisation of shareholder value (Schmidt, 2003).

Companies have to focus on short-term quarterly profits in order to keep the share price high as this is how shareholders as investors are kept and hostile takeovers prevented. The consequence is that investments in R&D and training for employees are rather low. Trade unions are not as powerful as in the coordinated market economy because the market regulates itself (Solomon, 2007). Employment protection is much lower and long employee tenure as well as apprenticeships are less common in the United Kingdom than, for example, in Germany. As a result, both wages and production quality are lower. Customer-specified and highly diversified products are not common either. Instead, the United Kingdom focuses on general mass production where highly specialised and trained workforce is not needed. As long-term relationships between businesses and employees are not common, labour markets are fluid and corporations hire and fire workers without major governmental obstacles. Relations between firms are rare and technology transfer takes place through the movement of labour (Gospel and Pendleton, 2003; Hall and Soskice, 2001; Porter, 1992). The system of labour management together with the fact that CEOs have much autonomy leads to a high responsiveness to changing market conditions

and therefore to radical innovation. Industries most suitable to those market conditions are therefore foods, beverages, tobacco, IT, bio-technology and services as radical innovation is possible within these industries (Gospel and Pendleton, 2003; Porter, 1992). However, within the liberal market economies, there are some industries that do not fit neatly in the production market strategy. An example is pharmaceuticals, where strong and stable relationships with investors as well as employment security and employee development through training are key factors of success (Gospel and Pendleton, 2003).

The United Kingdom's main corporate governance reports – chronologically emerging from the Cadbury, Turnbull and Higgs Reports – indicate that too much control is not the right approach to improve corporate governance because no level of control can prevent all types of fraud. The United Kingdom's recommendations try to ensure that companies are free enough to be able to prosper. In response to several scandals occurring due to the lack of director independence, the Higgs Report (2003) focuses on the importance of enhancing the roles and responsibilities of the nomination committee. It also indicates the need for a close relationship between independent and executive directors. However, to avoid groupthink and other negative board dynamics an independent chairman is recommended (Higgs, 2003; Morck, 2008).

The 'UK Corporate Governance Code' follows the previously published – and above mentioned – reports and suggests best practices based on self-regulation. Companies must comply with the principles, otherwise they must explain the reasons for their noncompliance (The UK Corporate Governance Code, 2010). However, in the case of corporate failure combined with noncompliance with the code, companies reckon sanctions or even the delisting of the stock exchange because some of the listing rules only duplicate already existing legislation and therefore offset the 'comply or explain' principle (Tricker, 2009).

Summarising, it can be suggested that the system is characterised heavily by the liberal market economy. It is especially suitable for industry sectors that can respond rapidly to changing market conditions, such as service companies in which radical innovation is possible.

5.1.2. Germany

The corporate governance system that most differs from the Anglo-American system is the German one. Unlike the Anglo-American countries, Germany does not focus primarily on maximising shareholder value. Rather, it considers the interests of other stakeholders supported by law which has stirred debate between the two approaches and a debate on the definition of a firm (Gospel and Pendleton, 2003; Schmidt, 2003).

The academic and business world was attracted by the German socio-economic system as the economy was exceptionally successful after World War II. Many believed that the social market economy was the reason for the German success (Steger and Hartz, 2005). The crisis came in the 1990s due to the unification of East and West Germany. Germany liberalised its financial markets from 1995 on. Public companies were privatised and the government deregulated the telecommunications and electricity sectors. Contrary to the other countries, Germany did not reform its labour market. Today, the German economy is still based on the system of a social market economy. There are two features that distinguish it most from the Anglo-American liberal market economy. The first one is government intervention through regulations to combat monopolies and cartels, ensuring high competition and the second one is 'co-determination'. *"Government regulation, unlike market-based solutions, combines authority, capacity, and democratic legitimacy to protect citizens from corporate misdeeds"* (Bakan, 2004:149). 'Co-determination' is the legal statute that gives employees the right to actively take part in the business decision-making process through their presence on the board. Many scholars criticise 'co-determination' for not being efficient, and think that it must be questioned considering the evolution of corporate governance and its theoretical background as well as its goals which is an example for the shareholder-stakeholder debate.

Most companies are small-and-medium-sized enterprises, mostly controlled by the founding family. Given the size of the German economy, it is quite surprising that only very few companies are listed on the stock exchange (Charkham, 2005). For instance, 650 companies have been listed in 2007, while in the United Kingdom 2.876 companies have been listed (European Commission, 2007), suggesting that investing in the stock market is not very common in Germany. In 1996 only 17% of individuals have invested in stocks. Even today, investing in the stock market is not as common as in the Anglo-American countries and ownership structure is concentrated (Morck and Steiner, 2005). The reason is that the main source of capital is not the equity market. Rather, long-term relations between banks and industrial companies have a long tradition in Germany. This goes back to the historical roots of the Rhenish capitalism in times of the German industrialisation. The main industrial sectors were steel and coal which required long-term investments in order to foster incremental innovation so that customer-specific products could be produced. Therefore, the development of highly skilled workforce through high quality apprenticeships and training programs was necessary (Bronk, 2000). As a solution, the relations between the industry and the banks emerged. Banks provided capital to the company and in exchange took part in the decision-making process through their mandates on the supervisory boards which has been a key factor to success in times of the industrialisation (Onetti and Pisoni, 2009). Through strategic investors sitting on the supervisory board, monitoring is more insider-based as significant shareholders monitor directly through the decision-making process on the

board, whereas in liberal market economies, (minority) shareholders can only monitor from the outside and in case of non-profitability withdraw their capital (Gospel and Pendleton, 2003). Morck and Steiner (2005) argue in favour of the cross-shareholdings with the banks, as this could be useful, especially in economic downturns. The long-term financing leads to the advantage of being able to focus on long-term strategies rather than on short-term profits. Companies are able to invest in R&D, machinery and technology fostering incremental innovation and providing then often a competitive advantage through their diversified high quality products.

Critics claim there is a risk of conflict of interest because banks play various roles, such as shareholders, creditors and proxy-agents, so that they might not be able to adequately represent all interests (Jensen and Meckling, 1979). Also, through complex pyramid structures it is common to have company representatives on the board of directors who do not have direct shares in the company. Those cross-shareholdings and pyramid structures represent the excessive power of a few industrial companies, banks and insurance companies which control the whole economy. However, in the last two decades, these complex networks began to 'slim' (Charkham, 2005; Krempel, 2008; Osadnik, 2012).

The previously clarified differences are path-dependent on the labour system. Employment protection based on legislation is highest in Germany comparing to the United Kingdom and Spain. Apprenticeships financed by both the state and the industry and training provided to employees on a regular basis lead to a highly skilled workforce and a high product quality (Schmidt, 2003). In return, the companies intend to obtain a workforce with a high level of corporate commitment which is a common aspect of the social market economy and in particular of the German culture (Hall and Soskice, 2001). While employees in the United States stay in the same company for 6,7 years on average, German employees stay for 10 years on average (Streeck, 1995). For example, Jürgen Schrempp, the former chairman of *Daimler-Chrysler*, started as an apprentice to *Daimler-Benz* and 30 years later he has been appointed as the chairman of the board of directors (Hassel, 2006; Osadnik, 2012). In times of economic downturn, labour costs are not cut to a minimum as it is the case in liberal market economies. Instead, to a large extent losses are absorbed by reduced profits leading to a decrease in the share price. It is, however, not a main concern to German companies as investors are mostly of strategic nature and therefore do not withdraw their capital from the company. Those strategic investments, cross-shareholdings and interlocking directorates leave little room for hostile takeovers (Gospel and Pendleton, 2003).

As corporate commitment by employees is larger than in liberal market economies, companies use cross-shareholdings for technology transfer (Streeck, 1995). This collaboration leads to shared R&D. Also, the German government sponsors various research institutions.

The employment relations together with the network-based corporate governance system make a long-term strategy to return on investment possible and German companies most successful in engineering and manufacturing where incremental innovation is essential. As a consequence, however, those companies have a low responsiveness to changing market conditions. Corporations prefer a market-based approach without government regulations, because the more deregulated the market, the more freedom corporations have (Bakan, 2004). Therefore, there are also some companies that have moved towards shareholder value, such as *Daimler-Chrysler*, in that it adopted stock options as the major compensation form for top management. Also, *Deutsche Bank* has no supervisory board mandates in other companies anymore and transformed itself to an investment bank similar to the Anglo-American ones. Obviously, the companies adapting those strategic changes stay within the legal framework which means they still have stakeholders on their supervisory boards and therefore still are closer to stakeholder value than to shareholder value (Aguilera, 2004; Gospel and Pendleton, 2004; Schmidt, 2003). Porter (1992) praises the German system for setting incentives for dedicated capital which fosters long-term investment relations. He argues that the Anglo-American economies focus too much on short-term goals and therefore there is no investment possible for training, R&D and other intangible assets to foster incremental innovation and quality, as explained before. In contrast, the German system fosters those intangible assets and leads therefore to a competitive advantage for many companies.

CEOs are less autonomous than in the United Kingdom. Decision-making responsibility lies in the supervisory board and the management board together. Cross-shareholders, interlocking directors and employees are being represented on the supervisory board and consequently have a direct voice in board decision-making. This shared decision-making process makes the strong focus on stakeholder value clear and suggests that not profit maximisation but ensuring a set of stakeholder interests and strategic business interests apart from pure shareholder value is the main goal. Schneider-Lenne, one of the former executive directors of *Deutsche Bank*, said: "*The objectives of German companies do not stop at maximizing return on investment. The philosophy is based on the concept of the interest of the company as a whole* " which includes all stakeholders (Schneider-Lenne, 1992: 15).

Whereas the United Kingdom focuses mainly on the well-functioning of its financial market, Germany focuses mainly on production. This is evident through the rank in the *World Competitiveness Yearbook*. Whereas the United Kingdom ranks 18th, Germany ranks 9th as the third highest country in Europe after Switzerland (3) and Sweden (5) which are all export-oriented economies. Spain has been ranked 39th, next to Italy (40) and Portugal (41). Germany has the highest export level of the three countries of analysis, suggesting a high competitiveness and a good quality-price ratio (IMD, 2012).

In 2002, Germany passed into law its ‘German Corporate Governance Code’ which is a guide of best practices divided into three categories. The ‘Must’ section is mandatory and refers to German law and the Companies Act [AktG]. The ‘Shall’ section includes the principle of ‘comply or explain’, meaning that the company has to publish its compliance pursuant to Section 161 AktG or the reasons for not complying with the recommendations. The ‘Should’ section states in which cases the company does not publish on its actions (German Corporate Governance Code, 2010). There are no legal sanctions for non-compliance with the second and third parts of the code, but according to scholars, the code loses importance because a large part of it only repeats what is already covered by the Companies Act which is itself already very restrictive (Schäfer, 2004).

Summarising the German system, it can be concluded that the system is characterised heavily by non-market forms and by networks between companies. This kind of economic system is especially suitable for highly diversified quality products, where highly skilled workforce is essential and incremental innovation possible through long-term relations between companies and banks.

5.1.3. Spain

The hybrid model of corporate governance, also called Latin model, is characterised by concentrated ownership, state intervention, and weak labour participation (Aguilera, 2004). It is located somewhere between the liberal market economy and the coordinated market economy. However, it is clearly closer to the Anglo-American model of a liberal market economy than to the German case of a coordinated market economy. The convergence towards liberal market economies is also forced due to the harmonisation of the European Union’s legislation, such as the liberalisation of financial markets (Aguilera, 2004).

To understand the socio-economic system of Spain, we must go back to the 1970s which represent a time of major change in the economic history of Spain. This is the time of the Spanish democratisation after the dictatorial Franco regime. A major initiative was the ‘Moncloa Pact’ of 1977 which tried to convert the economic system of Spain to a liberal market economy through moderation of wages and the elimination of relations between the industry and government. The privatisation process has led to the shareholder capitalism in Spain. Also, labour protection has weakened. State-owned companies have been restructured and privatised in order to cut the deficit of the public sector to comply with the requirements to enter the European Community in 1986. Privatisation, especially in sectors suffering deficits, had led to many job losses. Therefore, many companies have listed on the stock exchange to access easier financing. Individual shareholders

as well as institutional shareholders began to invest in the Spanish market (Aguilera, 2004). The result of those reforms was an increase in GDP growth and lower inflation. These reforms as well as the development of the Constitution of 1978 have enabled Spain to reach a level equal to the other West European countries (Osadnik, 2012; Puig Raposo and Fernandez Perez, 2009). When the 'Spanish Socialist Workers Party' (PSOE) came to power in 1982, they fought state monopolies, such as the telecommunications monopoly. The traditionally highly regulated labour market with high employee protection has been reformed, resulting in a liberalisation through diminished employee rights and benefits in order to push the economy and foster competition. The government weakened working conditions, lowered wages and cancelled unemployment and insurance benefits while giving companies many options for contracting employees on a temporary basis and making it easier to fire them on 'economic grounds' (Hall and Soskice, 2001). The result of the reforms was a significant expansion in private consumption, investments, agricultural exports, wine production, mining, tourism, finance and construction (Aguilera, 2004; Schmidt, 2003).

Existing employment contracts have not been impacted by the reforms. This had led to a division of the labour market into highly protected workforce on one hand and the newly contracted workforce on a flexible temporary basis on the other hand. Temporal contracts became the mostly used form of contracting in Spain leading to job insecurity and short employee tenures. Consequently, there was no use of trainings for employees as companies did not want to invest in training for temporary workers and highly protected employees did not have incentives to undertake some training. This is the reason why Spain has never developed a culture of providing training for employees on a large scale. The result is a lack of highly specialised workforce (Aguilera, 2004). Also, investment in R&D plays no major role as strategic goals do not focus on incremental innovation which would be rather difficult to achieve with no investment in education and training of the workforce (Aguilera, 2004). The system of fostering temporal contracts to combat unemployment is highly criticised as it is argued that investment in training of job seekers would be more advantageous (Aguilera, 2004; Schmidt, 2003).

The Spanish system of collective bargaining is well developed. Agreements on collective bargaining are valid for all workers of a certain industry sector. This differs from other Latin countries. In France, for example, wage bargaining takes place at the firm level. Also, employees benefit from the existence of work councils. The workforce has a voice as all employees of a company vote for the members of the work council. However, the work council is not a body of the board of directors and consequently, the influence employees have on company decisions is not as strong as in Germany (Aguilera, 2004).

Family businesses play a major role in the Spanish economy. Nearly 40% of Spanish multinational companies are run by the founding families. Many of the best-known companies were founded under the Franco regime which was essential as there were restrictions on foreign investments to isolate the Spanish market (Colli and Rose, 2003). Some of the Spanish companies are internationally known such as *Telefonica*, *Repsol YPF*, *Inditex* and *Ferrovial*, *Santander* and *BBVA* (Fernández Pérez and Puig Raposo, 2007; Osadnik, 2012; Puig Raposo and Fernández Pérez, 2008).

The establishment of boards of directors in Spanish companies began in the 1960s. Over time the structures of the board of directors changed, but directors were still passive board members with not much real responsibility. It was more 'window-dressing' and far from being effective. This is not surprising, considering the evolution of the Spanish corporate governance as a third of all family businesses claimed in an empirical investigation of 1997 not to have a board of directors because it would slower decision-making (Ricart *et al.*, 1999). As ownership structure is concentrated and many companies are family controlled, they do want to make decisions without a board. Also important is the fact that most of the executive directors and middle managers did not believe in the efficiency of a board of directors because they considered directors as a 'decorative' part without being helpful. According to Ricart *et al.* (1999), 42% of listed companies had an inactive board of directors. A higher percentage of active members can be noticed in companies not controlled by the founding families. Therefore, it can be concluded that the ownership structure and influence of the founder was the cause of the inefficiency of the board of directors for a long time (Ricart *et al.*, 1999). In recent years, however, the situation has improved towards more active boards.

The Spanish financial system had some similarities with the German system in terms of the major role of banks. Also in Spain, banks were the main source of capital with many cross-shareholdings and interlocking directors between banks and companies. Companies were able to focus on long-term strategies due to the double role of the banks. However, those effects have diminished during the last decades.

The Spanish system of corporate governance has some characteristics of the Anglo-American system and some features of the Continental European system, although the formal structures of the board and the recommendations of the Spanish corporate governance code are closer to the Anglo-American system. Spanish corporate governance applies the principle of 'comply or explain' and follows the recommendations on corporate governance published by the *OECD* and the *International Corporate Governance Network*. The first Spanish corporate governance report – the 1998 Olivencia Report – was an answer to the 1992 Cadbury Report in the United Kingdom, being an indicator for a further shift towards the Anglo-American system.

It was voluntary and focused primarily on the composition of the board of directors and the functioning of the board. In 2003, the second code, the Aldama Report, was published. It focused on transparency and reinforced the importance of the recommendations of the Olivencia Report. In 2005, the Spanish government established a working group that worked together with the Spanish stock market regulator, the *Comisión Nacional del Mercado de Valores (CNMV)*, to update and harmonise the recommendations of both the Olivencia Report and the Aldama Report and to formulate the so-called ‘Unified Code of Good Governance of Listed Companies’ which has been published in 2006 (Aguilera, 2004; Vives, 2007). The new version of the code has been published in 2015 under the new name ‘Good Governance Code of Listed Companies’. The main novelties are the removing of recommendations which have been incorporated into law as well as the inclusion of a new set of recommendations on corporate social responsibility (Good Governance Code of Listed Companies, 2015). As a summary of the previously explained, figure 11 contrasts the main factors of shareholder capitalism and stakeholder capitalism.

Figure 11: Comparison of the main differences between shareholder capitalism and stakeholder capitalism

	Shareholder capitalism	Stakeholder capitalism
Financial market	<p>Flexible financial market with no state intervention</p> <p>Widely dispersed ownership structure with mainly private households and portfolio investors</p> <p>Main goal is maximising shareholder value, consequently, companies have to keep the share price high</p>	<p>Network-based economy through networks between companies as well as between companies and banks with the main goal of maximising stakeholder value</p> <p>Concentrated ownership structure with a few strategic investors being a correction mechanism for the market of corporate control</p>
Main strategic goal	Focus on profitability through having narrow financial objectives in the short-term in order to keep shareholders and prevent hostile takeovers	Focus on market share through broader strategic objectives in the long-term allowing to make long-term investments
Product market strategy	<p>To keep the share price high, companies invest in machinery for mass production, leading to inflexible production and leaving no room for investment in R&D or major process innovation</p> <p>Focus on radical innovation as adaptability to changing market conditions is high, for example, IT is a suitable industry</p>	Long-term capital provided by banks, long-term investment in R&D, machinery and workforce training leads to high quality production and incremental innovation, for example, engineering industries are suitable
	Those differences in product market strategies lead to differences in the strategic decision-making on the board as well as on decisions regarding employment relations	
Labour market	A flexible labour market is suggested to bring about the best benefit for all market players	Training programs are provided by companies on a regular basis. Apprenticeships are financially supported by the state leading all in all to a highly specialised workforce

Source: Adapted from: Aguilera, 2004; Gospel and Pendleton, 2004; Hall and Soskice, 2001; Schmidt, 2004.

5.2. The board of directors in the United Kingdom, Germany and Spain

To understand boardroom decision-making and the differences between theory and reality, the next step is the explanation of the structures of the boards of directors in the United Kingdom, Germany and Spain.

5.2.1. The board of directors in the United Kingdom

The board structure in the United Kingdom is a one-tier board structure which means that managing directors and non-executive directors together form the board. The board's main role is to monitor the actions and behaviour of the executive directors in order to minimise the likelihood of power abuse by them (Goyal and Park, 2002).

The role of the audit committee is to report to shareholders on the financial situation of the company and the appointment of the external auditor. In order to perform its functions properly, at least one member with expertise and experience in accounting and finance is required. In addition, the 'UK Corporate Governance Code' recommends an accounting and finance training for all members (The UK Corporate Governance Code, 2010). The nomination and remuneration committee, also consisting entirely of independent directors, is required to appoint and replace board members and to publish detailed information about each director's performance and the remuneration schemes. The objective is to minimise the possibility of power abuse by the executive directors in terms of control over their own compensation (Tricker, 2009).

Scholars suggest the development of a sophisticated internal control system that allows to control the actions and behaviour of senior management through policies and procedures supporting the monitoring and internal audit task (Atrill and McLaney, 2008).

In order to understand not only the theory of the decision-making process on the board of directors, but also how decisions are made in practice, it is important to analyse compliance with the 'UK Code of Corporate Governance' (2010). Overall, the United Kingdom is the European country that most complies with its code (Heidrick & Struggles, 2011). 97% of the companies listed on the London stock exchange have clearly implemented the assessment of risk management matters in different ways, for example, within the audit committee or in a separate risk management committee (Spencer Stuart, 2011a; Spencer Stuart, 2014a; PricewaterhouseCoopers, 2011a).

In terms of board composition, it is notable that 98% of the listed companies follow the recommendation of the code to separate the functions of CEO and chairman (Heidrick & Struggles, 2011; Spencer Stuart, 2014a). Since the first recommendation in the Cadbury Report in 1992, almost all companies have a majority of independent directors on their boards.

The low participation in board meetings and the low opposition to the decisions made by the executive directors are claimed to be the major reason that had led to the financial crisis of 2007. Since then, the companies in the United Kingdom focus much more on the participation of non-executive directors and try to foster debate in board meetings. Consequently, the number of board meetings has also increased to an average of six to eight meetings per year (Spencer Stuart, 2014a).

On average, boards of listed companies in the United Kingdom had nine members in 2011. In 2014, average board size increased to 10,5 members. The percentage of non-executive directors dropped from 71% in 2012 to 63% in 2014 (Spencer Stuart, 2014a). The average rotation of independent directors increased slightly from every 4,7 years on average in 2012 to 4,2 years in 2014, complying with the recommendation of the code of a rotation after maximum nine years (Spencer Stuart, 2011a; 2014a).

The evaluation of the chairman takes place annually in 72% of the companies listed on the London stock exchange. The 'UK Corporate Governance Code' recommends an external evaluation of the board to achieve more objectivity. However, in 2011, only 23% of companies used external consultants (Spencer Stuart, 2011a). There has been a notable increase as in 2014, 40% of companies used external consultants for the board evaluation process, 60% used only internal resources (Spencer Stuart, 2014a).

Average age was in 2014 59,3 years for non-executive directors and 52,4 years for executive directors (Spencer Stuart, 2014a).

Summarising and analysing the above said, some conclusions about boardroom decision-making in the United Kingdom can be drawn: the Anglo-American system is based on agency theory and its main objective is the maximisation of shareholder value. To align the interests of executive directors with those of shareholders, executive directors are compensated to a large part with stock options. The free market economy and the culture of short-term investment in the stock market define the 'casino capitalism' of the Anglo-American world. To meet the expectations of shareholders, to prevent hostile takeovers and to increase the own benefit through the compensation in stock options, the board of directors has to focus its decisions on a steady rise in the share price. Investments in R&D and other large costs that could lead to better long-term earnings are often refused to make in order to keep the share price high. Also, other expenditures

have to be kept at a low level so that frequent trainings for employees on a large scale are not common. Whereas many governments in Europe often take actions to save companies from bankruptcy, in the Anglo-American liberal market economies government intervention is rare. Networks between companies as well as between companies and banks are not common either, therefore, the main source of financing is the stock market. Private households commonly invest in stocks so that ownership structure is dispersed. Due to the self-regulating market, trade unions have not much power and therefore employee protection is not as high as in coordinated market economies leading to lower wages and employee benefits. The consequence is that highly diversified products are uncommon. Companies focus on mass production where highly specialised workforce is not crucial. The system is especially suitable for service companies where radical innovation is possible so that companies can respond rapidly to changing market conditions. As agency theory assumes opportunism by executive directors, supervision of the executive team is the most important board role in Anglo-American corporate governance. Although the system of corporate governance seems efficient with all its internal controls, according to the way directors are appointed, the system does not work adequately as 'independence of mind' in the decision-making process cannot be assured. This is consistent with the widely accepted argument that many of the corporate scandals could have been prevented if independent directors had questioned decisions of the executive directors. Also, the question arises whether or not independent directors are effective monitors because they do not have a real motivation to monitor in contrast to proprietary directors in Spain or the German supervisory board which consists of shareholder representatives and employee representatives.

5.2.2. The board of directors in the Germany

The German system focuses on stakeholder theory. The ultimate goal of German companies is the welfare of the company as a whole, not the welfare of shareholders as is the case in the Anglo-American system, taking into account the interests of the major stakeholders – shareholder and employees. The German system is characterised through a two-tier board which means that each listed company has two separate boards, the management board and the supervisory board. While the management board consists entirely of executive directors with the CEO being the leader, the supervisory board consists of 50% of employee representatives (at least one manager and two or three union representatives)¹⁶ and 50% of shareholder representatives. The supervisory board must supervise as well as appoint or dismiss the management board members. Also, the supervisory board appoints members of the audit committee and other

¹⁶ 50% of employee representatives are required in case the company has more than 2000 employees.

established committees. These committees represent subcommittees of the supervisory board and consequently are entirely independent (Tricker, 2009). The audit committee must have at least one member with sufficient knowledge and experience in accounting and finance to make appropriate decisions. In addition, it must report to the supervisory board which is common in all countries that have a two-tier board. Furthermore, it is recommended to establish a nomination committee consisting only of shareholder representatives whose responsibility is suggesting suitable candidates for the supervisory board (German Corporate Governance Code, 2010). Employee representatives are elected by all employees of the company, indicating the strong stakeholder perspective in Germany (German Corporate Governance Code, 2010). The supervisory board has the responsibility to monitor the actions and decisions of the management board, therefore the management board requires the approval of the supervisory board for important decisions. This ensures shared decision-making through taking into account not only the interests of shareholders but also the interests of employees.

Due to the representation of shareholders and employees on the supervisory board, it is criticised that decision-making is not efficient because of the large size of the entire two-tier board. In 2011, the average board size was 17,1 members. In 2014, the average board size of management and supervisory board increased to 19 members (Spencer Stuart, 2014b). The European average is 12,1 members and the recommendations of the codes suggest a maximum of 15 members (Heidrick & Struggles, 2011). However, a size reduction would mean a decrease of 'co-determination'. Moreover, it is argued that negotiations between the boards lead to better, fairer and more appropriate decisions. An example is when a company wants to close a factory. Having a supervisory board offers the advantage that it monitors and analyses whether the decision made by the board of directors is really needed. This way, it can be assured that directors do not make decisions that only favour themselves. There is much evidence of cases indicating the power of employees to block decisions of the board that would be disadvantageous for them. In most cases, these decision proposals have been dismissed by the supervisory board. Known cases of companies that wanted to close their factories in order to produce in other countries at lower costs are *Opel* or *Nokia*. In both cases, the supervisory board dismissed the decision proposal. Another example of the employees' power is that although there was no statutory minimum wage until 2015, unions have established a similar system to the minimum wage which puts pressure on companies to pay their employees properly. Apart from this, many companies, such as *Volkswagen*, have their own minimum wages that are higher than the demanded ones by the unions. The disadvantage in the German system is that 'co-determination' can also lead to conflicts of interest due to the variety of interests represented. For example, *Lufthansa* faced problems when an employee board member who was also a union member called for a strike.

This case shows the conflict of interest that exists in many instances of this system (Charkham, 2005; Osadnik, 2012).

Most German companies have major shareholders which in many cases are the founding families or large institutional shareholders, having the capacity and financial resources to monitor and go against decisions of the management board. Due to the large amount of voting rights, the founding families, bank shareholders and other institutions can elect board members to act in their interest. This leads to conflicts of interest between major shareholders and minority shareholders. Complex cross-shareholdings and pyramid structures are very common in Germany which explains the reasons for the relationship between companies and an almost non-existent market for corporate control (La Porta *et al.*, 1999). However, through the cross-shareholdings, other companies are represented on the supervisory board and also commonly involved with them in product development and joint research. Thus, companies that are within these business networks earn much inside information which could encourage social engineering.¹⁷ The same criticism applies to banks represented on the supervisory board. Criticism also arises as those cross-shareholdings are an indicator for the lack of independence. The dual role of banks in German corporate governance makes them shareholders and creditors at the same time. The 'Law of Transparency and Control' was passed into law to improve transparency and independence of the supervisory boards through the prohibition of complex cross-shareholdings in the German economy, the so-called '*Germany Inc.*' (Charkham, 2005; Krempel, 2008).

In Germany and some other European countries, retiring CEOs are frequently appointed as chairmen of the supervisory boards after a 'cooling off period' (60% in 2011; 41% in 2014) which is a two years break mandatory by law (Heidrick & Struggles, 2011; Spencer Stuart, 2014b). The legislation approved this rule to increase the independence of the former executive directors on the supervisory board. In 2011, 70% of the supervisory boards in Germany had one or two former executive directors of the same company. In 2014, only 41% of the companies had one or two former executive directors on the board, suggesting a major improvement in formal board independence (Spencer Stuart, 2011b; 2014b). 81% of executive directors had no mandate in another company in 2012. In 2014, only 68% had no mandate in another company (Spencer Stuart, 2011b; 2014b). The turnover of supervisory board members increased from 6,9 years on average in 2004 to 5,6 years in 2014 (Spencer Stuart, 2011b; 2014b). In 2011, the rotation of the chairman took place every 4 years on average in 63% of the listed companies and between 5 and 8 years in 28% of the listed companies. In 2014, on average rotation took place after 5,4 years. In 2011, chairmen had on average 2,8 mandates in other companies which increased to 3,2 in 2014 (Spencer Stuart, 2011b; Spencer Stuart, 2014b; Osadnik, 2012).

¹⁷ Social engineering is the use of social interactions to obtain (inside) information.

On average, board evaluation takes place every two years in 35% of listed companies and in 44% of listed companies even yearly, as recommended by the 'German Corporate Governance Code'. An external consultant is hired by 23% of the companies, having increased from 8% in 2004. The 'German Corporate Governance Code' recommends the supervisory board to focus 50% of its work on the control role and 50% on the advisory role of the board. Practice, however, shows that companies have two-thirds of control workload and only one-third of advisory workload (Spencer Stuart, 2011b; Spencer Stuart, 2014b; Osadnik, 2012).

The retirement limit for supervisory board members is 75 years in 40% of the companies and between 70 and 74 years in 35% of the companies. Average age on the board is 61 years. In 56% of the companies, members are between 60 and 70 years old, in 41% of the companies, members are younger (Spencer Stuart, 2014b).

Summarising the above suggested arguments, some conclusions on German boardroom decision-making can be drawn: the main objective of the German system is the company's long-term welfare, not only in financial terms but also in human and technological terms. The German system is characterised by its focus on stakeholder theory and its coordinated market economy. State intervention to combat monopolies and cartels as well as saving companies from bankruptcy are common. The companies' main source of capital is not the stock market. Rather capital is provided by banks holding mandates on the supervisory board. Banks as strategic investors provide companies with the advantage of being able to focus on long-term strategies allowing investments in R&D, machinery and technology as well as for continuous training for the workforce on a large scale. This system leads to highly skilled workforce, highly diversified products and a market specialised in industries in which incremental innovation is necessary, such as engineering and manufacturing industries. Companies have implemented the two-tier board system with separate boards of executive directors in the management board and non-executive directors in the supervisory board whose main responsibility is to monitor the behaviour and decisions of the executive directors while representing interests of shareholders and employees. Because the supervisory board is composed of 50% of shareholder representatives and 50% of employee representatives, the German system ensures joint decision-making. However, the decision-making process may be slower than in the Anglo-American system as there are more parties involved. In many cases, joint decision-making has ensured that the best decision for shareholders and employees was chosen, not the best decision for the executive team's welfare. Criticised as a disadvantage of 'co-determination' is that conflicts of interest may arise. Compliance with the code is appropriate. One important reason is that critical recommendations to the proper functioning of corporate governance are repeated from inflexible laws, such as the 'cooling off period' (Heidrick & Struggles, 2011; Spencer Stuart, 2011b).

5.2.3. The board of directors in the Spain

The board structure in Spain is a one-tier board structure, following the Anglo-American system. The Spanish system is characterised by a high concentration of ownership. The boards of directors are composed not only of executive directors and independent directors but also of proprietary directors representing the interests of significant shareholders. The ‘Good Governance Code of Listed Companies’ (2015) recommends that the majority of the board should be non-executive directors (Good Governance Code of Listed Companies, 2015).

To establish structures that lead to a good quality of decision-making, the Spanish code leans on the Anglo-American system and supports board diversity in terms of educational background, experience, age and gender in order to stimulate conflict. Board members must primarily monitor decisions and actions of executive board members and fulfil their fiduciary duties that fall into the duty of care and the duty of loyalty, equally to the United Kingdom (Landefeld and Hoskins, 2009). The executive team must meet the objectives set by the board of directors, following the strategy and respecting the common interest of shareholders which is the maximisation of shareholder value. Another responsibility of the executive directors is to respect the laws and regulations in general and in particular in relations with all its stakeholders, fulfilling obligations and contracts in good faith (The ‘Good Governance Code of Listed Companies’, 2015).

The responsibility of the board secretary is to facilitate the proper conduct of meetings, to check and maintain the necessary information and to advise directors on issues of good governance as well as internal and external regulations. Unfortunately, for a long time the role of the board secretary has not been appropriately valued as the majority of companies has considered this position exclusively for administrative functions such as verifying compliance with corporate governance codes and preparing as well as organising board meetings, yet the board secretary’s technical knowledge is usually good enough for advisory roles in corporate governance issues. In the last decade, companies have begun to give more value to the role of the board secretary and assigning more functions to him or her, such as advisory of the board on corporate governance or communication with shareholders (Gregory, 2012; Heidrick & Struggles, 2011). Although the secretary is not necessarily a board member with voting rights, his or her appointment and retirement should be suggested by the nomination committee and approved by the board to reinforce independence. On average, one out of two European companies has a board secretary. In the United Kingdom every company has one, while none in Germany, Norway, Denmark and Austria has it. Spain has the third highest number with 69% (Heidrick & Struggles, 2011; Osadnik, 2012). The separation of the roles of the CEO and the chairman remains a major issue in corporate governance worldwide due to its advantages and disadvantages. While the *Olivencia*

Report recommends a separation in order to prevent giving too much power to one single person (although it clearly mentions the advantages of the accumulation of roles), the Aldama Report and the 'Good Governance Code of Listed Companies' see no need for recommending that separation. The 'Good Governance Code of Listed Companies', however, recommends in the case of accumulated roles to appoint one of the independent directors as lead director who takes part in setting the agenda and the evaluation of the executive chairman. The main responsibility of the chairman is to achieve the functioning of the board through leading board meetings, developing the agenda, taking care that the information reaches all directors in due time (Good Governance Code of Listed Companies, 2015).

The 'Unified Good Governance Code of Listed Companies' defines independent directors in detail with a list of criteria (2006:48-49). The responsibility of independent directors is to monitor the behaviour and actions of the executive directors in order to reduce the likelihood of moral hazard. According to the Olivencia Report (1998) independent judgment, evaluation capacity and authority are expected in order to prevent conflicts of interest. The Commission Aldama (2003) states that shareholders and experts surveyed *"expressed some interest in the idea of independent directors, but doubted that they would really be independent in practice"* (Aldama, 2003: 10). This occurs due to, for example, human greed, lack of incentives or psychological issues leading to negative board dynamics as clarified in Chapter 3 and Chapter 4. The 'Good Governance Code of Listed Companies' (2015) therefore recommends the existence of a nomination committee. To be effective, the nomination committee should be formed exclusively of external directors. Olivencia (1998) argues that the presence of executive directors diminishes the credibility of the information leading to poor decision-making. Companies have also proprietary directors on the boards. They represent a stake equal to or greater than three percent. In such cases, they are considered significant shareholders, being able to control the company. They should not have commercial or professional relationships with the company, or if so, they have to be published (The Unified Code of Good Governance of Listed Companies, 2015).

Also important to ensure sound board decision-making is the assessment of the board as a whole and that of each director. As a best practice it is recommended that at least every two years a detailed assessment of the board should be done, reviewing its composition, performance, and behaviour. The evaluation should not focus only on the processes and structures of the board, but also on the diversity of the team, the behaviour of members as well as their interactions and especially the effectiveness of the chairman (Heidrick & Struggles, 2011).

Initially the Madrid Stock Exchange recommended the establishment of an audit committee. Olivencia (1998) took this idea to its report and since 2002 members must be external and the chairman must be independent. The Aldama Report (2003) reinforces the independence

of the audit committee and argues that members of the audit committee must have sufficient knowledge and experience in accounting and finance. The audit committee has several important roles: “*report to the general meeting; supervise the efficiency of internal control, the internal audit function, risk management systems and the drawing-up and presentation of mandatory financial statements; propose the selection, appointment, re-election and replacement of the external auditor and supervise its independence*” (Good Governance Code of Listed Companies, 2015:34).

The ‘2013 Corporate Governance Report on companies of the IBEX35’, published annually by the Spanish stock market regulator (the *Comisión Nacional del Mercado de Valores*, CNMV) indicates that the IBEX35 companies comply on average with 85,4% of the recommendations published in the ‘Good Governance Code of Listed Companies’ (CNMV, 2013). In the year 2012 boards complied with 91,6% of the recommendations (CNMV, 2012).

In 2013, the boards of directors of the IBEX35 companies had on average 13,3 members which meets the recommendation of a maximum of 15 members. In 2012, average board size was 14, suggesting a decrease in board size (CNMV, 2012; 2013).

In 2013, 16,7% of the directors were executive directors, 45,1% were independent directors, 31,1% were proprietary directors. The remaining 7,1% is referred to as ‘other external directors’ (CNMV, 2013). In 2012, on average, 42% were independent directors, suggesting a raise in board independence (CNMV, 2012). Only in four of the IBEX35 companies, more than 65% of directors were independent. In 18% (6 companies) of the IBEX35 companies, less than 33% of directors were independent. In 2012, 68,6% (11 companies) had less than 33% of independent directors on the board, making a notable improvement in compliance with the recommendation on independence, although the level keeps being too low (CNMV, 2012; 2013). 65,7% of IBEX35 companies had executive chairmen (CNMV, 2013). 44% of the 65,7% with executive chairmen had nominated a lead director. In the United Kingdom, 98% of FTSE100 companies had independent chairmen. Interesting is that the percentage of executive chairmen in Spain is almost stable over the years, while in the United States, the United Kingdom and most other countries the percentage is decreasing rapidly (CNMV, 2013). In 2012, 69% (24 companies) had executive chairmen (CNMV, 2012). According to Spencer Stuart (2014c), 81% of the IBEX35 companies admit that they did not spend enough time debating on strategic issues in their board meetings. Strategic advice keeps being a minor task.

Female directors make 16,7% of total directors of the IBEX35 companies. 91,4% of IBEX35 companies have at least one female director on the board (CNMV, 2013). This is an increase as in 2012, female directors made 13,5% of total directors (CNMV, 2012). In 2012, 10

companies had set a retirement age for directors. The highest retirement age set is 80 years, the lowest is 65, with an average of 71 (CNMV, 2012).

Independent directors served on average shortest on the board comparing to the other directors. Whereas independent directors served on average 5,2 years on the board, proprietary directors served on average 8,3 years and executive directors had the longest tenures with an average of 9,8 years (CNMV, 2013). However, 44% of the IBEX35 companies had at least one independent director who served more than the recommended 12 years on the board. 14% of all independent directors on IBEX35 boards served longer than 12 years (Spencer Stuart, 2014c). In 2012, 40% of the IBEX35 companies had independent directors who served longer than the recommended maximum of 12 years, suggesting a slight improvement (CNMV, 2012).

77% of the IBEX35 companies did not offer induction programs for directors. None of the IBEX35 companies offered continuous training for directors. It is argued that each director has the right to ask for training if needed, however, the company itself does not force directors to undertake training (Spencer Stuart, 2014c).

Disclosure of the information on directors is very general and vague, allowing secondary connections of the directors with the company being unnoticed. Spencer Stuart (2014c) analyses for example that 78% of independent directors have been appointed after the approval of either the chairman or a major shareholder. Only 22% of independent directors have been appointed the official way through the nomination process of the nomination committee (Spencer Stuart, 2014c).

Summarising the above clarified, there can be drawn some theoretical conclusions on boardroom decision-making in Spain. The main objective of the Spanish system is the maximisation of shareholder value, but unlike the Anglo-American system, Spain also takes into account the interests of other stakeholders. Significant shareholders hold board mandates and therefore they are directly involved in the decision-making process. This participation is important in Spain because the Spanish socio-economic system is defined by its many family businesses over which the founding family wants to keep control. The interests of minority shareholders are represented by the independent directors who should represent at least one third of the entire board. Unfortunately, this is not the case in 18% (6 companies) of the IBEX35 companies (Spencer Stuart, 2014c). The board's main responsibility is to monitor the behaviour and actions of the executive directors so agency problems are minimised. Independence is still one of the most remarkable problems in Spanish companies as the process of nomination and rotation is far from being optimal. As mentioned in Chapter 3, director independence cannot be assured, however, at least a sustainable system should be established to minimise the risk of the lack of 'independence of mind'. Another problem is the board's involvement in strategic decision-making (Spencer

Stuart, 2014c). However, according to *Spencer Stuart*, there are some aspects which improved in comparison to the last years: the flow of information between executive directors and non-executive directors has improved significantly, so non-executive directors have a better starting point for preparing adequately for board meetings. Audit committees operate more efficiently, and the board is more involved in risk management (Spencer Stuart, 2014c). Since the first report was published, compliance was very low and it seems that companies complied only with recommendations to improve their image without the intention of improving the governance of their businesses (Bilbao Calabuig and Rúa Vieites, 2007). However, in the last years, an improvement has been noticed. Compliance with the code has reached 85,4%. Spain has established its code according to recommendations in the United Kingdom. Unfortunately, cultural differences have not been paid attention to and consequently, they have not been incorporated in the code. As mentioned earlier in this chapter, it is improbable that an one-size-fits-all approach to corporate governance can work adequately. The historical and cultural background has to be taken into account in the establishment of corporate governance systems in order to make them work effectively. Also, the formation of active boards of directors is quite new and many companies still see no need in establishing one, especially where the founding family is the controlling shareholder. Consequently, Spanish companies focus less on independence and separation of CEO and chairman than, for example, companies in the United Kingdom. All in all, it can be concluded that cultural differences make a significant part in the lack of compliance in some of the recommendations, suggesting the need to adapt corporate governance regulations to the national context. However, much has improved already and therefore further improvement in the following years is probable. Figure 12 summarises the main differences between the systems in the United Kingdom, Germany and Spain.

Figure 12: Overview of main differences between the three main corporate governance systems

	Anglo-American corporate governance	European corporate governance	
	Anglo-American model	Continental European model	Hybrid model
Perspective	Shareholder	Stakeholder	Intermediate, some countries are closer to the shareholder model, others to the stakeholder model
Company's ultimate goal	Maximisation of shareholder value	Maximisation of stakeholder value	Intermediate, some countries are closer to the shareholder model, others to the stakeholder model
Board of directors	One-tier board	Two-tier board	Some countries allow only one-tier boards, others only two-tier boards, others allow both or have even more options of board structures
Board leadership style	CEO is autonomous	Consensus-based, active participation of main stakeholders in the decision-making process	Intermediate
Ownership structure	Dispersed ownership	Concentrated ownership (founding families, significant shareholders, cross-shareholderings, banks as shareholders)	Concentrated ownership (founding families, significant shareholders, cross-shareholderings, banks as shareholders)
Examples of representative countries	United States, United Kingdom, Ireland	Germany, the Netherlands, Denmark, Sweden, Norway	Spain, Italy, France, Belgium

Source: Adapted from Bilbao Calabuig (2003).

In Chapter 5, cultural differences have been addressed between the three countries of analysis of this doctoral dissertation: The United Kingdom, Germany and Spain. The socio-economic systems have been clarified as they have led to the establishment of different corporate governance systems. Whereas the United Kingdom has a clear shareholder value perspective, Germany integrates stakeholder interests strongly in the board decision-making process by establishing a two-tier board with both shareholder representatives and employee representatives. Spain has followed the Anglo-American system in establishing its corporate governance recommendations, however, taking stakeholders into account to some extent. It has been explained how boards of directors function in each country, what the theoretical tasks are and how they work in practice (as demonstrated by the analyses on compliance with the code).

The differences emerging due to the different systems make it interesting to study also for international differences in this empirical research. There is some theoretical research on cross-cultural corporate governance (Aguilera, 2004; Aguilera and Jackson, 2003; Clarke and Chanlat, 2009; Licht, 2000; Schmidt, 2003). Empirical research on board behaviour can be found only sporadically. The little empirical research on board behaviour carried out focuses mainly on

companies in a specific cultural context. For example, Minichilli *et al.* (2009) study the factors of board task performance and board effectiveness of the 2000 largest Italian industrial companies, Huse (2007) conducted a widespread study on the boards of directors of Norwegian companies called 'The Value Creating Board'. Wan and Hoskisson (2003) study corporate diversification in different West European countries. Li and Harrison (2008) carried out an empirical study on 399 one-tier boards of directors multinational companies in 15 countries. The authors study the relationship of national culture and board composition as well as leadership structure. However, they focus on formal and directly measureable factors, such as CEO duality, insider-outsider ratio and gender, combining them to Hofstede's (1980) four dimensions of national culture (uncertainty avoidance, individualism/ collectivism, masculinity/ femininity, power distance). The only study found on the link between national cultures and board effectiveness measured through behavioural factors of board members is the one carried out by Minichilli *et al.* (2012). The authors empirically test the theoretical model established by Forbes and Milliken (1999) in both the Scandinavian (Norway) and the Latin (Italian) cultural context. Further empirical studies on board behaviour have not been found although there are calls for more empirical cross-cultural studies on board behaviour (Gabrielsson and Huse, 2004; Huse, 2005). Consequently, there is a need to empirically study both board behaviour in general and board behaviour in different national contexts which is the reason this doctoral dissertation is trying to bring more light into both fields.

With the following Chapter (Chapter 6) the empirical part of this doctoral dissertation begins. Chapter 6 combines the formal (Chapter 3) and informal characteristics (Chapter 4) of the board of directors in order to establish a measurement model.

CHAPTER 6: RESEARCH DESIGN AND METHODOLOGY

“A research design is the logic that links the data to be collected and the conclusions to be drawn to the initial questions of study.” (Yin, 2001:18)

Considering the above citation by Yin, it is the methodology that is the heart of any research. Therefore, this chapter is dedicated to define and explain in detail the methodology designed and applied in this doctoral dissertation. This includes the idea behind this study, the establishment of hypotheses to test, the companies selected to study, the definition and selection of the variables, the data gathering process, as well as the selected statistical methods of this quantitative study and the reasons for selecting them. The results of this empirical study are presented in the next chapter (Chapter 7).

6.1. The goal of this empirical study

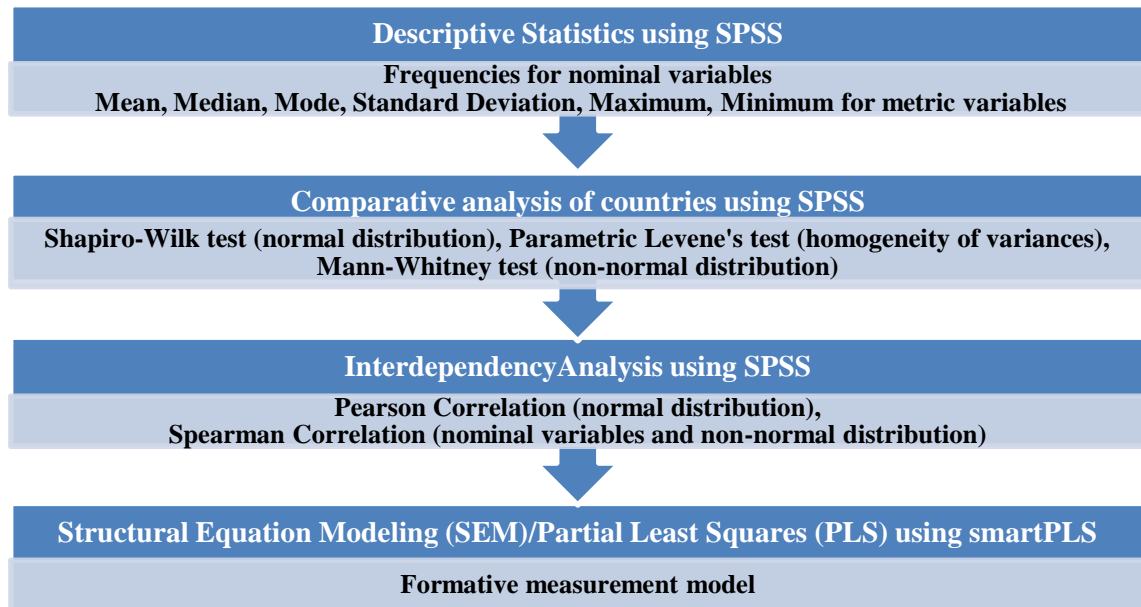
The goal of this empirical study is bringing more light into the field of boardroom behaviour as it is still a new field of research and although there are many calls for more research, both theoretical and empirical studies in this area are still rare (Clarke, 1998; Huse, 2005; 2007; Leblanc and Schwartz, 2007; Pettigrew, 1992). Recently, it has been noticed that *“corporate governance researchers have not searched: (i) in the right place, (ii) at the right time; or (iii) with the right equipment”* (Leblanc and Schwartz, 2007:843-844). The authors refer to the fact that corporate governance research has failed to appreciate behavioural characteristics in a long time. Therefore, now the time has come to start focusing on boardroom behaviour and board dynamics by understanding board processes. This means that personal interrelations between board members, interrelations of the board and management and how the board actually makes

decisions need to be understood in order to be able to define characteristics of board effectiveness (Leblanc and Schwartz, 2007). Heracleous (1999) states that empirical studies carried out in the field of corporate governance and group dynamics should be of qualitative nature. He claims that those qualitative research results are important in order to be able to use them in a quantitative way which is exactly what this doctoral dissertation is trying to do. The rationale behind this, is that empirical studies on boards of directors are necessary to establish valid theories on this specific kind of groups. Without those theories, the 'black box' will not be opened and effective corporate governance will not be possible to establish. Leblanc and Schwartz (2007) recognise this importance. However, they also claim: *"Although 'board process' has been identified as a critical element for future corporate governance research, gaining access to corporate boardrooms is extremely difficult if not virtually impossible for most researchers"* (Leblanc and Schwartz, 2007:843). The reason for the difficulty of obtaining sufficient valid data is that corporate directors deal with highly confidential corporate information. Leighton and Thain (1997:p.xv) explain the problem as follows: *"Few aspects of business are so inaccessible to the outsider: boards operate with virtually complete confidentiality. Most boards today number two or at most three "insiders" – the CEO and perhaps the president and chief financial officer – among their ranks; the rest are, to varying degrees, 'independents'. Their deliberations are conducted behind closed doors, and their decisions are normally ratified by unanimous votes and reported when required through a single spokesman, very much like a cabinet in the political sphere. There are good reasons for this, not the least being the danger of giving away competitive advantage or disclosing premature or misleading information that could affect the decisions of investors"*. They go on: *"Social science research – which is what governance research is – is difficult and tentative enough without the complications introduced by virtually complete confidentiality about the way the research subject works, and the consequent lack of knowledge on the part of the researcher"* (Leighton and Thain, 1997: xv). Another reason is that corporate directors are considered to behave differently when an observer takes part in the meetings (Leblanc and Schwartz, 2007). Interviewing directors is not a much better solution either because response rates are very low as corporate directors fear the possibility that sensitive corporate information might leak out. Also, the probability of receiving honest answers to all questions is low because corporate directors do not want to talk neither about sensitive information nor about problems in their board processes as this might attract (negative) attention and require changes that boards might not desire.

Due to this lack of knowledge in the field of boardroom behaviour, the intention of this doctoral dissertation is to fully focus on non-sensitive information which has to be disclosed by the companies in their annual reports due to stock exchange listing rules. This information refers to their boards' formal structures. It is the purpose of this dissertation to use this information to

get more insight into boardroom behaviour by connecting this information to the behavioural characteristics – the informal structures – that have already been studied by previous researchers and that have been explained in Chapter 4. Figure 13 summarises the quantitative methods applied in this doctoral dissertation.

Figure 13: The quantitative methods applied



The following paragraphs focus on the clarification of the connections theoretically established between formal and informal characteristics according to literature which have been compiled in Chapter 3 and Chapter 4. Corresponding to the connections, hypotheses are established which are to be empirically tested in this study.

6.2. Hypotheses

Figure 14 is a summary of the key theoretical considerations which build the base for the establishment of the research hypotheses.

Figure 14: Key messages for the hypotheses setting

Authors	Key message	Formal concepts involved	Informal concepts involved
Forbes and Milliken (1999); Nielsen and Huse (2010); Roberts <i>et al.</i> (2005); Sundaramurphy and Lewis (2003)	Monitoring and advisory/ operational control and strategic control are the main board roles that lead to board effectiveness Control and collaboration/ trust and distrust A strong culture (sociability) is important in order to foster openness and the use of knowledge	Meetings Away-days Training Diversity Accumulated formal power	Strategic control Operational control Cohesiveness Know-How
Maharaj (2008)	Knowledge (diversity), groupthink (negative board dynamics) and values (cohesiveness) as the 3 pillars of board behaviour	Diversity Away-days Meetings Training	Groupthink Herding Social loafing Pluralistic ignorance Cohesiveness Know-How
Forbes and Milliken (1999)	Cohesiveness fosters the use of knowledge which is the key to effectiveness. Due to cognitive biases, it cannot be assumed that independent directors use their knowledge	Diversity Away-days Meetings Training	Groupthink Herding Social loafing Pluralistic ignorance Cohesiveness Know-How
Lawrence (1997) Williams and O'Reilly (1998) Jackson <i>et al.</i> (2003)	Surface diversity has no direct impact on effectiveness; human cognitive diversity has a direct impact on effectiveness. Literature suggests that some subgroups of education have an effect on operational control whereas others have an impact on strategic control, however, they are suggested to have different effects which is why an overall diversity level (using for example, Blau's index) should not be used. Some surface diversity attributes may have a direct impact on effectiveness when seen through the – for example – resource dependence lens (providing access to certain important resources)	Diversity	Operational control Strategic control Cohesiveness Know-How

Some comments on the process of hypothesis building:

- For the purpose of this study, this doctoral dissertation uses only the educational background as a factor of deep diversity. This aspect is supposed to have a stronger impact on effectiveness than functional background. Functional diversity focuses on the function or profession a director is performing and it is more vulnerable to social categorisation. Educational diversity on the other hand is not easy to observe. In fact, education is an attribute someone has to ask for in order to know the field of education of another director. Also, it is suggested that educational background decides on the way information is processed. Therefore, educational diversity is a 'purer' indicator of deep

diversity and a more adequate variable for this empirical study on diversity (Dahlin *et al.*, 2005; Williams and O'Reilly, 1998).

This doctoral dissertation does not use a diversity index to measure the overall educational diversity as literature suggests that different kinds of educational backgrounds could have different kinds of impacts. Consequently, educational backgrounds are grouped into categories which are found to be appropriate for measuring the impact in this specific study and used separately in different constructs.¹⁸ Another reason for not using a diversity index in this case is that the impact of each category can be analysed. Summarising the above said, in order to foster cognitive conflicts (which is the reason diversity is considered such an important aspect of board effectiveness or performance), it is pointless to use all diversity aspects grouped into an index and give them the same weight. Rather, theoretical considerations have to be made to place each of the aspects in the right construct by making connections consistent with theory.

- The functional competence needed on the board should be analysed beforehand for each specific board context. Business-related competences such as finance, accounting, or marketing as well as competences in legal matters are needed in every board as they are the core for every company (Huse, 2007). In order to analyse the sample companies on a general basis – independent of the company-specific context – only business-related and legal educational backgrounds are used in this empirical research for analysing the functional competence. Furthermore, backgrounds with no university degree as well as university degrees others than economics, law, other sciences and humanities are analysed for as it is believed that those backgrounds have a negative effect. A detailed explanation on the reasons is provided further on.
- According to an empirical study conducted by Huse (2007), board task performance – which is what board effectiveness is all about – is explained most by the factors exposed in figure 15:

¹⁸ A construct is a latent or unobservable variable that is composed of indicators or observable variables which explain the construct (Ringle, 2004; Weiber and Mühlhaus, 2014). The process of the construct conceptualisation and construct operationalisation is explained later on in this chapter. See figure 29 for the constructs established in this empirical research.

Figure 15: Board task performance according to Huse (2007)

Huse (2007)	This empirical study
Firm-specific knowledge	Economics and business-related backgrounds Legal background
Away-days	Away-days
Openness	Part of cohesiveness, studied through the existence of away-days, the existence of induction and the frequency of board meetings
Preparation Involvement	Preparation is not studied directly. However, female directors are suggested to prepare well and to have a positive impact on preparation of male board members. Involvement is not studied directly. However, it is suggested to be fostered through board cohesiveness (studied through the existence of away-days, the existence of induction and the frequency of board meetings).

Source: Adapted from Huse (2007).

Huse's (2007) findings support a large part of the empirical model of this study. The following paragraphs introduce the links established between formal and informal variables as well as the resulting hypotheses to test.

6.2.1. The monitoring role

The monitoring role is the most accepted role in corporate governance. As explained in the theoretical background of this doctoral dissertation (Chapter 1 and Chapter 2), corporate scandals have resulted in a tightening of corporate governance regulations and laws in order to underpin manipulations by the executive team due to a strong focus on agency theory.

According to literature, the following formal aspects of boards can be summed up to explain the board behaviour and board dynamics – the informal structure - concerning the exertion of the monitoring role.

6.2.1.1. Board size

A large board size is argued to be mostly disadvantageous as it has several negative impacts on an effective monitoring which then results in a board being ineffective.

Groupthink, herding, pluralistic ignorance, social loafing:

Large boards foster social loafing as performance per member decreases with an increase in the number of team members. Large boards tend to be composed of directors with different characters, ideas, understandings, values and knowledge. Therefore, they have more potential for excessive conflict than smaller boards. The results of excessive conflict are a lack of cohesiveness and members who start to hold back information and become more passive. As a consequence,

they are less effective in performing their monitoring role and more passive in decision-making (Eisenhardt, 1999; Forbes and Milliken, 1999). Therefore, it is easier for the CEO to push through the own ideas due to groupthink, herding, pluralistic ignorance and social loafing - especially if they do not have a second power base (Coles *et al.*, 2008; Eisenhardt, 1999; Forbes and Milliken, 1999; Jensen, 1993; Lipton and Lorsch, 1992; Yermack, 1996).

Sociability:

Within larger boards, sociability tends to be lower as board members don't get to know each other as well as they do in smaller boards. Consequently, large boards tend to be less cohesive (Eisenhardt, 1999; Forbes and Milliken, 1999; Goffee and Jones, 1996; Hilb, 2012; Huse, 2007).

Figure 16 summarises the connections made above.

Figure 16: Hypothesis 1 (board size)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring task	Board size	Groupthink, herding, pluralistic ignorance, social loafing
		Sociability

The above suggested leads to the first hypothesis to test:

H1: Large boards have a negative impact on the effectiveness of the monitoring task.

6.2.1.2. CEO duality

Groupthink, herding, pluralistic ignorance:

Human beings tend to obey authority and loyalty is claimed to be physically integrated into human behaviour (Forbes and Milliken, 1999; Morck, 2008). Therefore, it is suggested that groupthink tends to be higher in boards which have only one power base. Also, the CEO is able to push through the own ideas, especially because he or she sets the agenda for board meetings. This enables him or her to hold back important information from the board. When the CEO is also chairman, it gives him or her the power to take part in the decision-making process, providing him or her with more power. This might result in wrong decisions and an ineffective board. Hearing someone contradicting is usually enough to overcome this loyalty which is the reason why the roles of CEO and chairman should be separated (Morck, 2008). Cognitive conflict tends to increase the number of ideas and decision proposals on the board, giving the directors more options to choose from. In case of CEO duality, the important second power base that challenges

CEO proposals is missing. Consequently, herding behaviour as well as pluralistic ignorance can evolve more easily.

Figure 17 visualises the argument that leads to the second hypothesis.

Figure 17: Hypothesis 2 (CEO duality)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring task	CEO duality	Groupthink, herding, pluralistic ignorance

H2: CEO duality has a negative impact on the effectiveness of the monitoring task.

6.2.1.3. Education: Law

Groupthink, herding, pluralistic ignorance, know-how:

It is suggested that process-oriented skills are crucial for performing the monitoring role (Huse, 2007). According to Hilb (2012:166), legal directors are able to build up board processes considering “*who informs whom, about what, how, using what means and with what success.*” Those skills are essential to be able to run a board effectively. Lawyers are trained to ask tough questions and to think very critically. Their scope as legal directors should be providing expertise on legal, corporate governance, regulatory and risk management issues. They are claimed to be extremely effective where corporate norms have to be challenged as they bring critical views on the board making monitoring effective while counteracting groupthink, herding and pluralistic ignorance through challenging the CEO’s ideas (Edwards, 2015; Forbes and Milliken, 1999; Huse, 2007; Mead, 2014).

Figure 18 summarises the above explained.

Figure 18: Hypothesis 3 (Education: Law)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring task	Education: Law	Groupthink, herding, pluralistic ignorance
		Know-how

H3: The existence of lawyers and corporate governance specialists on the board has a positive impact on the effectiveness of the monitoring task.

6.2.1.4. Women as directors

The surface diversity attributes might have a direct impact on effectiveness once considered from – for example – the resource dependence perspective. Gender is suggested to be one of the surface diversity attributes with an impact on board effectiveness.

Groupthink, herding, social loafing pluralistic ignorance:

It is argued that women think differently and therefore they do not only enrich boardroom discussions with their different and fresh ideas (Fondas and Sasselos, 2000; Huse, 2007; Mathisen *et al.*, 2013). Rather, women are also effective monitors due to their different way of thinking and because they ask tougher questions than men. Therefore, they move boardroom discussions forward, increasing the level of critical thinking by voicing critique while decreasing the danger of groupthink, herding and pluralistic ignorance. Due to their emotional intelligence and the fact that women tend to be more ethical than men, they are also claimed to be effective in monitoring actions and decisions of the executive team (Groysberg and Bell, 2013; Kang and Payal, 2012).

Women tend to have a positive effect on board effectiveness by breaking through the ‘old boys club’ making this alliance of directors feel obliged to improve their meeting preparation resulting in less social loafing as well as more effective monitoring. Women directors are suggested to have a positive impact on board performance leading to a positive virtuous circle for improving board behaviour and board effectiveness (Huse, 2007).

Social distancing and sociability:

Often, at the beginning women feel less integrated in or even excluded from the group (of men), especially because many women are appointed to the board only as tokens due to political pressures (Joshi and Jackson, 2003; Mathisen *et al.*, 2013; Tsui *et al.*, 1992). After some time, this effect is suggested to diminish which is a characteristic of the salient diversity attributes (Huse, 2007; Huse and Solberg, 2006; Summers *et al.*, 1988). Consequently, the effect of social distancing will not be taken into account in this study. Women directors are also claimed to have a positive effect on sociability in the boardroom after they have integrated well in the board. They focus on social interaction, social activities and communication, leading overall to an increase in sociability (Adams and Ferreira, 2008; Kang and Payal, 2012).

The female way of thinking, the emotional intelligence and the detailed preparation are characteristics which are not supposed to diminish over time. Consequently, these arguments are taken into account in this study.

Figure 19 visualises the arguments of hypothesis 4.

Figure 19: Hypothesis 4 (Female directors)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring role	Female directors	Groupthink, herding, pluralistic ignorance, social loafing
		Sociability

The above mentioned arguments lead to the following hypothesis:

H4: The existence of female directors on the board has a positive impact on the effectiveness of the monitoring role.

6.2.1.5. Non-executive directors

Groupthink and herding:

According to agency theory, one of the most important attributes of board effectiveness is an independent board as this is essential for effectively performing the monitoring role. The independent board counteracts herding and groupthink – according to agency theory – as independent decision-making is achieved through independence from the executive team (Bainbridge, 2008; Forbes and Milliken, 1999; Laster, 2012; Minichilli *et al.*, 2012; Morck, 2008).

Figure 20 visualises the arguments of hypothesis 5.

Figure 20: Hypothesis 5 (Non-executive directors)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring task	Non-executive directors	Groupthink, herding

H5: An independent board has a positive impact on the effectiveness of the monitoring task.

6.2.1.6. Continuous training

Groupthink, herding, pluralistic ignorance and social loafing, know-how:

‘Blind trust’ in the ideas of highly skilled or powerful board members is not a seldom phenomenon (which is herding behaviour towards the expert who is seen as the leader in this case) and can lead to a lack of critical thinking resulting in groupthink. A lack of know-how also

fosters pluralistic ignorance and social loafing. Therefore, training each director is essential for building more knowledge in order to prevent herding and groupthink, pluralistic ignorance and social loafing (Eisenhardt, 1999; Errity and Stuckey, 2009; Heidrick & Struggles, 2011; Huse, 2007; Maharaj, 2008). Essential aspects for improving the monitoring role are further strengthening the know-how on, for example, risk management issues as well as legal, industrial and economic changes (Heidrick & Struggles, 2011). Also, refreshing knowledge about their roles and responsibilities as well as the company's strategy and corporate culture are essential. Training to foster ethical behaviour and whistleblowing in case of manipulation of a board member is important to counteract negative board dynamics.

Figure 21 summarises the arguments on hypothesis 6.

Figure 21: Hypothesis 6 (Continuous training)

Construct	Formal variable	Informal variables
Effectiveness of the monitoring task	Continuous training	Groupthink, herding, pluralistic ignorance, social loafing Know-how

The above summarised arguments lead to the following hypothesis to test:

H6: Continuous training for each board member has a positive impact on the effectiveness of the monitoring task.

6.2.2. The advisory role

According to Forbes and Milliken (1999) as well as Nielsen and Huse (2010), beside the monitoring role, the advisory role is the most important board role, especially considered from the resource dependence perspective. According to empirical evidence by Huse (2007), much advice is given outside the board meetings, suggesting the importance of cohesiveness for the advisory task in order to make board members share their information with the board.

In the following lines, different formal and informal board traits and their impact on the advisory role are clarified.

6.2.2.1. Oldest directors

Know-how:

Oldest directors have much experience, know-how and wisdom which helps them to be good strategy advisors. Many of the older directors have served as CEOs giving them important knowledge and wisdom for advising CEOs on strategic decisions (Kramer, 2011; Shaw, 2011). Following the age categories established by Kang *et al.* (2007), for this dissertation, the age limit of 71 years has been set. Other empirical studies set a narrow margin for studying age diversity by setting the limit at 65 years. This, however, does not lead to meaningful conclusions. A study by Randøy *et al.* (2006) suggests there are almost one quarter of board members studied fitting in the category older than 65.

Companies which set a mandatory retirement age usually set it between 71 and 75 years old. However, in Germany and Spain, many companies set a retirement age beyond 75 (CNMV, 2012; Spencer Stuart, 2014b). Consequently, in order to make sure to capture only the oldest directors on the board, the age limit was set at 71 and older for this research.

Access to wide networks:

Directors usually have wide networks gained throughout their long careers. Access to those networks is an essential resource to the company (Kramer, 2011; Shaw, 2011).

Figure 22 displays the arguments leading to hypothesis 7.

Figure 22: Hypothesis 7 (Directors 71 and older)

Construct	Formal variable	Informal variables
Effectiveness of the advisory task	Directors 71 and older	Know-How
		Access to networks

The advantages of having directors aged 71 and older on the board leads to the following hypothesis:

H7: Board members with an age of 71 and older have a positive impact on the effectiveness of the advisory task.

6.2.2.2. Non-executive directors with more than 1 mandate in other companies

Know-how:

Non-executive directors with several board mandates often work or have worked as executive directors of other companies. This gives them an important understanding of the problems of the executive team and consequently makes them good advisors. Holding several board mandates as non-executive directors do also brings about much knowledge of other companies' processes or industries which is a valuable resource for strategic advice (Kramer, 2011; Shaw, 2011).

Access to wide networks:

Due to their other mandates, non-executive directors have wide networks which makes the access to those resources easier (Kramer, 2011; Shaw, 2011).

The arguments resulting in the establishment of hypothesis 8 are visualised in figure 23.

Figure 23: Hypothesis 8 (Non-executives with more than 1 mandate in other companies)

Construct	Formal variable	Informal variables
Effectiveness of the advisory task	Non-executives with more than 1 mandate in other companies	Know-How
		Access to networks

Considering the advantages and disadvantages, the following hypothesis is established:

H8: Non-executive directors with more than 1 mandate in other companies have a positive impact on the effectiveness of the advisory task.

6.2.2.3. Education: Economics and business related studies

Function-oriented or firm-specific competences are crucial for appropriate advice. Economics, business studies and all studies related, such as marketing, accounting or finance are essential fields of expert knowledge for every kind of industry as they represent the span of the traditional business domains (Forbes and Milliken, 1999; Huse, 2007). According to empirical evidence by Huse (2007), the firm-specific competence is one of the factors that most contributes to board task performance, or in other words, to board effectiveness. Huse (2007) provides evidence that advisory tasks can be grouped as follows:

1. Advice on overall questions (related to general management, finance and law):

Most advice is required on general management, followed by financial issues. Legal advice is the least needed.

2. Advice on production, markets, marketing and technical issues (related to marketing and technology):

Marketing advice was much higher ranked than technological advice.

Those findings support the view that educational background in economics and related areas, which includes finance and marketing, is the most important area of expertise and therefore its impact on the advisory role is suggested by literature.¹⁹ Also, the higher the know-how on the board, the more critical thinking is supposed to emerge, preventing groupthink and herding. More know-how also suggests to decrease the danger of pluralistic ignorance and social loafing as it gives more confidence on the own know-how and makes social loafing unnecessary.

Figure 24 displays the arguments leading to hypothesis 9.

Figure 24: Hypothesis 9 (Education in economics and business related studies)

Construct	Formal variable	Informal variables
Effectiveness of the advisory task	Education: Economics and business related studies	Know-How
		Groupthink, herding, pluralistic ignorance, social loafing

H9: Board members holding a university degree in economics and other business related studies have a positive impact on the effectiveness of the advisory task.

6.2.3. Cohesiveness: the key of board dynamics

The board dynamics make up the decision-making culture on the board (Huse, 2007). The literature review done in Chapter 4 helps supporting the idea that cohesiveness is behind all the dynamics of board behaviour, from emotions – such as trust or sociability – to cognitive biases – such as groupthink – and power relations inside the boardroom.

Cohesiveness decreases social conflict between members, enhances the quality of teamwork skills and team effectiveness resulting in members who are more motivated to achieve team goals (Klimonski and Mohammed, 1994; Van Woerkom and Sanders, 2010). A certain level of task conflict is important to get different points of view, debate, dialogue and openness leading to the best possible decisions while preventing groupthink and other cognitive biases (Eisenhardt,

¹⁹ As legal background is suggested to be less important for advisory but essential for conducting the monitoring role, the impact of legal background on the effectiveness of the monitoring role is studied.

1999; Hilb, 2012; Maharaj, 2008; Roberts *et al.*, 2005). For this reason, nowadays, companies realise the need for diversity and boards of directors tend to be as diverse as possible, including diversity in age, gender, nationality, education, experience and expertise. However, as explained in the theoretical part, not all aspects of diversity are necessarily leading to an increase in board effectiveness. Attributes of surface diversity themselves do not improve board effectiveness. However, some surface diversity attributes might be beneficial in certain situations, for example, from the resource-dependence perspective.²⁰ Therefore, considerations have to be made on which aspects of diversity are important to bring board discussions forward. Excessive levels of diversity are not advantageous as they might lead to excessive conflict and dissatisfaction of directors, a lack of participation and might therefore also result in groupthink, herding, social loafing or pluralistic ignorance (Forbes and Milliken, 1999). Consequently, both trust and distrust, control and collaboration or cohesiveness and diversity combined are claimed to be a better approach in order to capture the whole picture of board functioning (Forbes and Milliken, 1999; Hilb, 2012; Huse, 2007; Huse and Nielsen, 2010; Roberts *et al.*, 2005; Sundaramurthy and Lewis, 2003). Excessive cohesiveness is not expected to emerge as boards do not meet too often, so that social ties are suggested to be rather superficial. Especially in combination with much know-how and training, social ties are not supposed to reach a dangerously high level.

6.2.3.1. Away-days and strategy events

Sociability and pluralistic ignorance, social loafing:

Away-days are frequently used to help building more openness and the use of knowledge between board members as well as to create more opportunities for information exchange which is claimed to be an effective way as board members start talking not just business but also personal and more honest the longer they stay together; they start feel sympathies for each other (Huse, 2007; Roberts *et al.*, 2005). Indeed, much of the background of decisions made in board meetings comes from informal gatherings of some board members (small conversations at lunch or dinner, on the golf court or at the airport) (Huse, 2007). Informal meetings make boards more cohesive due to evolving confidence between board members which raises trust and openness (Eisenhardt, 1999; Klimoski and Mohammed, 1994; Sanders and Van Emmerick, 2004; Van Woekom and Sanders, 2010) as well as the use of knowledge and consequently also task accomplishment (Berman *et al.*, 2002; Geletkanycz and Hambrick, 1997). Therefore, sociability between board members increases and a strong culture is built resulting in the best case in better decision-making and an increase in board effectiveness. At the same time, pluralistic ignorance and social loafing

²⁰ See: advantage of age diversity in Chapter 3.

are counteracted. All those positive effects help directors to perform both their advisory task as well as their monitoring task more effectively.

The arguments resulting in the establishment of hypothesis 10 are visualised in figure 25.

Figure 25: Hypothesis 10 (Away-days)

Construct	Formal variable	Informal variables
Cohesiveness	Away-days	Sociability
		Pluralistic ignorance, social loafing

H10: Away-days foster sociability and have a positive impact on cohesiveness.

6.2.3.2. Board meetings

Sociability, pluralistic ignorance, social loafing:

On average, Anglo-American boards meet only 7 times a year which is not enough time to get enough insight into the firm (Forbes and Milliken, 1999; Monks and Minow, 2008b). The fact that board meetings are not frequent, might lead to a lack of motivation in participating in the board meetings. Boardroom effectiveness, however, requires a culture of constructive dialogue, task conflict and openness. The more the members know each other and the more know-how, experience and expertise they have, the sooner such a culture will be achieved (Eisenhardt, 1999; Higgs Report, 2003; Hilb, 2012). Having many and also long meetings leads to more time spent together and consequently more information exchange through evolving openness and trust. This increase in the use of knowledge might result in better decision-making. At the same time, pluralistic ignorance and social loafing are counteracted (Huse, 2007).

Figure 26 summarises the above mentioned arguments leading to hypothesis 11.

Figure 26: Hypothesis 11 (Board meetings)

Construct	Formal variable	Informal variables
Cohesiveness	Board meetings	Sociability
		Pluralistic ignorance, social loafing

H11: Holding frequent board meetings fosters sociability and therefore has a positive impact on cohesiveness.

6.2.3.3. Induction training

Sociability:

Apart from roles and responsibilities, also board culture and corporate culture, which are defined by norms and behaviours, are introduced to new members. It is the first step to foster sociability (Anderson *et al.*, 1996; Errity and Stuckey, 2009).

Pluralistic ignorance, social loafing and know-how:

Induction training at the beginning of the hiring helps the new director to adjust to the culture, to processes and the industry of the firm. Roles and responsibilities are clarified from the beginning (Anderson *et al.*, 1996; Errity and Stuckey, 2009). It is necessary to build enough knowledge on firm internal issues to be able to participate actively in board meetings. Therefore, induction is an essential step to integrate the new member in the board and foster sociability which counteracts pluralistic ignorance and social loafing. Induction is important to carry out the duty of monitoring effectively but it is also an important base for being able to perform the advisory task effectively (Eisenhardt, 1999; Huse, 2007).

Figure 27 displays the arguments leading to hypothesis 12.

Figure 27: Hypothesis 12 (Induction training)

Construct	Formal variable	Informal variables
Cohesiveness	Induction training	Sociability
		Know-how
		Pluralistic ignorance, social loafing

H12: Induction fosters sociability and therefore has a positive impact on cohesiveness.

Cohesiveness is an essential aspect impacting board effectiveness. Communication is better in cohesive boards because members are more open and trust each other. They are motivated and the level of sociability and interpersonal attraction is high. All those aspects foster the use of knowledge of each board member (Forbes and Milliken, 1999; Williams and O'Reilly, 1998). As Forbes and Milliken (1999) state, both main board tasks – the monitoring task and the advisory task – require good communication and constructive critical trust between board members in order to lead to effective board functioning (Bebchuk and Weisbach, 2009; Brudney, 1982; Eisenhardt, 1999; Forbes and Milliken, 1999; Hilb, 2012; Huse, 2007; Roberts *et al.*, 2012). Consequently, cohesiveness is advantageous and desirable for effective decision-making. As

mentioned in previous chapters, excessive cohesiveness might foster a loss of ‘independence of mind’, resulting in groupthink or other negative board dynamics due to ‘blind trust’ or obeying authority too much. However, excessive cohesiveness alone will not result in groupthink as other factors have to play in the cards, such as the absence of critical thinking or cognitive conflict. Consequently, solely arguing that cohesiveness is not desirable as it might foster groupthink is not a reasonable argument, especially considering that cohesiveness is suggested to counteract pluralistic ignorance and social loafing. According to literature, the advantages of cohesiveness clearly outweigh the disadvantages. It should be heard in mind that an excessive level of cohesiveness is not supposed to emerge due to the infrequency of meetings and other kinds of social interaction of board members. As a consequence, cohesiveness becomes the fundamental driver in board dynamics towards an effective decision-making.

According to the existing literature, the existing board dynamics decide on the effectiveness of both the advisory and the monitoring role. It is suggested that cohesiveness leads to both positive monitoring as well as positive advisory (Forbes and Milliken, 1999; Minichilli *et al.*, 2012; Nielsen and Huse, 2010; Sundaramurthy and Lewis, 2003). Negative board dynamics are suggested by literature to be the negative expression of cohesiveness – a form of ‘bad cohesiveness’ – and therefore they are suggested to lead to ineffective monitoring and advisory.

Figure 28 visualises the arguments behind hypothesis 13a and 13b.

Figure 28: Hypotheses 13a and 13b (Cohesiveness)

Construct	Construct
Cohesiveness	Effectiveness of the monitoring task
	Effectiveness of the advisory task

From the above clarified arguments, the following two hypotheses are defined:

H13a: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the monitoring task.

H13b: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the advisory task.

Figure 29 summarises the links made in the hypotheses of this doctoral dissertation which result from the links between informal and formal variables and their categorisation into the constructs.

Figure 29: The links between informal and formal variables and their construct categorisation

Construct		Formal variables	Informal variables
	Effectiveness of the monitoring task	Board size	Groupthink
			Herding
			Social loafing
			Sociability
		CEO duality	Groupthink
			Herding
			Pluralistic ignorance
		Education: Law	Groupthink
			Herding
			Pluralistic ignorance
			Know-How
		Female directors	Groupthink
	Herding		
	Pluralistic ignorance		
	Social loafing		
	Non-executive directors	Groupthink	
		Herding	
	Continuous training	Groupthink	
		Herding	
		Pluralistic ignorance	
Social loafing			
Directors 71 and older	Know-How		
	Access to networks		
	Non-executives with more than 1 mandate in other companies	Know-How	
		Access to networks	
Education: Economics and business related studies	Know-How		
	Groupthink		
	Herding		
	Pluralistic ignorance		
Cohesiveness	Away-days	Pluralistic ignorance	
		Sociability	
	Board meetings	Pluralistic ignorance	
		Social loafing	
		Sociability	
	Induction training	Pluralistic ignorance	
		Social loafing	
		Know-how	
		Sociability	

6.3. Sample and variables

Under this chapter heading, the population and the sample are clarified and the variables defined and coded.

6.3.1. Population and sample

In order to define the statistical population to study, the European Union was selected as the starting point because countries within the European Union have a homogeneous legal framework in terms of the financial market, employment relations and business policies. However, there is no unified corporate law in the European Union. Rather, there are some minimum standards which build the baseline for each country's corporate governance system. As explained in Chapter 4, a single corporate governance system is not desirable as historical and cultural differences make it difficult – not to say impossible – to converge effectively towards a one-size-fits-all system. However, cultural differences and different corporate governance systems within the homogeneous framework of the European Union make it possible to analyse for differences in the effectiveness of the different systems and for eventual differences in behaviour due to cultural aspects.

Out of the 27 European Union member states in the year 2012, the goal was selecting 3 countries as proxies for cultural and institutional differences following Minichilli *et al.* (2012) as traditionally done in cross-cultural organisational behaviour research; the goal is identifying differences between Anglo-American, Continental European and Latin corporate governance systems (Tsui *et al.*, 2007). In order to reduce comparability biases, the goal was selecting countries that are as homogeneous as possible according to their economic situation while having different systems of corporate governance. Consequently, out of the 5 strongest economies according to their GDP (Germany, France, United Kingdom, Italy, Spain), 3 countries meeting the selection requirement of differing in the established corporate governance systems were to be selected (International Monetary Fund, 2012). Germany is the most representative of all European Union member states following the system of the Rhenish capitalism or the coordinated market economy. As explained in Chapter 4, Germany has a strong culture of collectivism which is reflected in its networking economy and its stakeholder representation through 'co-determination.' Consequently, Germany with its two-tier board structure has been selected as the representative of the coordinated market economy. The United Kingdom is the most representative country of the liberal market economy aiming for maximisation of shareholder value which is the reason the United Kingdom with the typical Anglo-American one-tier board

has been selected as a representative. France, Italy and Spain do not fit in either of the two previously mentioned main systems. Scholars have recognised that the categorisation into only those two systems is simplistic and consequently, more ‘varieties of capitalism’ have been accepted (Aguilera, 2004; Hall and Soskice, 2001; Schmidt, 2003). France, Italy and Spain belong to the mixed or hybrid system, also called the ‘Latin model’, as their market economies lie somewhere between the liberal market economy and the coordinated market economy. All three countries have not only their cultural values in common but also the level of state intervention in their capitalism system which is why this model of capitalism is also called ‘statism’ or ‘state capitalism’ (Schmidt, 2003). Also, those countries are characterised by concentrated ownership and weak labour participation at the company level (Aguilera, 2004). Hybrid models take aspects from both major market economy systems, however, with a tendency towards one, mostly the Anglo-American model.

As the representative of the hybrid system, Spain has been selected. The reason is that out of the three remaining countries, it is the only one that allows only one model of boards of directors – the one-tier model. France allows both the one-tier and the two-tier model. In Italy there is even a third mixed board structure possible (Gandini *et al.*, 2009). Besides, the Italian two-tier board structure differs from that in Germany in that employee representatives and major shareholder representatives do not take active part in the decision-making (Gandini *et al.*, 2009). Consequently, including Italy as the representative country would make it difficult to detect eventual differences in the effectiveness of the board structure in comparison to the other systems selected. Another criterion taken into consideration for the decision of a representative for the hybrid model is the definition of the firm and its main goal. From the three largest Latin economies according to their GDP, France and Italy belong to the same group as Germany focusing on the stakeholder perspective (Clarke and Chanlat, 2009, International Monetary Fund, 2012). Spain is distinct; it is closer to the Anglo-American model in this regard as it takes stakeholder interests into account, however, focusing primarily on shareholder value. Spain, belongs to the group of shareholder-stakeholder countries which is a good reason for including Spain as the representative of the Latin countries.

All in all, considering the capitalism system and the resulting corporate governance system (United Kingdom: Anglo-American individualistic and shareholder-oriented; Germany: Rhenish collectivist and stakeholder-firm-oriented; Spain: Hybrid shareholder-stakeholder-oriented) as well as the board structures allowed (each country allows only one board structure) it is suggested that the three countries of analysis make a balanced picture of European corporate governance leading to the following definition of the total population of 165 companies, composed of:

- DAX30 companies
- FTSE100 companies
- IBEX35 companies.

Although with no statistical grounds, the conclusions drawn from the analysis might be indicators for the behaviour of:

- (1) The other companies listed on those stock exchanges
- (2) Countries of the same cultural group and the same corporate governance system.

However, a generalisation from the sample to the population, is only suggested to DAX30 companies, FTSE100 companies and IBEX35 companies, listed in any year.

All companies analysed in this empirical study are listed companies from the main stock exchange indices of the Frankfurt stock exchange, the London stock exchange and the Madrid stock exchange which are the DAX30, the FTSE100 and the IBEX35, respectively.

The considerations made for selecting the sample are as follows:

(1) The year of analysis

The data collection for the empirical analysis of this doctoral dissertation started in the middle of the year 2013. At that time, the most recent and accessible data on boards was the one published by the companies of this sample in their 2012 annual reports. Therefore, all data refer to the financial statement closing date of December 31st, 2012.

(2) Importance of the companies in each country

The companies chosen for the empirical analysis of this doctoral dissertation are all listed companies and all of them form part of the most important index of the chosen stock exchanges, the DAX30 on the Frankfurt stock exchange in Germany, the FTSE100 on the London stock exchange in the United Kingdom and the IBEX35 on the Madrid stock exchange in Spain. Those indices include only the major and most liquid companies in terms of market capitalisation traded on those three stock exchanges and therefore represent the most significant financial movement in each of the countries chosen.

(3) Data gathering and type of sampling

An advantage of focusing this study on listed companies is that all or at least most information should be available in the annual reports of each company due to listing requirements of the stock exchanges, making the data gathering process practicable and raising the probability of collecting

the complete data. The starting point for the information gathering was always the 2012 annual report and/ or the 2012 corporate governance report of each company, published on each company's website. For companies which are not disclosing all information needed to carry out this empirical research, first the company's website has been examined for the missing information (for example, director age or director education). In the cases where the missing information was not disclosed on the company's website either, in a third step, websites, such as www.bloomberg.com, www.businessweek.com, www.forbes.com, which disclose reliable data on corporate directors, have been consulted. For the German companies, in some cases the website www.wirtschaftswoche.de has been used which is a newspaper exclusively on economic issues. This newspaper publishes information on directors of German companies similar to www.businessweek.com. Those websites made a good rounding off for completing the information needed for this study.

In order to be able to compare all companies with each other, it is important to equalise the samples of all three countries as much as possible. Therefore, the same amount of companies from all countries have been included to the empirical study. Gathering information on the DAX30 companies has been the first step. The goal has been set at 30 companies per country as all information on the DAX30 companies have been found. The reason to choose 30 is that the DAX30 index is the smallest comparing to the FTSE100 and the IBEX35. In order to get the same sample size from each country, 30 was the largest sample size possible. From the FTSE100, a modified type of simple random sampling has been used. However, instead of using random numbers to select the companies to include to this sample, the first 30 companies in alphabetical order have been used. In this case, this procedure is random because the companies are not arranged neither according to their industry nor according to activity, size or any other criterion. Consequently, the sample selection process is not biased in terms of subjective selection judgement. However, 12 companies did not disclose all information needed for the study on at least 50% of their directors as the 50% mark was used as a criterion for getting representative results. Searching missing data on the previously mentioned websites did not bring about the missing information which is the reason the next 12 companies in alphabetical order with fully disclosed information have been chosen. From the IBEX35, it has not been possible to gather full information on 30 companies. 29 companies disclosed enough information to take part in this quantitative study. Consequently, from each index, the first 29 companies in alphabetical order with enough information disclosed for this empirical research have been used.

Sample equivalence is often a problem in cross-cultural research as data is being published according to different selection and exclusion criteria (Bryman and Bell, 2007; Minichilli *et al.*, 2012; Tsui, 2007). This is not a problem in this study as almost all information used has to be published in a homogeneous way according to homogeneous disclosure

requirements of the stock exchanges. The information not found in the annual reports of the companies and gathered from the above mentioned sources is not sensitive to subjectivity as it concerns only demographic director characteristics, such as age or education. Consequently, sampling equivalence is given.

A list of the companies used in the quantitative study of this doctoral dissertation is exposed in figure 30, where the white companies are the ones used in this study, the red companies have been excluded due to insufficient data disclosure and the yellow company (Volkswagen) has been excluded in order to equalise the number of companies in each country. It had been excluded as it is the last one of the DAX30 companies in alphabetical order. This makes a number of 29 companies for each country and a total of 87 out of 165 companies of the population (DAX30 + FTSE100 + IBEX35) which is 53% of the total population and therefore highly representative.

Figure 30: List of companies of the sample

Country of listing	Company number	Company	Final company number	Number of valid companies
GE	1	Adidas	1	29 valid companies
GE	2	Allianz	2	
GE	3	BASF	3	
GE	4	Bayer	4	
GE	5	Beiersdorf	5	
GE	6	BMW	6	
GE	7	Commerzbank	7	
GE	8	Continental	8	
GE	9	Daimler	9	
GE	10	Deutsche Bank	10	
GE	11	Deutsche Börse	11	
GE	12	Deutsche Lufthansa	12	
GE	13	Deutsche Post	13	
GE	14	Deutsche Telekom	14	
GE	15	E.ON	15	
GE	16	Fresenius SE & Co. KG	16	
GE	17	Fresenius Medical Care AG & Co. KGaA	17	
GE	18	HeidelbergCement AG	18	
GE	19	Henkel AG & Co. KGaA	19	
GE	20	Infineon Technologies AG	20	
GE	21	K+S AG	21	
GE	22	Lanxess	22	
GE	23	Linde AG	23	
GE	24	Merck KGaA	24	
GE	25	Munich Re	25	
GE	26	RWE	26	
GE	27	SAP	27	
GE	28	Siemens	28	
GE	29	ThyssenKrupp	29	
GE	30	Volkswagen		
UK	31	Aberdeen Asset Management	30	29 valid companies
UK	32	Admiral Group Plc.		
UK	33	Aggreko		
UK	34	AMEC		
UK	35	Anglo American plc.	31	
UK	36	Antofagasta	32	

Figure 30: List of companies of the sample (continuation)

Country of listing	Company number	Company	Final company number	Number of valid companies
UK	37	ARM Holdings	33	
UK	38	Associated British Foods		
UK	39	Astrazeneca	34	
UK	40	Aviva	35	
UK	41	Babcock International		
UK	42	BAE Systems	36	
UK	43	Barclays Plc	37	
UK	44	BG Group Plc.	38	
UK	45	BHP Billiton		
UK	46	BP	39	
UK	47	British American Tobacco	40	
UK	48	British Land		
UK	49	British Sky Broadcasting Group plc	41	
UK	50	BT Group plc	42	
UK	51	Bunzl plc	43	
UK	52	Burberry Group plc.	44	
UK	53	Capita	45	
UK	54	Capital Shopping Centres [Intu Properties		
UK	55	Carnival Corporation & plc		
UK	56	Centrica plc	46	
UK	57	Compass		
UK	58	CRH		
UK	59	Croda International		
UK	60	Diageo		
UK	61	easyjet plc	47	
UK	62	Experian plc	48	
UK	63	Fresnillo	49	
UK	64	G4S	50	
UK	65	GKN	51	
UK	66	Glencore Holding AG	52	
UK	67	Hammerson plc	53	
UK	68	Hargreaves Lansdown plc	54	
UK	69	HSBC Holdings plc	55	
UK	70	IMI plc	56	
UK	71	Imperial Tobacco	57	
UK	72	InterContinental Hotels	58	
SP	73	Abertis Infraestructuras, S.A.	59	29 valid companies
SP	74	Acciona, S.A.	60	
SP	75	Acerinox, S.A.	61	
SP	76	Actividades de Construcción y Servicios,	62	
SP	77	Amadeus IT Holding, S.A.	63	
SP	78	ArcelorMittal, S.A.	64	
SP	79	Banco Sabadell S.A.	65	
SP	80	Banco Santander	66	
SP	81	Bankinter, S.A.	67	
SP	82	BBVA		
SP	83	Banco Popular Español S.A.		
SP	84	Bolsas y Mercados Españoles, Sociedad	68	
SP	85	Caixabank, S.A.		
SP	86	Distribuidora	69	
SP	87	Ebro Foods, S.A.	70	
SP	88	Enagas S.A.		

Figure 30: List of companies of the sample (continuation)

Country of listing	Company number	Company	Final company number	Number of valid companies
SP	89	Endesa S.A.	71	
SP	90	Ferrovial S.A.	72	
SP	91	Fomento de Construcciones y Contratas	73	
SP	92	Gas Natural SDG S.A.	74	
SP	93	Grifols S.A.	75	
SP	94	Iberdrola	76	
SP	95	Inditex S.A.	77	
SP	96	Indra Sistemas S.A.	78	
SP	97	International Consolidated Airlines Group	79	
SP	98	Jazztel plc		
SP	99	Mapfre S.A.		
SP	100	Mediaset España Comunicación S.A.	80	
SP	101	Obrascón Huarte Lain S.A.	81	
SP	102	Red Eléctrica Corporación S.A.	82	
SP	103	Repsol S.A.	83	
SP	104	Sacyr Vallehermoso S.A.	84	
SP	105	Técnicas Reunidas S.A.	85	
SP	106	Telefonica, S.A.	86	
SP	107	Viscofan S.A.	87	

6.3.2. Data processing: the variable

In this empirical study, 30 variables have been studied for each of the 87 companies listed either on the Frankfurt stock exchange, the London stock exchange or the Madrid stock exchange. None of the companies is cross-listed at 2 or more of the stock exchanges of analysis. The selection of each of the 30 variables is determined by the literature review and the resulting hypothesis setting (see previous pages). Even though there are some control variables, such as main industry, main activity and country of stock exchange listing, most measure the formal structure of boards, that is, the board composition – board size, director age, education, CEO duality, number of nationalities on the board and ratios, such as male to female and insider to outsider – and some other formalities of boards, such as the training provided to members, the socialising away-days, and the directors' accumulation of board seats. The control variable 'country of stock exchange listing' is used to control for differences between the three countries of analysis: The United Kingdom, Germany and Spain.

Figure 31 explains each variable, its operationalisation as well as its sign used in this doctoral dissertation:

Figure 31: Variables of this study

Variable	Sign	Information studied by this variable	Authors
Country of listing	country	<p>Type of variable: qualitative</p> <p>Possible values: GE = Germany, Frankfurt stock exchange in the index DAX30 UK = United Kingdom, London stock exchange in the index FTSE100 SP = Spain, Madrid Stock exchange in the index IBEX35</p> <p>The country where company is listed at the stock exchange at December, 31st 2012</p>	
Main activity of the company	activity	<p>Type of variable: qualitative</p> <p>Possible values: 1 = manufacturing 2 = services 3 = manufacturing and services</p> <p>Groups the companies of this study into manufacturing companies and service companies. In case the company has its core business in a combination of manufacturing and services, it is categorised in group 3 manufacturing and services.</p>	
Industry of the company	industry	<p>Type of variable: qualitative</p> <p>Possible values: 1 = Consumer Discretionary 2 = Consumer Staples 3 = Energy 4 = Financials 5 = Health Care 6 = Industrials 7 = IT 8 = Materials 9 = Telecommunication Services 10 = Utilities</p> <p>Companies have been classified according to the 'Global Industry Classification Standard (GICS)', developed by <i>Standard & Poor's</i> and grouped into the 10 industrial sectors defined.</p> <p>In case a company is operating in various industries, it is classified according to its major source of revenue.</p>	
Board size	board_size	<p>Type of variable: quantitative</p> <p>Expressed as: number of board members</p> <p>Number of directors on the board on December 31st 2012</p> <p>Honorary chairman are not included in this number as they usually do not have voting rights.</p>	Eisenhardt, 1999; Forbes and Milliken, 1999; Goffee and Jones, 1996; Hilb, 2012; Huse, 2007; Maharaj, 2008

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
Number of board meetings	board_meetings	Type of variable: quantitative Expressed as: number of board meetings Number of board meetings held in 2012 according to the annual report 2012 of the company. In the case of Germany, this variable takes into account only the meetings of the supervisory board. Management board meetings do not apply, as those are executive board meetings where day-to-day issues are treated and where non-executive directors take not part at.	Forbes and Milliken, 1999; Gabrielsson and Winlund, 2000; Huse, 2007; Maharaj, 2008; Monks and Minow, 2008b.
Away-days and other long gatherings such as plant visits	awaydays	Type of variable: qualitative Possible values: 0 = no (not disclosed) 1 = yes Information on whether the board organised (and disclosed) away-days in 2012 (for example for strategy meetings over several days or several day plant visits).	Berman <i>et al.</i> , 2002; Eisenhardt, 1999; Gelektkanycz and Hambrick, 1997; Huse, 2007; Klimonski and Mohammed, 1994; Roberts <i>et al.</i> , 2005, Sanders and Van Emmerick, 2004; Van Woekom and Sanders, 2010
Women ratio	female_perc	Type of variable: quantitative Expressed as: female members/ board size Percentage of female directors on the board on December 31st 2012	Fondas and Sassalos, 2000; Huse, 2007; Mathisen <i>et al.</i> , 2012
Director age	age_perc_under50	Type of variable: quantitative Expressed as: number of directors aged 71 or older/ board size Percentage of directors older than 71 on December 31st 2012	Kramer, 2011; Shaw, 2011; Williams and O'Reilly, 1998
Director age	age_perc_older71	Type of variable: quantitative Expressed as: number of directors aged 71 or older/ board size Percentage of directors older than 71 on December 31st 2012	Kramer, 2011; Shaw, 2011; Williams and O'Reilly, 1998
Director age	age_range	Type of variable: quantitative Expressed as: Oldest director – youngest director Age range on December 31st 2012	Kramer, 2011; Shaw, 2011; Williams and O'Reilly, 1998
Director age	age_Iqrange	Type of variable: quantitative Expressed as: Q3-Q1 where Q3 is the third quartile and Q1 is the first quartile computed using the Microsoft Excel formula <i>IQR</i> . Age interquartile range on December 31st 2012	Kramer, 2011; Shaw, 2011; Williams and O'Reilly, 1998

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
Director age	age_stdev	Type of variable: quantitative Expressed as: $\sqrt{\frac{\sum (x - \bar{x})^2}{n}}$ where x is the sample mean and n is the sample size computed using the Microsoft Excel formula <i>stdevp</i> . Age standard deviation on December 31st 2012	Kramer, 2011; Shaw, 2011; Williams and O'Reilly, 1998
Nationality	dom_perc	Type of variable: quantitative Expressed as: number of domestic directors/board size Percentage of domestic (to stock exchange) directors on the board on December 31st 2012	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Dahlin <i>et al.</i> , 2005; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Rose <i>et al.</i> , 2013; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Nationality	internat_ratio	Type of variable: quantitative Expressed as: number of international directors/board size Percentage of international (to stock exchange) directors on the board on December 31st 2012	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Dahlin <i>et al.</i> , 2005; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Rose <i>et al.</i> , 2013; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Nationality	internat	Type of variable: quantitative Expressed as: number of nationalities on the board Number of nationalities on the board on December 31st 2012	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Dahlin <i>et al.</i> , 2005; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Rose <i>et al.</i> , 2013; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Director education	edu_perc_econs	Type of variable: quantitative Expressed as: number of director's with degree in business or related field/board size Percentage of directors with education in fields of business & economics on December 31st 2012 As a classification, the ' <i>UNESCO International Standard Classification of Education (ISCED 2011)</i> ' is used (UNESCO, 2012). The classification of edu_perc_econs includes: Economics as well as all subfields of classification 34 Business and administration. ²¹	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Forbes and Milliken, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998

²¹ For a detailed list, see Appendix B.

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
Director education	edu_perc_law	<p>Type of variable: quantitative Expressed as: number of director's degree in law/board size</p> <p>Percentage of directors with education in law on December 31st 2012 As a classification, the '<i>UNESCO International Standard Classification of Education (ISCED 2011)</i>' is used (UNESCO, 2012).</p> <p>The classification of edu_perc_law includes all subfields of classification 38 Law.²²</p>	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Edwards, 2015; Eisenhardt, 1999; Forbes and Milliken, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Mead, 2014; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Director education	edu_perc_scien	<p>Type of variable: quantitative Expressed as: number of director's degree in sciences others than economics and related as well as law/board size</p> <p>Percentage of directors with education in sciences others than economics and related as well as law on December 31st 2012 As a classification, the '<i>UNESCO International Standard Classification of Education (ISCED 2011)</i>' is used (UNESCO, 2012).</p> <p>The classification of edu_perc_scien includes all subfields of classification 4 Science and 5 Engineering, manufacturing, construction.²³</p>	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Director education	edu_perc_hum	<p>Type of variable: quantitative Expressed as: number of director's degree in humanities/board size</p> <p>Percentage of directors with education in humanities on December 31st 2012 As a classification, the '<i>UNESCO International Standard Classification of Education (ISCED 2011)</i>' is used (UNESCO, 2012).</p> <p>The classification of edu_perc_hum includes all subfields of classification 2 Humanities and arts.²⁴</p>	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998

²² *ibid.*²³ *ibid.*²⁴ *ibid.*

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
Director education	edu_perc_other	Type of variable: quantitative Expressed as: number of director's degree in other disciplines/board size Percentage of directors with a higher education different from all subfields included in edu_perc_econs and edu_perc_law, on December 31st 2012. As a classification, the ' <i>UNESCO International Standard Classification of Education (ISCED 2011)</i> ' is used (UNESCO, 2012). The classification of edu_perc_other includes all subfields of classification 1 Education, 6 Agriculture, 7 Health and welfare, 8 Services as well as the subfield 32 (Journalism and information) of classification 3 Social sciences, business, law. ²⁵	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Director education	edu_perc_nouni	Type of variable: quantitative Expressed as: number of directors with no university background or with an apprenticeship/board size Percentage of directors with no university degree on December 31st 2012	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Director education	diff_edu_num	Type of variable: quantitative Expressed as: number of different educational backgrounds on the board Number of different educational backgrounds on the board on December 31st 2012.	Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson <i>et al.</i> , 2003; Shin <i>et al.</i> , 2012; Williams and O'Reilly, 1998
Outsider ratio	exec_perc	Type of variable: quantitative Expressed as: number of executive directors/board size Percentage of executive directors on the board on December 31st 2012	Forbes and Milliken, 1999; Sundaramurthy and Lewis, 2003; Bainbridge, 2008
Outsider ratio	nonexec_perc	Type of variable: quantitative Expressed as: number of non-executive directors/board size Percentage of non-executive directors on the board on December 31st 2012	Forbes and Milliken, 1999; Sundaramurthy and Lewis, 2003; Bainbridge, 2008

²⁵ *ibid.*

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
CEO duality	ceo_duality	Type of variable: qualitative Possible values: 0 = no 1 = yes The CEO is also chairman of the board on December 31st 2012. The cases where the CEO is not chairman but deputy chairman, are valued as "0"	Forbes and Milliken, 1999; Morck, 2008
Ratio of directors with other board seats	exec_perc_1mand	Type of variable: quantitative Expressed as: executive directors with other board seats/board size Percentage of executive directors with 1 or more mandates in other listed companies of the same stock exchange on December 31st 2012	Brudney, 1982; Forbes and Milliken, 1999; Huse, 2007; Kramer, 2011; Maharaj, 2008; Mathisen <i>et al.</i> , 2013; Monks and Minow, 2008b; Shaw, 2011; Westphal and Khanna, 2003
Ratio of directors with other board seats	nonexec_perc_1mand	Type of variable: quantitative Expressed as: non-executive directors with other board seats/board size Percentage of non-executive directors with 1 or more mandates in other listed companies of the same stock exchange on December 31st 2012	Brudney, 1982; Forbes and Milliken, 1999; Huse, 2007; Kramer, 2011; Maharaj, 2008; Mathisen <i>et al.</i> , 2013; Monks and Minow, 2008b; Shaw, 2011; Westphal and Khanna, 2003
Ratio of directors with other board seats	dir_perc_2mand	Type of variable: quantitative Expressed as: directors with 2 or more other board seats/board size Percentage of directors with 2 or more mandates in other listed companies of the same stock exchange on December 31st 2012	Brudney, 1982; Forbes and Milliken, 1999; Huse, 2007; Kramer, 2011; Maharaj, 2008; Mathisen <i>et al.</i> , 2013; Monks and Minow, 2008b; Shaw, 2011; Westphal and Khanna, 2003
Director induction training	train_ind	Type of variable: qualitative Possible values: 0 = no (not disclosed) 1 = yes Director induction training in the year 2012. Induction refers to director training at the beginning of the hiring which usually includes training sessions about the director's tasks and responsibilities, the company's mission and vision, its norms on ethics as well as its strategy. Often the induction program includes also site visits and meetings with core managers as well as with board members.	Anderson <i>et al.</i> , 1996; Eisenhardt, 1999; Errity and Stuckey, 2009; Heidrick & Struggles, 2011; Huse, 2007

Figure 31: Variables of this study (continuation)

Variable	Sign	Information studied by this variable	Authors
Director continuous training	train_cont	Type of variable: qualitative Possible values: 0 = no (not disclosed) 1 = yes Director continuous training in the year 2012. Continuous training refers to director training year-round. It usually includes updates about economic and legal matters as well as risk management and tailored training on subjects each director needs to improve his or her knowledge on. Often it includes ethics and whistleblowing training.	Eisenhardt, 1999; Errity and Stuckey, 2009; Heidrick & Struggles, 2011; Huse, 2007; Maharaj, 2008

6.4. Descriptive statistics of the whole sample

The following paragraphs bring more light into the descriptive statistics of this empirical study about the boards of directors of 87 companies of the DAX30, FTSE100 and IBEX35. For this empirical study, the profiles of 1.399 directors in the 87 companies have been analysed for the relevant demographic characteristics. The descriptive statistics have been all computed using the SPSS/ PASW Statistics 18 for Windows Software. The dataset used as well as all tables regarding the descriptive statistics can be found in Appendix A and Appendix D.

Industry and activity

For the 87 companies studied, 10 industrial sectors have been identified according to the *Standard & Poor's 'Global Industry Classification Standard'* (henceforth GICS) (Standard & Poor's, 2006), with the majority of Industrials (16), Financials (15) and Materials (13). The least frequent industry sector is Telecommunication services (3). The activities are balanced with 43 manufacturing companies, 41 service companies and 3 companies with a combination of their main activity in manufacturing and services.

Board size

As board size is suggested to have an impact on cohesiveness, it is interesting to analyse board size in the sample companies. The average board size is 16. Most companies have 11 board members. There is, however, a large dispersion with the smallest board having 8 members and the largest board having 38 members.

Board meetings

Frequent board meetings are essential as they foster sociability, trust, openness and cohesiveness between board members while being necessary to perform the board tasks of monitoring and advisory effectively and therefore for the well-functioning of the board (Forbes and Milliken, 1999; Gabrielsson and Winlund, 2000; Huse, 2007; Maharaj, 2008). As mentioned previously, studies suggest that Anglo-American boards meet on average 7 times a year (Monks and Minow, 2008b). On average, the companies of this sample hold 9 board meetings. Most companies, however, hold only 5 board meetings which is close to the minimum number of 4 board meetings per year. The maximum number of meetings is 29.

Away-days

According to literature, away-days is an important instrument to make boards more cohesive (Berman *et al.*, 2002; Eisenhardt, 1999; Gelektkanycz and Hambrick, 1997; Huse, 2007; Klimonski and Mohammed, 1994; Roberts *et al.*, 2005, Sanders and Van Emmerick, 2004; Van Woekom and Sanders, 2010). Also, according to the companies' 2012 annual reports, many companies use those away-days as several-day strategy events to strengthen the board's corporate culture and communicate core strategic issues. Although organising away-days is recommended by the corporate governance codes, only 17 companies out of the whole sample of 87 declare to have organised at least one such event in 2012, but 70 companies do not disclose information on away-days.

Gender

Gender diversity is a surface diversity factor. However, according to social identity theory, women bring about essential characteristics for the well-functioning of the board. For example, women are suggested to be efficient monitors as they ask tough questions and as they are also more concerned about justice (Fondas and Sasselos, 2000; Huse, 2007; Mathisen *et al.*, 2012). The representation of female directors on the boards of the sample companies ranges from 0% to 38%, with an average of only 15%. Most companies do not have women on their board.

Age

Age diversity is a surface diversity attribute and standing alone it is not suggested to improve board functioning in the long-term. However, considering certain age groups from the resource dependence perspective, they gain on importance for board effectiveness. For example, oldest directors are claimed to have the widest networks easing the access to resources and also are they suggested to have the deepest know-how (Kramer, 2011; Shaw, 2011; Williams and

O'Reilly, 1998). Directors younger than 50 years range from 0% to almost 65% with an average of 18%. Most companies, however, do not have any director younger than 50 years old on the board. Directors older than 70 are not too common either on the corporate boards of the sample companies as suggested by the range from 0% to 30%. The average is 7%. The age range in years ranges from 10 to 44 years. On average the difference between the youngest and the oldest director is 26 years.

Nationality

The gender diversity arguments do also apply for nationality as it is another surface diversity factor. Most companies have 2 nationalities on their boards. The nationality mix ranges from 1 nationality to 10 nationalities. The ratio from international directors to domestic directors ranges from 5% to 75%. The average internationality ratio is 22%.

Education

Education as being a deep diversity factor, is suggested to improve group performance due to the accumulation of knowledge, skills and perspectives within a group which is usually measured as the quality of problem solving, the quality of developing creative ideas and the quality of decision-making (Bebchuk and Weisbach, 2009; Brown, 2009; Brudney, 1982; Eisenhardt, 1999; Hilb, 2012; Huse, 2007; Jackson *et al.*, 2003; Shin *et al.*, 2012; Williams and O'Reilly, 1998). Most companies (49 companies) have 3 different educational backgrounds. 4 companies have 5 educational backgrounds. On average, 60% of the board members have an educational background in economics and related areas, ranging from 12% to 100%. On most companies, 50% of the directors hold a university degree in economics and related areas. Legal directors represent up to almost 60% of the board members. On average, boards have 18% of legal directors. However, most companies do not have any legal director on the board. The proportion of directors with a university degree in sciences other than both economics and related areas as well as law ranges from 0% to 92%. The average is 33% and also most companies have 33% of directors with degrees in sciences other than economics and related areas as well as laws. Humanities are barely considered within boards of directors. Directors holding a degree in humanities range from 0% to 40%, however, on average companies have only 4% of board members with a degree in humanities. Most companies do not have any director with such a degree. Directors with degrees others than the above mentioned form no significant part of the boards of directors either. They range from 0% to 9%. The average is 0% and also most companies do not have directors holding a different degree than the previously mentioned ones. Directors with no university degree range from 0% to 50%. Most companies have no director without university degree. The average of directors with no university degree is 6%.

Outsider ratio

According to agency theory, an independent board is the most important attribute of monitoring and an effective board (Forbes and Milliken, 1999; Sundaramurthy and Lewis, 2003; Bainbridge, 2008). Non-executive directors range from 50% to 93%. On average, the sample companies have 75% non-executive directors. Also, most companies have 75% of non-executive directors.

CEO duality

Too much accumulated power fosters groupthink and other negative board dynamics, therefore a second power base is useful in order to foster critical thinking within the board (Forbes and Milliken, 1999; Morck, 2008). 70 companies out of the 87 sample companies have separated roles of CEO and chairman. 17 companies have combined roles.

Additional mandates of executive directors and non-executive directors

According to resource dependence theory, directors with several board mandates usually have wide networks, making access to those resources easier (Kramer, 2011; Shaw, 2011). Executive directors holding more than 1 mandate in other companies range from 0% to 100%. The average of executive directors with more mandates is 31%. However, most companies have no executive director with more than 1 other mandate. Non-executive directors holding more than 1 mandate in other companies range from 10% to 100% with an average of 57%. Most companies have 50% of non-executive directors with several mandates. Directors with 2 or more mandates range from 0% to 67%. The average is between 25% and 30% (mean: 30%; median: 27%), most companies have 20% of directors with 2 or more other board mandates.

Training

Both induction and continuous training is highly recommended to further strengthen director knowledge as it helps making sure every director knows his or her responsibilities. Furthermore, it helps counteracting cognitive biases by maintaining a high level of up-to-date knowledge on the board. Also, induction is used to strengthen sociability and cohesiveness on the board (Errity and Stuckey, 2009; Heidrick & Struggles, 2011). 46 companies have induction programs for new directors, 41 companies do not disclose information on director induction training. 41 companies offer continuous training while 46 companies do not mention whether or not they offer continuous training for their board members.

6.5. Comparison between the United Kingdom, Germany and Spain

The following paragraphs focus on the differences between Germany, the United Kingdom and Spain. In a first step, the variables are tested for normal distribution and for homogeneity of variances in order to determine variable behaviour and decide whether parametric or non-parametric tests should be conducted in the next step. Afterwards, descriptive statistics per country are used to analyse for differences between Germany, the United Kingdom and Spain.

6.5.1. Normal distribution and homogeneity of variances

First, the data has to be tested for normal distribution which is especially important as data in the field of behavioural studies is usually not normally distributed. Normal distribution was examined based on the **Shapiro-Wilk test** on a 5% significance level. The null hypothesis suggests normal distribution. Consequently, the null hypothesis is confirmed if the p-value is above 0,05; it is rejected if the p-value is below 0,05. The most commonly used non-parametric test - the *Kolmogorov Smirnov test* – is not applied in this data study as it is not appropriate for small sample sizes (Weiber and Mühlhaus, 2014). As the sample size for each country is 29, the Shapiro-Wilk test is the most appropriate test of normality as it brings about meaningful results also for small sample sizes (Weiber and Mühlhaus, 2014). Consequently, all metric variables have been tested for normality by applying the Shapiro-Wilk test which has been conducted using SPSS/PAWS Statistics 18 for Windows. The detailed normality statistics are to be found in the Appendix C. Figure 32 exposes the variables tested as well as their results:

Figure 32: Variable classification and the results of the normality test

Variable name	Variable classification	Shapiro-Wilk test	GE			UK			SP		
			Normally distributed	Non-normally distributed	p-value	Normally distributed	Non-normally distributed	p-value	Normally distributed	Non-normally distributed	p-value
board_size	metric	✓	✗		0,099	✗		0,312	✗		0,180
board_meetings	metric	✓		✗	< 0,001		✗	0,001	✗		0,105
awaydays	nominal/ binary/ dummy										
female_perc	metric	✓	✗		0,716	✗		0,947	✗		0,124
age_perc_under50	metric	✓		✗	0,012	✗		0,071		✗	0,008
age_perc_older71	metric	✓		✗	< 0,001		✗	< 0,001		✗	0,039
age_range	metric	✓	✗		0,829	✗		0,042	✗		0,064
age_lqrange	metric	✓	✗		0,059		✗	0,021	✗		0,770
age_stdev	metric	✓	✗		0,581		✗	0,015	✗		0,253
edu_perc_econs	metric	✓	✗		0,455	✗		0,059	✗		0,697
edu_perc_law	metric	✓	✗		0,415		✗	< 0,001	✗		0,293
edu_perc_scien	metric	✓	✗		0,289		✗	0,005		✗	0,017
edu_perc_hum	metric	✓		✗	< 0,001		✗	< 0,001		✗	< 0,001
edu_perc_other	metric	✓		✗	< 0,001		✗	< 0,001		✗	< 0,001
edu_perc_nouni	metric	✓	✗		0,084	no case of directors with no university degree				✗	< 0,001
diff_edu_num	metric	✓	✗		< 0,001	✗		< 0,001	✗		< 0,001
dom_perc	metric	✓		✗	< 0,001	✗		0,188		✗	< 0,001
internat_ratio	metric	✓	✗		0,083	✗		0,109		✗	0,001
internat	metric	✓	✗		0,002	✗		0,049	✗		0,001
exec_perc	metric	✓		✗	0,004	✗		0,944		✗	0,031
nonexec_perc	metric	✓		✗	0,004	✗		0,783	✗		0,113
ceo_duality	nominal/ binary/ dummy										
exec_perc_1mand	metric	✓		✗	0,001		✗	0,015		✗	< 0,001
nonexec_perc_1mand	metric	✓	✗		0,679	✗		0,233	✗		0,730
dir_perc_2mand	metric	✓		✗	0,256		✗	0,757	✗		0,001
train_ind	nominal/ binary/ dummy										
train_cont	nominal/ binary/ dummy										

The Shapiro-Wilk test showed that the variables *age_range*, *board_size*, *female_perc*, *edu_perc_econs*, *diff_edu_num*, *internat* and *nonexec_perc_1mand* were approximately normally distributed. Consequently, a parametric **Levene's test (ANOVA test)** has been conducted for the above mentioned variables to test for homogeneity of variances between the United Kingdom, Germany and Spain. The null hypothesis of the Levene's test implies that there is homogeneity of variances. The results suggest that the null hypothesis for *age_range* ($p < 0,05$), *board_size* ($p < 0,05$) and *internat* ($p < 0,05$) is rejected which means there is no homogeneity of variances between the United Kingdom, Germany and Spain in terms of age range and board size. For the variables *female_perc* ($p > 0,05$), *edu_perc_econs* ($p > 0,05$), *diff_edu_num* ($p > 0,05$) and *non-exec_perc_1mand* ($p > 0,05$), the null hypothesis is confirmed suggesting the three countries have equal variances.

For the non-normally distributed data as well as the normally distributed data which do not represent homogeneity of variances between the United Kingdom, Germany and Spain, a parametric test is not appropriate for comparing variable behaviour as parametric tests assume both normal distribution and homogeneity of variances (Weiber and Mühlhaus, 2014). Therefore, a non-parametric test has to be conducted. Either the **Kruskal-Wallis test** or the **Mann-Whitney test** can be applied. Both tests have the objective of verifying that the central tendency of two samples is different. Whereas the Mann-Whitney test ranks two groups, the Kruskal-Wallis test ranks more than 2 groups. The results lead to the same conclusion, however, the Mann-Whitney test is more detailed as the comparison of the significance levels allows drawing conclusions on the difference between 2 groups (Weiber and Mühlhaus, 2014). Both tests have been conducted for comparing the following variables (all non-normally distributed variables in all three countries and/or variables with no homogeneity of variances between all three countries):

- *board_size*
- *board-meetings*
- *age_perc_under50*
- *age_perc_older71*
- *age_lqrange*
- *age_range*
- *age_stdev*
- *dom_perc*
- *intern_ratio*
- *edu_perc_law*
- *edu_perc_scien*
- *edu_perc_hum*
- *edu_perc_other*

- *edu_perc_nouni*
- *diff_edu_num*
- *exec_perc*
- *nonexec_perc*
- *exec_perc_1mand*
- *dir_perc_2mand*

Figure 33 summarises the conclusions of the Mann-Whitney test and the Kruskal-Wallis test. The 'rank' column ranks from top to down. The detailed results of the Mann-Whitney test as well as for the Kruskal-Wallis test are exposed in Appendix C.

Figure 33: Results of the Mann-Whitney test and the Kruskal-Wallis test

Variable	Rank	Significance level
board_size	GE SP UK	GE-UK: (p<0,001) UK-SP: (p<0,05) GE-SP: (p<0,001)
board_meetings	SP UK GE	GE-UK: (p<0,05) UK-SP: not significant SP-GE: (p<0,001)
age_perc_under50	GE UK SP	GE-UK: not significant UK-SP: (p<0,05) GE-SP: (p<0,05)
age_perc_older71	SP GE UK	GE-UK: not significant UK-SP: (p<0,05) SP-GE: (p<0,05)
age_range	SP GE UK	GE-UK: (p<0,05) UK-SP: (p<0,001) GE-SP: not significant
age_lqrange	SP GE UK	GE-UK: not significant UK-SP: (p<0,05) GE-SP: not significant
age_stdev	SP GE UK	GE-UK: not significant UK-SP: (p<0,001) GE-SP: (p<0,05)
dom_perc	SP GE UK	GE-UK: not significant UK-SP: (p<0,05) GE-SP: not significant
internat_ratio	UK GE SP	GE-UK: (p< 0,05) UK-SP: (p<0,05) GE-SP: not significant
edu_perc_law	SP GE UK	GE-UK: (p<0,05) UK-SP: (p<0,001) GE-SP: (p<0,05)
edu_perc_scien	GE UK SP	GE-UK: not significant UK-SP: not significant GE-UK: (p<0,05)
edu_perc_hum	UK GE SP	GE-UK: not significant UK-SP: not significant GE-SP: not significant

Figure 33: Results of the Mann-Whitney test and the Kruskal-Wallis test (continuation)

Variable	Rank	Significance level
edu_perc_other	GE UK SP	GE-UK: (p<0,05) UK-SP: not significant GE-SP: (p<0,05)
edu_perc_nouni	GE SP UK	GE-UK: (p<0,001) UK-SP: not significant SP-GE: (p<0,001)
diff_edu_num	GE SP UK	GE-UK: (p<0,001) UK-SP: (p<0,05) GE-SP: not significant
exec_perc	GE UK SP	GE-UK: not significant UK-SP: (p<0,001) GE-SP: (p<0,001)
nonexec_perc	SP UK GE	GE-UK: not significant UK-SP: (p<0,001) GE-SP: (p<0,001)
exec_perc_1mand	UK GE SP	GE-UK: (p< 0,05) UK-SP: (p<0,05) GE-SP: not significant
dir_perc_2mand	UK GE SP	GE-UK: (p<0,05) UK-SP: (p<0,001) GE-SP: not significant

From figure 33, it can be concluded that the United Kingdom ranks highest on the number of directors with 2 or more other board mandates which has not been expected. The German economy is well-known for its numerous connections between companies through cross-shareholdings, therefore Germany has been expected to lead the table on the number of directors with 2 or more board mandates. Having legal directors on the board has not been expected to be significantly lower in the United Kingdom than in the other countries of analysis. On the contrary, as there are calls for appointing legal directors and as the United Kingdom makes much use of board secretaries, who usually are legal directors, the United Kingdom has been expected to rank highest. The United Kingdom has the lowest score on board size, directors aged 71 and older, directors with no university degree and directors with a degree in law. The United Kingdom is the middle player in the number of board meetings, directors with an education in other fields than economics, law, science and humanities, as well as the percentage of non-executive directors on the board. The United Kingdom as being the pioneer in corporate governance regulations, was expected to have the lowest board sizes as smaller boards are suggested to be more efficient. Also, the lowest rank on directors aged 71 and older was expected as ownership structure is widely held and the United Kingdom does not have many controlling shareholders, such as founding families on its boards as it is the case in Germany and Spain.

German corporate boards lead the table on board size, the percentage of directors with no university degree, the number of different educational backgrounds on the board and the percentage of directors with degrees others than economics and related fields, law, science and humanities. The number of directors with no university degree was expected to be highest in Germany, due to their corporate governance system and the structure of the board of directors in which 50% of the supervisory board members are employee representatives. Also, the system of capitalism has an important impact on the German economy. Long-term relationships between employees and companies often start with an apprenticeship instead of a job after completing a university degree. Those long-term relationships often result in having board members who have started as apprentices being promoted several times until reaching the supervisory board. Due to the corporate governance system as well as the social market economy with companies sitting on each other's boards and controlling each other directly or through complex pyramid structures, German corporations have been expected to have the largest boards. The large boards as well as the fact that directors with no university degree sit on the boards lead to a higher number of educational backgrounds, consequently, it was expected that Germany leads the table on this variable. Educations others than economics, law, science and humanities, however, was not expected to be significantly different from the other countries.

Spanish listed companies lead the table on the number of board meetings they hold, directors with an age of 71 and older, legal directors on the board as well as the percentage of non-executive directors on the board. An important characteristic of Spanish corporate governance is that there is a third kind of directors represented on the board – the proprietary director who is a significant shareholder or a representative of a significant shareholder. This is claimed to be important due to the more concentrated shareholding structure than in the Anglo-American corporate governance system. Often those shareholders are the founders of the company and consequently, older directors are common. It was, however, not expected that legal directors were significantly more represented on Spanish boards than on boards in the United Kingdom or Germany. It is a positive sign for effective monitoring as lawyers and corporate governance specialists are claimed to improve critical thinking and problem solving on the board.

6.5.2. Dealing with missing data and outliers

Data has been controlled for errors and invalid data. The clearance of invalid data is a time consuming but essential step in order to get a high quality dataset which is the basis for the correctness of the statistical analysis. A plausibility test is a useful way to double check the dataset for invalid data.

Information gathered from the companies has not been questioned and therefore not verified as it can be assumed that the companies' annual reports, the companies' websites as well as the other websites used are reliable sources. Information published from each company can be classified as reliable as this information is subject to stock exchange disclosure requirements. The other websites used for completing the missing information on directors are all leading business news providers which therefore can be classified as reliable sources. Consequently, for example, the information on whether a director is classified as independent was just accepted without comparing the characteristics of the director to official definitions of independence.

The literature suggests various ways to deal with missing data. The three most often cited ways are first, the replacement of missing data by the average. Second, codifying by using a very large number which is out of the possible range of numbers and third, the exclusion. For the two missing values in this dataset, the first option of replacing the missing values by the average value has been used (Bryman and Bell, 2007).

Also, the analysis of outliers, which are values that are not plausible and differ significantly from the other values of a variable, has to be considered carefully. Reasons for outliers can be a wrong coding, wrong data entry or data saving. Also, outliers could be correct values but different from the majority of a variable's values. These outliers are not typical for the population and therefore the sample does no longer represent the population.

For identifying outliers, the following labelling technique formula has been used, based on Hoaglin and Iglewicz (1987) with the recommended multiplier of 2,2:

<i>Interquartile range = Max – Min</i>	<i>IQR = Q3 – Q1</i>
<i>Outlier Rule-of-Thumb</i>	<i>y < Q1 – 2,2 × IQR or y > Q3 + 2,2 × IQR</i>

The detailed calculation can be found in the Appendix C. Figure 34 visualises the detected outliers.

Figure 34: Outliers

Variable	No. of detected outliers	Outlier value	Case no. (company no. and country)
board_size	1	38	10 (10, GE)
female_perc	0		
age_range	0		
edu_perc_econs	0		
nonexec_perc_1mand	0		

After analysing the existing outlier exposed in figure 34, it has been verified that it is real data. Although it differs from the other values, analysing the board sizes in Germany, large boards are a typical characteristic of German companies due to their two-tier board structure. As a consequence, the outlier has not been removed for further analysis.

6.5.3. Descriptive statistics per country of analysis

The following paragraphs put special focus on detecting country specific characteristics. Although this study does not detect whether or not the companies studied are national to the stock exchange they are listed on (considering that there might be reasons to better list a company on a foreign stock exchange or to cross-list a company), as a matter of fact the vast majority of companies is listed on its national stock exchange (see Figure 30: List of companies). Therefore, for simplicity reasons, it is assumed that all companies are national to the stock exchange they are listed on.

Industry and activity

For all 3 countries, the activity seems balanced with 44 companies being in the manufacturing sector and 41 in the service sector. However, taking a closer look at each country, differences can be identified. Whereas Germany has 17 manufacturing companies and 11 service companies (1 company sells software services and products, so it is grouped in category 3 as ‘manufacturing and services’), in the United Kingdom, the service companies (16) dominate over the manufacturing companies (12) (it has also 1 company with its core business in a combination of manufacturing and services so it is categorised within group 3). Spain reflects the overall picture as it is also balanced with 14 manufacturing companies, 14 service companies and 1 company which has its core in both manufacturing and services.

Those results come hand in hand with the industries represented in the sample companies. Whereas most companies listed in the German DAX30 are from the Materials sector (6 companies, 20,7%), Financials and Health Care come second (each 5 companies, 17,2%), the

bottom are Consumer Staples (1 company, 3,4%), and Telecommunication Services (1 company, 3,4%). In the United Kingdom, most companies work in the Financials sector (6 companies, 20,7%), followed by the Materials sector (5 companies, 17,2%). Health care, which is one of the strongest sectors in Germany, is the least frequent in the United Kingdom's sample (1 company, 3,4%) together with Telecommunication Services which is also the least frequent one in the German sample (1 company, 3,4%). In the Spanish sample of IBEX35 companies, it is interesting to note that the strongest sector by far is the Industrials sector with 9 companies and a 31,0% share, followed by Financials with 4 companies and 13,8%, representing a huge gap between Industrials and Financials and the extreme importance of Industrials in the Spanish market. The least strong sectors are the same as in the United Kingdom, Health Care (1 company, 3,4%) and Telecommunication Services (1 company, 3,4%).

All in all, some interesting differences about the represented industries in each country can be identified. First of all, Health Care is among the weakest sectors in both the United Kingdom and Spain, whereas it is the second strongest one in Germany. Industrials is by far the strongest sector in Spain but neither in the United Kingdom nor in Germany among the strongest. The strongest sector in Germany is Materials, the strongest in the United Kingdom is Financials. Telecommunication Services is the weakest sector in all 3 countries.

Board size

Board size on the FTSE100 and the IBEX35 companies is similar. In the IBEX35 companies, the board size range from 9 to 19 members with an average of 13 members. In the FTSE100 companies, the board sizes ranges from 8 to 17 members, with an average of 12 members. The board size in the DAX30 companies is much higher than in the FTSE100 and the IBEX35 companies. On average, the board has 23 members. Most companies have 16 members. The lowest board size of 14 members has only 1 company and also the highest size of 38 members²⁶ has only 1 company. The average board size has to be differentiated between countries because Germany with its two-tier board structure has much larger boards than the United Kingdom and Spain. The high board size is attributed to the structure of the supervisory board with 50% employee representatives and 50% shareholder representative. To make a voting and each vote meaningful, a certain number of representatives is needed. Also, German social market economy plays an important role as social networks between companies are very common which means that there are many interlocking directorates resulting in companies controlling each other through board mandates on each other's boards. Consequently, the boards are large (Hall and Soskice, 2001).

²⁶ This value is the outlier value. It is company no. 10 (Deutsche Bank) to be found in figure 30: List of companies.

Board meetings

DAX30 companies have between 4 and 29 board meetings. On average, they hold 7 meetings. Most companies hold 5 or 8 meetings. In the sample of the FTSE100 companies, companies hold between 5 and 23 board meetings with an average between 9 and 10 meetings. IBEX35 companies hold between 5 and 17 board meetings with an average of 10 meetings. All in all, it can be concluded that most companies of the three indices stay within the average range of 7 to 10 annual board meetings.

Away-days

Due to the importance of away-days according to literature and the recommendations of the corporate governance codes, it is interesting to see both how many companies and of which countries the companies organise those events most to make careful suggestions about the companies' focus on the advisory role and cohesiveness inside the boardroom. In Germany, 8 companies (27,6%) do organise away-days, 21 companies (72,4%) do not disclose any information about away-days which is considered as not being organised – or even not being a relevant governance issue, in opinion of those responsible of approving the annual report. At first glance, this could be interesting as Germany is known for supporting a strong stewardship perspective of corporate governance. The United Kingdom has a similar result with 9 companies (31%) organising away-days and 20 companies (69,0%) which do not disclose. This is a surprising result as the United Kingdom is the pioneer in corporate governance, especially in effectiveness matters. In Spain, none of the companies disclosed information about away-days or strategy-events (0%).

All in all, it can be concluded that although strategy events or away-days over several days are argued to improve board cohesiveness, it seems that companies in all three countries do not want to use this strategy. Reasons could be that companies and especially board members who often have responsibilities in other companies are short of time to organise such events or the companies just prefer not to run the danger of building up too many friendship ties on the board as this also might reduce 'independence of mind' according to agency theory.

Gender

The representation of female directors is similar in all three countries. Germany has up to 32% women directors and an average of 15%. Spain has up to 36% women on its boards with an average of 13% and the United Kingdom has a slightly higher representation of female directors with up to 38% and an average of 18%.

Age

DAX30 companies have up to 64% directors under 50 years old with an average of 21%. Directors older than 71 years old are also represented with up to 25%, however, with only an average of 5%. The German age range, which represents an important characteristic of diversity and board knowledge, is 19 to 33 years with an average range of 27 years. The FTSE100 companies have up to 50% of directors under 50 years old, with an average around 17%. Directors above 70 years old are represented with up to 31%, however, with an average of only 5%. The age range is 14 to 34 with an average of 21 years. Directors under 50 represent up to 40% of IBEX35 directors with an average of 16%. Directors older than 70 years old represent almost up to 29% of directors, with an average of 11%. The age range is from 10 years to 44 years which is the highest comparing the 3 countries.

Nationality

In the DAX30 sample, the internationality ratio is between 7% and 38% with an average of 20%. Most companies have 4 nationalities on their board. The FTSE100 companies have an internationality ratio between 7% and 75% with an average of 29%. Most companies in the sample have 3 nationalities on the board. Companies in the IBEX35 have an internationality ratio of 5% to 55% with an average of 19%. Most companies have only 2 nationalities on the board.

Education

In the FTSE100 most companies have 3 different educational backgrounds (14 companies, 48,3%) or 2 educational backgrounds (11 companies, 37,9%). Most of those educational backgrounds are economics with a range from over 42% to 100%, an average of over 70% and most companies having 50% of economists on their boards. The second highest educational background is sciences others than economics and law with a range from 0% to over 90% with an average of 37%. Directors with a degree in law represent up to 43% with an average of 9%. Most companies, however, do not have any legal director on the board. Neither humanities nor other educational backgrounds or education with no university degree make an essential contribution in the educational mix. The vast majority of companies listed in the IBEX35 has 3 educational backgrounds (22 companies, 75,9%) on the board. Also, in the IBEX35 companies, economics is the most frequent educational background on the boards with a range from 43% to 100%, an average of 68%. Law and other sciences than economics and law have a similar weight on the boards. Law has a range from almost 8% to almost 60% with an average of more than 28%. Other sciences range from 0% to 60%. Humanities, other educational backgrounds as well as education with no university degree do not play an essential role in the educational mix. In the DAX30 companies, the vast majority has 3 (13 companies, 44,8%) or 4 (13 companies, 44,8%)

different educational backgrounds on the board. The reason is probably the much higher board sizes in German companies. Economics is also the most frequent educational background with a range from almost 12% to 75%. Also, sciences other than economics and law with a range from 6% to 74% and an average of 35% as well as law with a range from 0% to 46% and an average of more than 17% are well represented. Taking a closer look at the educational backgrounds, the DAX30 companies differ in one aspect significantly from the companies listed on the FTSE100 and the IBEX35. The huge difference is that members with no university degree are well represented on the boards with up to 50% and an average of 16%. The reason is a difference in the educational system in Germany. Apprenticeships instead of university studies are very common. Besides, there are 50% of employee representatives on the supervisory board. Those directors cannot directly be compared to the directors who sit on the board of the companies in the United Kingdom or Spain. As they are employees, they usually have specific skills and experience in their field, often they have worked for many years with the same company where they climbed the career ladder. But, often they do not hold a university degree as directors in other countries do.

Summarising, the FTSE100 and the IBEX35 companies have on average 3 educational backgrounds on their boards. In the DAX30 companies it is slightly more with 3 to 4 educational backgrounds. Economics, law and other sciences than economics and law are well represented in all countries. The only significant difference is that companies listed on the DAX30 have a significantly higher representation of directors with no university degree due to the reasons explained above.

Outsider ratio

The percentage of executive directors and non-executive directors on the boards does not vary too much. A reason is probably that it is highly recommended to have at least 50% of non-executive directors on the board. In Germany, this is even legal statute and so the percentage of executive directors ranges from 17% to 50% with an average of 30%. Consequently, the percentage of non-executive directors ranges from 50% to 83%, with an average of 70%. In the United Kingdom, the executive representation ranges from 8% to 50% with an average of 27%. Non-executive directors represent between 50% and 92% of the directors with an average of 72%. In Spain, the percentage of executive directors ranges from almost 7% to 33% with an average of 16%. Non-executive directors therefore represent between 67% and 93% of the total directors with an average of 84% which is according to agency theory arguments a very good result as monitoring is supposed to be more effective.

CEO duality

In Germany, CEO duality is prohibited by law; the managing board and the supervisory board are strictly separated. As a result, there is 0% CEO duality in the DAX30 companies. From the 29 companies in the United Kingdom's sample, there is only 1 with CEO duality which is, however, not a British company but a Chilean company. 28 companies (96,6%) have separated roles. In comparison to the United Kingdom and Germany, Spain has separated roles only in 13 companies (44,8%) and therefore 16 companies (55,2%) with CEO duality, giving CEOs much power and much opportunities to influence the board. According to agency theory, this result offsets the advantage of having such a large percentage of non-executive directors on the board as negative board dynamics such as groupthink and herding occur more easily.

Additional mandates of executive directors and non-executive directors

Additional mandates of executive directors do vary significantly between countries. They range from 0% to 100% and have an average of 40-50%. Non-executives with more than 1 mandate range in German boards from 25% to 83% with an average of almost 50%. In Spanish boards, they range from 10% to 100% also with an average of almost 50%. The case of the United Kingdom differs significantly. Non-executive directors in the United Kingdom tend to have more mandates; they range from almost 30% to 100% with an average of almost 75%. Directors with 2 or more mandates range in the United Kingdom from 11% to 64%. On average, FTSE100 companies have around 40% of directors with 2 or more mandates (mean: 39%, median: 42%), most companies have 45% of directors with 2 or more other board mandates. In Germany, there are less directors with 2 or more other board mandates. They range from 5% to 67%. On average, DAX30 companies have 26-27%, most companies have 19% of directors with 2 or more other board seats. In Spain, there are even less additional mandates, ranging from 0% to 67% with an average of around 20% (mean: 23%; median: 18%). Most companies have 14% of directors holding 2 or more additional board mandates.

Training

Training brings another core result. Whereas Spain has a quite good level of induction with 18 companies (62,1%) getting induction at the beginning of their directorship and 11 companies (37,9%) not disclosing about it, companies listed in the German DAX30 are the weakest by far in this field with only 4 companies having induction programs (13,8%) and 25 companies not disclosing information about it (86,2%). The United Kingdom is unsurprisingly the strongest in this field as some of the United Kingdom's reports on corporate governance called for more induction and training programs for directors. Both types of training have been highly recommended in the United Kingdom's Tyson Report (Tyson, 2003). The United Kingdom even

offers certifications for directors and corporate governance specialists to make boards more effective by improving director know-how. 24 companies (82,8%) offer induction to their directors, only 5 companies (17,2%) do not disclose this information. About continuous training, the United Kingdom and Spain have both almost half of their companies offering continuous training (United Kingdom: 55,2%; Spain: 55,2%), half of them not disclosing about it (United Kingdom: 44,8%, Spain: 44,8%). In Germany, only 9 companies (31,0%) offer continuous training to their directors, whereas 20 companies (69,0%) do not disclose information about it. This result on the United Kingdom, however, is surprising considering the above mentioned strong calls and offers for specific training. In Germany, both results on training (induction and continuous) are alarming, especially considering the composition of the boards with employee representatives who might not have enough specific know-how for a director role without sufficient training.

Figure 35 summarises the results of the international comparison and visualises whether there are significant differences between two countries (two different colours) or significant differences between all three countries (three different colours) or no significant differences (one colour). There are special cases in which two countries differ significantly from one another, however, the third country does not differ significantly from any of the other two countries. In these cases, the country that does not differ significantly from any of the other two is highlighted in both colours. The results have been obtained from the **Kruskal-Wallis test**. The detailed statistical results are to be found in Appendix C.

Figure 35: International comparison of the descriptive statistics

Variable	GE (%)	UK (%)	SP (%)	p-value
activity				not significant
manufacturing	58,6	41,38	48,3	
services	37,9	55,17	48,3	
manufacturing + services	3,45	3,45	3,45	
industry				not significant
Consumer Discretionary	13,8	13,79	10,3	
Consumer Staples	3,45	6,90	6,90	
Energy	0,00	10,34	6,90	
Financials	17,2	20,69	13,8	
Health care	17,2	3,45	3,45	
Industrials	6,9	13,79	31,0	
IT	10,3	10,34	6,9	
Materials	20,7	17,24	6,9	
Telecommunication Services	3,45	3,45	3,45	
Utilities	6,9	0,00	10,3	
awaydays				< 0,05
no (not disclosed)	72,4	68,97	100,00	
yes	27,6	31,03	0,00	
ceo_duality				< 0,001
no (not disclosed)	0,00	3,45	55,2	
yes	100,00	96,55	44,8	
train_ind				< 0,001
no (not disclosed)	86,2	17,24	37,9	
yes	13,8	82,76	62,1	
train_cont				not significant
no (not disclosed)	69,0	44,83	44,8	
yes	31,0	55,17	55,2	

Variable	GE (no.)		UK (no.)		SP (no.)		p-value
	mean	mode	mean	mode	mean	mode	
board_size	23,17	16	11,69	11,00	13,38	11,00	< 0,001
board_meetings	7,28	5,00	9,72	9,00	10,17	11,00	< 0,001
internat	4,45	4,00	3,34	3,00	2,34	2,00	< 0,001
diff_edu_num	3,55	3,00	2,79	3,00	3,21	3,00	< 0,001

Figure 35: International comparison of the descriptive statistics (continuation)

Variable	GE (%)		UK (%)		SP (%)		p-value
	mean	mode	mean	mode	mean	mode	
Director education							
edu_perc_nouni	0,16	0,00	0,00	0,00	0,00	0,00	< 0,001
edu_perc_econs	0,43	0,31	0,72	0,50	0,68	0,67	< 0,001
edu_perc_law	0,17	0,00	0,09	0,00	0,28	0,33	< 0,001
edu_perc_sien	0,35	0,20	0,37	0,33	0,25	0,00	not significant
edu_perc_hum	0,03	0,00	0,06	0,00	0,20	0,00	not significant
edu_perc_other	0,02	0,00	0,01	0,00	0,00	0,00	< 0,05
Age							
age_perc_older71	0,05	0,00	0,05	0,00	0,11	0,00	< 0,05
age_perc_under50	0,21	0,25	0,17	0,00	0,16	0,00	not significant
age_range	26,66	25,00	21,72	15,00	30,28	22,00	< 0,001
age_lqrange	10,79	10,00	9,81	9,75	11,87	11,00	not significant
age_stdev	7,70	6,94	7,15	4,79	9,38	3,63	< 0,001
Nationality							
internat_ratio	0,2	0,07	0,29	0,25	0,19	0,13	< 0,05
dom_perc	0,74	0,88	0,64	1,00	0,79	1,00	< 0,05
Gender							
female_perc	0,15	0,13	0,18	0,18	0,13	0,00	not significant
Outsider ratio							
exec_perc	0,30	0,25	0,27	0,25	0,16	0,09	< 0,001
nonexec_perc	0,70	0,75	0,72	0,75	0,84	0,83	< 0,001
Directors with other board mandates							
exec_perc_mand1	0,25	0,00	0,42	0,00	0,25	0,00	< 0,05
nonexec_perc_1mand	0,49	0,50	0,74	0,83	0,47	0,50	< 0,001
dir_perc_2mand	0,27	0,19	0,39	0,45	0,23	0,14	< 0,001

Summarising the most essential differences between the three countries of analysis, the following can be concluded:

- From the companies listed in the United Kingdom, it is surprising that many companies do not disclose detailed information on their directors, as the United Kingdom is the pioneer in corporate governance and information disclosure. 12 additional companies had to be analysed to get a total of 29 companies with full information.
- Companies listed in Germany are all German companies. As the educational system in Germany has the particularity of apprenticeships for young adults who do not want to study at university but who do want to learn a profession with on-the-job training. This has been a long tradition in Germany and it is quite common for board directors to have started many years ago in this same company as an apprentice. Due to the obligatory ‘co-determination’, employee representatives make 50% of the supervisory board members. Therefore, it is not surprising to find board members without university degrees. However, in some companies, the percentage of board members without university degree can be classified as very high. For example, one company has 32%, another one has 38% and there is even one with 50% of board

members with no university degree. There are only 4 companies out of the DAX 30, in which all board members hold a university degree.

- Both the DAX30 companies as well as in the FTSE100 companies follow the recommendations regarding CEO duality. In the IBEX35 companies however, separation of CEO and chairman is not as common as in Germany and the United Kingdom. A reason for this is given in Chapter 4 of this doctoral dissertation by explaining that a vast majority of Spanish companies is controlled by the founding family, therefore many boards of directors are no more than ‘window-dressing’ as they are passive. Consequently, founding families see no need in establishing separated power bases, especially because it makes decision-making slower and decreases their control. The monitoring mechanism is therefore not existent and board dynamics, such as groupthink probable (Ricat *et al.*, 1999).
- Board size also illustrates an essential difference. Often criticised, also the information gathered for this dissertation can confirm that the board size is exceptionally large in most German companies. There are two reasons: First of all, stakeholder representatives on the supervisory board lead to larger board sizes. The second rationale behind the large board sizes is the long-term commitment of employees to their employers which is the reason why the missing technology transfer is compensated through cross-shareholdings of the companies. A few companies control a large part of the German industry, leading through the cross-shareholdings to larger boards (Charkham, 2005; Hassel, 2006; Streeck, 1995).
- Factors regarding cohesiveness on the board are not complied with sufficiently. Away-days which are usually strategy events that also are supposed to foster social ties between directors are not organised in many companies. Neither the United Kingdom (31%) nor Germany (29%) or Spain (0%) place great importance on away-days. Induction training is also considered a factor for improving cohesiveness on the board. Whereas the majority of FTSE100 companies (82,8%) and IBEX35 companies (62,1%) provide directors with induction programs, German companies (13,8%) do not put much attention to induction of directors. This, however, is supposed to be even more important in Germany due to the composition of the supervisory board with employee representatives who probably often do not have the necessary know-how for performing the director role effectively. Therefore, the lack of focusing on factors improving cohesiveness and know-how on the boards is alarming.
- Age diversity differs between the three countries. Whereas Germany and Spain have commonly directors older than 70 on their boards, the United Kingdom appoints less directors close to retirement age. One explanation could be that engineering industries as it is the case in Germany, need more wisdom and experience on the board than

industries of radical innovation as it is the case in the United Kingdom. The predominating service companies need young directors with new and fresh ideas. Another explanation could be the ownership structure. Whereas companies in Germany and Spain are often controlled by the founding family (often even the founder) through seats on the board, there might be older directors on the board than in the United Kingdom, where founders do not play a major role in board composition. However, comparing the significance levels of the country-specific differences on directors older than 70 years, only Spain differs significantly.

In general, all countries comply to a large extent with their codes and the results of the descriptive statistics correspond to the analysis of code compliance in Chapter 5.

6.6. Correlation analysis and factor analysis

Now that all variables have been analysed, a correlation analysis is conducted to test for possible relationships between variables. Afterwards, a factor analysis tries to group formal variables into constructs, which are the informal variables, in order to draw conclusions on the hypotheses established previously in this chapter.

6.6.1. Correlation analysis

A correlation analysis is a bivariate procedure that provides information on the statistical relationship between two variables. Whereas for normally distributed scale variables, the **Pearson correlation** is computed, for nominal or non-normally distributed data, the **Spearman correlation** is computed (Weiber and Mühlhaus, 2014). The correlation analysis is conducted using SPSS/PAWS Statistics 18 for Windows. Results of the Pearson as well as the Spearman correlation are included in the Appendix F. The general conclusion of the correlation analysis is that correlation coefficients are $< 0,3$, suggesting that multicollinearity does not exist between variables (Williams *et al.*, 2010).

As the ultimate goal is detecting the interdependencies between constructs as well as between constructs and indicators, in a next step a factor analysis is necessary to detect the constructs.

6.6.2. Factor analysis

Both techniques, the exploratory factor analysis (henceforth EFA) as well as the confirmatory factor analysis (henceforth CFA) are applied. Exploratory factor analysis helps to better define the constructs by selecting and testing the impact of manifest variables or indicators (formal variables) on the latent variables or constructs (informal variables). This way, redundant manifest variables can be eliminated from the construct which might have found support by literature but no statistical support applying the EFA. The main goal of CFA is confirming the existence of relationships between the variables in order to draw conclusions on the theoretically established constructs and the existence of their connections or relationships to each other. However, it has also the advantage of finding errors in variances and co-variances between indicators and constructs which is a helpful way to reconsider relationships between constructs in case of existing errors (Williams *et al.*, 2010).

Conducting a factor analysis has been justified as the sample size with 87 cases is appropriate, the correlation analysis suggests the correlation coefficients of $< 0,3$ demonstrate the lack of multicollinearity between variables and the **Kaiser-Meyer-Olkin (KMO) index**²⁷ of $> 0,5$ considers suitability of data for factor analysis. KMO is a measure of sampling adequacy as it tests for partial correlations among the indicators. KMO of $< 0,5$ is poor, $> 0,5$ is suggested to be appropriate for analysing the correlation matrix by conducting the technique of a factor analysis (Williams *et al.*, 2010).

Results of the factor analysis conducted in this doctoral dissertation are not conclusive as correlations between indicators are too weak. As a consequence, the conducted factor analysis does not confirm the hypotheses established. The factor analysis has been conducted using SPSS/PASW Statistics 18 for Windows. The results are included in the Appendix G.

As a consequence, it has been decided to use Structural Equation Modeling (henceforth SEM) with a formative measurement model in order to be able to give a definite multivariate answer to whether or not theoretically established interdependencies between the established constructs as well as between constructs and indicators can be confirmed by a statistical analysis. A detailed explanation of SEM and its steps is provided in the following lines.

²⁷ See Appendix G for the detailed statistics.

6.7. Structural Equation Modeling (SEM)

This doctoral dissertation proposes an innovative way of research on the board of directors. The general idea is bringing more light into the field of boardroom behaviour, especially gaining more knowledge on the informal or hidden characteristics of boardroom behaviour. Unfortunately, the only research methods used in this field are interviews, case studies, direct observations and similar methods (often combined with statistical methods) which do not bring about large sample sizes. The reason for using those methods is that behaviour is not easily measurable in a statistical way making boardroom behaviour a rather ‘untouched’ topic in empirical research (Huse, 2009; Minichilli *et al.*, 2012).

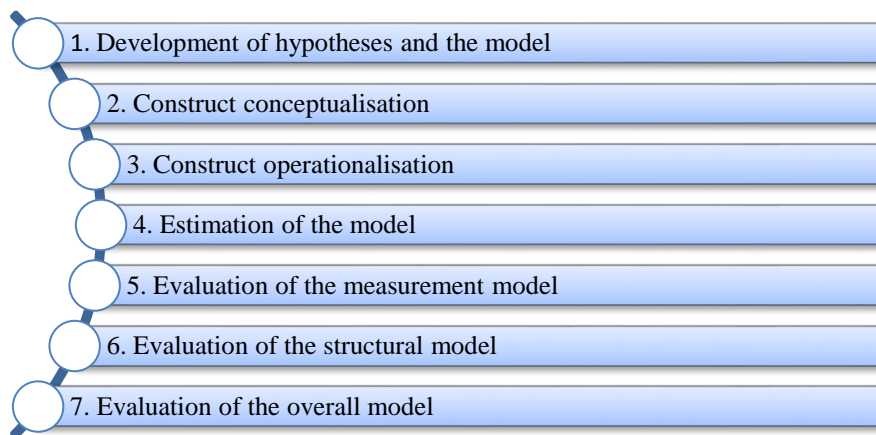
For the research carried out in this doctoral dissertation, it is essential to consider that both theoretical and empirical information is rare. Therefore, there are some practical considerations to make. The researcher has to check, for example, the available resources and the access to the data. As mentioned previously, the access to primary data is quite difficult, especially if the researcher wants to get a large sample. Therefore, only secondary data in form of the annual reports of the companies studied have been used in this doctoral dissertation. Furthermore, as the informal structure of boards is not directly measurable in a quantitative way and hardly appears in secondary data sources, the only reasonable decision in order to test the hypotheses established was using the informal factors of boardroom behaviour and connecting them according to existing literature to the formal factors in order to both be able to measure the former indirectly and to do it on a large scale. This is an innovative way of measuring the hidden behavioural characteristics of the board of directors and therefore a new attempt to finally opening up the ‘black box’ of boardroom conduct.

SEM has been selected for this study as it has the advantage of allowing to indirectly measure variables that cannot be measured directly which is also why it is frequently used in research on social sciences and especially on behavioural research (Chin, 1998). The core of causal analysis – a second generation multivariate method combining regression analysis and factor analysis – is to investigate latent variables which are connected to each other through a consistent nexus of hypotheses in order to verify whether or not the theoretically established hypotheses match with the empirical data. Latent variables are not observable, therefore first they have to be made measurable. A path model results from the establishment of hypotheses and it also represents the directions of the causal relationships according to theory (relationship model). From the observations made, conclusions can be drawn on the theory. Consequently, they have a confirmatory character (Ringle, 2004). Recently, advances in SEM have fostered the usage of this method and enabled the testing of complex causal or path models, also across cultural contexts (Tsui *et al.*, 2007). Martin-Alcazar *et al.* (2012) conduct an empirical study on the effects of

diversity on group decision-making including human resource policies as a moderator. They apply SEM and Partial Least Squares (henceforth PLS) as they use a small sample size of 217, where PLS is more appropriate than covariance analysis. Boyd (1990) has conducted a SEM analysis employing covariance analysis as well in order to study how companies respond to different types of environmental uncertainty. No study on actual board behaviour using SEM was found.

SEM is a technique consisting of several steps going from the theoretical formulation of a relationship model and its measurement model, to the data processing and an evaluation of the validity of its empirical results. The detailed steps of SEM are visualised in Figure 36.

Figure 36: General process of a SEM



Source: Weiber and Mühlhaus (2014).

As the hypotheses have been established previously in this chapter, the second step of the SEM process – the construct conceptualisation – is explained in the following lines.

6.7.1. Construct conceptualisation

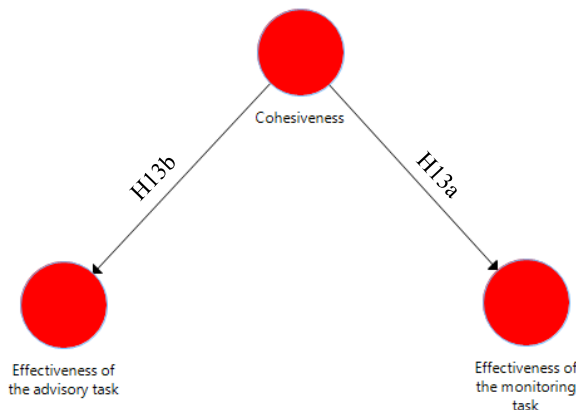
As the latent variables in a causal analysis are unobservable and usually stand at the beginning of a research process with no significant empirical findings, the second step is a conceptualisation of those hypothetical constructs. The conceptualisation is the detailed description of both the constructs and their characteristics and leads to a construct definition using theory and published literature as a base. The conceptualisation also includes defining the relation to other constructs. In order to be able to develop consistent constructs and describe those as detailed as possible, theoretical considerations should be made for describing the causal model

before conceptualising the constructs. The overall goal is a description and definition good enough to operationalise the model in the next step.

Some intents to model and test the effects of board behaviour on board effectiveness have been identified in previous research. The most promising and developed model keeps being the model established by Forbes and Milliken (1999). Some researchers, however, have made essential theoretical contributions in the field of board behaviour, such as Huse (2007), Maharaj (2008) Huse and Nielsen (2010) and Hilb (2012). As already explained in previous pages, all of them have strongly contributed to the hypothesis formation of this research and therefore to its construct conceptualisation (theoretical basis of the SEM application).

Consequently, three constructs are proposed which should be measured by a total of 14 variables. According to the theoretical background and the hypotheses established, the constructional model is as shown in Figure 37.

Figure 37: The constructs for the model



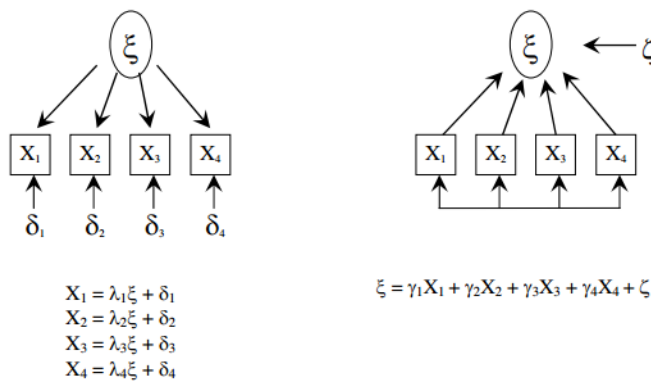
The direction relationships between the hypotheses build the structural model (Weiber and Mühlhaus, 2014). The model indicates that the level of cohesiveness has an impact on both the effectiveness of the monitoring task (H13a: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the monitoring task) as well as on the effectiveness of the advisory task (H13b: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the advisory task).

Important to mention is that not all variables used in the part of the descriptive statistics have been included in the model due to the exigency of the model and the modeling process. The variable selection is explained in detail in the following lines.

6.7.2. Construct operationalisation

The goal of construct operationalisation is to make the hypothetical model measurable by using observable variables. In other words, it is the formulation and specification of the measurement model. This includes the development of constructs, the choice of indicators and the decision of the measuring concept which is the decision of whether the constructs are of reflective or of formative nature. This depends on the causal relation between latent variables (informal structure of boards) and manifest variables (formal structure of boards) (Coltman *et al.*, 2008). In figure 38, the first image visualises a reflective measurement model, where causality flows from the construct to its indicators. The path relation in a formative measurement model (second image) is going from the indicators to the latent variables which means that the indicators cause the latent variable.

Figure 38: Reflective and formative measurement models



Source: Coltman *et al.* (2008:7).

Whereas indicators in reflective constructs correlate with each other and cover the same theoretical aspect, indicators in formative constructs do not necessarily correlate. All of them cover different theoretical aspects which all together form the formative construct. As a consequence, it is necessary to include all relevant indicators in order to explain the construct. Including indicators in or excluding indicators from a formative measurement model causes a change in the content of the latent variable. The indicators are not interchangeable in contrast to the indicators in a reflective construct. As a result, deleting one or more items of a formative construct would change the meaning or the definition of the construct. In contrast, deleting indicators of a reflective construct has no effect on the definition of its construct (Diamantopoulos and Winklhofer, 2001; Nitzl, 2010).

There is a third option which is a mixed measurement model and includes both reflective and formative indicators. It is called 'Multiple Indicators and Multiple Causes' (MIMIC).

However, as this is rather an exception and not the case for the study of this doctoral dissertation, there is no need to further explain this case.

Whether a construct is of reflective or of formative nature, needs specific considerations, a detailed theoretical description of the construct and its definition. “*Mismeasurement can wrongly reject – or, just as bad, wrongly accept – theories and mislead managers by promoting findings based on numbers that cannot be trusted*” (Rossiter, 2005:24). Unfortunately, there is a tendency to use reflective measurement models although many of those models should have been of formative nature (Nitzl, 2010).

All constructs in this doctoral dissertation are defined as formative constructs as their indicators cover different topics which all are supposed to have an impact on their construct. Furthermore, the indicators in each construct are not highly correlated – confirmed by both correlation analysis and factor analysis – which is a signal for being of formative nature.

Another important note to make is that not all indicators considered at first, necessarily make it into the final model. Although, formative measurement models are characterised through their indicators due to theoretical considerations, in case their weights are very low, those theoretical connections should be reconsidered. Also, in the process of ‘cooking the model’, variables not considered in the existing literature have been included in order to build complete formative constructs. Those variables are:

edu_perc_others (Directors with a university degree other than economics and related areas, law, other sciences and humanities): As clarified in figure 31, those include all subfields of classification 1 Education, 6 Agriculture, 7 Health and welfare, 8 Services as well as the subfield 32 Journalism and information of classification 3 Social sciences, business, law of the ‘UNESCO International Standard Classification of Education’ (ISCED 2011) (UNESCO, 2012). Directors with other university degrees are suggested to have overall negative effects on board effectiveness. Although, some degrees might be of importance for certain industries, overall, those degrees are claimed to be minor and therefore also included into the model, expecting a negative impact.

edu_perc_nouni (Directors with no university degree): This variable is important due to the special educational context in Germany. As apprenticeships are common practice instead of university studies, many employees in Germany prefer apprenticeships over studying at a university. Also, the fact that employee representatives hold

supervisory board mandates makes clear how board members without university degrees reach the board level.²⁸ However, overall, a negative impact is expected.

According to the hypotheses set on previous pages, the model includes the following variables:

Construct 1: Effectiveness of the monitoring task:

- Board size
- CEO duality
- Education: Law
- Female directors
- Non-executive directors
- Continuous training

Construct 2: Effectiveness of the advisory task:

- Directors 71 and older
- Non-executive directors with more than 1 mandate in other companies
- Education: Economics
- *Education: No university degree*
- *Education: other*

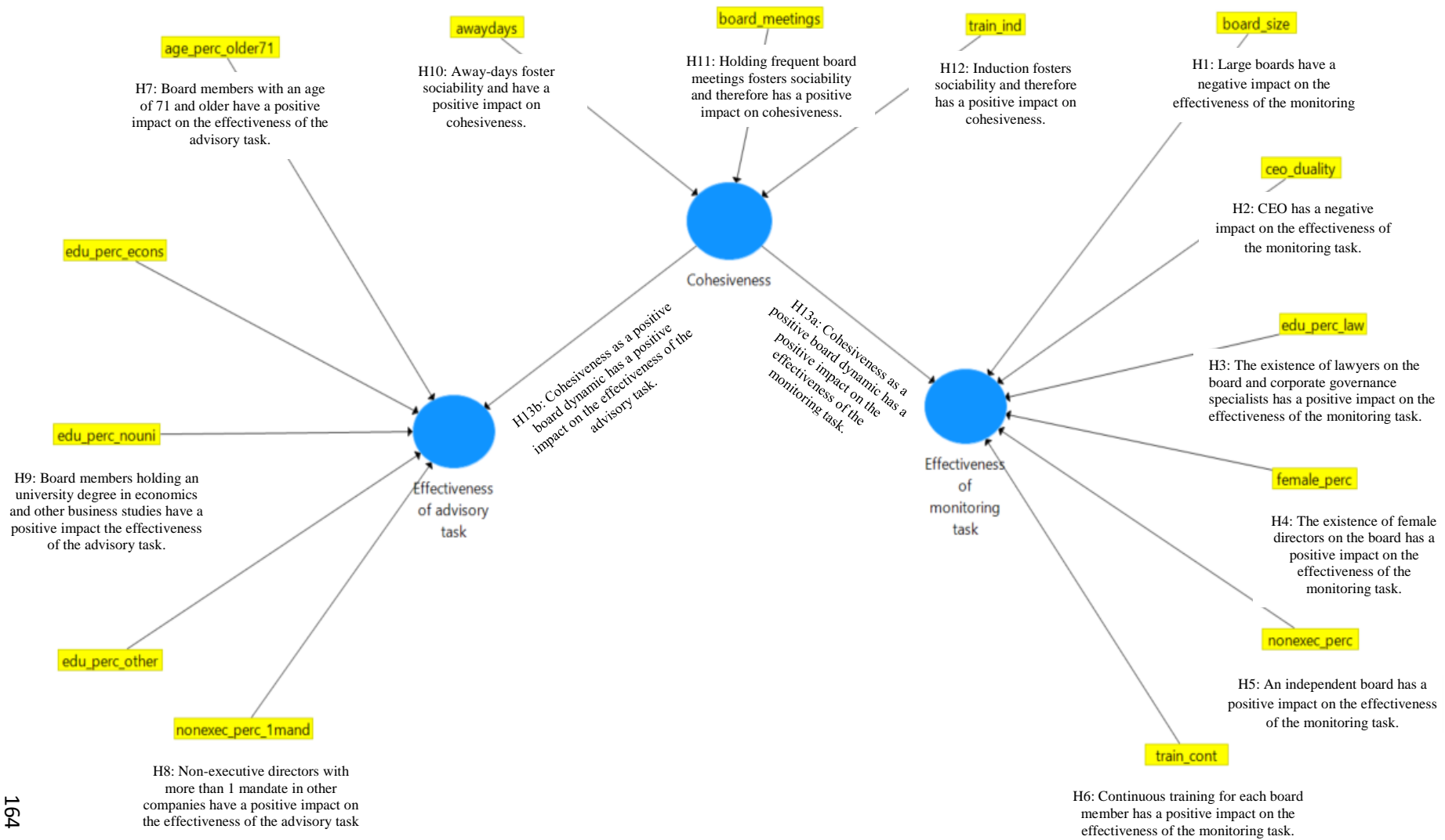
Construct 3: Cohesiveness:

- Away-days
- Board meetings
- Induction training

Figure 39 represents the formative model of this empirical research.

²⁸ For a detailed explanation, see Chapter 5.

Figure 39: PLS-SEM model including hypotheses to test



6.7.3. Partial Least Squares (PLS) as the method chosen

The next step is the model estimation which can either be a covariance-based analysis or a variance-based analysis. The covariance-based analysis is the most frequently used in SEM, conducted by applying the software applications M-Plus, LISREL, EQS and AMOS. Covariance-based analysis estimates the SEM's parameters in a way that the empirical covariance matrix will be reproduced as good as possible through a covariance matrix that arises through the model. As the covariance approach uses all information from the covariance to estimate the model's parameters, it is also called the 'full information approach' (Nitzl, 2010). The other way to estimate causal relationships in SEM is the variance-based analysis which is the PLS method. PLS is the method used in this doctoral dissertation.

The variance-based approach was introduced by Herman Wold in 1977, it has not gained attention until 1984, when Lohmöller developed a software application called smartPLS to use this PLS-SEM approach (Wold, 1980). However, the covariance-based approach has dominated research until the recent past. Recently, many publications using the PLS-SEM approach have been published, especially in Marketing which is an indication of the increasing importance of PLS-SEM (Weiber and Mühlhaus, 2014). One of the most important reasons for the recent increase in use of the PLS-SEM method, is that the software application has been improved and includes now also moderator variables and group causal analysis. Furthermore, smartPLS is now also able to detect unobserved heterogeneity of the data in order to relativise the estimations (Weiber and Mühlhaus, 2014). The free student version of smartPLS 3 (version 3.2.1.) for Windows has been used in this doctoral dissertation.

Chin and colleagues (2003:199) explain the PLS-SEM method as follows: *"The PLS procedure is then used to estimate the latent variable as an exact linear combination of its indicators with the goal of maximizing the explained variance for the indicators and latent variables. Following a series of ordinary least squares analyses, PLS optimally weights the indicators such that a resulting latent variable estimate can be obtained. The weights provide an exact linear combination of the indicators for forming the latent variable scores which is not only maximally correlated with its own set of indicators (as in component analysis), but also correlated with other latent variables according to the structural (i.e. theoretical) model"*.

There are some advantages and disadvantages resulting from the difference in the processes. However, it has to be beard in mind that the covariance approach and the variance approach are not competing but complementary approaches. The decision for one or the other

approach should be based on the research questions, research characteristics and research goals (Nitzl, 2010).

If the research goal is verifying a model, covariance-based analysis using, for example, LISREL-SEM is more suitable than PLS-SEM as PLS-SEM computes for estimations and is therefore a prediction based approach. PLS-SEM is also called the conservative approach as it underestimates the paths in the structural model whereas it overestimates the loading in the measurement model. At the indicator basis however, the over- and underestimations level out (Chin and Newsted, 1999). PLS-SEM is more suitable for explorative research where the research approach is rather new without existing theories or statistical results (Nitzl, 2010) which is the case of the current study. Also, the way LISREL-SEM and PLS-SEM apply reflective and formative indicators differs. In the LISREL-SEM approach, there are some conditions for using formative indicators. In the PLS-SEM approach formative indicators can be used with no restrictions. Consequently, the decision for the method used might also depend on the simplicity of use. Another difference is the sample size and sample quality. The covariance-based approach requires a larger sample size than the variance-based approach. Using PLS-SEM, usually a sample size has not to be larger than 100. However, sample sizes between 10 and 20 can bring about meaningful results already. Covariance-based approaches follow the rule that the construct with the largest amount of parameters to estimate should be multiplied by 5 or 10 to determine the minimum sample size in order to get meaningful results. However, a minimum sample size of 200 is recommended. According to a conducted Monte-Carlo Simulation, it is recommended to use PLS-SEM in cases the sample size is smaller than 250 (Reinartz *et al.*, 2009).

PLS-SEM has one important disadvantage comparing to LISREL-SEM. As PLS-SEM does not need to know the distribution of data, less possibilities of inferential statistics exist for the model evaluation in comparison to LISREL-SEM. This results in less information for model modifications. In order to evaluate a model, all criteria have to be determined separately. The resampling methods *bootstrap* or *jackknife* allow the estimation of standard errors for the computed path coefficients (Nitzl, 2010). Figure 40 summarises the differences between the variance-based approach of SEM – the PLS-SEM approach – and the covariance-based approach.

Figure 40: A comparison of PLS-SEM with co-variance based SEMs

Criterion	Structural Equation Modeling with Partial Least Squares	Covariance-based Structural Equation Modeling
Objective:	Prediction oriented	Parameter oriented
Approach:	Variance based	Covariance-based
Assumptions:	Predictor specification (nonparametric)	Typically multivariate normal distribution and independent observations (parametric)
Parameter estimates:	Consistent as indicators and sample size increase (for example, consistency at large)	Consistent
Latent variable scores:	Explicitly estimated	Indeterminate
Epistemic relationship between a latent variable and its measures:	Can be modeled in either formative or reflective mode	Typically only with reflective indicators
Implications:	Optimal for prediction accuracy	Optimal for parameter accuracy
Model complexity:	Large complexity (for example, 100 constructs and 1.000 indicators)	Small to moderate complexity (for example, less than 100 indicators)
Sample size:	Power analysis based on the portion of the model with the largest number of predictors. Minimal recommendation range from 30 to 100 cases	Ideally based on power analysis of specific model – minimal recommendations range from 200 to 800

Source: Ringle (2004:34).

Summarising, it can be argued that PLS-SEM is especially suitable for research in social sciences and behavioural studies, where new theories are tried to be established while researching on unobservable variables. It offers a flexible statistical method as it allows the measurement of all types of variables as well as reflective and formative measurement models. PLS-SEM does not need to know the distribution of data and it can be conducted using small sample sizes. This makes it a very flexible approach.

The advantages and disadvantages suggest that the variance-based approach should be more commonly used than the covariance-based approach. However, in practice the vast majority of researchers prefers the covariance approach. Unfortunately, this might lead to wrong results and consequently wrong applications for the real world (Nitzl, 2010).

The reasons for using the PLS-SEM approach for this doctoral dissertation are that it is the most suitable method as (1) no theory exists that causally relates observable variables of boardroom behaviour to unobservable variables of boardroom behaviour. There are various descriptions about how those might be related but no empirical evidence exists that supports a causal relationship, (2) the constructs are of formative nature as all indicators together explain each of the constructs and they are not interchangeable, (3) the sample size is only 29 cases per country, making a total of 87 which is a small sample size and therefore feasible for PLS-SEM, (4) the sample size, in general, does not follow normal distribution which is characteristic for behavioural studies.

PLS-SEM does not have a useful global criterion for evaluating the quality of the model as mentioned previously (Weiber and Mühlhaus, 2014). Consequently, the model cannot be evaluated the same way as a LISREL-SEM model. In order to evaluate a PLS-SEM model, the individual criteria have to be evaluated separately in order to be able to decide on the quality of the model. This will be explained in the following lines.

6.7.4. Evaluation of the formative measurement model

The evaluation of the measurement model, the structural model as well as the evaluation of the overall model are the goals of a causal analysis as those are the steps that either confirm or reject the hypotheses.

Reliability- and validity testing is the verification of the goodness of the measurement model. It has to be distinguished between reflective and formative measurement models. Whereas reflective measurement models have various criteria for measuring the goodness, less criteria for formative measurement models are suitable and consequently theoretical considerations at the beginning of the model development are essential. As the measurement model used in this doctoral research is of formative nature, it is focused only on the clarification of the formative goodness criteria.

An essential aspect to evaluate the meaningfulness of the model's statistical results – unfortunately barely considered in empirical studies according to Chin *et al.* (2003) – is power analysis. Statistical power is the probability of rejecting a false null hypothesis, denoted as $1-\beta$, where β is the risk of the type II error.²⁹ This implies that power analysis answers the questions whether the model to test is strong enough to detect significant effects that actually exist. Therefore, power analysis is an important aspect of designing any statistical study. Taking into account only the statistical significance of the outcomes is not enough to consider the model to be accurate. The reason is that sample size, for example, affects statistical significance suggesting that an increase in sample size results in an increase in statistical significance. Power analysis suggests there is an adequate minimum sample size in combination with the number of indicators per construct. It is suggested that sample size should be at least “*ten times the largest number of formative indicators used to measure one construct*” (Hair *et al.*, 2014:109). As sample size in the empirical research of this doctoral dissertation is 87 and three constructs are established, each construct should have no more than 9 indicators. For establishing a model per country, sample

²⁹ Type I error: The null hypothesis is rejected although it is correct.
Type II error: The null hypothesis is not rejected although it is false.

size is 29, leading to a maximum of 3 indicators recommended per construct (Hair *et al.*, 2014; Henseler *et al.*, 2009). Whether or not a model has sufficient statistical power is determined by the **effect size** (f^2) which gives information on the significance of the effect a latent exogenous variable has on a latent endogenous variable. Effect size helps understanding the practical significance of the results so that the magnitude or strength of the outcomes can be evaluated. In order to determine effect size, most commonly, Cohen's d (1988) is used which measures the differences in standard deviations between two variables. Values between 0,02 and 0,15 are considered low, suggesting a low relationship between the two constructs, although statistical significance might be given. Values between 0,15 and 0,35 suggest medium effects and values $\geq 0,35$ suggest large effects. Effect size sheds light on whether the sample size used is large enough ($f^2 \geq 0,35$) or whether it should be increased ($f^2 \leq 0,35$). Therefore, an adequate sample size in combination with the number of indicators per construct should be considered to achieve a statistical power of $\geq 0,35$ (Chin, 1998; Cohen, 1988; Ringle, 2004).

An important characteristic of formative models is that the set of indicators within a construct has to be as wide as possible to explain as much as possible of the construct. Within a construct, it is essential to minimise **multicollinearity** between indicators, as each indicator represents a different aspect of the construct. Elimination of indicators is only suggested in reflective measurement models as they are interchangeable and explain the same aspect of the construct; consequently, they are also highly correlated. Formative indicators with a high multicollinearity increase the standard error; in this case, formative indicators should be eliminated from the model because they lead to instable estimations and distort the indicator's impact on the construct (Nitzl, 2010; Ringle, 2004). Eliminating a formative indicator from a construct always leads to a change of the construct's content. Therefore, it is always a step to be carefully considered and it always has to be consistent with the underlying theory. The **variance inflation factor (VIF)** indicates the collinearity between more than two constructs by measuring how much the variance of an estimated regression coefficient increases due to collinearity. If the VIF value of an indicator is $\geq 3,3$, the necessity of this indicator according to theory has to be considered carefully. In the vast majority of cases, an elimination of the indicator is useful because two or more indicators within a construct explain the same aspect of the construct. An elimination is especially useful when it results in a rather small decrease in R^2 (Weiber and Mühlhaus, 2014). For all values the t-statistics can be computed using *bootstrap* in order to verify the significance level of the independent variable's estimated values.

Also, the validity has to be evaluated. In formative measurement models, **construct validity** is also referred to as nomological validity which means that the formative construct behaves as expected according to theory. The relationship between formative measurement constructs should be significantly strong. Furthermore, the discriminant validity criterion should

be applied in order to assess the interconstruct validity. According to Bruhn *et al.* (2008), the constructs differ sufficiently from one another if the correlations between the formative and all other constructs are $\leq 0,7$. The **indicator validity** is examined by calculating the **regression weights** as those give information on the composition and the importance the indicators have on the construct (Chin, 1998). If those are significantly different from 0, the indicator can be classified as valid. Weights should not be compared to factor loadings should have, as weights might have much lower values than loadings in a reflective model. However, this does not mean inferiority of the construct as PLS-SEM optimises the weights in order to maximise the explained variance of the endogenous model (Chin, 1998). A value of $> 0,1$ can be classified as significant. However, is it inferior to 0,1, further theoretical considerations could be made in order to decide whether or not it could be eliminated from the model. As mentioned previously, an elimination of indicators in a formative model always comes hand in hand with a change of the construct's content. Consequently, deleting an indicator has to be considered carefully (Weiber and Mühlhaus, 2014). The significance level of weights is estimated by using the *bootstrap* method. With a t-statistic $\geq 1,96$, the null hypothesis can be rejected with a 5% probability (Chin, 1998).

It is suggested that a formative measurement model is valid, if the above explained criteria are fulfilled. Figure 41 summarises and visualises the criteria for a valid formative measurement model.

Figure 41: Validity of a formative measurement model

Criteria	Threshold value
Effect size (f^2)	between 0,02 and 0,15: small between 0,15 and 0,35: medium $\geq 0,35$ large
Multicollinearity: Variance inflation factor (VIF)	$\leq 3,3$
Construct validity: Discriminant validity	$\leq 0,7$
Indicator validity: Standardised regression weights	$> 0,1$ t-value: $\geq 1,96$ at a 5% significance level

Source: Nitzl (2010:31).

6.7.5. Evaluation of the structural model

To evaluate the structural model, the path coefficients and the prediction quality as well as the robustness of estimation are considered. Statistical tests are not appropriate for formative indicators as the content of a formative construct depends much on the theoretical considerations behind. There are non-parametrical tests applying for evaluating the structural model. Those are the coefficients of determination (R^2) for endogenous constructs as well as the statistical

significance of the path coefficients and the direction of their relations by applying *bootstrap* (Chin, 1998; Nitzl, 2010).

The **construct validity** is examined by having a look at the relation between the constructs. In order to do so, it is suggested to estimate the path coefficients. A construct is considered valid, if the **standardised path coefficients** (beta – and gamma coefficients; β and γ) are $> 0,2$ (even better would be $> 0,3$) (Chin, 1998). The direction of the relation between constructs has to be consistent with theory. Due to the non-existent distribution assumptions in the PLS-SEM approach, the use of parametric significance tests is not possible. However, applying the *bootstrap* method, empirical distribution using the sample data can be computed and the null hypothesis can be examined which means that the estimated path coefficients should not differ significantly from 0. Values $\geq 1,96$ are an indication for the high significance of the parameter for the explanation of the model (Chin, 1998; Nitzl, 2010).

Another important value to consider is the **coefficient of determination (R^2)** which determines how much of a latent endogenous variable is explained by its independent exogenous variables (Nitzl, 2010; Weiber and Mühlhaus, 2014). According to Chin (1998), $R^2 \geq 0,19$ is weak, $R^2 \geq 0,33$ is moderate and $R^2 \geq 0,67$ is substantial.

6.7.6. Evaluation of the overall model

This step consists of verifying whether or not the causal model can be considered plausible or not. However, there are two more reasons for evaluating the overall model which are (1) to compare the evaluation to other evaluated alternative models or (2) to consider modifications of the model and analyse how to improve it. For the evaluation of the overall model, it has to be distinguished between reflective and formative models. Only the criteria for evaluating formative models will be clarified as explained before. Based on the evaluation of the causal model, the hypotheses can be confirmed or rejected.

To evaluate the overall model quality, the **Stone-Geisser test (Q^2)** should be determined which gives information about the prediction quality of the model. It is a non-parametric test to evaluate the statistical significance of the path coefficients. A value of $Q^2 > 0$ suggests the model to have relevant prediction quality. A value of $Q^2 < 0$ suggests that the model is not able to predict the data better than by only estimating an average. The Stone-Geisser test (Q^2) is computed by applying *blindfolding* (Chin, 1998; Nitzl, 2010; Weiber and Mühlhaus, 2014).

Q^2 can be obtained in two different ways, through the **cross-validated communality (H^2)** which is an indicator for the quality of the measurement model or through the **cross-validated redundancy (F^2)** which is a sign for the quality of the structural model (Chin, 1998).

Figure 42 summarises and visualises the criteria to evaluate the structural model and the model as a whole.

Figure 42: Evaluation of the structural model and the whole model

Criteria	Threshold value
Standardised path coefficients	$\geq 0,2$; better $\geq 0,3$ t-value $\geq 1,96$ at a 5% significance level
Coefficient of determination (R^2)	$\geq 0,19$ weak, $\geq 0,33$ moderate, $\geq 0,67$ substantial
Stone-Geisser test (Q^2)	≥ 0

Source: Nitzl (2010:37).

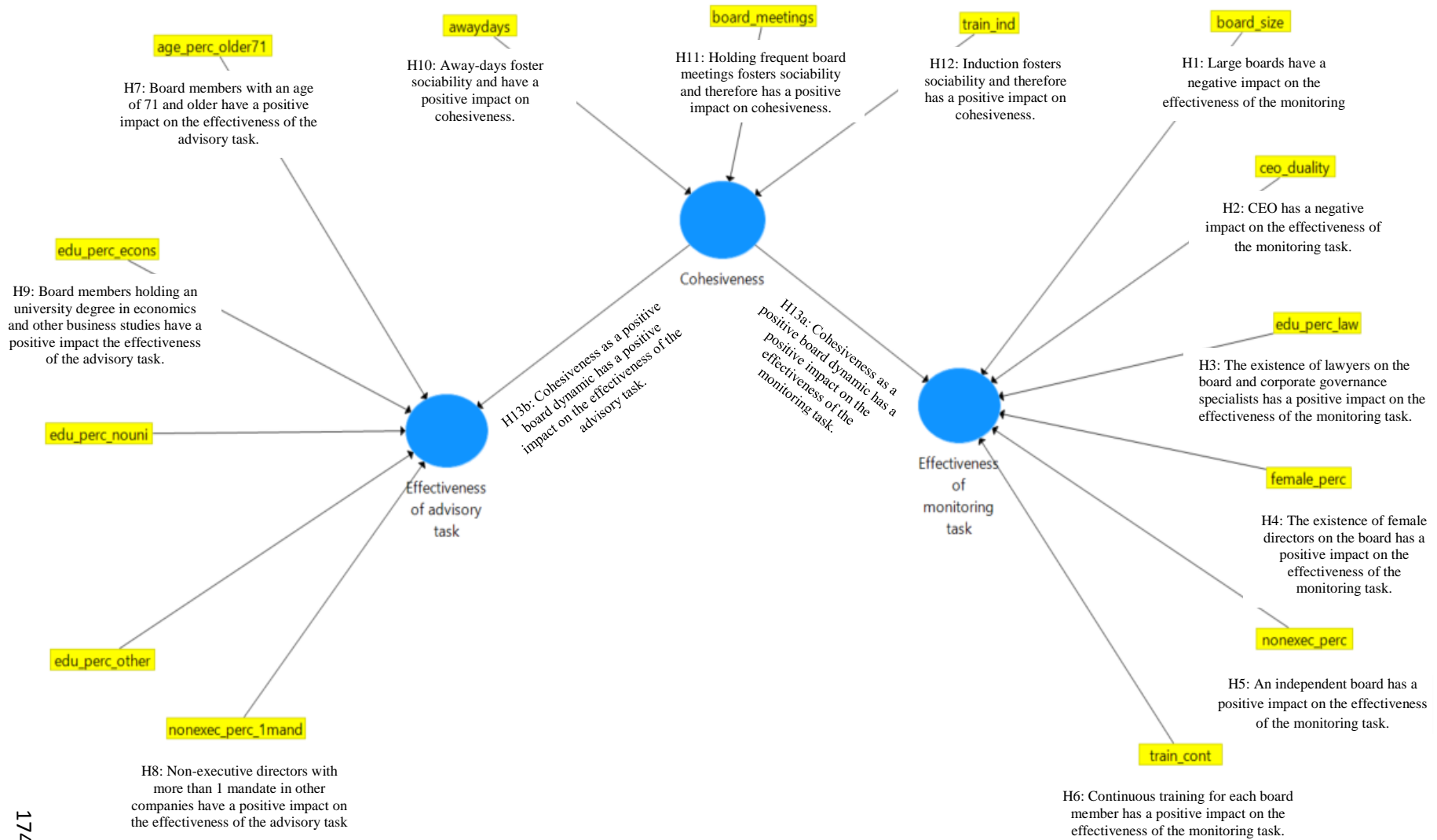
This chapter has clarified the research design, including the hypotheses established as well as the variables and the sample defined. It has also clarified the methodology to be used. Also, the descriptive statistics for the sample as a whole as well as for each country have been conducted in this chapter. The main statistical method – PLS-SEM – has been explained in detail with all its evaluation criteria as well as the model established with its constructs and indicators. The following chapter (Chapter 7) focuses on the empirical results of the established model conducting PLS-SEM for a rounding off of the empirical part.

CHAPTER 7: EMPIRICAL RESULTS OF THE INFERENTIAL STATISTICS – THE EVALUATION OF THE PLS-SEM MODEL

Chapter 7 demonstrates the empirical results of the PLS-SEM model, including the analysis of the structural model, the analysis of the measurement model and the analysis of the overall model with its prediction quality.

Afterwards, the model is conducted using the variable *country* as a proxy for cultural differences, responding to the calls for more empirical research on board behaviour in different institutional and cultural settings. In the last part of this chapter, the results of the hypotheses tested are provided. Figure 43 visualises the model to be tested, including the indicators of each construct and the hypotheses to test.

Figure 43: PLS-SEM model including hypotheses to test



7.1. Analysis and evaluation of the measurement model

To evaluate the measurement model, multicollinearity, regression weights and their significance have to be tested. Figure 44 visualises the level of multicollinearity, computed using the *algorithm* method.

Figure 44: The Collinearity Statistic

Collinearity statistics (VIF)	
age_perc_older71	1,068
awaydays	1,017
board_meetings	1,068
board_size	1,227
ceo_duality	1,371
edu_perc_econs	1,558
edu_perc_law	1,198
edu_perc_nouni	1,329
edu_perc_other	1,255
female_perc	1,138
nonexec_perc	1,272
nonexec_perc_1mand	1,100
train_cont	1,201
train_ind	1,076

All VIF values are far below 3,3 and consequently, the level of multicollinearity is low. This implies that the first measure considers the data adequate for continuous analysis as indicators do not correlate significantly.

In a formative measurement model, all variables together explain the construct. Consequently, indicators should not be eliminated from the model because of low regression weights as long as the inclusion of those indicators is consistent with the theoretical background. However, in case of very low levels ($< 0,1$) the linkages should be double-checked with theory. Figure 45 displays the regression weights, its t-statistics and its p-values, computed using the *bootstrap* method with a subsample size of 2000.

Figure 45: The standardised regression weights and their significance

Standardised regression weights and their significance			
Variable name	Standardised regression weights	t-statistics	p-value
age_perc_older71	0,087	0,593	0,553
awaydays	0,037	1,370	0,711
board_meetings	0,096	0,794	0,427
board_size	-0,535	3,657	0,000
ceo_duality	-0,178	1,722	0,085
edu_perc_econs	0,787	5,012	0,000
edu_perc_law	0,056	0,675	0,500
edu_perc_nouni	-0,151	1,047	0,295
edu_perc_other	-0,153	1,481	0,139
female_perc	0,099	1,305	0,192
nonexec_perc	0,071	0,831	0,406
nonexec_perc_1mand	0,166	1,182	0,237
train_cont	0,730	5,194	0,000
train_ind	0,976	13,259	0,000

All absolute values of the standardised regression weights are between 0,037 and 0,976 computed by using the *algorithm* method. There are 6 weights $< 0,1$ (*age_perc_older71*, *awaydays*, *board_meetings*, *edu_perc_law*, *female_perc* and *nonexec_perc*). Theory suggests linkages between each of these indicators and their constructs which classifies them as essential parts of the construct and therefore none of the indicators should be eliminated from the model. The other indicators are $> 0,1$ and therefore classified as valid. The significance level (t-statistics and p-value) of the regression weights determines that not all weights are significant at a 5% significance level.

In order to visualise the significant indicators, figure 46 shows only the significant regression weights extracted from the above table (Figure 45). Although the 5% significance level is usually used to determine significance, figure 46 also includes indicators with a 10% significance level in order to see which of other factors have the strongest relationship. Therefore, figure 46 exposes significant weights, the t-value and the p-value of each significant regression weight.

Figure 46: Significant regression weights

Variable name	Regression weight	t-statistics	p-value
board_size	-0,535	3,657	$< 0,001$
ceo_duality	-0,178	1,722	$< 0,1$ (10% significance level)
edu_perc_econs	0,787	5,012	$< 0,001$
train_cont	0,730	5,194	$< 0,001$
train_ind	0,976	13,259	$< 0,001$

As expected, in the construct 'Cohesiveness', the strongest indicator is *train_ind* (0,976; $t = 13,259$; $p < 0,001$). Induction training is done at the beginning of the director's appointment. It provides information about the roles and responsibilities of a director as well as aspects crucial the director's social integration in the board. *awaydays* (0,037; $t = 1,370$; $p > 0,05$) and *board_meetings* (0,096; $t = 0,794$; $p > 0,05$) both have a positive impact on cohesiveness, although not significant.

The construct of 'Effectiveness of the advisory task' suggests that the indicator *edu_perc_econs* (0,787; $t = 5,012$; $p < 0,001$) has the strongest and only significant effect on the construct. Economics and related fields of education are the most important ones as they are about the study of the firm – every company needs experts in this area irrespective of the company's industry. Therefore, the strong effect has been expected. The second strongest effect is *nonexec_perc_Imand* (0,166; $t = 1,182$; $p > 0,05$), although not significant. A surprisingly weak effect has *age_perc_older71* (0,087; $t = 0,593$; $p > 0,05$) as this indicator follows similar arguments as *nonexec_perc_Imand* that is – according to resource dependence theory – that those directors provide access to special resources and have a deep know-how. Both *edu_perc_nouni* (-0,151; $t = 1,047$; $p > 0,05$) and *edu_perc_other* (-0,153; $t = 1,481$; $p > 0,05$) have a negative effect on the strategic task, as expected. Both suggest a low level of knowledge on business strategy which is critical for the advisory task. Consequently, a negative effect has been expected. The effect might not be significant because German companies have a large amount of directors on their boards without university degree as explained previously.

The two strongest impacts in the construct of 'Effectiveness of the monitoring task' are produced by the indicators *train_cont* (0,730; $t = 5,194$; $p < 0,001$) and *board_size* (-0,535; $t = 3,657$; $p < 0,001$). Continuous training is essential as further strengthening know-how and being up to date about economic and legal changes is important for effective monitoring. The smaller the board, the less negative board dynamics are suggested to emerge. *ceo_duality* (-0,178; $t = 1,722$; $p < 0,1$) has been expected to have a stronger negative impact as CEO duality is claimed to reduce the board's monitoring significantly. *nonexec_perc* (0,071; $t = 0,831$; $p > 0,05$) was expected to have a stronger impact as well. Following the same argument, according to agency theory, an independent board is suggested to be essential for effective monitoring. *female_perc* (0,099; $t = 1,305$; $p > 0,1$) and *edu_perc_law* (0,056; $t = 0,675$; $p > 0,1$) are both aspects of diversity. Female directors and legal directors are claimed to be effective monitors, however, the statistical results suggest a positive but not a statistically significant impact.

In order to assess the construct validity, all indicators should be explained by theoretical considerations which has just been given for all indicators. Furthermore, discriminant validity can be assessed also in formative measurement models in order to assure that correlations between

constructs are not too high, although constructs in a formative measurement model can correlate according to theory (Bruhn *et al.*, 2008; Chin, 1998). Figure 47 exposes the results of the discriminant validity.

Figure 47: The results of the discriminant validity

	Discriminant validity
Cohesiveness- Effectiveness of the advisory task	0,597
Cohesiveness- Effectiveness of the monitoring task	0,724
Effectiveness of the advisory task- Effectiveness of the monitoring task	0,486

According to figure 47, the correlation between ‘*Cohesiveness*’ and ‘*Effectiveness of the monitoring task*’ is slightly above the recommended maximum level of 0,7. However, as explained by Chin (1998), the discriminant validity assessment is more of an additional check rather than a rigid validity check as there can exist correlations within formative measurement models. Formative measurement models are build according to theoretical foundations and both significant and insignificant items should be kept in the measurement model as long as they are relevant for the explanation of their construct according to theory (Chin, 1998, Henseler *et al.*, 2009). The more important criterion for a formative measurement model is the above explained variance inflation factor which suggests there is no multicollinearity given in this model. The other two correlations suggest an appropriate level as both are below 0,7 (‘*Cohesiveness*’ – ‘*Effectiveness of the advisory task*’: 0,597; ‘*Effectiveness of the advisory task*’ – ‘*Effectiveness of the monitoring task*’: 0,486). As a consequence, it can be concluded that the formative measurement model is valid.

7.2. Analysis and evaluation of the structural model

The analysis of the structural model includes the analysis of the effect size, the explained variance, the path coefficients and their significance level.

Before testing the path coefficients for their statistical significance, practical significance has to be tested by computing **effect size** (f^2) because sample size might affect statistical significance. Values between 0,02 and 0,15 suggest a low relationship between two constructs. Values between 0,15 and 0,35 suggest a medium relationship and values $\geq 0,35$ suggest a large relationship (Chin, 1998; Cohen, 1988; Ringle, 2004). Figure 48 shows the effect size for the model which has been conducted using the *algorithm* method.

Figure 48: Effect size

Effect size		
	Original sample	Power magnitude
Cohesiveness – Effectiveness of the advisory task	0,533	large
Cohesiveness – Effectiveness of the monitoring task	1,101	large

According to the results exposed in figure 48, both effects suggest a large relationship. The results suggest that sample size is large enough to detect probable type II errors.

Figure 49 presents the **coefficient of determination (R^2)** of the endogenous variables (in this case ‘*Effectiveness of the advisory task*’ and ‘*Effectiveness of the monitoring task*’) computed using the *algorithm* method which measures the percentage of the explained variance.

Figure 49: Coefficient of determination

R^2	
Effectiveness of the advisory task	0,356
Effectiveness of the monitoring task	0,524

An R^2 of $> 0,33$ is considered a moderate level, an R^2 of $> 0,67$ is considered substantial according to Chin (1998). Both R^2 have a moderate level. Consequently, it can be concluded that both coefficients of determination are sufficiently explained and therefore the structural model can be considered valid according to its coefficients of determination.

According to Chin (1998), a construct is also considered valid, if the **standardised path coefficients** are $> 0,2$. Figure 50 demonstrates the standardised path coefficients and their significance level, demonstrating that the levels are significant at a 1% significance level with ‘*Cohesiveness – Effectiveness of the advisory task*’ having a t-value of 9,514 ($p < 0,001$) and ‘*Cohesiveness – Effectiveness of the monitoring task*’ having a t-value of 14,443 ($p < 0,001$). The standardised path coefficients and its statistical significance have been computed using the *bootstrap* method with a subsample size of 2000.

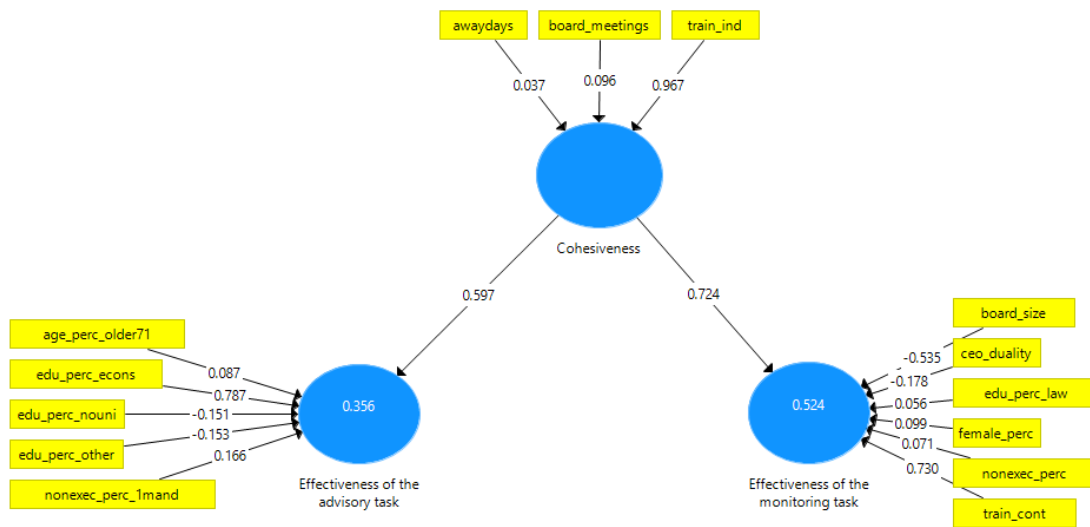
Figure 50: Path coefficients

Path coefficients			
	Original sample	t-statistics	p-value
Cohesiveness – Effectiveness of the advisory task	0,597	9,514	0,000
Cohesiveness – Effectiveness of the monitoring task	0,724	14,443	0,000

After considering the results exposed above, it can be concluded that the structural model is valid as both the constructs and the relation between the endogenous and exogenous variables are valid.

Figure 51 exposes the overall model with the path coefficients and weights.

Figure 51: Overall model exposing path coefficients and weights



7.3. Analysis and evaluation of the overall model

In order to evaluate the overall model, the **Stone-Geisser test (Q²)** is determined which suggests the level of the model’s prediction quality. A Q² > 0, computed using **crossvalidated redundancy (F²)** and **crossvalidated communality (H²)**, determines the model has prediction quality.

Figure 52 visualises the crossvalidated redundancy (F²) as well as the crossvalidated communality (H²) for the proposed model. Both have been computed using the *blindfolding* method with an omission distance of 80.

Figure 52: The results of the Stone-Geisser test

	Construct crossvalidated redundancy (F ²)	Construct crossvalidated communality (H ²)
Cohesiveness		0,041
Effectiveness of the monitoring task	0,086	0,007
Effectiveness of the advisory task	0,101	0,142

The levels of both the crossvalidated redundancy, which indicates the quality of the structural model, and the crossvalidated communality, which indicates the quality of the measurement model, suggest that the model has prediction quality as all values are > 0.

Summarising it can be concluded that the proposed model is valid as it has prediction quality with the structural model being valid and the measurement being valid.

7.4. Differences between countries

In order to analyse for cultural differences, three different options have been considered:

- (1) Conducting the model using separate datasets for each country.
- (2) Compressing the model to a maximum of 3 indicators per construct.
- (3) Conducting a multi-group analysis (MGA).

In the following paragraphs, all three options are explained in detail.

- (1) Conducting the model using separate datasets for each country.

First, the dataset has been separated into three datasets, one for each country. The idea behind this approach was applying the previously introduced model for each country. However, the first problem faced was the reduction in sample size. Each country has 29 cases, therefore the sample size is small, although a sample with around 30 cases is considered to be large enough to bring about meaningful results in PLS-SEM. However, as mentioned previously, Chin *et al.* (2003) as well as Hair *et al.* (2014) suggest that there is an adequate sample size in combination with the number of indicators per construct. When computing a formative measurement model, the sample size should be 10 times the number of indicators in the largest construct. Thinking the reverse way, a sample size of 29 allows the constructs to have no more than 3 indicators to assure the meaningfulness of the model. As a consequence, applying the previously introduced model does not assure the model's predictability for each country. However, relationships between indicators and their constructs can be compared between countries by analysing the model's weights as well as relationships between constructs by analysing the path coefficients. These can be indicators for eventual cultural differences. Consequently, when computing the model separately for each country, analysing, for example, the model's predictability does not make much sense and therefore it has been decided to analyse only the intensity and the direction of the path coefficients and weights.

The second problem that occurred was that some variables had to be excluded for each country due to the lack of variance so that smartPLS could compute the model. For the DAX30 countries, as CEO duality is prohibited by law, there is a 0 variance for the variable *ceo_duality*. The variable *train_ind* has not sufficient variance either. The same problem occurred in the FTSE100 sample for the variables *ceo_duality* (there is only one company with CEO duality), *train_ind* (there is not much disclosure on induction and therefore not sufficient variance), *edu_perc_other* (no director with an educational background fitting in this classification), *edu_perc_nouni* (no director without a university degree). For the Spanish listed companies, the same problem occurred for *awaydays* (away-days are not disclosed in any company),

edu_perc_other (no director with an educational background fitting in this classification), *edu_perc_nouni* (no director without a university degree). Consequently, the model was executed with a different set of variables for each country due to the exclusion of the previously mentioned variables.

The results for the analysis of the model applying to Germany suggests that the path coefficient of the relationship of ‘*Cohesiveness*’ to the ‘*Effectiveness of the monitoring task*’ remains similar to the results of the overall model. Both suggest a strong positive relationship with a p-value < 0,001, although the indicator *ceo_duality* has been excluded from the construct ‘*Effectiveness of the monitoring task*’. The relationship between ‘*Cohesiveness*’ and ‘*Effectiveness of the advisory task*’, however, is negative and statistically significant (p-value < 0,001) when applying the German dataset and therefore it differs significantly from the overall model. A probable explanation could be that in the construct ‘*Cohesiveness*’, the variable *train_ind* is excluded which is expected to be an essential indicator for the level of cohesiveness. Comparing the weights of the overall model with the weights of the German model, it can be analysed that almost 60% of the weights reflect the same direction of effect on their construct, however, only 35% agree on whether or not they are significant. It is interesting to note that the direction of some indicators differs from the one in the overall model, however, the directions of the German model are often consistent with the theoretical background on the German system clarified in Chapter 5. The most notable ones are *board_size* and *edu_perc_nouni* which have a positive effect on the ‘*Effectiveness of the monitoring task*’ and on the ‘*Effectiveness of the advisory task*’, respectively. The positive effect of *board_size* might be explained by the fact that German supervisory boards consist of employee representatives and shareholder representatives. In order to represent all voices adequately, German boards have to be larger. The descriptive statistics confirm this. Whereas the IBEX35 and the FTSE100 companies have an average of 13 members and 11 members respectively, German boards have 23 board members on average.³⁰ The expected effect of *edu_perc_nouni* on the ‘*Effectiveness of the advisory task*’ is negative in the overall model as well as in the IBEX35 model and the FTSE100 model. Neither Spain nor the United Kingdom have a culture of regular training for their employees in order to grow and get promoted regularly throughout their careers. Apprenticeships are not common either. As a consequence, employees in higher positions have to have a university degree to provide enough knowledge to perform well. By contrast, Germany makes much use of apprenticeships and high quality training on a regular basis as explained in Chapter 5. Therefore, supervisory board members often lack a university degree. In fact, the descriptive statistics confirm that directors without a university degree are well represented on German boards with up to 50% and an average of 16%. Consequently, the positive effect *edu_perc_nouni* has on

³⁰ For more details see Chapter 6.

'Effectiveness of the advisory task' can be explained by theory and the descriptive statistics. The detailed results can be found in the Appendix H.

In the FTSE100 model, *train_ind*, *ceo_duality*, *edu_perc_nouni* and *edu_perc_other* had to be excluded. The results for the analysis of the model applying to the United Kingdom suggests that the path coefficient of the relationship of 'Cohesiveness' to the 'Effectiveness of the monitoring task' remains similar to the results of the overall model. Both suggest a strong positive relationship with a p-value < 0,001, although the indicator *ceo_duality* has been excluded from the construct 'Effectiveness of the monitoring task'. The relationship between 'Cohesiveness' and 'Effectiveness of the advisory task', however, is negative and statistically significant (p-value < 0,001) when applying the FTSE100 dataset and therefore it differs significantly from the overall model. The reason could be similar to the one explained in the German case. Comparing the weights of the overall model with the weights of the model for the FTSE100 sample, it can be analysed that 70% of the weights reflect the same direction of effect on their construct, however, only 40% agree on whether or not they are significant. The indicators reflecting the overall model are not the same as in the German model. Interesting to note is that the presence of female directors on the board has a significant positive effect on 'Effectiveness of the monitoring task'. A reason could be that female directors are suggested to come up with fresh ideas and have a positive effect on the board's preparation for and participation in board meetings. The United Kingdom is characterised by its fast-moving industries and the need for disruptive innovation. Fresh ideas and much preparation and participation might be the reason for this positive effect female directors have. Also it could be explained by the fact that no compulsory female quotas apply to the United Kingdom's boards which may grant all these 'pure' feminine skills be deployed by women directors on the United Kingdom's boards. The detailed results can be found in the Appendix H.

The Spanish model had been conducted without *awaydays*, *edu_perc_nouni*, *edu_perc_other*. For the IBEX35 companies, both path coefficients reflect the same direction as in the overall model. However, contrary to the overall model, in the Spanish model, the effect of 'Cohesiveness' on 'Effectiveness of the advisory task' is not significant. Comparing the weights, it is interesting to note that 72% reflect the overall model. However, only 45% agree on the significance of the weights. All in all, it can be concluded that the Spanish model is closest to the overall model which is not surprising as it is characterised as a hybrid model of corporate governance, lying somewhere between the Anglo-American model and the Continental European model. Interesting to note is that *nonexec_perc_1mand* has a significantly positive effect on 'Effectiveness of the advisory task'. In the overall model, there is also a positive effect, however it is not significant. Relationships between companies or between companies and banks are

common in Spain which could be the reason companies benefit more from directors with several mandates as they are supposed to have the widest networks and easier access to additional resources. This could imply the significant positive effect in the Spanish model. All models as well as the statistical results of the path coefficients and the weights can be found in the Appendix H.

(2) Compressing the model to a maximum of 3 indicators per construct.

The second option to analyse for cultural differences emerged due to the model's previously mentioned limitation regarding the adequate combination of sample size and indicators per construct. Due to this limitation, it has been tried to build a model with a maximum of three indicators per construct, making a total of maximum nine indicators instead of 14 as it is the case for the global model. The model building process was very limited because the following indicators had to be excluded due to their lack of variance:

- *ceo_duality*
- *train_ind*
- *edu_perc_other*
- *edu_perc_nouni*
- *awaydays*

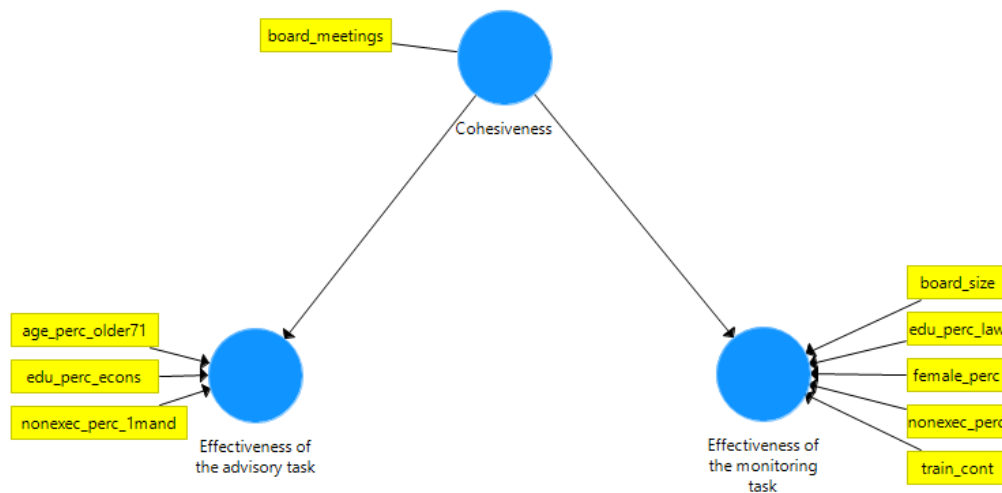
This reduction of indicators results in other limitations of the model. In the construct 'Cohesiveness' for example, only one indicator – *board_meetings* – remains. This results in an essential decrease of the predictability as the construct seems incomplete without *awaydays* and *train_ind*, because those are the strongest indicators within the construct of 'Cohesiveness' according to the theoretical background and the statistical results of the model previously presented. Furthermore, within the construct 'Effectiveness of the monitoring task', *ceo_duality* is one of the most essential indicators which also reflects an important cultural difference between both Germany and the United Kingdom on one hand and Spain with a large percentage of combined roles on the other hand.³¹ Within the construct 'Effectiveness of the advisory task', *edu_perc_nouni* and *edu_perc_other* had been excluded which would have been interesting to analyse as in Germany many directors do not hold university degrees. Unfortunately, due to the explained limitations, no model applicable to all three countries could have been designed.

³¹ For more details see Chapter 6.

(3) Conducting a multi-group analysis (MGA).

The third option is a multi-group analysis (henceforth MGA), testing whether or not *country* plays a moderating role as suggested by Minichilli *et al.* (2012). The MGA allows comparing the three countries and analysing them for significant differences in the group-specific parameter estimates. As in the previous option, *awaydays*, *train_ind*, *edu_perc_nouni*, *edu_perc_other* and *ceo_duality* have been excluded from the model due to the lack of variance. Figure 53 visualises the final model for the MGA.

Figure 53: Multi-group analysis



First of all, **effect size (f^2)** has been conducted in order to test the modified model for statistical power. This has been done separately for each country’s dataset using the *algorithm* method. Figure 54 exposes the results on effect size for the DAX30 sample.

Figure 54: Effect size for DAX30

	Original sample	Power magnitude
Cohesiveness – Effectiveness of the advisory task	0,071	small
Cohesiveness – Effectiveness of the monitoring task	1,030	large

If power is medium or small, cautiousness about interpreting the results is essential as the type II error probability is high. This is the case in the DAX30 result on ‘Cohesiveness’ – ‘Effectiveness of the advisory task’ exposed in figure 54. ‘Cohesiveness’ – ‘Effectiveness of the monitoring task’ has a large statistical power.

Figure 55 exposes the results on effect size for the FTSE100 sample, suggesting a medium statistical power.

Figure 55: Effect size for FTSE100

	Original sample	Power magnitude
Cohesiveness – Effectiveness of the advisory task	-0,158	medium
Cohesiveness – Effectiveness of the monitoring task	0,346	medium

Figure 56 exposes the results on effect size for the IBEX35 sample, suggesting a large statistical power.

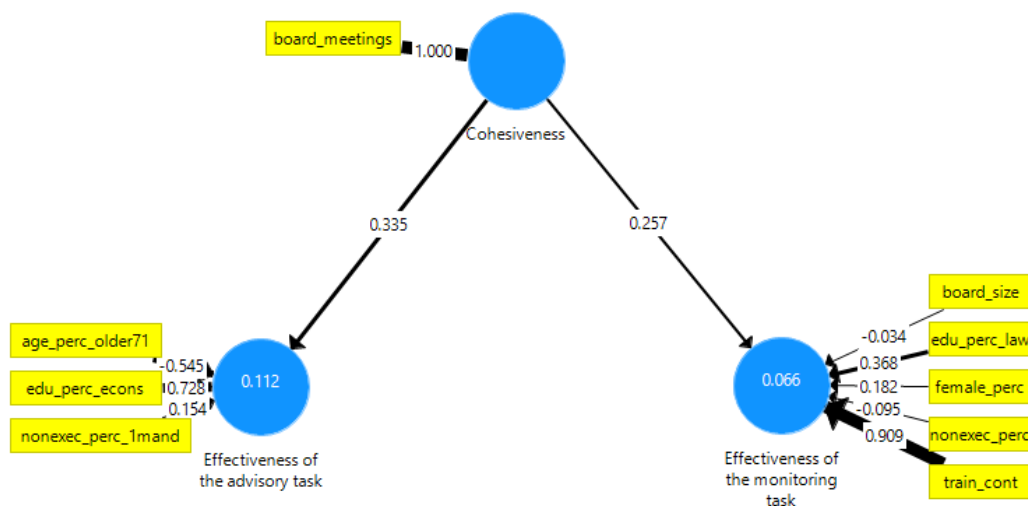
Figure 56: Effect size for IBEX35

	Original sample	Power magnitude
Cohesiveness – Effectiveness of the advisory task	-0,489	large
Cohesiveness – Effectiveness of the monitoring task	0,466	large

From the above results on effect size, it can be concluded that the overall observed statistical power is too low and therefore the probability of type II errors too large. As a consequence, interpretations of the following results have to be considered with caution. Furthermore, future studies should increase sample size in order to achieve a statistical power of at least 0,35.

In the next step, the **MGA** is conducted, analysing first for significant differences between **outer weights**. The groups can be classified as equivalent if there are no significant differences between the group-specific parameter estimates. A parametric significance test is applied in order to test for group-specific differences when equal variances are assumed. The **Welch-Satterthwait test** is applied when unequal variances are assumed. In case the compared groups are classified as equivalent, in a second step, the estimated **path coefficients** can be compared. Figure 57 exposes the modified model for the MGA with its path coefficients and weights for the complete dataset.

Figure 57: Path coefficients and weights of the modified overall model



In figure 57, the thickest lines highlight the strongest path coefficients which is a useful tool for the visualisation of the differences between countries as well as between countries and the complete dataset. The Appendix H visualises the models and their specific path coefficients for each country.

The parametric test is applied for *edu_perc_econs*, *female_perc*, *nonexec_perc_1mand* and *train_cont*. A p-value of $\leq 0,05$ or $\geq 0,95$ indicates significant differences between the groups (Sarstedt, 2008). Figure 58 exposes the results of the parametric test and suggests that the countries do not differ significantly in any of those variables as neither of the p-values is $\leq 0,05$ or $\geq 0,95$. Consequently, p-values are all coloured the same way.

Figure 58: Parametric test results within the MGA

Parametric test						
	Outer weights Germany - UK	Outer weights Germany - Spain	Outer weights UK – Spain	p-value Germany - UK	p-value Germany - Spain	p-value UK- Spain
edu_perc_econs	0,043	0,562	0,605	0,939	0,196	0,311
female_perc	0,054	0,846	0,792	0,917	0,313	0,367
nonexec_perc_1mand	0,682	0,725	0,043	0,248	0,095	0,945
train_cont	0,242	0,084	0,326	0,668	0,882	0,638

Figure 59 visualises the results of the **Welch-Satterthwait test** which is applied for *age_perc_older71*, *board_meetings*, *board_size*, *edu_perc_law*, *nonexec_perc* and *train_cont*. The results exposed in figure 59 suggest that Germany differs significantly from both the United Kingdom in the effect *age_perc_older71* has on the ‘Effectiveness of the advisory task’ (p-value $< 0,05$), as well as from Spain in the effect *age_perc_older71* has on the ‘Effectiveness of the advisory task’ (p-value $< 0,05$). Regarding the other variables, there are no significant differences between countries. In order to provide an easier visualisation, the significant differences are coloured differently than the non-significant differences.

Figure 59: Welch-Satterthwait test results within the MGA

Welch-Satterthwait test						
	Outer weights Germany - UK	Outer weights Germany - Spain	Outer weights UK – Spain	p-value Germany - UK	p-value Germany - Spain	p-value UK- Spain
age_perc_older71	1,404	1,475	0,071	0,009	0,046	0,928
board_meetings	0,000	0,000	0,000	0,459	0,445	0,097
board_size	0,091	0,719	0,811	0,887	0,191	0,254
edu_perc_law	0,314	0,307	0,620	0,633	0,549	0,335
nonexec_perc	1,087	1,666	0,578	0,084	0,065	0,516
train_ind	0,242	0,084	0,326	0,670	0,882	0,640

After testing for significant differences in the group-specific **outer weights**, it can be concluded that the groups are classified as equivalent because there is only one significant difference (Germany differs significantly from both the United Kingdom and Spain in the effect *age_perc_older71* has on the ‘*Effectiveness of the advisory task*’). As a consequence, in the next step, the differences in the path model estimations can be analysed for significant differences which are exposed in figure 60.

Figure 60: Multi-group analysis (MGA)

MGA path coefficients						
	path coefficient Germany - UK	path coefficient Germany - Spain	path coefficient UK – Spain	p-value Germany - UK	p-value Germany - Spain	p-value UK- Spain
Cohesiveness – Effectiveness of the advisory task	0,618	0,949	0,331	0,951	0,951	0,794
Cohesiveness – Effectiveness of the monitoring task	0,385	1,197	0,812	0,884	0,983	0,901

The results of the MGA exposed in figure 60 indicate that there are three significant differences of the group specific **path coefficients**. Significant differences are visualised by different colours; insignificant differences have the same colour.

- 1) Germany and Spain differ significantly in the relationship of ‘*Cohesiveness*’ to ‘*Effectiveness of the monitoring task*’ (p-value > 0,95).
- 2) Germany and Spain differ significantly in the relationship of ‘*Cohesiveness*’ to ‘*Effectiveness of the advisory task*’ (p-value > 0,95).
- 3) Germany and the United Kingdom differ significantly in the relationship of ‘*Cohesiveness*’ to ‘*Effectiveness of the advisory task*’ (p-value > 0,95).

According to the results of the MGA, the impact independent directors in the United Kingdom and Spain have on monitoring is positive. In Germany, the effect is negative. This result might imply that shareholder representatives are effective monitors as they have a motivation to monitor. As the German board consists of shareholder representatives and employee representatives, the results might be an indicator for the ineffectiveness of the employee representatives in terms of monitoring. Analysing a little further, the effect directors with no university background have on the advisory role is positive in Germany (according to option 1, where the overall model is conducted separately per country). This is consistent with the theoretical background on the German system. The use of apprenticeships in combination with having employee representatives on the board leads to a board composition including directors with no university degree. Consequently, this would suggest that employee representatives might

have a negative impact on monitoring, however, a positive impact on advisory. Future research could try to bring more light into these relationships.

In Spain and in the United Kingdom, the impact of non-executive directors older than 70 on the advisory role is positive whereas it is negative in the German model. Also, the hypothesis on the impact directors older than 70 have on advisory has been rejected by the statistical results for the overall model. This is the only statistically significant difference between the three countries of analysis according to the MGA. Therefore, it would be interesting to study the impact of this variable on advisory again – especially by analysing for cultural differences.

In Germany, the impact non-executive directors with several mandates have on the advisory role is positive according to the MGA, whereas the United Kingdom and Spain show a negative impact, consistent with the rejection of the hypothesis in the overall model. The positive impact in Germany could be a country-specific difference as strategic investors, such as banks and other industrial companies, have seats on each other's boards so that technology transfer and knowledge transfer can take place leading to shared R&D between companies (Streeck, 1995) This could be the reason for the positive impact, although it is not significant according to the MGA.

All in all, it can be concluded that the model has not sufficient statistical power to be conducted comparing the three countries. Some effect sizes are too small so that the probability of a type II error is too large. The reason is most probably the small sample sizes. As a consequence, in further studies, sample sizes should be increased to an extent that statistical power reaches the suggested 0,35 level. Furthermore, after excluding all variables with no variance, the model seems incomplete as essential factors are missing to explain the constructs. Therefore, further studies should improve the model to obtain desirable results.

Despite the fact that results have to be analysed with much caution, some essential conclusion can be drawn. The model clearly suggests a different behaviour when analysed for country-specific differences, which suggests that a one-size-fits-all corporate governance system is not appropriate as argued throughout this dissertation.

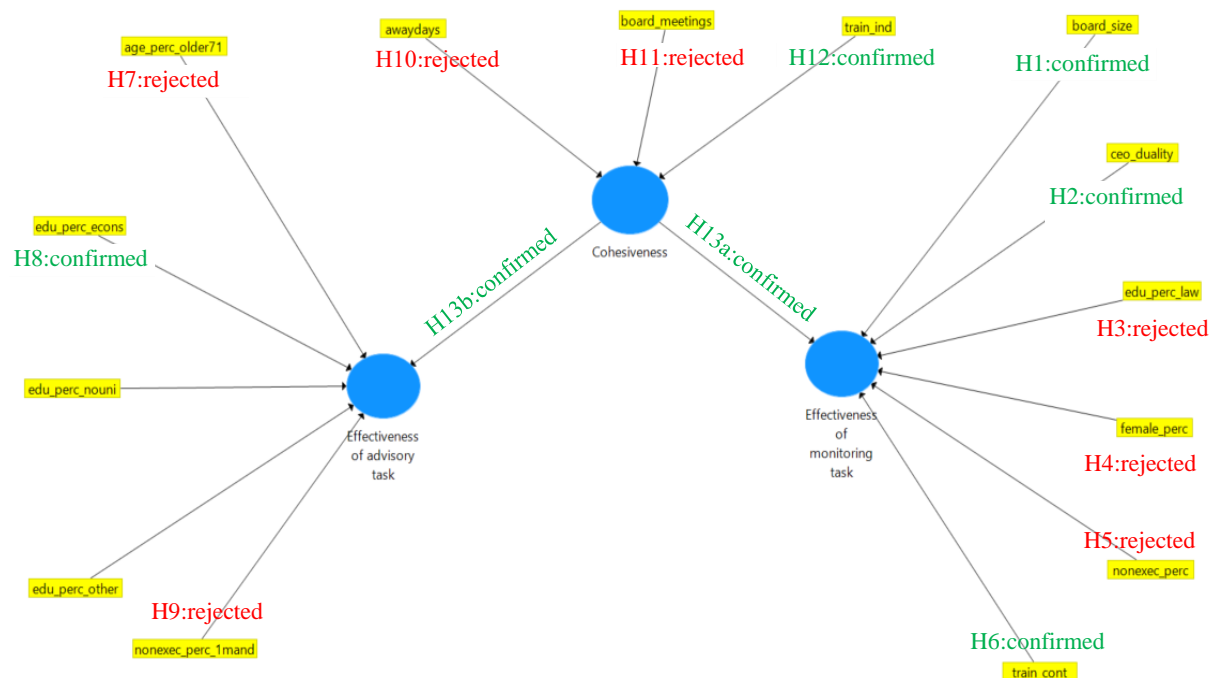
Another conclusion is that Spain is closest to the overall model which is consistent with theory as it has adopted a hybrid structure of corporate governance with characteristics of both the Anglo-American system as well as the Continental European system.

Germany differs significantly from both the United Kingdom and Spain in the effect ‘Cohesiveness’ has on the ‘Effectiveness of the advisory task’. Germany differs most from Spain as there is also a significant difference between both countries in respect to the relation between ‘Cohesiveness’ and the ‘Effectiveness of the monitoring task’. Interesting is also that Spain and the United Kingdom do not differ significantly from one another in any of the two relationships. This is consistent with the theoretical background provided in Chapter 5 as the Spanish system is suggested to lie between the German system and the system in the United Kingdom – however, closer to the one in the United Kingdom. The systems in the United Kingdom and in Germany are suggested to contradict most. They do, however, not differ significantly in their monitoring according to the MGA. This result can also be explained by the theoretical background as both the United Kingdom and Germany have separated roles of CEO and chairman in almost all companies (in Germany it is mandated by law, in the United Kingdom only one company has combined roles according to the results of the descriptive statistics of this dissertation). In both countries, boards are composed of at least 50% of non-executive directors. As a consequence, the formal structures on monitoring are well established in both systems.

7.5. Hypotheses confirmation and discussion

The following paragraphs focus on the statistical results of the PLS-SEM model and the analysis of the hypotheses. Figure 61 shows the confirmed and the rejected hypotheses. There are 7 hypotheses confirmed and 7 hypotheses rejected by the statistical results.

Figure 61: Overview of the confirmed and rejected hypotheses



H1: Large boards have a negative impact on the effectiveness of the monitoring task.

This hypothesis is confirmed by the statistical results. The regression weight of *board_size* to ‘*Effectiveness of the monitoring task*’ is -0,535 with a t-value of 3,657 and a p-value < 0,001. Consequently, *board_size* has a strongly significant negative impact on ‘*Effectiveness of the monitoring task*’ at a 1% significance level. It has been proven that board size impoverishes the effectiveness of the monitoring task within the board which is consistent with the findings of Eisenberg, Sundgren and Wells (1998), Jensen (1993), Lipton and Lorsch (1992), Yermack (1996).

A likely possible explanation to this relationship can be found on the negative board dynamics that size creates. Large boards foster social loafing as performance per member decreases with an increase in the number of team members. Boards tend to be more passive the larger the boards are which implies that the CEO is able to push through the own ideas due to groupthink, herding, pluralistic ignorance and social loafing (Coles *et al.*, 2008; Eisenhardt, 1999; Forbes and Milliken, 1999; Jensen, 1993; Lipton and Lorsch, 1992; Yermack, 1996). Sociability tends to be lower in large boards as board members do not get to know each other as well as in smaller boards (Eisenhardt, 1999; Forbes and Milliken, 1999; Goffee and Jones, 1996; Hilb, 2012; Huse, 2007). As a consequence, cohesiveness is suggested to be lower than in smaller boards.

H2: CEO duality has a negative impact on the effectiveness of the monitoring task.

This hypothesis is confirmed by the empirical results. The regression weight of *ceo_duality* to ‘*Effectiveness of the monitoring task*’ is -0,1780. However, the impact is statistically significant only at a 10% significance level (t-value: 1,722; p-value < 0,1). It can be concluded that CEO duality has a negative impact on the board monitoring role. This result is consistent with the findings of Cannella and Lubatkin (1993), Coles *et al.* (2001), Conyon and Peck (1998), Davidson *et al.* (2004), Finkelstein and D’Aventi (1994), Finkelstein and Hambrick (1996) and Goyal and Park (2002).

CEO duality accumulates much power in one single person. In that case, the board has only one power base. This leads easily to groupthink because human beings tend to obey authority. Therefore, it is suggested to be useful to have a second power base on the board as it helps board members to speak out loud their concerns or their disagreement. Consequently, also herding and pluralistic ignorance are counteracted through a second power base. Pluralistic ignorance in particular can also be applied to unethical behaviour which is often not stopped in boards with CEO duality as board members’ misperception of ethical behaviour might result in justifying unethical behaviour, turning it then into the group’s normative behaviour.

The reason for the lack of statistical significance at the 5% significance level might be attributed to cultural differences. In Spain, many boards have combined roles of CEO and chairman as many founding families have board mandates and want to control board decisions. Also, significant shareholders sit on boards which implies shared decision-making. In Germany, significant shareholders and employees take part in the decision-making process. Consequently, the independent chairman – although in Germany mandated by law - might be less important. The rationale behind this is that significant shareholders (or in Germany significant shareholders and employees) build kind of a second power base because they want their own interests to be represented so they are suggested to have motivations to monitor effectively.

H3: The existence of lawyers and corporate governance specialists on the board has a positive impact on the effectiveness of the monitoring task.

This hypothesis is rejected by the empirical results. The regression weight is 0,056 which suggests a weak positive impact. This impact is not statistically significant (t-value: 0,675; p-value > 0,05). Consequently, a positive impact of lawyers and corporate governance specialists on the ‘*Effectiveness of the monitoring task*’ cannot be confirmed. No other empirical study of the impact legal directors have on the effectiveness of the monitoring role has been found.

Relevant literature suggests that lawyers and corporate governance specialists are crucial specialists on the board for legal matters, corporate governance issues as well as compliance and they are members who are process-oriented. Consequently, they are as important as financial experts for auditing, for example. Besides, critical thinking is one of each lawyer’s and corporate governance specialist’s main strengths; they are able to examine problems from all perspectives and taking very well considered decisions (Edwards, 2015). For those reasons, the appointment of lawyers and corporate governance specialists is considered beneficial for a good monitoring (Forbes and Milliken, 1999). Unfortunately, the positive relationship cannot be confirmed by the statistical results.

H4: The existence of female directors on the board has a positive impact on the effectiveness of the monitoring task.

This hypothesis is rejected by the empirical results. The regression weight is 0,099, suggesting a weak positive impact (t-value: 1,305; p-value > 0,05). The positive impact of female directors on the ‘*Effectiveness of the monitoring task*’ cannot be confirmed. This is going against the findings of Adams and Ferreira (2008), Carter *et al.* (2003) and Stedham *et al.* (2007).

As the hypothesis is rejected, it could be argued that probably not all women directors communicate more effectively, ask tougher questions, prepare better and make men prepare better as well. It could also be possible that women adopt to the ‘culture of men’ changing their behaviour towards that of their male colleagues. Aguilera and Jackson (2003:13) argue: “managers tend to develop portable skills, reflecting a culture of generalist management”, which could be an argument in favour of diminishing differences between men and women in managing positions. Another reason could be that the effect one woman has on monitoring is too small. Rather, to break through the ‘old boys club’, it could be necessary to have, for example, three or more women on the board as it is suggested by critical mass theory and various authors (Catalyst, 2007; Konrad *et al.*, 2008; Torchia *et al.*, 2011).

H5: An independent board has a positive impact on the effectiveness of the monitoring task.

This hypothesis is rejected by the empirical results. The regression weight of non-executive directors is 0,071 suggesting a weak positive impact on the ‘*Effectiveness of the monitoring task*’. This impact is, however, not statistically significant (t-value: 0,831; $p > 0,05$). As a consequence, it cannot be concluded that an independent board has a positive impact on the ‘*Effectiveness of the monitoring task*’. The findings of this research reject big part of previous research done by Beasley (1996), Borokhovich *et al.* (1996), Brickley *et al.* (1994), Byrd and Hickman (1992), Cotter *et al.* (1997), Dechow *et al.* (1996), Faleye *et al.* (2011), Rosenstein and Wyatt (1990), Vafeas (2005) and Weisbach (1988).

Interesting to note is that this hypothesis has been rejected. This suggests that not independence according to its definition but *real* ‘independence of mind’ plays the crucial role in establishing an effective board. As explained in the theoretical part of this doctoral dissertation, the definition of independence leaves many loopholes as, for example, friends cannot be included into the definition. Consequently, neither will it be ever possible to verify from the beginning of the appointment whether a director is *actually* independent or not. Many friendship or social ties emerge within the time of appointment. As Brudney (1982) argues, directors form the corporate elite which is a small part of the whole economy. Those directors know each other directly or indirectly through others in their small circle. Also, it is claimed that many CEOs approve the appointment of a new director. This makes the newly appointed director feel loyal towards the CEO. Those are just a few of the plenty of possibilities why formal independence – that is, the one defined in most corporate governance codes and the one required to all listed companies – is different from *real* ‘independence of mind’ and why it is so difficult to effectively address this issue in a formal way (via codes of best practices and other regulations). As a consequence, the results on board independence suggest that more emphasis on stewardship theory could lead to a

more promising approach than by focusing on agency theory which is consistent with the proposals of Dalton and colleagues (1997), Huse (2008), Hilb (2012) and Sundaramurthy and Lewis (2003). Then, for instance, for director appointment, the nomination committee should not focus primarily on independence but rather on missing skills on the board according to a skills matrix. Also, the social ties between board members should be fostered more through much social interaction to reach a culture of trust and information sharing instead of preventing those. This way, board members are motivated to prepare for and participate in board meetings which counteracts pluralistic ignorance and social loafing on the board.

H6: Continuous training for each board member has a positive impact on the effectiveness of the monitoring task.

This hypothesis is confirmed. The regression weight is 0,730 suggesting a strong positive impact on the '*Effectiveness of the monitoring task*'. This impact is strongly statistically significant at a 1% level (t-value: 5,194; $p < 0,001$). Therefore, the result suggests there is a strong and significantly positive impact of continuous training on the '*Effectiveness of the monitoring task*'. This effect has not been studied in any other empirical research.

The impact of continuous training is knowledge-based and psychology-based. Obviously, continuous training is aiming to further improve firm-specific and industry-specific know-how. Economic and legal changes are trained on a continuous basis. The increase in know-how counteracts herding and groupthink. Furthermore, continuous training is aiming to teach about the corporate culture, to explain values and norms, especially when ethics and whistleblowing training is part of the training program. Directors are taught how to act and react in case they realise mismanagement or manipulation is taking place. It also makes aware of the importance of speaking out loud concerns and blow the whistle when necessary. Consequently, ethics and whistleblowing training helps counteracting pluralistic ignorance in case of misbehaviour. This way, a shared culture is build on the board adapting to the corporate values and norms, decreasing also the danger of social loafing. Know-how and good expertise combined with a strong culture of trust and information sharing is suggested to be the best decelerator of those negative board dynamics.

H7: Board members with an age of 71 and older have a positive impact on the effectiveness of the advisory task.

This hypothesis is rejected by the empirical results. The regression weight is 0,087 suggesting a weak positive impact on strategic control and advisory. However, this impact is not statistically significant (t-value: 0,593; $p > 0,05$). Consequently, according to the statistical results, the positive impact of directors aged 71 and older on advisory cannot be confirmed. As most empirical research on board diversity measures age diversity either by using a diversity index (such as the Blau's index, for example, Kearney *et al.*, 2009) or more narrow age categories (for example, Randøy *et al.* (2006) sets the highest age category as 65+), no empirical study has been found measuring the impact of directors aged 71 and older on the effectiveness of the advisory task.

According to literature, the oldest directors usually have the widest networks due to their long experience and their deep know-how. Those directors can facilitate access to crucial resources for the company and the directors are important strategy advisors due to their wisdom and because many of them previously have been CEOs themselves. As a consequence, strategic advice should benefit from having those directors on the board. There could be several reasons for the rejection of this hypothesis. First of all, of course, it is possible that directors do not have wider networks or maybe they are just not useful for the company. Another explanation could be that the directors are not motivated to use those networks in favour of the company. Several psychological reasons could explain this phenomenon (see arguments of 'use of knowledge'). The oldest directors, however, could also be the founding members or significant shareholders who do not necessarily have enough know-how and wide networks. Another possibility is that the oldest directors are often claimed to be part of the 'old boys club' They are claimed to be rather passive board members. Often they are all directors sitting on each other's boards and favouring each other's decision proposals to benefit themselves which does not result in effective decision-making. Consequently, the disadvantages could outweigh the advantages of having those directors on the board.

H8: Non-executive directors with more than 1 mandate in other companies have a positive impact on the effectiveness of the advisory task.

This hypothesis is rejected by the empirical results. The regression weight is 0,166 suggesting a positive impact on strategic advisory. However, this impact is not statistically significant (t-value: 1,182; $p > 0,05$). Consequently, according to the statistical results, the positive impact non-executive directors with more than 1 mandate on other companies have on

the advisory task cannot be confirmed. Most empirical studies analyse the relationship between directors with multiple board appointments and their impact on monitoring (for example, Pritchard *et al.*, 2003) rather than considering their impact on strategy or they focus on the boards' overall impact on strategy without analysing for different subgroups within the board (for example, Carpenter and Westphal, 2001). Other studies focus on executive directors who also serve as non-executive directors on other boards (for example, Useem, 1984). Consequently, no study analysing the relationship between non-executive directors holding multiple directorships and strategy involvement has been found.

The result does suggest that there is no statistical significance of this effect. Reasons could be the same as in hypothesis 7 (H7: Board members with an age of 71 and older have a positive impact on the effectiveness of the advisory task).

H9: Board members holding a university degree in economics and other business related studies have a positive impact on the effectiveness of the advisory task.

This hypothesis is confirmed at a 1% significance level. The regression weight is 0,787 suggesting a strong positive impact on strategic control and advisory. This impact is strongly statistically significant (t-value: 5,012; $p < 0,001$). Consequently, according to the statistical results, the positive impact of board members holding a university degree in economics and related fields on strategic control is confirmed. This goes along with Huse's (2007) findings.

Holding a university degree in economics and business related fields is essential to every company and every industry. This firm-specific know-how includes functional areas of the traditional domains of business, including accounting and finance, marketing and operations management among others. This know-how is inevitable for company success (Forbes and Milliken, 1999). Consequently, the statistically significant impact is confirmed by theory and statistical results.

H10: Away-days foster sociability and therefore have a positive impact on cohesiveness.

This hypothesis is rejected. The regression weight is 0,037 suggesting a positive impact on board dynamics. This impact is, however, not statistically significant (t-value: 1,370; $p > 0,05$). Consequently, according to the statistical results, the positive impact of away-days on cohesiveness is not confirmed. This contradicts Huse's (2007) findings.

Away-days are suggested by literature to foster sociability and cohesiveness as those meetings are not only strategy events but also meetings for improving social ties, board members' trust and openness as well as creativity and teamwork leading to an increase in motivation. A strong culture is suggested to be built through away-days, among other factors (Huse, 2007; McNulty and Pettigrew, 1999). Pluralistic ignorance is known to emerge far less in strong cultures. Also, social loafing is suggested to occur less. Therefore, the relevant literature suggests a positive impact of away-days on board dynamics.

The reason for the rejection of the hypothesis could be that such strategic events taking place just once a year are not sufficient to improve social ties between directors in the long-term. Also, a reason could be that there is a large percentage of companies not disclosing on away-days. Consequently, it is not possible to know whether or not they organised those events. Also, in case such events have been organised, the data gathering process has not focused on verifying whether or not those events included the characteristic team-building activities or just corporate strategy discussion. Further studies could use questionnaires for such questions that have not found an answer in this study.

H11: Holding frequent board meetings fosters sociability and therefore has a positive impact on cohesiveness.

This hypothesis is rejected by the statistical results. The regression weight is 0,096 suggesting a positive impact on board dynamics. However, this impact is not statistically significant (t-value: 0,794; $p > 0,05$). Consequently, according to the statistical results, the positive impact of board meetings on board dynamics cannot be confirmed. No empirical studies have been found on this relationship as most research connects board meetings to the monitoring role (for example, Pritchard *et al.*, 2003).

Frequent board meetings are suggested to have similar effects as away-days because it is a way of social interaction which is the key to cohesiveness.

H12: Induction has a positive impact on cohesiveness.

This hypothesis is confirmed. The regression weight is 0,976 suggesting a strong impact on board dynamics. This impact is statistically significant at the 1% significance level (t-value: 13,259; $p < 0,001$). Consequently, according to the statistical results, the strong positive impact of induction on the level of cohesiveness is confirmed and consistent with Huse's (2007) findings.

Induction is to a large extent an intent to bring cultural aspects of the company closer to the new director (Higgs, 2003). Also, it informs the director effectively on company-related issues, industry-related issues and clarifies roles and responsibilities clearly (Huse, 2007). This is an important step for ensuring the directors have the essential know-how from the first day on, resulting in a good basis for being able to prevent herding and groupthink. Also, it is a first step for integrating the new member to the board, fostering cohesiveness and therefore counteracting pluralistic ignorance and social loafing.

H13a: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the monitoring task

This hypothesis is confirmed. The path coefficient is 0,730 suggesting a strong positive impact on the ‘*Effectiveness of the monitoring task*’. This impact is statistically significant at the 1% significance level (t-value: 14,215; $p < 0,001$). Consequently, according to the statistical results, the strong positive impact of ‘*Cohesiveness*’ on ‘*Effectiveness of the monitoring task*’ is confirmed and consistent with the findings of Minichilli *et al.* (2012) and Nielsen and Huse (2010).

Also according to the existing relevant literature, cohesiveness is suggested to have a positive impact on operational control (Forbes and Milliken, 1999; Sundaramurthy and Lewis, 2003). The core argument of aiming for cohesiveness in the board is that it fosters communication and collaboration. It is often argued that diversity has to be aimed for in order to increase the level of conflict to prevent groupthink. Diversity also leads to many different ideas and points of view on the board. However, an important point seldom taken into account is the psychological fact that knowledge is not the same as use of knowledge (Forbes and Milliken, 1999). Due to socio-psychological reasons, different negative board dynamics can emerge hindering the use of knowledge. Sociability between board members fosters openness through social interaction, communication, motivation and trust and leads to more use of knowledge which is essential for performing the monitoring task effectively.

H13b: Cohesiveness as positive board dynamic has a positive impact on the effectiveness of the advisory task.

This hypothesis is confirmed. The path coefficient is 0,607 suggesting a strong positive impact on the advisory task. This impact is statistically significant at the 1% significance level (t-value: 9,800; $p < 0,001$). Consequently, according to the statistical results, the strong positive impact of ‘*Cohesiveness*’ on the ‘*Effectiveness of the advisory role*’ is confirmed and aligned with the findings of Minichilli *et al.* (2012), Huse (2007) and Nielsen and Huse (2010).

Cohesiveness is suggested to have a positive impact on strategic control. As mentioned in hypothesis 13a, the use of knowledge is the key to perform board roles effectively which is achieved through trust, openness and social interaction between board members (Forbes and Milliken, 1999; Janis, 1983; Minichilli *et al.*, 2012; Niesen and Huse, 2010; Sundaramurthy and Lewis, 2003). Consequently, cohesiveness is suggested by theory and statistical results to have a positive impact on the advisory task.

Figure 62 provides an overview of both the confirmed hypotheses with their significance level and the rejected hypotheses.

Figure 62: Overview over the confirmed and rejected hypotheses with their significance level

Hypothesis	Confirmed/ rejected	Significance level
Effectiveness of the monitoring task		
H1: Large boards have a negative impact on the effectiveness of the monitoring task.	confirmed	1%
H2: CEO duality has a negative impact on the effectiveness of the monitoring task.	Confirmed	10%
H3: The existence of lawyers and corporate governance specialists on the board has a positive impact on the effectiveness of the monitoring task.	rejected	
H4: The existence of female directors on the board has a positive impact on the effectiveness of the monitoring role.	rejected	
H5: An independent board has a positive impact on the effectiveness of the monitoring task.	rejected	
H6: Continuous training for each board member has a positive impact on the effectiveness of the monitoring task.	confirmed	1%
Effectiveness of the advisory task		
H7: Board members with an age of 71 and older have a positive impact on the effectiveness of the advisory task.	rejected	
H8: Non-executive directors with more than 1 mandate in other companies have a positive impact on the effectiveness of the advisory task.	rejected	
H9: Board members holding a university degree in economics and other business related studies have a positive impact on the effectiveness of the advisory task.	confirmed	1%
Cohesiveness		
H10: Away-days foster sociability and have a positive impact on cohesiveness.	rejected	
H11: Holding frequent board meetings fosters sociability and therefore has a positive impact on cohesiveness.	rejected	
H12: Induction fosters sociability and therefore has a positive impact on cohesiveness.	confirmed	1%
H13a: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the monitoring task.	confirmed	1%
H13b: Cohesiveness as a positive board dynamic has a positive impact on the effectiveness of the advisory task.	confirmed	1%

Concluding this chapter, it is important to bear in mind that variables of hypotheses which are rejected by the statistical results or which are not statistically significant should not be eliminated from a formative measurement model as those measurement models are primarily evaluated by the strong existing linkages to theory and literature, rather than to statistical significance. Indicators eliminated from a formative measurement model change the content of the model. Therefore, the inclusion or elimination should always be considered with the theoretical background on that relationship (Nitzl, 2010). Consequently, the model is considered valid, although there are several indicators with no significant impact on the construct. However, it is a simplistic model, established only to prove the possibility of measuring behavioural characteristics statistically by linking them to formal and measurable factors. Future research should try to refine the model, also in respect to the definition of the existing variables.

Essential to note from the findings is that all rejected hypotheses can be explained by having an impact on board dynamics. This is a further reason to focus board research on board dynamics by taking into account the behavioural side of corporate governance and the board of directors.

The following chapter (Chapter 8) is dedicated to the drawing of conclusions on this research.

CHAPTER 8: CONCLUSIONS

This chapter focuses on drawing conclusions on the main theoretical and empirical findings. It also covers the importance of those findings for regulators, listed companies and researchers. Limitations and suggestions for future research are the last aspects covered by this chapter which build the rounding off of this doctoral dissertation.

8.1. Conclusions on the research goals and discussion

This doctoral dissertation makes a significant contribution for the research on boardroom behaviour by covering its conceptual background. The following paragraphs evaluate how far the dissertation objectives have been achieved.

Objective 1: Describe the relevant theoretical context and provide a detailed and complete picture of the research problem.

The findings of this research suggest clearly that agency theory alone cannot be the key to board effectiveness. As agency theory focuses on board monitoring and stewardship theory on advisory, in order to capture the whole work of the board of directors – which is mainly monitoring and advisory or strategy – it becomes clear that both agency theory and stewardship theory are essential building blocks of board effectiveness. This dissertation's literature review reveals that the combination of control and collaboration, trust and distrust or cohesiveness and diversity is the key to effective board behaviour. This means that other theories – especially from the field of social psychology – have to be taken into account in order to be aware of both negative

board dynamics that should be prevented and positive board dynamics that should be fostered. As a consequence, a pluralistic approach should be used to capture the whole picture of corporate governance and the board of directors.

Objective 2: Identify key characteristics of the informal structure of boards of directors and analyse their impact on boardroom effectiveness.

Both the Cadbury Report (1992) and also the Hampel Report (1998) warned very early that reformers must not put too much weight on the control task of independent directors as it is not their only or not even their most important responsibility. Whereas the development of a corporate strategy, the remuneration of executives, the independent and adequate auditing and financial reporting as well as an appropriate risk assessment are inevitable, studying and understanding the behaviour and the attitude of directors is equally important to make a board effective, suggesting that values, corporate culture and strategy are important factors with an impact on the quality of corporate governance (Yoshimori, 2005). The Higgs Report (2003:33) argues that boardroom effectiveness requires *“a culture of openness and constructive dialogue in an environment of trust and mutual respect.”*

The identified key characteristics of the informal or hidden structure of boards of directors lead to the different board dynamics that might emerge on the board. Both the behavioural or informal key characteristics as well as the positive board dynamics (trust, openness, sociability, cohesiveness) and negative board dynamics (groupthink, herding, pluralistic ignorance, social loafing, social distancing) have been clarified conceptually according to the relevant literature as well as empirically by measuring their impact on the board's main functions – monitoring and advisory or strategy. Cohesiveness has been identified as the most desirable board dynamic in order to foster board effectiveness as it is suggested to improve sociability and the use of knowledge on the board while counteracting negative board dynamics. Consequently, cohesiveness is the board dynamic that determines the level of performance of the main board functions.

Objective 3: Suggest a model as a measurement tool for informal structures assessment.

As behavioural factors cannot be measured directly in a statistical way and qualitative research does not bring about large sample sizes, the knowledge on what boards of directors really do is limited. Due to the importance of studying behaviour on a large scale in order to be able to build theories on boardroom behaviour, this doctoral dissertation proposes a measurement tool

for measuring behavioural characteristics indirectly by connecting them to formal and measurable factors on the conceptual basis of the existing literature on the board of directors. The proposed model has proven to be valid.

The most important findings are addressed in the following paragraphs.

- (1) The suggested model proves a statistically significant positive impact of '*Cohesiveness*' on the '*Effectiveness of the monitoring task*' as well as on the '*Effectiveness of the advisory task*'. This is one of the most essential conclusions as it supports the conceptual contributions suggesting that cohesiveness leads to board effectiveness (Huse, 2007; Minichilli *et al.*, 2012; Nielsen and Huse, 2010). The strongest and only statistically significant factor explaining cohesiveness within the board is induction training, suggesting that it is a crucial first step of board member integration: cultural values and norms are explained from the beginning which builds the base for a positive board culture, as Huse (2007) already found.
- (2) Regarding the effectiveness of the monitoring task, the statistical results confirm the negative impact of large boards, the negative impact of CEO duality and the positive impact of continuous training. The most interesting result is the positive impact of training as no other study on this relationship has been found. Training is one of the most crucial factors for counteracting all negative board dynamics as up-to-date know-how increases confidence on the own knowledge level leading to more use of knowledge. Consequently, if it is possible to build a board of experienced directors with much expertise, providing continuous training to secure their up-to-date know-how while establishing a culture of sociability and constructive-critical trust, the main negative board dynamics addressed in this doctoral dissertation can be counteracted effectively.

Interesting is the rejected hypothesis about the impact independence should have on the '*Effectiveness of the monitoring role*'. A strong positive relationship was expected (Beasley, 1996; Borokhovich *et al.*, 1996; Brickley *et al.*, 1994; Byrd and Hickman, 1992; Cotter *et al.*, 1997; Dechow *et al.*, 1996; Faleye *et al.*, 2011; Rosenstein and Wyatt, 1990; Vafeas, 2005; Weisbach, 1988). However, the empirical results of this dissertation do not confirm this relationship. This rejection could be a first indicator of the importance to ensure directors are 'independent of mind' rather than using independence only as a box-ticking characteristic. Board dynamics might be the reason why directors, who are independent according to the definition of independence, are not effective monitors. Rather, negative board dynamics might make them lose their 'independence of mind' due

to socio-psychological reasons, such as feeling loyal towards the CEO (groupthink) or lacking the trust to speak out loud concerns (pluralistic ignorance).

- (3) Regarding the effectiveness of the advisory task, this dissertation's results confirm only the positive impact directors with an educational background in economics and related fields have on it, which goes along with Huse's (2007) findings. It is interesting that the positive relationship between indicators suggesting large networks of directors (directors with an age of 71 and older; directors holding more than 1 mandate in another company) is not confirmed by the statistical results. This might indicate that large networks are not crucial for performing the advisory role and therefore contradict resource dependence theory and its contributors (Pfeffer and Salancik, 1978). A reason could be that those are the directors who are often appointed after the approval of the CEO who might want them on the board due to their access to critical resources, not because they are effective advisors. Also, loyalty towards the CEO might emerge so that the director loses on objectivity or 'independence of mind' leading to a diminishing impact on board effectiveness. If the board is managerial dominated, the management team might not be looking for advice and instead prefers a passive board. According to social identity theory, another reason could be that those directors want to keep their reputation as 'easy-going' directors in order to foster their attractiveness for further directorships, so that they do not contradict the CEO (Bainbridge, 2008; Forbes and Milliken, 1999; Geletkanycz and Hambrick, 1997; Hillmann *et al.*, 2008; Monks and Minow, 2008b; Morck, 2008; Pfeffer, 1972; Pritchard *et al.*, 2003).

The model suggests that it is possible to measure informal characteristics through linking them to formal and measurable indicators. Consequently, this new way of research on board behaviour is a promising attempt to assess behavioural characteristics on a large scale. In order to bring more light into the field of board conduct, the model should be refined by future research to clarify uncertainties left from this study.

Objective 4: Analyse for cultural differences between the paradigmatic cases of the United Kingdom, Germany and Spain and test the model for cultural differences.

There have been clear cultural differences identified. From the cultural and historical background of each country, it can be recognised how and why differences in corporate governance emerged. Those cultural and historical differences have also influenced the establishment of board

structures and the definition of board effectiveness according to corporate governance codes of best practice. Some conclusions on the country-specific differences can be drawn:

- (1) Although overall compliance with corporate governance recommendations is high in all three countries, an alarming result from the descriptive statistics is that not enough focus is put on factors that foster cohesiveness on the board. The number of board meetings is adequate in all three countries, however, induction and away-days are not made use of sufficiently. Spain is not organising or not disclosing on the use of away-days at all; the United Kingdom and Germany make not enough use of it. It could be argued that away-days are not as important as suggested by literature (Huse, 2007; Nielsen and Huse, 2010). Induction training is not provided sufficiently either. The hypothesis of the impact induction has on cohesiveness has been confirmed by the statistical results of this doctoral dissertation, making it even more important to provide induction to new directors. Germany has the lowest level of induction training. Considering that Germany has employee representatives on the board who might lack some essential know-how for performing their board role effectively, this result is alarming. Especially because the hypotheses on the positive impact cohesiveness has on both monitoring and advisory or strategy and consequently also on board effectiveness is confirmed by the empirical results of this doctoral dissertation, all three countries should foster cohesiveness more.
- (2) Spanish boards do not focus too much on the danger that might emerge from CEO duality. The reason is that a large percentage of the Spanish multinational companies are still run by the founding families so they prefer to make decisions with no second power base. Important to consider is that the ineffectiveness suggested due to CEO duality is only an ineffectiveness according to what corporate governance codes dictate. Thinking a little further, shareholder representatives might be effective monitors as they have a real motivation to monitor executives' actions in order to push through their own interests or ensure decisions are made in their interest. Considering effectiveness from this lens, shareholder representatives might be less vulnerable to the emergence of negative board dynamics. Especially because the statistical results of this doctoral dissertation reject the idea that an independent board (according to the definition of independence) is essential for performing the monitoring task, it could be interesting to test the impact shareholder representatives have on monitoring.
- (3) From the different approaches applied to test for cultural differences, none brings about reliable results and they are contradicting each other. The reason is that statistical power is too low so that future studies should increase sample size. Also, due to the lack of

variance, some essential variables had to be excluded from the model. Therefore, interdependencies are not measured well. Generally, it can be concluded that Spanish companies respond most similar to the overall model. The reason is that Spain's hybrid structures lie between the structures in the United Kingdom and Germany.

Although the model applied per country has many weaknesses, it can be concluded that country-specific differences do exist as each country corresponds differently to the effect the variables have on their constructs. This is a sign that the new method suggested of combining formal to informal variables is effective and should be refined by future research in order to gain more insight into *real* board conduct because the arguments explained should be only seen as ideas for digging deeper into the analysis of certain variables by future research.

8.2. General conclusion

From the empirical findings of this doctoral dissertation, three ultimate conclusions can be drawn:

1. It is possible to measure informal characteristics on a large scale and it has to be done in order to bring more light into board behaviour.

The biggest downside of most intents to explain board behaviour is that they apply an 'either-or' approach. In other words, they focus either on a shareholder based approach or on a stakeholder based approach without taking into account all the grey zones between their black or white theories. Also, most literature focuses on just one aspect without taking into account the interdependencies between behaviours. Another major drawback of most literature is the methodology taken. Surely are qualitative methods a good approach, however, they have many disadvantages (for example, small samples and low response rates in questionnaires or interviews as there is much confidential data which the companies do not want to expose to the public). As a consequence, it is necessary to combine unobservable variables to observable ones in order to measure behaviour statistically, although in an indirect way, just as this research suggests. As the proposed model proves to be valid, it is a first step towards bringing light into boardroom behaviour by beginning to statistically measure it in order to get a meaningful number of results so that new theories on board behaviour can be built someday.

2. Cohesiveness is the fundamental driver in board dynamics towards an effective board decision-making and board effectiveness.

It is cohesiveness that suggests to be the underlying board dynamic for an effective board. Therefore, social interaction should be fostered, not prevented as argued by agency theory. Rather, stewardship theory might be a better approach as it considers the CEO not as someone who has to be controlled all the time but as someone who can be trusted to perform according to his or her duties. Applying this approach also means that director nomination should focus primarily on skills fitting the existing board rather than searching primarily for someone who is formally independent. These shifts in the focus on corporate governance would change the paradigm of corporate governance further and could be another step towards board effectiveness.

3. Cultural differences are important to take into account when establishing corporate governance systems as empirical evidence suggests that board dynamics and their relationship with board tasks differ between corporate governance systems.

The three countries of analysis differ in terms of their corporate governance systems as well as in terms of their socio-economic and cultural context which leads to different links between market players and therefore different ultimate goals of the firm. By analysing the structure of boards of directors in different cultural contexts and their compliance with corporate governance codes, it becomes clear that cultural patterns determine board structure and therefore have to be considered when reforming on corporate governance. A ‘one-size-fits-all’ approach is not appropriate. Also, the model established and tested in this empirical research suggests differences in variable behaviour between countries.

8.3. Implications for regulators and listed companies

As explained in the introduction (Chapter 1), there is a scarcity of empirical research in the field of boardroom behaviour from the socio-psychological perspective. This doctoral dissertation is one of the few existing empirical analyses in this field which takes into account actual behavioural factors. Furthermore, does this empirical study test for cultural differences between the three main corporate governance systems – the Anglo-American system, the Continental European system and the hybrid system. In recent years, the Anglo-American system has been contrasted with the Continental European system; the hybrid system, however, is not paid sufficient attention to. Especially on Spain, there is limited literature published. The few

articles covering the hybrid system focus either on France or on Italy. Therefore, the findings of this dissertation are of essential practical relevance. In the following lines, implications for regulators and for companies are explained.

The statistical results of this empirical study suggest that cohesiveness on the board has a positive impact on performing both the monitoring task as well as the advisory or strategy task and consequently, overall it is suggested to have a positive impact on board effectiveness. Therefore, regulators should take this into account when establishing or renewing corporate governance regulations and codes of best practice. As social interaction is the key to cohesiveness, policy makers could provide incentives for companies to foster events where directors meet in person and can talk also in an informal manner. A thought worthy considering could be the introduction of a director certificate similar to the *Certificate for Chartered Directors* in the United Kingdom where not only formal training, but also access to networks, documentation, conferences and other events is provided.

An implication for companies could be to focus more on a specific selection process of new board members considering the skills and characteristics that are needed on the board instead of primarily focusing on independence. Also, strategic involvement should be fostered instead of focusing only or mainly on the monitoring role.

Furthermore, as both types of training – induction and continuous training – prove to have a positive impact on board effectiveness, both should be provided to directors. Introducing directors well to the board and providing them with all the essential information they need to perform well from the beginning as well as clarifying the corporate culture with its values and its mission to the new director has been proven to be beneficial. Considering that many companies do not provide induction programs to new directors (for more detail see the descriptive statistics in Chapter 6), the positive impact should also be highlighted and communicated by the corporate governance codes and recommendations on good governance. Companies should improve their continuous training programs for directors and/ or maintain them at a high level. Those trainings should focus also on ethics and whistleblowing training, norms and values of the company so that directors internalise those and integrate those to the board culture.

Another implication for companies might be to rethink the advantage of appointing directors with several other board mandates to the board. Contrary to the expected, the empirical findings of this study suggest there is no significant positive relationship between ‘busy’ directors and their effectiveness on the advisory task.

8.4. Limitations and future research

There are several limitations to the research carried out in this doctoral dissertation.

This study focuses on the largest listed companies in the United Kingdom, Germany and Spain which means that there is only one country analysed for each main system of corporate governance. The findings of this study may only be applicable to similar organisations. They cannot necessarily be generalised to small and medium-sized companies. Neither can they be necessarily applied to culturally similar countries within the same system of corporate governance, although these findings might be an indicator that studies on companies in similar cultural and corporate settings might correspond to these findings. Therefore, future research should focus on other countries within the same cultural setting and within the same corporate governance system. Future research should also study listed companies outside the major indices in order to test for a broader generalisation of results.

Furthermore, the model should be seen only as a starting point to dig deeper into modelling using informal characteristics by connecting them to formal and directly measurable characteristics. The model suggested in this doctoral dissertation is a simplistic model trying only to prove that informal behavioural characteristics can be measured statistically. In future research, the model should be refined by enhancing different dimensions of board behaviour and board effectiveness including additional indicators.

A further limitation of this dissertation is that not all theories that have an impact on corporate governance and the board of directors have been taken into account. However, this limitation leaves space for further research. For example, leadership theories could be considered. According to Bass (1985) transformational leadership boosts 'inspirational motivation', leading to more open board members for creative ideas of their colleagues. Transformational leadership is therefore suggested to impact cognitive diversity and creativity (Shin *et al.*, 2012). Consequently, it would be interesting to focus future research on the impact of transformational leadership as well as the impact of other leadership styles on cohesiveness and board effectiveness.

Further limitations:

- Future research should test for industrial differences. Some indicators such as director age or directors holding several mandates are suggested by the existing literature to differ within industrial settings as conservative industries such as the steel industry rely more on highly experienced directors whereas industries such as media rely more on

younger directors with fresh ideas. Consequently, testing for differences in industries is an essential step for getting more insight into how different boards behave in different settings.

- Some of the variables used in the model did not bring about the expected results. A reason could be the definition of the variables and the information gathering of those. Future research should try to define the variables more precisely. For example, it would be interesting to test for the effect three or more female directors have on monitoring, in accordance with critical mass theory.
- In order to study for cultural differences, sample size should be increased to get a higher statistical power. Also, the model has to be refined in order to get meaningful results. An example would be to differentiate between independent directors and propriety directors in Spain; between shareholder representatives and employee representatives in Germany, especially because in the German case, it could be more interesting to test the impact employee representatives have on advisory instead of testing their impact on monitoring.

This doctoral dissertation makes a contribution to the understanding of boardroom behaviour in different corporate governance settings by proposing a new way of studying behavioural or informal characteristics on a large scale. As the research of boardroom behaviour studying socio-psychological factors is just emerging, both research and practice can benefit from the findings of this doctoral dissertation. It is also expected that interest in this area of research will increase steadily. Consequently, the topic of this doctoral dissertation is expected to be discussed and investigated further by the corporate world, regulators and researchers in future.

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APPENDIX

APPENDIX A: Company Data gathered

1) Company data

Company	Country	Main activity	Main industry	No. annual board meetings	Away-days	Percentage of women on the board	Board size	Percentage of directors > 71 years old	Director age range	Director age (average)	Director age standard deviation	Percentage of directors with no university degree	Percentage of directors with university background in economics	Percentage of directors with university background in law	Percentage of directors with university background in other sciences	Percentage of directors with university background in humanities	Percentage of directors with university background in other disciplines	Number of different fields of education on the board	Percentage of executive directors	CEO duality	Percentage of non-executive directors	Percentage of directors domestic to stock exchange	Number of nationalities on the board	Percentage of international directors on the board	Executive directors holding 1 other board mandate	Non-executive directors holding 1 other board mandate	Percentage of directors with 2 or more mandates in other companies	Training - Inclusion	Training - continuous
Adidas	GE	1	Consumer Discretionary	5	0	13%	16	6%	33	6.75	7.74	19%	56%	0%	6%	19%	0%	3	25%	0	75%	63%	6	38%	50%	25%	19%	1	1
Albanz	GE	2	Financials	6	0	32%	25	0%	24	8	6.22	14%	41%	32%	14%	9%	3	44%	0	56%	56%	9	44%	64%	36%	32%	0	0	
BASF	GE	1	Materials	5	0	15%	20	5%	24	7	6.86	25%	31%	25%	31%	6%	0%	4	40%	0	60%	85%	4	15%	13%	50%	20%	0	0
Bayer	GE	1	Health Care	8	0	11%	27	7%	29	7	7.88	30%	33%	7%	74%	0%	4%	4	26%	0	74%	71%	7	29%	0%	55%	30%	0	0
Beiersdorf	GE	1	Health Care	8	0	25%	16	0%	22	12	7.68	20%	60%	20%	20%	0%	0%	3	25%	0	75%	90%	2	10%	0%	25%	8%	0	1
BMW	GE	1	Consumer Discretionary	5	1	19%	26	0%	23	9.5	6.16	25%	38%	4%	42%	0%	8%	4	23%	0	77%	85%	5	15%	83%	60%	38%	0	1
Commerzbank	GE	2	Financials	8	0	21%	29	3%	30	11.5	8.26	12%	72%	12%	12%	0%	0%	3	31%	0	69%	94%	2	6%	56%	50%	38%	0	0
Continental	GE	1	Consumer Discretionary	6	1	7%	28	11%	32	14	9.31	16%	42%	16%	37%	0%	5%	4	29%	0	71%	7%	3	9%	0%	65%	25%	0	1
Daimler	GE	1	Consumer Discretionary	8	1	11%	28	4%	25	13	7.17	13%	38%	13%	50%	8%	0%	4	29%	0	71%	18%	9	82%	0%	55%	40%	0	1
Deutsche Bank	GE	2	Financials	29	1	21%	38	0%	30	9	7.32	10%	52%	21%	28%	17%	0%	4	47%	0	53%	55%	10	45%	6%	65%	21%	1	1
Deutsche Borse	GE	2	Financials	12	0	16%	25	0%	22	8	5.72	4%	56%	28%	20%	0%	4%	4	28%	0	72%	72%	5	28%	0%	33%	6%	1	1
Deutsche Lufthansa	GE	2	Industrials	4	0	13%	24	4%	25	9	6.52	7%	40%	20%	60%	0%	0%	3	17%	0	83%	89%	4	11%	0%	25%	5%	0	0
Deutsche Post	GE	2	Industrials	8	1	22%	27	4%	28	11	7.65	0%	64%	27%	36%	9%	0%	4	26%	0	74%	95%	2	5%	0%	45%	25%	0	0
Deutsche Telekom	GE	2	Telecommunication Services	8	0	22%	27	0%	26	9.5	6.93	10%	43%	29%	29%	0%	5%	4	26%	0	74%	88%	4	12%	29%	50%	37%	0	0
E.ON	GE	2	Utilities	9	1	16%	19	0%	19	14	7.52	50%	75%	0%	25%	0%	0%	2	32%	0	68%	90%	2	10%	33%	62%	42%	1	1
Fresenius SE & Co. KG	GE	1	Health care	7	0	0%	16	19%	28	19	10.38	8%	38%	23%	38%	0%	0%	3	44%	0	56%	75%	5	25%	43%	67%	31%	0	0
Fresenius Medical Care AG & Co. KGaA	GE	2	Health care	7	1	0%	14	14%	21	9.75	7.73	0%	31%	4%	38%	0%	0%	3	57%	0	43%	29%	5	0%	83%	67%	0	0	
HeidelbergCement	GE	1	Materials	5	0	5%	19	5%	20	8	7.83	7%	36%	29%	36%	0%	7%	4	32%	0	68%	88%	3	13%	50%	38%	26%	0	1
Heinkel	GE	1	Health Care	5	0	32%	22	0%	24	4.75	6.38	7%	57%	0%	29%	0%	7%	3	27%	0	73%	78%	5	23%	0%	50%	14%	0	0
Infinion Technologies	GE	1	Information Technology	8	1	13%	16	0%	27	9.5	7.67	0%	40%	10%	70%	0%	0%	3	25%	0	75%	75%	3	25%	0%	50%	31%	0	0
K+S	GE	1	Materials	4	0	5%	21	14%	25	19	8.97	32%	21%	26%	21%	5%	5%	5	24%	0	76%	94%	2	6%	20%	44%	24%	0	0
Lanxess	GE	1	Materials	6	0	6%	16	13%	33	9.5	8.18	31%	44%	6%	31%	0%	0%	3	25%	0	75%	88%	2	13%	25%	42%	19%	0	0
Linde	GE	1	Materials	5	0	12%	17	6%	28	11	8.06	25%	44%	13%	50%	0%	0%	3	29%	0	71%	81%	4	19%	0%	42%	12%	0	0
Merck	GE	1	Health Care	5	0	9%	22	5%	27	8	6.93	18%	12%	6%	59%	0%	6%	4	23%	0	77%	85%	3	15%	20%	35%	18%	0	0
Munich Re	GE	2	Financials	6	0	18%	28	4%	26	12.5	7.84	6%	50%	22%	28%	0%	0%	3	32%	0	68%	72%	4	28%	44%	74%	39%	0	0
RWE	GE	2	Utilities	4	0	12%	26	25%	29	12	8.81	38%	31%	19%	19%	0%	0%	3	31%	0	69%	88%	3	12%	13%	33%	12%	0	0
SAP	GE	3	Information Technology	6	0	22%	23	0%	25	16	9.29	0%	40%	13%	47%	0%	0%	3	30%	0	70%	61%	7	40%	57%	38%	26%	0	0
Siemens	GE	1	Industrials	7	0	30%	30	3%	28	10	7.84	14%	32%	18%	32%	14%	0%	4	33%	0	67%	71%	7	39%	100%	60%	43%	0	0
ThyssenKrupp	GE	1	Materials	7	0	15%	27	7%	30	11.25	8.22	29%	29%	21%	33%	4%	0%	4	22%	0	78%	92%	4	3%	17%	52%	30%	0	0
Aberdeen Asset Management	UK	2	Financials	8	0	14%	14	0%	19	7	7.59	0%	75%	17%	8%	0%	0%	4	36%	0	50%	100%	0%	0%	40%	86%	43%	0	0
Admiral Group	UK	2	Insurance	8	2	20%	16	0%				0%	88%	0%	0%	0%	0%	4	20%	0	80%	No info	No info	0%	50%	20%			
Aggreko	UK	2	Power generation	7	0	18%	11	No info				0%	83%	0%	0%	0%	0%	4	45%	0	55%	No info	No info	20%	50%	27%			
AMEC	UK	2	Oil - gas	12	0	13%	8	0%				0%	67%	0%	0%	0%	0%	2	25%	0	75%	No info	No info	50%	50%	25%			
Anglo American	UK	1	Materials	6	0	18%	11	18%	18	10.5	6.35	0%	64%	0%	0%	0%	0%	2	18%	0	82%	57%	4	43%	100%	64%	64%	1	1
Antofagasta	UK	1	Materials	9	0	0%	10	10%	24	5.25	6.56	0%	56%	22%	0%	0%	0%	3	10%	1	90%	14%	3	86%	100%	100%	40%	0	0
ARM Holdings	UK	1	Information Technology	16	0	18%	11	0%	24	6	6.22	0%	50%	0%	0%	0%	0%	2	36%	0	64%	100%	1	0%	100%	71%	55%	0	1
Associated British Foods	UK			10	1	13%	8	0%				No info	No info	No info	No info	No info	No info	2	25%	0	75%	No info	No info	No info	100%	83%	25%		
Astrazeneca	UK	1	Health Care	14	0	25%	12	0%	17	6.25	5.44	0%	42%	8%	17%	8%	8%	5	17%	0	83%	50%	4	50%	0%	7/10	42%	0	0
Avira	UK	2	Financials	15	0	8%	12	8%	24	13	8.61	0%	89%	11%	0%	0%	0%	3	25%	0	75%	60%	3	40%	33%	67%	58%	1	1
Baloch International	UK			13	0	18%	11	No info				0%	67%	33%	0%	0%	0%	3	30%	0	64%	No info	No info	No info	25%	100%	18%		
BAE Systems	UK	1	Industrials	9	0	27%	11	0%	15	9	5.85	0%	50%	0%	10%	0%	0%	3	27%	0	73%	64%	2	56%	67%	88%	45%	0	0
Barclays	UK	2	Financials	23	0	15%	13	8%	30	12	8.38	0%	88%	13%	8%	0%	0%	4	8%	0	92%	57%	4	43%	0%	64%	46%	1	1
BG Group	UK	2	Energy	10	0	13%	16	0%	16	7	4.78	0%	57%	0%	0%	7%	7%	3	31%	0	69%	64%	6	36%		73%	31%	1	1
BHP Billiton	UK			10	10	23%	13	0%				0%	64%	0%	9%	0%	0%	4	92%	0	8%	No info	No info	No info	0%	83%	46%		
BP	UK	2	Energy	19	1	13%	15	7%	21	9	6.34	0%	73%	0%	7%	0%	0%	3	27%	0	73%	40%	5	60%	50%	82%	27%	1	0
British American Tobacco	UK	1	Consumer Staples	6	1	23%	13	0%	16	10	5.59	0%	73%	18%	0%	0%	0%	3	23%	0	77%	62%	7	38%	33%	80%	54%	1	1
British Land	UK		Real Estate	7	0	17%	12	No info				No info	No info	No info	No info	No info	No info	2	17%	0	83%	No info	No info	No info	50%	90%	58%		
British Sky Broadcasting Group	UK	2	Consumer Discretionary	9	0	7%	14	17%	34	21	12.11	0%	50%	40%	40%	0%	0%	3	14%	0	86%	50%	6	50%	50%	67%	36%	1	0
BT Group	UK	2	Telecommunication Services	9	0	27%	11	0%	19	11	6.75	0%	56%	0%	18%	0%	0%	3	27%	0	73%	78%	3	22%	67%	88%	45%	1	1
Bunzl	UK	2	Industrials	8	0	13%	8	13%	22	9.5	7.73	0%	86%	0%	0%	0%	0%	2	38%	0	63%	33%	3	67%	67%	100%	63%	1	1
Burberry Group	UK	1	Consumer Discretionary	11	6	38%	8	0%	14	7.5	4.83	0%	80%	0%	0%	0%	0%	2	38%	0	63%	75%	3	25%	33%	80%	50%	1	1
Capita	UK	2	Industrials	9	0	30%	10	0%	15	9.75	5.42	0%	100%	0%	0%	0%	0%	2	50%	0	50%	100%	1	0%	20%	100%	20%	1	1
Capital Shopping Centres (Lulu Properties)	UK	2	Property	7	1	17%	12	No info				0%	80%	0%	0%	0%	0%	2	17%	0	83%	100%	1	0%	50%	70%	42%		

Company data (continuation)

Company	Country	Main activity	Main industry	No. annual board meetings	Away-days	Percentage of women on the board	Board size	Percentage of directors ≥ 71 years old	Director age range	Director age leverage	Director age standard deviation	Percentage of directors with no university degree	Percentage of directors with university background in economics	Percentage of directors with university background in law	Percentage of directors with university background in other sciences	Percentage of directors with university background in humanities	Percentage of directors with university background in other disciplines	Number of different fields of education on the board	Percentage of executive directors	CEO duality	Percentage of non-executive directors	Percentage of directors domestic to stock exchange	Number of nationalities on the board	Percentage of international directors on the board	Executive directors holding 1 other board mandate	Non-executive directors holding 1 other board mandate	Percentage of directors with 2 or more mandates in other companies	Training - Induction	Training - continuous	
55	Carnival	UK	2	Tourism	No info	No info	No info	No info				No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info	No info
56	Centrica	UK	3	Energy	10	0	25%	12	0%	21	9.75	6.72	0%	67%	22%	0%	0%	0%	3	42%	0	58%	83%	3	17%	50%	29%	17%	1	1
57	Compass	UK	2	Support services	8	0	9%	11	9%			No info	No info	No info	No info	No info	No info	No info	36%	0	64%	No info	No info	No info	50%	71%	18%			
58	CRH	UK	1	Building materials	10	2	8%	12	0%			No info	No info	No info	No info	No info	No info	No info	33%	0	67%	50%	5	50%	25%	88%	50%			
59	Croda International	UK	1	Chemicals	9	1	0%	8	No info			No info	No info	No info	No info	No info	No info	No info	38%	0	63%	No info	No info	No info	33%	80%	38%			
60	Diageo	UK	1	Beverages	6	0	40%	10	0%			No info	No info	No info	No info	No info	No info	No info	30%	0	70%	40%	6	60%	67%	86%	40%			
61	easyjet	UK	2	Industrials	10	0	20%	10	10%	26	9.75	8.36	0%	44%	0%	11%	0%	0%	3	20%	0	80%	83%	2	17%	0%	63%	30%	1	1
62	Esperian	UK	2	Industrials	6	6	23%	13	8%	30	8	8.08	0%	90%	0%	0%	0%	0%	2	23%	0	77%	64%	3	36%	33%	70%	31%	1	1
63	Fresnillo	UK	1	Materials	5	0	7%	15	31%	34	17	11.76	0%	90%	0%	0%	0%	0%	2	20%	0	80%	13%	2	87%	0%	83%	53%	1	0
64	G4S	UK	2	Consumer Discretionary	7	1	17%	12	0%	15	5	4.80	0%	90%	10%	0%	0%	0%	3	25%	0	75%	78%	3	22%	67%	56%	42%	1	0
65	K&N	UK	1	Materials	11	0	10%	10	5%	18	8.75	6.14	0%	57%	0%	0%	0%	0%	2	40%	0	60%	100%	2	0%	0%	83%	20%	1	0
66	Glencore Holding	UK	1	Materials	5	0	0%	8	13%	30	13.25	9.96	0%	75%	0%	0%	0%	0%	2	25%	0	75%	25%	6	75%	100%	83%	50%	1	0
67	Hammerston	UK	2	Financials	11	1	17%	12	0%	23	10.5	7.64	0%	89%	11%	11%	0%	0%	4	33%	0	67%	75%	2	25%	25%	88%	25%	1	1
68	Hargreaves Lansdown	UK	2	Financials	5	0	11%	9	0%	25	16	9.34	0%	86%	0%	0%	0%	0%	2	33%	0	67%	100%	1	0%	33%	50%	11%	1	0
69	HSBC Holdings	UK	2	Financials	9	1	24%	17	0%	16	11	6.05	0%	71%	43%	0%	0%	0%	3	12%	0	88%	53%	5	47%	0%	60%	24%	1	0
70	IMI	UK	1	Industrials	9	4	20%	10	0%	18	4.75	5.130	0%	100%	0%	29%	0%	0%	3	30%	0	70%	33%	5	67%	67%	71%	40%	1	1
71	Imperial Tobacco	UK	1	Consumer Staples	5	0	18%	11	0%	26	10.5	8.21	0%	50%	33%	0%	0%	0%	3	18%	0	82%	80%	2	20%	50%	56%	45%	1	0
72	Intercontinental Hotels	UK	2	Consumer Discretionary	8	1	27%	11	0%	20	6.5	6.40	0%	100%	0%	14%	0%	0%	2	40%	0	60%	56%	5	44%	0%	86%	36%	1	1
73	Aberis Infraestructuras	SP	1	Industrials	6	0	0%	19	21%	34	11	5.13	0%	75%	25%	0%	0%	0%	3	11%	1	89%	100%	1	0%	0%	20%	11%	0	0
74	Acciona	SP	1	Industrials	10	0	31%	13	8%	29	12.25	8.21	0%	62%	23%	0%	0%	0%	3	15%	1	85%	100%	1	0%	0%	44%	8%	1	1
75	Acerinox	SP	1	Materials	7	0	7%	15	0%	22	10.5	6.40	0%	89%	33%	0%	0%	0%	3	7%	0	93%	83%	3	17%	0%	20%	7%	0	0
76	Actividades de Construcción y Servicios	SP	1	Industrials	6	0	6%	17	18%	44	11	11.53	0%	44%	19%	6%	0%	0%	4	24%	0	76%	91%	2	9%	0%	60%	24%	1	1
77	Amadeus IT Holding	SP	2	Information Technology	6	0	9%	11	9%	25	13.25	9.01	0%	67%	33%	0%	0%	0%	3	9%	0	91%	33%	5	67%	0%	14%	14%	1	1
78	ArcelorMittal	SP	1	Materials	5	0	18%	11	18%	44	15	12.90	0%	67%	22%	0%	0%	0%	2	9%	1	91%	0%	6	100%	100%	60%	27%	1	1
79	Banco Sabadell	SP	2	Financials	15	0	13%	15	0%	25	7.5	6.16	0%	83%	17%	0%	0%	0%	3	20%	0	80%	93%	2	7%	0%	50%	13%	0	0
80	Banco Santander	SP	2	Financials	11	0	18%	17	29%	41	8	9.58	0%	71%	59%	0%	0%	0%	3	24%	0	76%	82%	3	18%	50%	67%	35%	0	0
81	Bankinter	SP	2	Financials	16	0	0%	10	0%	10	1	3.63	0%	60%	20%	20%	0%	0%	4	30%	1	70%	No info	No info	No info	33%	40%	20%	1	1
82	BBVA	SP	2	Financial Services	14	0	14%	14	0%			No info	No info	No info	No info	No info	No info	No info	14%	1	86%	100%	1	0%	No info	No info	No info			
83	Banco Popular Español	SP	2	Financial Services	11	0	10%	20	No info			No info	No info	No info	No info	No info	No info	No info	15%	1	85%	No info	No info	No info	0%	0%	5%			
84	Bolsas y Mercados Españoles, Sociedad Holding de Mercados y Sistemas Financieros	SP	2	Financials	12	0	14%	14	14%	36	18	11.50	0%	50%	21%	7%	7%	7%	5	14%	1	86%	100%	1	0%	0%	17%	7%	0	0
85	Casabank	SP	2	Financial Services	16	0	26%	19	No info			No info	No info	No info	No info	No info	No info	No info	5%	0	95%	No info	No info	No info	100%	57%	26%			
86	Distribuidora Internacional de Alimentación	SP	2	Consumer Discretionary	7	0	20%	10	0%	27	17	10.95	0%	67%	11%	0%	0%	0%	3	10%	0	90%	43%	3	57%	0%	86%	20%	1	1
87	Ebro Foods	SP	1	Consumer Staples	11	0	17%	12	17%	51	12.25	18.08	0%	100%	8%	0%	0%	0%	3	8%	1	92%	92%	1	8%	100%	60%	25%	1	1
88	Enagas	SP	1	Electric utilities	14	0	8%	13	No info			No info	No info	No info	No info	No info	No info	No info	15%	0	85%	No info	No info	No info	0%	44%	15%			
89	Endesa	SP	1	Utilities	14	0	0%	9	11%	23	13	8.70	0%	67%	33%	0%	0%	0%	3	33%	1	67%	44%	3	56%	33%	100%	11%	1	1
90	Ferrovial	SP	1	Industrials	11	0	17%	12	8%	23	6.25	7.50	0%	83%	33%	0%	0%	0%	3	17%	0	83%	100%	1	0%	50%	100%	58%	1	0
91	Fomento de Construcciones y Contratas	SP	1	Industrials	11	0	32%	19	16%	27	8.25	8.94	0%	55%	55%	9%	0%	0%	4	11%	0	84%	94%	2	6%	0%	80%	16%	1	1
92	Gas Natural SDG	SP	2	Energy	12	0	0%	17	6%	29	13	8.55	0%	47%	47%	0%	0%	0%	3	12%	0	86%	82%	1	18%	12%	0%	18%	0	0
93	Grifols	SP	1	Health Care	7	0	9%	11	9%	34	5.5	10.18	0%	50%	20%	0%	0%	0%	3	27%	1	73%	67%	4	33%	0%	57%	18%	0	0
94	Iberdrola	SP	2	Utilities	17	0	21%	14	7%	29	15.25	10.30	0%	71%	36%	7%	0%	0%	4	14%	1	79%	93%	2	7%	0%	33%	14%	1	1
95	Inditex	SP	1	Consumer Discretionary	5	0	22%	9	22%	28	15	10.33	14%	43%	43%	0%	0%	0%	3	11%	1	114%	71%	3	29%	0%	100%	44%	1	1
96	Indra Sistemas	SP	2	Information Technology	11	0	14%	14	0%	26	9.5	8.40	0%	85%	8%	0%	0%	0%	3	14%	0	86%	90%	2	10%	0%	57%	14%	0	0
97	International Consolidated Airlines Group	SP	2	Industrials	9	0	7%	14	14%	22	6	6.38	0%	77%	23%	8%	0%	0%	4	21%	0	79%	50%	4	50%	100%	73%	64%	1	0
98	Jazztel	SP	2	Telecommunications	10	0	40%	10	No info			No info	No info	No info	No info	No info	No info	No info	10%	0	90%	No info	No info	No info	0%	13%	10%			
99	Mapfre	SP	2	Insurance	7	0	9%	22	No info			No info	No info	No info	No info	No info	No info	No info	28%	1	72%	No info	No info	No info	0%	No info	No info			
100	Mediaset España Comunicación	SP	2	Consumer Discretionary	6	0	7%	15	27%	26	14.5	9.44	0%	69%	31%	8%	0%	0%	3	20%	0	80%	50%	2	50%	0%	80%	13%	1	1
101	Obrascón Huarte Lain	SP	1	Industrials	9	0	17%	12	8%	48	19.5	12.70	0%	73%	27%	0%	0%	0%	3	17%	0	83%	100%	1	0%	0%	75%	25%	1	1
102	Red Eléctrica Corporación	SP	2	Utilities	14	0	36%	11	9%	36	16.5	11.51	0%	64%	36%	0%	0%	0%	3	9%	1	91%	90%	2	10%	0%	44%	9%	1	1
103	Repsol	SP	2	Energy	12	0	13%	15	7%	31	7.5	7.29	0%	73%	27%	0%	0%	0%	3	13%	1	87%	93%	2	7%	100%	50%	33%	1	1
104	Sacyr Vallehermoso	SP	1	Industrials	12	0	8%	13	8%	28	18	10.15	0%	60%	10%	0%	0%	0%	3	8%	1	92%	89%	2	11%	0%	67%	15%	0	0
105	Tecnicas Reunidas	SP	3	Industrials	7	0	0%	12	25%	32	16	11.76	0%	50%	30%	0%	0%	0%	3	17%	1	83%	91%	2	9%	0%	14%	0%	0	0
106	Telefonica	SP	2	Telecommunication Services	14	0	6%	18	0%	22	12.75	7.44	0%	72%	28%	0%	0%	0%	3	22%	1	78%	83%	4	17%	50%	100%	67%	0	0
107	Viscofan	SP	1	Consumer Staples	12	0	22%	9	0%	23	11	9.20	0%	89%	33%	0%	0%	0%	3	11%	1	89%	100%	1	0%	100%	75%	44%	1	1

2) Dataset for empirical study

company	country	activity	industry	board_members	awards	female_perc	board_size	age_perc_under50	age_perc_older71	age_range	age_brange	age_stddev	edu_perc_jrni	edu_perc_scons	edu_perc_low	edu_perc_sen	edu_perc_hum	edu_perc_other	diff_edu_num	exec_perc	exec_duality	nonexec_perc	dmn_perc	internet	internet_ratio	exec_perc_inland	nonexec_perc_inland	dir_perc_2mand	infin_1nd	infin_som	
1	1	1	5	0	0.125	16	0.125	0.0625	33	6.75	7.7413931	0.1875	0.5625	0	0.0625	0.1875	0	3	0.25	0	0.75	0.625	6	0.375	0.5	0.25	0.19	1	1		
2	1	2	4	6	0	0.32	25	0.12	0	24	8	6.2212183	0.1363636	0.4090909	0.3181818	0.1363636	0.09090909	0.0909091	5	0.44	0	0.56	0.5643939	9	0.36	0.64	0.36	0.32	0	0	
3	1	1	8	5	0	0.15	20	0.15	0.05	24	7	6.8690482	0.25	0.3125	0.25	0.3125	0.0625	0	4	0.4	0	0.6	0.8541667	4	0.2	0.125	0.5	0.20	0	0	
4	1	1	5	8	0	0.11111111	27	0.2222222	0.0740741	29	7	8.861197	0.2962963	0.3333333	0.0740741	0.7407407	0	0.037037	4	0.259259	0	0.74	0.7107143	7	0.259259	0	0.55	0.30	0	0	
5	1	1	5	8	0	0.25	16	0.25	0	22	12	7.6811457	0.2	0.6	0.2	0.2	0	0	3	0.25	0	0.75	0.9	2	0.125	0	0.25	0.08	0	1	
6	1	1	1	5	1	0.19230769	26	0.3076923	0	23	9.5	6.165537	0.25	0.375	0.0416667	0.4166667	0	0.0833333	4	0.230769	0	0.7692308	0.8461538	5	0.192308	0.8333333	0.6	0.38	0	1	
7	1	2	4	8	0	0.20689655	29	0.3793103	0.0344828	30	11.5	8.2663978	0.12	0.72	0.12	0.12	0	0	3	0.310345	0	0.6896552	0.9411765	2	0.068966	0.5555556	0.5	0.38	0	0	
8	1	1	1	6	1	0.07142857	28	0.2142857	0.1071429	32	14	9.3138402	0.1578947	0.42105263	0.1578947	0.3684211	0	0.0526316	4	0.285714	0	0.7142857	0.0714286	3	0.107143	0	0.65	0.25	0	1	
9	1	1	1	8	1	0.07142857	28	0.0714286	0.0357143	25	13	7.1721684	0.125	0.375	0.125	0.5	0.0833333	0	4	0.285714	0	0.7142857	0.1785714	9	0.321429	0	0.65	0.40	0	1	
10	1	2	4	29	1	0.21052631	28	0.4210526	0	30	9	7.326266	0.1034483	0.51724138	0.2068966	0.2758621	0.17241379	0	4	0.473684	0	0.5263158	0.5517241	10	0.263158	0.0555556	0.5	0.21	1	1	
11	1	2	4	12	0	0.16	25	0.16	0	22	8	5.725991	0.04	0.56	0.28	0.2	0	0.04	4	0.28	0	0.72	0.72	5	0.2	0	0.3333333	0.26	1	1	
12	1	2	6	0	0.125	24	0.0416667	0.0416667	0.5	22	9.5	6.5297852	0.4	0.2	0.6	0	0	0	3	0.166667	0	0.8333333	0.8888889	4	0.166667	0	0.25	0.05	0	0	
13	1	2	6	8	1	0.22222222	22	0.1481481	0.037037	28	11	7.6579234	0	0.6363636	0.2727273	0.3636364	0.09090909	0	4	0.259259	0	0.7407407	0.9473684	2	0.074074	0	0.45	0.25	0	0	
14	1	2	9	8	0	0.22222222	22	0.1851852	0	26	9.5	6.9390343	0.0952381	0.42857143	0.2857143	0.2857143	0	0.047619	4	0.259259	0	0.7407407	0.88	4	0.148148	0.2857143	0.5	0.37	0	0	
15	1	2	10	9	1	0.15789473	19	0.2105263	0	19	14	7.5277265	0.5	0.75	0	0.25	0	0	2	0.315789	0	0.6842105	0.9	2	0.105263	0.3333333	0.615384615	0.42	1	1	
16	1	1	5	7	0	0	16	0.25	0.1875	28	19	10.388603	0.0769231	0.38461538	0.2307692	0.3846154	0	0	3	0.4375	0	0.5625	0.75	4	0.25	0.4285714	0.66666667	0.31	0	0	0
17	1	2	5	7	1	0	14	0	0.1428571	21	9.75	7.738073	0	0.30769231	0.4615385	0.3846154	0	0	3	0.571429	0	0.4285714	0.2857143	5	0.357143	0	0.8333333	0.67	0	0	
18	1	1	8	5	0	0.05263157	19	0.2631579	0.0526316	30	8	7.8381053	0.0714286	0.35714286	0.2857143	0.3571429	0	0.0714286	4	0.315789	0	0.6842105	0.875	3	0.157895	0.5	0.384615385	0.26	0	1	
19	1	1	5	5	0	0.31818181	22	0.6363636	0	24	4.75	6.3817923	0.0714286	0.57142857	0	0.2857143	0	0.0714286	3	0.272727	0	0.7272727	0.7777778	4	0.181818	0	0.5	0.14	0	0	
20	1	1	7	8	1	0.125	16	0.25	0	27	9.5	7.6765335	0	0.4	0.1	0.7	0	0	3	0.25	0	0.75	0.75	3	0.1875	0	0.5	0.31	0	0	
21	1	1	8	4	0	0.04761904	21	0.2857143	0.1428571	25	19	8.9729753	0.3157895	0.21052632	0.2631579	0.2105263	0.05263158	0.0526316	5	0.238095	0	0.7619048	0.9375	2	0.095238	0.2	0.4375	0.24	0	0	
22	1	1	8	6	0	0.0625	16	0.0625	0.125	33	9.5	8.1810248	0.3125	0.4375	0.0625	0.3125	0	0	3	0.25	0	0.75	0.875	2	0.125	0.25	0.41666667	0.19	0	0	
23	1	1	8	5	0	0.11764705	17	0.2352941	0.0588235	28	11	8.0661329	0.25	0.4375	0.125	0.5	0	0	3	0.294118	0	0.708824	0.8125	4	0.235294	0	0.41666667	0.12	0	0	
24	1	1	5	5	0	0.09090909	22	0.1363636	0.0454545	27	8	6.9361585	0.1764706	0.11764706	0.0588235	0.5882353	0	0.0588235	4	0.227273	0	0.7727273	0.85	3	0.136364	0.2	0.352941176	0.18	0	0	
25	1	2	4	6	0	0.17857142	28	0.1428571	0.037143	26	12.5	7.8401097	0.0555556	0.5	0.2222222	0.2777778	0	0	3	0.321429	0	0.6785714	0.7222222	4	0.142857	0.4444444	0.736821053	0.39	0	0	
26	1	2	10	4	0	0.11538461	26	0.2307692	0.25	29	12	8.811269	0.3846154	0.30769231	0.1923077	0.1923077	0	0	3	0.307692	0	0.6923077	0.8846154	3	0.115385	0.125	0.3333333	0.12	0	0	
27	1	3	7	6	0	0.21739130	23	0.2173913	0	25	16	9.2957117	0	0.4	0.1333333	0.4666667	0	0	3	0.304348	0	0.695622	0.6	7	0.304348	0.5714286	0.375	0.26	0	0	
28	1	1	6	7	0	0.2	20	0.2	0.0333333	28	10	7.8477991	0.1363636	0.31818182	0.1818182	0.3181818	0.1363636	0	4	0.333333	0	0.6666667	0.7083333	7	0.233333	1	0.6	0.43	0	0	
29	1	1	8	7	0	0.14814814	27	0.2592593	0.0740741	30	11.25	8.2283749	0.2916667	0.2916667	0.2083333	0.3333333	0.04166667	0	4	0.222222	0	0.7777778	0.9166667	4	0.148148	0.1666667	0.523809524	0.30	0	0	
31	2	2	4	8	0	0.14285714	14	0.1428571	0	19	7	7.590516	0	0.75	0.1666667	0.3333333	0.0833333	0	4	0.357143	0	0.5	1	1	0.071429	0.4	0.857142857	0.43	0	0	
35	2	1	8	6	0	0.18181818	11	0	0.1818182	18	10.5	6.3575295	0	0.6363636	0	0.6363636	0	0	2	0.181818	0	0.8181818	0.5714286	4	0.363636	1	0.636363636	0.64	1	1	
36	2	1	8	9	0	0	10	0.1	0.1	24	5.25	6.5692888	0	0.5555556	0.2222222	0.4444444	0	0	3	0.1	1	0.9	0.1428571	3	0.3	1	1	0.40	0	0	
37	2	1	7	16	0	0.18181818	11	0.0909091	0	24	6	6.220405	0	0.5	0	0.75	0	0	2	0.363636	0	0.6363636	1	1	0.090909	1	0.714285714	0.55	0	1	
39	2	1	5	14	0	0.25	12	0.1666667	0	17	6.25	5.4439291	0	0.41666667	0.0833333	0.9166667	0.1666667	0.0833333	5	0.166667	0	0.8333333	0.5	4	0.333333	0	0.7	0.42	0	0	
40	2	2	4	15	0	0.08333333	12	0.25	0.0833333	24	13	8.6111274	0	0.8888889	0.1111111	0.1111111	0	0	3	0.25	0	0.75	0.6	3	0.25	0.3333333	0.66666667	0.58	1	1	
42	2	1	6	9	0	0.27272727	11	0	0	15	9	5.8554004	0	0.5	0	0.7	0.1	0	3	0.272727	0	0.7272727	0.6363636	2	0.181818	0.6666667	0.875	0.45	0	0	
43	2	2	4	23	0	0.15384615	13	0.0769231	0.0769231	30	12	8.3864971	0	0.875	0.125	0.1538462	0.07692308	0	4	0.076923	0	0.9230769	0.5714286	4	0.307692	0	0.636363636	0.46	1	1	
44	2	2	3	10	0	0.125	16	0	0	16	7	4.786666	0	0.57142857	0	0.6428571	0	0.0714286	3	0.3125	0	0.6875	0.6428571	6	0.375	0.4232143	0.727272727	0.31	1	1	
46	2	2	3	19	1	0.13333333	15	0.1333333	0.0666667	21	9	6.3456022	0	0.7333333	0	0.8	0.06666667	0	3	0.266667	0	0.7333333	0.4	5	0.333333	0.5	0.818181818	0.27	1	0	
47	2	1	2	6	1	0.23076923	13	0	0	16	10	5.5907433	0	0.72727273	0.1818182	0.2727273	0	0	3	0.230769	0	0.7692308	0.6153846	7	0.538462	0.3333333	0.8	0.54	1	1	
49	2	2	1	9	0	0.07142857	14	0.4166667	0.1666667	34	21	12.116543	0	0.5	0.4	0	0.4	0	3	0.142857	0	0.8571429	0.5	6	0.428571	0.5	0.66666667	0.36	1	0	
50	2	2	9	9	0	0.27272727	11	0.3636364	0	19	11	6.7581601	0	0.5555556	0	0.2727273	0.18181818	0	3	0.272727	0	0.7272727	0.7777778	3	0.272727	0.66666667	0.875	0.45	1	1	
51	2	2	6	8	0	0.125	8	0.125	0.125	22	9.5	7.7355857	0	0.85714286	0	0.125	0	0													

Dataset for empirical study (continuation)

company	country	activity	industry	board_indebth	awaydays	female_perc	board_size	age_perc_under50	age_perc_older71	age_range	age_lprange	age_sdev	edu_perc_torini	edu_perc_execs	edu_perc_low	edu_perc_fin	edu_perc_hum	edu_perc_other	diff_educ	exec_perc	exec_duality	nonexec_perc	down_perc	internet	internal_ratio	exec_perc_fraud	nonexec_perc_fraud	diff_perc_fraud	train_ind	train_som
68	2	2	4	5	0	0.11111111	9	0.33333333	0	25	16	9.3467166	0	0.85714286	0	0.2857143	0	0	2	0.3333333	0	0.6666667	1	1	0.1111111	0.3333333	0.5	0.11	1	0
69	2	2	4	9	1	0.23529411	37	0	0	16	11	6.0524667	0	0.71428571	0.4285714	0.0714286	0	0	3	0.117647	0	0.8823529	0.294118	5	0.294118	0	0.6	0.24	1	0
70	2	1	6	9	1	0.2	10	0.1	0	18	4.75	5.1305187	0	1	0	0.2857143	0.28571429	0	3	0.3	0	0.7	0.3333333	5	0.5	0.6666667	0.714285714	0.40	1	1
71	2	1	2	5	0	0.18181818	11	0.1818182	0	26	10.5	8.2165145	0	0.5	0.3333333	0.3333333	0	0	3	0.181818	0	0.8181818	0.8	2	0.181818	0.5	0.55555556	0.45	1	0
72	2	2	1	8	1	0.27272727	11	0.0909091	0	20	6.5	6.4022565	0	1	0	0	0.14285714	0	2	0.4	0	0.6	0.5555556	0.454545	0	0.857142857	0.36	1	1	
73	3	1	6	6	0	0	19	0.0526316	0.2105263	34	11	5.1305187	0	0.75	0.25	0.0833333	0	0	3	0.105263	1	0.8947368	1	1	0.052632	0	0.176470588	0.11	0	0
74	3	1	6	10	0	0.30769230	13	0.3846154	0.0769231	29	12.25	8.2165145	0	0.61538462	0.2307692	0.1538462	0	0	3	0.153846	1	0.8461538	1	1	0.076923	0	0.363636364	0.08	1	1
75	3	1	8	7	0	0.07142857	15	0.2	0	22	10.5	6.4022565	0	0.8888889	0.3333333	0.1111111	0	0	3	0.066667	0	0.9333333	0.8333333	3	0.2	0	0.142857143	0.07	0	0
76	3	1	6	6	0	0.05882352	17	0.1176471	0.1764706	44	11	11.537981	0	0.4375	0.1875	0.5625	0.0625	0	4	0.235294	0	0.7647059	0.9090909	2	0.117647	0	0.538461538	0.24	1	1
77	3	2	7	6	0	0.09090909	31	0.0909091	0.0909091	25	13.25	9.0198194	0	0.6666667	0.3333333	0.3333333	0	0	3	0.090909	0	0.9090909	0.3333333	5	0.454545	0	0.1	0.14	1	1
78	3	1	8	5	0	0.18181818	11	0.2727273	0.1818182	44	15	12.903136	0	0.6666667	0.2222222	0	0	0	2	0.9090909	1	0.9090909	0	6	0.545455	1	0.6	0.27	1	1
79	3	2	4	15	0	0.13333333	15	0.0666667	0	25	7.5	6.169819	0	0.8333333	0.1666667	0.0833333	0	0	3	0.2	0	0.8	0.9333333	2	0.133333	0	0.416666667	0.13	0	0
80	3	2	4	11	0	0.17647059	17	0.0588235	0.2941176	41	8	9.5859118	0	0.70588235	0.5882353	0.1764706	0	0	3	0.235294	0	0.7647059	0.8235294	3	0.176471	0.5	0.692307692	0.35	0	0
81	3	2	4	16	0	0	10	0	0	10	1	3.6331804	0	0.6	0.2	0.4	0.2	0	4	0.3	1	0.7	0.7875979	1	0.1	0.3333333	0.428571429	0.20	1	1
84	3	2	4	12	0	0.14285714	14	0.0714286	0.1428571	36	18	11.508451	0	0.5	0.2142857	0.1428571	0.07142857	0.0714286	5	0.142857	1	0.8571429	1	1	0.071429	0	0.166666667	0.07	0	0
86	3	2	1	7	0	0.2	10	0.4	0	27	17	10.954451	0	0.6666667	0.1111111	0.3333333	0	0	3	0.1	0	0.9	0.4285714	3	0.3	0	0.666666667	0.20	1	1
87	3	1	2	11	0	0.16666666	12	0.3333333	0.1666667	51	12.25	18.082648	0	1	0.0833333	0.1666667	0	0	3	0.083333	1	0.9166667	0.9166667	2	0.166667	1	0.454545455	0.25	1	1
89	3	1	10	14	0	0	9	0.2222222	0.1111111	23	13	8.7034476	0	0.6666667	0.3333333	0.1666667	0	0	3	0.333333	1	0.6666667	0.4444444	3	0.333333	0.3333333	0.333333333	0.11	1	1
90	3	1	6	11	0	0.16666666	12	0.0833333	0.0833333	23	6.25	7.5011904	0	0.8333333	0.3333333	0.4166667	0	0	3	0.166667	0	0.8333333	1	2	0.166667	0.5	0.8	0.58	1	0
91	3	1	6	11	0	0.31578947	39	0	0.1578947	27	8.25	8.9489292	0	0.54545455	0.5454545	0.0909091	0.09090909	0	4	0.105263	0	0.8421053	0.9375	2	0.105263	0	0.375	0.16	1	1
92	3	2	3	12	0	0	17	0.1176471	0.0588235	29	13	8.5522527	0	0.47058824	0.4705882	0.1764706	0	0	3	0.117647	0	0.8562092	0.8235294	1	0.058824	0.1176471	0.533333333	0.18	0	0
93	3	1	5	7	0	0.09090909	11	0.0909091	0.0909091	34	5.5	10.180514	0	0.5	0.2	0.4	0	0	3	0.272727	1	0.7272727	0.6666667	3	0.272727	0	0.5	0.18	0	0
94	3	2	10	17	0	0.21428571	14	0.2857143	0.0714286	29	15.25	10.300165	0	0.71428571	0.3571429	0.2857143	0.07142857	0	4	0.142857	1	0.7857143	0.9285714	2	0.142857	0	0.272727273	0.14	1	1
95	3	1	1	5	0	0.22222222	9	0.1111111	0.2222222	28	15	10.339476	0.1428571	0.42857143	0.4285714	0.1428571	0	0	3	0.111111	1	0.8888889	0.7142857	3	0.333333	0	0.625	0.44	1	1
96	3	2	7	11	0	0.14285714	14	0.2142857	0	26	9.5	8.4099508	0	0.84615385	0.0769231	0.1538462	0	0	3	0.142857	0	0.8571429	0.9	2	0.142857	0	0.333333333	0.14	0	0
97	3	2	6	9	0	0.07142857	14	0	0.1428571	22	6	6.3840747	0	0.76923077	0.2307692	0.2307692	0.07692308	0	4	0.214286	0	0.7857143	0.5	4	0.285714	1	0.727272727	0.64	1	0
100	3	2	1	6	0	0.06666666	15	0	0.2666667	26	14.5	9.4468209	0	0.69230769	0.3076923	0	0.07692308	0	3	0.2	0	0.8	0.5	2	0.133333	0	0.5	0.13	1	1
101	3	1	6	9	0	0.16666666	12	0.1666667	0.0833333	48	19.5	12.701706	0	0.72727273	0.2727273	0.5454545	0	0	3	0.166667	0	0.8333333	1	1	0.083333	0	0.5	0.25	1	1
102	3	2	10	14	0	0.36363636	11	0.3636364	0.0909091	36	16.5	11.51047	0	0.63636364	0.3636364	0.0909091	0	0	3	0.090909	1	0.9090909	0.9	2	0.181818	0	0.4	0.09	1	1
103	3	2	3	12	0	0.13333333	15	0.0666667	0.0666667	31	7.5	7.2977492	0	0.7333333	0.2666667	0.1333333	0	0	3	0.133333	1	0.8666667	0.9285714	2	0.133333	1	0.538461538	0.33	1	1
104	3	1	6	12	0	0.07692307	33	0.3846154	0.0769231	28	18	10.15026	0	0.6	0.1	0.5	0	0	3	0.076923	1	0.9230769	0.8888889	2	0.153846	0	0.5	0.15	0	0
105	3	3	6	7	0	0	12	0.0833333	0.25	32	16	11.768602	0	0.5	0.3	0.6	0	0	3	0.166667	1	0.8333333	0.9090909	2	0.166667	0	0.1	0.00	0	0
106	3	2	9	14	0	0.05555555	18	0.1666667	0	22	12.75	7.4476386	0	0.72222222	0.2777778	0.2777778	0	0	3	0.222222	1	0.7777778	0.8333333	4	0.222222	0.5	1	0.67	0	0
107	3	1	2	12	0	0.22222222	9	0.1111111	0	23	11	9.2032603	0	0.8888889	0.3333333	0.5555556	0	0	3	0.111111	1	0.8888889	1	1	0.111111	1	0.75	0.44	1	1

APPENDIX B: Classification of standards

1) Global Industry Classification Standard (GICS)

The GICS classification system currently consists of 10 sectors, 24 industry groups, 67 industries and 147 sub-industries.

- Consumer Discretionary
- Consumer Staples
- Energy
- Financials
- Health Care
- Industrials
- Information Technology
- Materials
- Telecommunication Services
- Utilities

Source: Standard & Poor's (2006:1).

Sector	Industry Group	Industry	Sub-Industry				
10	Energy	1010 Energy	101010 Energy Equipment & Services	10101010 Oil & Gas Drilling			
			10101020 Oil & Gas Equipment & Services	10101020 Oil & Gas Equipment & Services			
			101020 Oil, Gas & Consumable Fuels	10102010 Integrated Oil & Gas			
			10102020 Oil & Gas Exploration & Production	10102020 Oil & Gas Exploration & Production			
			10102030 Oil & Gas Refining & Marketing	10102030 Oil & Gas Refining & Marketing			
			10102040 Oil & Gas Storage & Transportation	10102040 Oil & Gas Storage & Transportation			
			10102050 Coal & Consumable Fuels	10102050 Coal & Consumable Fuels			
			151010 Chemicals	15101010 Commodity Chemicals			
			15101020 Diversified Chemicals	15101020 Diversified Chemicals			
			15101030 Fertilizers & Agricultural Chemicals	15101030 Fertilizers & Agricultural Chemicals			
15	Materials	1510 Materials	15101040 Industrial Gases	15101040 Industrial Gases			
			15101050 Specialty Chemicals	15101050 Specialty Chemicals			
			151020 Construction Materials	15102010 Construction Materials			
			151030 Containers & Packaging	15103010 Metal & Glass Containers			
			15103020 Paper Packaging	15103020 Paper Packaging			
			151040 Metals & Mining	15104010 Aluminum			
			15104020 Diversified Metals & Mining	15104020 Diversified Metals & Mining			
			15104030 Gold	15104030 Gold			
			15104040 Precious Metals & Minerals	15104040 Precious Metals & Minerals			
			15104050 Steel	15104050 Steel			
			151050 Paper & Forest Products	15105010 Forest Products			
			15105020 Paper Products	15105020 Paper Products			
			20	Industrials	2010 Capital Goods	201010 Aerospace & Defense	20101010 Aerospace & Defense
						201020 Building Products	20102010 Building Products
						201030 Construction & Engineering	20103010 Construction & Engineering
201040 Electrical Equipment	20104010 Electrical Components & Equipment						
20104020 Heavy Electrical Equipment	20104020 Heavy Electrical Equipment						
201050 Industrial Conglomerates	20105010 Industrial Conglomerates						
201060 Machinery	20106010 Construction & Farm Machinery & Heavy Trucks						
20106020 Industrial Machinery	20106020 Industrial Machinery						
201070 Trading Companies & Distributors	20107010 Trading Companies & Distributors						

Global Industry Classification Standard (continuation)

Sector	Industry Group	Industry	Sub-Industry						
20	Industrials (cont'd)	2020	Commercial Services & Supplies	202010	Commercial Services & Supplies	20201010	Commercial Printing		
						20201020	Data Processing Services -- Discontinued effective 04/30/2003.		
						20201030	Diversified Commercial & Professional Services		
						20201040	Human Resource & Employment Services		
						20201050	Environmental & Facilities Services		
						20201060	Office Services & Supplies		
						20301010	Air Freight & Logistics		
						20302010	Airlines		
						20303010	Marine		
						20304010	Road & Rail		
	2030	Transportation	203010	Air Freight & Logistics	20301010	Air Freight & Logistics	20301010	Air Freight & Logistics	
							20302010	Airlines	
							20303010	Marine	
							20304010	Road & Rail	
							20304020	Trucking	
							20305010	Transportation Infrastructure	
							20305010	Airport Services	
							20305020	Highways & Railroads	
							20305030	Marine Ports & Services	
							25	Consumer Discretionary	2510
25101020	Tires & Rubber								
25102010	Automobiles								
25102020	Motorcycle Manufacturers								
25201010	Household Durables								
25201020	Home Furnishings								
25201030	Homebuilding								
25201040	Household Appliances								
25201050	Housewares & Specialties								
25202010	Leisure Equipment & Products								
2520	Consumer Durables & Apparel	252010	Household Durables	25201010	Household Durables	25201010		Consumer Electronics	
						25201020		Home Furnishings	
						25201030		Homebuilding	
						25201040		Household Appliances	
						25201050		Housewares & Specialties	
						25202010		Leisure Equipment & Products	
						25202020		Leisure Products	
						25202020		Photographic Products	
						25203010		Textiles, Apparel & Luxury Goods	
						25203020		Footwear	
25203030	Textiles								
25	Consumer Discretionary (cont'd)	2530	Consumer Services	253010	Hotels, Restaurants & Leisure	25301010	Casinos & Gaming		
						25301020	Hotels, Resorts & Cruise Lines		
						25301030	Leisure Facilities		
						25301040	Restaurants		
						25302010	Diversified Consumer Services		
						25302010	Education Services		
						25302020	Specialized Consumer Services		
						25401010	Media		
						25401020	Broadcasting & Cable TV		
						25401030	Movies & Entertainment		
	2540	Media	254010	Media	25401010	Media	25401010	Advertising	
							25401020	Broadcasting & Cable TV	
							25401030	Movies & Entertainment	
							25401040	Publishing	
							25501010	Distributors	
							25502010	Internet & Catalog Retail	
							25502020	Internet Retail	
							25503010	Multiline Retail	
							25503020	General Merchandise Stores	
							25504010	Specialty Retail	
2550	Retailing	255010	Distributors	25501010	Distributors	25501010	Distributors		
						25502010	Internet & Catalog Retail		
						25502020	Internet Retail		
						25503010	Multiline Retail		
						25503020	General Merchandise Stores		
						25504010	Specialty Retail		
						25504020	Computer & Electronics Retail		
						25504030	Home Improvement Retail		
						25504040	Specialty Stores		
						25504050	Automotive Retail		
25504060	Homefurnishing Retail								
30	Consumer Staples	3010	Food & Staples Retailing	301010	Food & Staples Retailing	30101010	Drug Retail		
						30101020	Food Distributors		
						30101030	Food Retail		
						30101040	Hypermarkets & Super Centers		
						30201010	Beverages		
						30201020	Brewers		
						30201030	Distillers & Vintners		
		3020	Food, Beverage & Tobacco	302010	Beverages	30201010	Beverages	30201010	Brewers
								30201020	Distillers & Vintners
								30201030	Soft Drinks
								30202010	Food Products
								30202020	Meat, Poultry & Fish (discontinued, effective March 28 2002)
								30202030	Packaged Foods & Meats
30203010	Tobacco								

Global Industry Classification Standard (continuation)

Sector	Industry Group		Industry	Sub-Industry					
30	Consumer Staples (cont'd)	3030	Household & Personal Products	303010	Household Products	30301010	Household Products		
				303020	Personal Products	30302010	Personal Products		
35	Health Care	3510	Health Care Equipment & Services	351010	Health Care Equipment & Supplies	35101010	Health Care Equipment		
						35101020	Health Care Supplies		
				351020	Health Care Providers & Services	35102010	Health Care Distributors		
						35102015	Health Care Services		
						35102020	Health Care Facilities		
						35102030	Managed Health Care		
				351030	Health Care Technology	35103010	Health Care Technology		
						35201010	Biotechnology		
				3520	Pharmaceuticals, Biotechnology & Life Sciences	352010	Biotechnology	35201010	Biotechnology
								352020	Pharmaceuticals
		352030	Life Sciences Tools & Services						
		35203010	Life Sciences Tools & Services						
40	Financials	4010	Banks	401010	Commercial Banks	40101010	Diversified Banks		
						40101015	Regional Banks		
				401020	Thrifts & Mortgage Finance	40102010	Thrifts & Mortgage Finance		
						402010	Diversified Financial Services		
				4020	Diversified Financials	402010	Diversified Financial Services	40201010	Consumer Finance -- Discontinued effective 04/30/2003.
								40201020	Other Diversified Financial Services
								40201030	Multi-Sector Holdings
								40201040	Specialized Finance
								402020	Consumer Finance
								402030	Capital Markets
								40203010	Asset Management & Custody Banks
				4030	Insurance	403010	Insurance	40203020	Investment Banking & Brokerage
								40203030	Diversified Capital Markets
								40301010	Insurance Brokers
								40301020	Life & Health Insurance
								40301030	Multi-line Insurance
				40301040	Property & Casualty Insurance				
40301050	Reinsurance								
40	Financials (cont'd)	4040	Real Estate	404010	Real Estate -- Discontinued effective 04/28/2006	40401010	Real Estate Investment Trusts -- Discontinued effective 04/28/2006		
						40401020	Real Estate Management & Development -- Discontinued effective 04/28/2006		
				404020	Real Estate Investment Trusts (REITs)	40402010	Diversified REITs	40402020	Industrial REITs
								40402030	Mortgage REITs
								40402040	Office REITs
								40402050	Residential REITs
								40402060	Retail REITs
								40402070	Specialized REITs
								404030	Real Estate Management & Development
				40403010	Real Estate Management & Development				
				45	Information Technology	4510	Software & Services	451010	Internet Software & Services
451020	IT Services								
451020	IT Services	45102010	IT Consulting & Other Services						
		45102020	Data Processing & Outsourced Services						
451030	Software	45103010	Application Software						
		45103020	Systems Software						
		45103030	Home Entertainment Software						
4520	Technology Hardware & Equipment	452010	Communications Equipment			45201020	Communications Equipment		
						45201010	Networking Equipment -- Discontinued effective 04/30/2003.		
		452010	Telecommunications Equipment -- Discontinued effective 04/30/2003.			45201020	Telecommunications Equipment -- Discontinued effective 04/30/2003.		
						452020	Computers & Peripherals		
		452030	Electronic Equipment & Instruments			45202010	Computer Hardware		
						45202020	Computer Storage & Peripherals		
				45203010	Electronic Equipment Manufacturers				
45203020	Electronic Manufacturing Services								
45203030	Technology Distributors								

Global Industry Classification Standard (continuation)

Sector	Industry Group		Industry	Sub-Industry			
45	Information Technology (cont'd)		452040	Office Electronics	45204010	Office Electronics	
			452050	Semiconductor Equipment & Products -- Discontinued effective 04/30/2003.	45205010	Semiconductor Equipment -- Discontinued effective 04/30/2003.	
					45205020	Semiconductors -- Discontinued effective 04/30/2003.	
		4530	Semiconductors & Semiconductor Equipment	453010	Semiconductors & Semiconductor Equipment	45301010	Semiconductor Equipment
					45301020	Semiconductors	
50	Telecommunication Services	5010	Telecommunication Services	501010	Diversified Telecommunication Services	50101010	Alternative Carriers
					50101020	Integrated Telecommunication Services	
				501020	Wireless Telecommunication Services	50102010	Wireless Telecommunication Services
55	Utilities	5510	Utilities	551010	Electric Utilities	55101010	Electric Utilities
				551020	Gas Utilities	55102010	Gas Utilities
				551030	Multi-Utilities	55103010	Multi-Utilities
				551040	Water Utilities	55104010	Water Utilities
				551050	Independent Power Producers & Energy Traders	55105010	Independent Power Producers & Energy Traders

Source: Standard & Poor's (2006:12-17).

2) UNESCO International Standard Classification of Education (ISCED 2011)

ISCED fields of education:

0 General programmes

01 Basic programmes

Basic general programmes pre-primary, elementary, primary, secondary, etc.

08 Literacy and numeracy

Simple and functional literacy, numeracy.

09 Personal development

Enhancing personal skills, e.g. behavioural capacities, mental skills, personal organizational capacities, life orientation programmes.

1 Education

14 Teacher training and education science

Teacher training for pre-school, kindergarten, elementary school, vocational, practical, non-vocational subject, adult education, teacher trainers and for handicapped children. General and specialised teacher-training programmes.

Education science: curriculum development in non-vocational and vocational subjects. Educational assessment, testing and measurement, educational research, other education science.

2 Humanities and arts

21 Arts

Fine arts: drawing, painting, sculpture;

Performing arts: music, drama, dance, circus;

Graphic and audio-visual arts: photography, cinematography, music production, radio and television production, printing and publishing;

Design; craft skills.

22 Humanities

Religion and theology;

Foreign languages and cultures: living or 'dead' languages and their literature, area studies;

Native languages: current or vernacular language and its literature;

Other humanities: interpretation and translation, linguistics, comparative literature, history, archaeology, philosophy, ethics.

3 Social sciences, business and law

31 Social and behavioural science

Economics, economic history, political science, sociology, demography, anthropology (except physical anthropology), ethnology, futurology, psychology, geography (except physical geography), peace and conflict studies, human rights.

32 Journalism and information

Journalism; library technician and science; technicians in museums and similar repositories;

Documentation techniques;

Archival sciences.

34 Business and administration

Retailing, marketing, sales, public relations, real estate;

Finance, banking, insurance, investment analysis;

Accounting, auditing, bookkeeping;

Management, public administration, institutional administration, personnel administration;

Secretarial and office work.

38 Law

Local magistrates, 'notaires', law (general, international, labour, maritime, etc.), jurisprudence, history of law.

- 4 Science**
- 42 Life sciences**
Biology, botany, bacteriology, toxicology, microbiology, zoology, entomology, ornithology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences.
- 44 Physical sciences**
Astronomy and space sciences, physics, other allied subjects, chemistry, other allied subjects, geology, geophysics, mineralogy, physical anthropology, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, marine science, vulcanology, palaeoecology.
- 46 Mathematics and statistics**
Mathematics, operations research, numerical analysis, actuarial science, statistics and other allied fields.
- 48 Computing**
Computer sciences: system design, computer programming, data processing, networks, operating systems – software development only (hardware development should be classified with the engineering fields).
- 5 Engineering, manufacturing and construction**
- 52 Engineering and engineering trades**
Engineering drawing, mechanics, metal work, electricity, electronics, telecommunications, energy and chemical engineering, vehicle maintenance, surveying.
- 54 Manufacturing and processing**
Food and drink processing, textiles, clothes, footwear, leather, materials (wood, paper, plastic, glass, etc.), mining and extraction.
- 58 Architecture and building**
Architecture and town planning: structural architecture, landscape architecture, community planning, cartography;
Building, construction;
Civil engineering.
- 6 Agriculture**
- 62 Agriculture, forestry and fishery**
Agriculture, crop and livestock production, agronomy, animal husbandry, horticulture and gardening, forestry and forest product techniques, natural parks, wildlife, fisheries, fishery science and technology.
- 64 Veterinary**
Veterinary medicine, veterinary assisting.
- 7 Health and welfare**
- 72 Health**
Medicine: anatomy, epidemiology, cytology, physiology, immunology and immuno-haematology, pathology, anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, neurology, psychiatry, radiology, ophthalmology;
Medical services: public health services, hygiene, pharmacy, pharmacology, therapeutics, rehabilitation, prosthetics, optometry, nutrition;
Nursing: basic nursing, midwifery;
Dental services: dental assisting, dental hygienist, dental laboratory technician, odontology.
- 76 Social services**
Social care: care of the disabled, childcare, youth services, gerontological services;
Social work: counselling, welfare not elsewhere classified (n.e.c.)
- 8 Services**
- 81 Personal services**
Hotel and catering, travel and tourism, sports and leisure, hairdressing, beauty treatment, and other personal services: cleaning, laundry, dry-cleaning, cosmetic services, domestic science.
- 84 Transport services**
Seamanship, ship's officer, nautical science, air crew, air traffic control, railway operations, road motor vehicle operations, postal service.
- 85 Environmental protection**
Environmental conservation, control and protection, air and water pollution control, labour protection and security.
- 86 Security services**
Protection of property and persons: police work and related law enforcement, criminology, fire-protection and fire fighting, civil security;
Military.

Source: UNESCO (2011:73-75).

APPENDIX C: Normality and homogeneity of variances

1) Normality test - Shapiro-Wilk test

country		Tests of Normality ^b					
		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
board_size	Germany	.110	29	.200*	.940	29	.099
	United Kingdom	.136	29	.179	.959	29	.312
	Spain	.127	29	.200*	.950	29	.180
board_meetings	Germany	.333	29	.000	.524	29	.000
	United Kingdom	.209	29	.002	.854	29	.001
	Spain	.166	29	.041	.941	29	.105
female_perc	Germany	.097	29	.200*	.976	29	.716
	United Kingdom	.081	29	.200*	.985	29	.947
	Spain	.112	29	.200*	.944	29	.124
age_perc_under50	Germany	.170	29	.031	.904	29	.012
	United Kingdom	.107	29	.200*	.934	29	.071
	Spain	.205	29	.003	.896	29	.008
age_perc_older71	Germany	.193	29	.007	.819	29	.000
	United Kingdom	.334	29	.000	.720	29	.000
	Spain	.161	29	.053	.924	29	.039
age_range	Germany	.096	29	.200*	.980	29	.829
	United Kingdom	.128	29	.200*	.926	29	.042
	Spain	.176	29	.022	.933	29	.064
age_lqrange	Germany	.130	29	.200*	.931	29	.059
	United Kingdom	.167	29	.039	.913	29	.021
	Spain	.086	29	.200*	.977	29	.770
age_stdev	Germany	.119	29	.200*	.971	29	.581
	United Kingdom	.167	29	.038	.907	29	.015
	Spain	.093	29	.200*	.955	29	.253
edu_perc_nouni	Germany	.129	29	.200*	.937	29	.084
	Spain	.539	29	.000	.184	29	.000
edu_perc_econs	Germany	.166	29	.040	.966	29	.455
	United Kingdom	.149	29	.099	.931	29	.059
	Spain	.095	29	.200*	.975	29	.697
edu_perc_law	Germany	.084	29	.200*	.964	29	.415
	United Kingdom	.335	29	.000	.719	29	.000
	Spain	.128	29	.200*	.958	29	.293
edu_perc_sien	Germany	.141	29	.148	.958	29	.289
	United Kingdom	.210	29	.002	.887	29	.005
	Spain	.217	29	.001	.910	29	.017
edu_perc_hum	Germany	.405	29	.000	.640	29	.000
	United Kingdom	.348	29	.000	.674	29	.000
	Spain	.445	29	.000	.553	29	.000

Tests of Normality^b (continuation)

country		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
edu_perc_other	Germany	.405	29	.000	.693	29	.000
	United Kingdom	.536	29	.000	.287	29	.000
	Spain	.539	29	.000	.184	29	.000
diff_edu_num	Germany	.272	29	.000	.824	29	.000
	United Kingdom	.257	29	.000	.802	29	.000
	Spain	.437	29	.000	.649	29	.000
Internat	Germany	.234	29	.000	.873	29	.002
	United Kingdom	.201	29	.004	.928	29	.049
	Spain	.265	29	.000	.848	29	.001
dom_perc	Germany	.211	29	.002	.796	29	.000
	United Kingdom	.097	29	.200*	.950	29	.188
	Spain	.248	29	.000	.793	29	.000
internat_ratio	Germany	.130	29	.200*	.937	29	.083
	United Kingdom	.115	29	.200*	.941	29	.109
	Spain	.207	29	.003	.858	29	.001
exec_perc	Germany	.193	29	.007	.885	29	.004
	United Kingdom	.079	29	.200*	.985	29	.944
	Spain	.140	29	.154	.920	29	.031
nonexec_perc	Germany	.193	29	.007	.885	29	.004
	United Kingdom	.098	29	.200*	.978	29	.783
	Spain	.135	29	.192	.942	29	.113
exec_perc_1mand	Germany	.191	29	.009	.844	29	.001
	United Kingdom	.142	29	.138	.907	29	.015
	Spain	.363	29	.000	.663	29	.000
nonexec_perc_1mand	Germany	.090	29	.200*	.974	29	.679
	United Kingdom	.122	29	.200*	.954	29	.233
	Spain	.096	29	.200*	.976	29	.730
dir_perc_2mand	Germany	.075	29	.200*	.956	29	.256
	United Kingdom	.104	29	.200*	.977	29	.757
	Spain	.197	29	.006	.856	29	.001

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

b. edu_perc_nouni is constant when country = United Kingdom. It has been omitted.

2) Levene's test of homogeneity of variances (ANOVA)

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
board_size	14.022	2	84	.000
age_range	7.423	2	84	.001
female_perc	.560	2	84	.573
edu_perc_econs	2.513	2	84	.087
diff_edu_num	2.589	2	84	.081
internat	4.392	2	84	.015
nonexec_perc_1mand	1.984	2	84	.144

ANOVA

		Sum of Squares	df	Mean Square
board_size	Between Groups	2229.264	2	1114.632
	Within Groups	1281.172	84	15.252
	Total	3510.437	86	
age_range	Between Groups	1068.713	2	534.356
	Within Groups	3670.138	84	43.692
	Total	4738.851	86	
female_perc	Between Groups	.027	2	.014
	Within Groups	.672	84	.008
	Total	.699	86	
edu_perc_econs	Between Groups	1.445	2	.722
	Within Groups	2.087	84	.025
	Total	3.532	86	
diff_edu_num	Between Groups	8.368	2	4.184
	Within Groups	38.690	84	.461
	Total	47.057	86	
internat	Between Groups	64.207	2	32.103
	Within Groups	266.276	84	3.170
	Total	330.483	86	
nonexec_perc_1mand	Between Groups	1.379	2	.690
	Within Groups	2.678	84	.032
	Total	4.057	86	

ANOVA

		F	Sig.
board_size	Between Groups	73.081	.000
	Within Groups		
	Total		
age_range	Between Groups	12.230	.000
	Within Groups		
	Total		
female_perc	Between Groups	1.698	.189
	Within Groups		
	Total		
edu_perc_econs	Between Groups	29.071	.000
	Within Groups		
	Total		
diff_edu_num	Between Groups	9.084	.000
	Within Groups		
	Total		
internat	Between Groups	10.127	.000
	Within Groups		
	Total		
nonexec_perc_1mand	Between Groups	21.630	.000
	Within Groups		
	Total		

3) ANOVA group comparisons

Tests of Between-Subjects Effects

Dependent Variable:female_perc

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	.027 ^a	2	.014	1.698	.189	.039
Intercept	2.011	1	2.011	251.501	.000	.750
country	.027	2	.014	1.698	.189	.039
Error	.672	84	.008			
Total	2.709	87				
Corrected Total	.699	86				

a. R Squared = .039 (Adjusted R Squared = .016)

Multiple Comparisons

female_perc
Scheffe

(I) country	(J) country	Mean Difference (I-J)	Std. Error	Sig.
Germany	United Kingdom	-.026746	.0234814	.525
	Spain	.016089	.0234814	.791
United Kingdom	Germany	.026746	.0234814	.525
	Spain	.042835	.0234814	.196
Spain	Germany	-.016089	.0234814	.791
	United Kingdom	-.042835	.0234814	.196

Based on observed means.

The error term is Mean Square(Error) = .008.

Tests of Between-Subjects Effects

Dependent Variable:edu_perc_econs

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.445 ^a	2	.722	29.071	.000	.409
Intercept	32.297	1	32.297	1299.681	.000	.939
country	1.445	2	.722	29.071	.000	.409
Error	2.087	84	.025			
Total	35.829	87				
Corrected Total	3.532	86				

a. R Squared = .409 (Adjusted R Squared = .395)

Multiple Comparisons

edu_perc_econs
Scheffe

(I) country	(J) country	Mean Difference (I-J)	Std. Error	Sig.
Germany	United Kingdom	-.293718*	.0413980	.000
	Spain	-.247014*	.0413980	.000
United Kingdom	Germany	.293718*	.0413980	.000
	Spain	.046704	.0413980	.532
Spain	Germany	.247014*	.0413980	.000
	United Kingdom	-.046704	.0413980	.532

Based on observed means.

The error term is Mean Square(Error) = .025.

Tests of Between-Subjects Effects

Dependent Variable:diff_edu_num

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	8.368 ^a	2	4.184	9.084	.000	.178
Intercept	881.943	1	881.943	1914.806	.000	.958
country	8.368	2	4.184	9.084	.000	.178
Error	38.690	84	.461			
Total	929.000	87				
Corrected Total	47.057	86				

a. R Squared = .178 (Adjusted R Squared = .158)

Multiple Comparisons

diff_edu_num

Scheffe

(I) country	(J) country	Mean Difference (I-J)	Std. Error	Sig.
Germany	United Kingdom	.76*	.178	.000
	Spain	.34	.178	.160
United Kingdom	Germany	-.76*	.178	.000
	Spain	-.41	.178	.073
Spain	Germany	-.34	.178	.160
	United Kingdom	.41	.178	.073

Based on observed means.

The error term is Mean Square(Error) = .461.

*. The mean difference is significant at the .05 level.

Tests of Between-Subjects Effects

Dependent Variable:nonexec_perc_1mand

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1.379 ^a	2	.690	21.630	.000	.340
Intercept	27.781	1	27.781	871.481	.000	.912
country	1.379	2	.690	21.630	.000	.340
Error	2.678	84	.032			
Total	31.838	87				
Corrected Total	4.057	86				

a. R Squared = .340 (Adjusted R Squared = .324)

Multiple Comparisons

nonexec_perc_1mand

Scheffe

(I) country	(J) country	Mean Difference (I-J)	Std. Error	Sig.
Germany	United Kingdom	-.257073*	.0468881	.000
	Spain	.018992	.0468881	.921
United Kingdom	Germany	.257073*	.0468881	.000
	Spain	.276065*	.0468881	.000
Spain	Germany	-.018992	.0468881	.921
	United Kingdom	-.276065*	.0468881	.000

Based on observed means.

The error term is Mean Square(Error) = .032.

*. The mean difference is significant at the .05 level.

4) Mann-Whitney U test

4.1. Germany-United Kingdom

Ranks				
	country	N	Mean Rank	Sum of Ranks
board_size	Germany	29	43.55	1263.00
	United Kingdom	29	15.45	448.00
	Total	58		
board_meetings	Germany	29	22.09	640.50
	United Kingdom	29	36.91	1070.50
	Total	58		
age_perc_under50	Germany	29	32.50	942.50
	United Kingdom	29	26.50	768.50
	Total	58		
age_perc_older71	Germany	29	31.22	905.50
	United Kingdom	29	27.78	805.50
	Total	58		
age_range	Germany	29	37.17	1078.00
	United Kingdom	29	21.83	633.00
	Total	58		
age_lqrange	Germany	29	31.88	924.50
	United Kingdom	29	27.12	786.50
	Total	58		
age_stdev	Germany	29	33.79	980.00
	United Kingdom	29	25.21	731.00
	Total	58		
dom_perc	Germany	29	33.36	967.50
	United Kingdom	29	25.64	743.50
	Total	58		
internat_ratio	Germany	29	23.71	687.50
	United Kingdom	29	35.29	1023.50
	Total	58		
edu_perc_law	Germany	29	36.57	1060.50
	United Kingdom	29	22.43	650.50
	Total	58		
edu_perc_sien	Germany	29	30.64	888.50
	United Kingdom	29	28.36	822.50
	Total	58		
edu_perc_hum	Germany	29	27.88	808.50
	United Kingdom	29	31.12	902.50
	Total	58		

Ranks (continuation)

	country	N	Mean Rank	Sum of Ranks
edu_perc_other	Germany	29	33.31	966.00
	United Kingdom	29	25.69	745.00
	Total	58		
edu_perc_nouni	Germany	29	42.00	1218.00
	United Kingdom	29	17.00	493.00
	Total	58		
diff_edu_num	Germany	29	37.10	1076.00
	United Kingdom	29	21.90	635.00
	Total	58		
exec_perc	Germany	29	31.86	924.00
	United Kingdom	29	27.14	787.00
	Total	58		
nonexec_perc	Germany	29	27.29	791.50
	United Kingdom	29	31.71	919.50
	Total	58		
exec_perc_1mand	Germany	29	25.02	725.50
	United Kingdom	29	33.98	985.50
	Total	58		
dir_perc_2mand	Germany	29	22.24	645.00
	United Kingdom	29	36.76	1066.00
	Total	58		

Test Statistics^a

	board_size	board_meetings	age_perc_under5 0	age_perc_older71	age_range
Mann-Whitney U	13.000	205.500	333.500	370.500	198.000
Wilcoxon W	448.000	640.500	768.500	805.500	633.000
Z	-6.351	-3.374	-1.355	-.820	-3.469
Asymp. Sig. (2-tailed)	.000	.001	.175	.412	.001

a. Grouping Variable: country

Test Statistics^a

	age_lqrage	age_stdev	dom_perc	internat_ratio	edu_perc_low
Mann-Whitney U	351.500	296.000	308.500	252.500	215.500
Wilcoxon W	786.500	731.000	743.500	687.500	650.500
Z	-1.075	-1.936	-1.743	-2.614	-3.256
Asymp. Sig. (2-tailed)	.283	.053	.081	.009	.001

a. Grouping Variable: country

Test Statistics^a

	edu_perc_sien	edu_perc_hum	edu_perc_other	edu_perc_nouni
Mann-Whitney U	387.500	373.500	310.000	58.000
Wilcoxon W	822.500	808.500	745.000	493.000
Z	-.513	-.862	-2.428	-6.242
Asymp. Sig. (2-tailed)	.608	.389	.015	.000

a. Grouping Variable: country

Test Statistics^a

	diff_edu_num	exec_perc	nonexec_perc	exec_perc_1mand	dir_perc_2mand
Mann-Whitney U	200.000	352.000	356.500	290.500	210.000
Wilcoxon W	635.000	787.000	791.500	725.500	645.000
Z	-3.678	-1.067	-.997	-2.056	-3.275
Asymp. Sig. (2-tailed)	.000	.286	.319	.040	.001

a. Grouping Variable: country

Ranks

	country	N	Mean Rank	Sum of Ranks
activity	Germany	29	27.09	785.50
	United Kingdom	29	31.91	925.50
	Total	58		
industry	Germany	29	32.00	928.00
	United Kingdom	29	27.00	783.00
	Total	58		
awaydays	Germany	29	29.00	841.00
	United Kingdom	29	30.00	870.00
	Total	58		
ceo_duality	Germany	29	29.00	841.00
	United Kingdom	29	30.00	870.00
	Total	58		
train_ind	Germany	29	19.50	565.50
	United Kingdom	29	39.50	1145.50
	Total	58		
train_cont	Germany	29	26.00	754.00
	United Kingdom	29	33.00	957.00
	Total	58		

Test Statistics^a

	activity	industry	awaydays	ceo_duality	train_ind	train_cont
Mann-Whitney U	350.500	348.000	406.000	406.000	130.500	319.000
Wilcoxon W	785.500	783.000	841.000	841.000	565.500	754.000
Z	-1.237	-1.139	-.286	-1.000	-5.210	-1.840
Asymp. Sig. (2-tailed)	.216	.255	.775	.317	.000	.066

a. Grouping Variable: country

4.2. Germany - Spain

Ranks

	country	N	Mean Rank	Sum of Ranks
board_size	Germany	29	42.33	1227.50
	Spain	29	16.67	483.50
	Total	58		
board_meetings	Germany	29	21.53	624.50
	Spain	29	37.47	1086.50
	Total	58		
age_perc_under50	Germany	29	33.84	981.50
	Spain	29	25.16	729.50
	Total	58		
age_perc_older71	Germany	29	23.86	692.00
	Spain	29	35.14	1019.00
	Total	58		
age_range	Germany	29	26.38	765.00
	Spain	29	32.62	946.00
	Total	58		
age_Iqrange	Germany	29	26.43	766.50
	Spain	29	32.57	944.50
	Total	58		
age_stdev	Germany	29	22.97	666.00
	Spain	29	36.03	1045.00
	Total	58		
dom_perc	Germany	29	25.74	746.50
	Spain	29	33.26	964.50
	Total	58		
internat_ratio	Germany	29	31.40	910.50
	Spain	29	27.60	800.50
	Total	58		
edu_perc_law	Germany	29	22.45	651.00
	Spain	29	36.55	1060.00
	Total	58		
edu_perc_sien	Germany	29	34.40	997.50
	Spain	29	24.60	713.50
	Total	58		
edu_perc_hum	Germany	29	30.60	887.50
	Spain	29	28.40	823.50
	Total	58		

Ranks (continuation)

	country	N	Mean Rank	Sum of Ranks
edu_perc_other	Germany	29	33.93	984.00
	Spain	29	25.07	727.00
	Total	58		
edu_perc_nouni	Germany	29	41.52	1204.00
	Spain	29	17.48	507.00
	Total	58		
diff_edu_num	Germany	29	33.79	980.00
	Spain	29	25.21	731.00
	Total	58		
exec_perc	Germany	29	41.69	1209.00
	Spain	29	17.31	502.00
	Total	58		
nonexec_perc	Germany	29	17.34	503.00
	Spain	29	41.66	1208.00
	Total	58		
exec_perc_1mand	Germany	29	31.53	914.50
	Spain	29	27.47	796.50
	Total	58		
dir_perc_2mand	Germany	29	32.90	954.00
	Spain	29	26.10	757.00
	Total	58		

Test Statistics^a

	board_size	board_meetings	age_perc_under5 0	age_perc_older71	age_range
Mann-Whitney U	48.500	189.500	294.500	257.000	330.000
Wilcoxon W	483.500	624.500	729.500	692.000	765.000
Z	-5.795	-3.617	-1.961	-2.576	-1.411
Asymp. Sig. (2-tailed)	.000	.000	.050	.010	.158

a. Grouping Variable: country

Test Statistics^a

	age_lrange	age_stdev	dom_perc	internat_ratio	edu_perc_law
Mann-Whitney U	331.500	231.000	311.500	365.500	216.000
Wilcoxon W	766.500	666.000	746.500	800.500	651.000
Z	-1.386	-2.947	-1.697	-.856	-3.182
Asymp. Sig. (2-tailed)	.166	.003	.090	.392	.001

a. Grouping Variable: country

Test Statistics^a

	edu_perc_sien	edu_perc_hum	edu_perc_other	edu_perc_nouni
Mann-Whitney U	278.500	388.500	292.000	72.000
Wilcoxon W	713.500	823.500	727.000	507.000
Z	-2.209	-.632	-2.922	-5.942
Asymp. Sig. (2-tailed)	.027	.527	.003	.000

a. Grouping Variable: country

Test Statistics^a

	diff_edu_num	exec_perc	nonexec_perc	exec_perc_1mand	dir_perc_2mand
Mann-Whitney U	296.000	67.000	68.000	361.500	322.000
Wilcoxon W	731.000	502.000	503.000	796.500	757.000
Z	-2.235	-5.501	-5.485	-.982	-1.532
Asymp. Sig. (2-tailed)	.025	.000	.000	.326	.125

a. Grouping Variable: country

Ranks

country		N	Mean Rank	Sum of Ranks
activity	Germany	29	28.05	813.50
	Spain	29	30.95	897.50
	Total	58		
industry	Germany	29	30.21	876.00
	Spain	29	28.79	835.00
	Total	58		
awaydays	Germany	29	33.50	971.50
	Spain	29	25.50	739.50
	Total	58		
ceo_duality	Germany	29	21.50	623.50
	Spain	29	37.50	1087.50
	Total	58		
train_ind	Germany	29	22.50	652.50
	Spain	29	36.50	1058.50
	Total	58		
train_cont	Germany	29	26.00	754.00
	Spain	29	33.00	957.00
	Total	58		

Test Statistics^a

	activity	industry	awaydays	ceo_duality	train_ind	train_cont
Mann-Whitney U	378.500	400.000	304.500	188.500	217.500	319.000
Wilcoxon W	813.500	835.000	739.500	623.500	652.500	754.000
Z	-.746	-.322	-3.020	-4.660	-3.756	-1.840
Asymp. Sig. (2-tailed)	.456	.748	.003	.000	.000	.066

a. Grouping Variable: country

4.3. United Kingdom - Spain

Ranks

	country	N	Mean Rank	Sum of Ranks
board_size	United Kingdom	29	24.79	719.00
	Spain	29	34.21	992.00
	Total	58		
board_meetings	United Kingdom	29	27.12	786.50
	Spain	29	31.88	924.50
	Total	58		
age_perc_under50	United Kingdom	29	31.00	899.00
	Spain	29	28.00	812.00
	Total	58		
age_perc_older71	United Kingdom	29	23.76	689.00
	Spain	29	35.24	1022.00
	Total	58		
age_range	United Kingdom	29	20.83	604.00
	Spain	29	38.17	1107.00
	Total	58		
age_Iqrange	United Kingdom	29	24.62	714.00
	Spain	29	34.38	997.00
	Total	58		
age_stdev	United Kingdom	29	21.81	632.50
	Spain	29	37.19	1078.50
	Total	58		
dom_perc	United Kingdom	29	24.21	702.00
	Spain	29	34.79	1009.00
	Total	58		
internat_ratio	United Kingdom	29	36.07	1046.00
	Spain	29	22.93	665.00
	Total	58		
edu_perc_law	United Kingdom	29	18.95	549.50
	Spain	29	40.05	1161.50
	Total	58		
edu_perc_sien	United Kingdom	29	32.55	944.00
	Spain	29	26.45	767.00
	Total	58		
edu_perc_hum	United Kingdom	29	32.24	935.00
	Spain	29	26.76	776.00
	Total	58		

Ranks (continuation)

	country	N	Mean Rank	Sum of Ranks
edu_perc_other	United Kingdom	29	30.02	870.50
	Spain	29	28.98	840.50
	Total	58		
edu_perc_nouni	United Kingdom	29	29.00	841.00
	Spain	29	30.00	870.00
	Total	58		
diff_edu_num	United Kingdom	29	24.60	713.50
	Spain	29	34.40	997.50
	Total	58		
exec_perc	United Kingdom	29	38.59	1119.00
	Spain	29	20.41	592.00
	Total	58		
nonexec_perc	United Kingdom	29	20.72	601.00
	Spain	29	38.28	1110.00
	Total	58		
exec_perc_1mand	United Kingdom	29	34.28	994.00
	Spain	29	24.72	717.00
	Total	58		
dir_perc_2mand	United Kingdom	29	37.84	1097.50
	Spain	29	21.16	613.50
	Total	58		

Test Statistics^a

	board_size	board_meetings	age_perc_under5 0	age_perc_older71	age_range
Mann-Whitney U	284.000	351.500	377.000	254.000	169.000
Wilcoxon W	719.000	786.500	812.000	689.000	604.000
Z	-2.138	-1.079	-.679	-2.687	-3.916
Asymp. Sig. (2-tailed)	.033	.281	.497	.007	.000

a. Grouping Variable: country

Test Statistics^a

	age_lrange	age_stdev	dom_perc	internat_ratio	edu_perc_low
Mann-Whitney U	279.000	197.500	267.000	230.000	114.500
Wilcoxon W	714.000	632.500	702.000	665.000	549.500
Z	-2.202	-3.468	-2.396	-2.965	-4.823
Asymp. Sig. (2-tailed)	.028	.001	.017	.003	.000

a. Grouping Variable: country

Test Statistics^a

	edu_perc_sien	edu_perc_hum	edu_perc_other	edu_perc_nouni
Mann-Whitney U	332.000	341.000	405.500	406.000
Wilcoxon W	767.000	776.000	840.500	841.000
Z	-1.377	-1.508	-.608	-1.000
Asymp. Sig. (2-tailed)	.168	.131	.543	.317

a. Grouping Variable: country

Test Statistics^a

	diff_edu_num	exec_perc	nonexec_perc	exec_perc_1mand	dir_perc_2mand
Mann-Whitney U	278.500	157.000	166.000	282.000	178.500
Wilcoxon W	713.500	592.000	601.000	717.000	613.500
Z	-2.551	-4.101	-3.961	-2.255	-3.765
Asymp. Sig. (2-tailed)	.011	.000	.000	.024	.000

a. Grouping Variable: country

Ranks

country	N	Mean Rank	Sum of Ranks
activity	United Kingdom	29	30.47
	Spain	29	28.53
	Total	58	883.50
industry	United Kingdom	29	27.93
	Spain	29	31.07
	Total	58	901.00
awaydays	United Kingdom	29	34.00
	Spain	29	25.00
	Total	58	986.00
ceo_duality	United Kingdom	29	22.00
	Spain	29	37.00
	Total	58	1073.00
train_ind	United Kingdom	29	32.50
	Spain	29	26.50
	Total	58	942.50
train_cont	United Kingdom	29	29.50
	Spain	29	29.50
	Total	58	855.50

Test Statistics^a

	activity	industry	awaydays	ceo_duality	train_ind	train_cont
Mann-Whitney U	392.500	375.000	290.000	203.000	333.500	420.500
Wilcoxon W	827.500	810.000	725.000	638.000	768.500	855.500
Z	-.496	-.715	-3.236	-4.290	-1.747	.000
Asymp. Sig. (2-tailed)	.620	.474	.001	.000	.081	1.000

a. Grouping Variable: country

5) Kruskal-Wallis test

Ranks			
	country	N	Mean Rank
board_size	Germany	29	70.88
	United Kingdom	29	25.24
	Spain	29	35.88
	Total	87	
board_meetings	Germany	29	28.62
	United Kingdom	29	49.03
	Spain	29	54.34
	Total	87	
age_perc_under50	Germany	29	51.34
	United Kingdom	29	42.50
	Spain	29	38.16
	Total	87	
age_perc_older71	Germany	29	40.09
	United Kingdom	29	36.53
	Spain	29	55.38
	Total	87	
age_range	Germany	29	48.55
	United Kingdom	29	27.66
	Spain	29	55.79
	Total	87	
age_Iqrange	Germany	29	43.31
	United Kingdom	29	36.74
	Spain	29	51.95
	Total	87	
age_stdev	Germany	29	41.76
	United Kingdom	29	32.02
	Spain	29	58.22
	Total	87	
dom_perc	Germany	29	44.10
	United Kingdom	29	34.84
	Spain	29	53.05
	Total	87	
internat_ratio	Germany	29	40.10
	United Kingdom	29	56.36
	Spain	29	35.53
	Total	87	
edu_perc_law	Germany	29	44.02
	United Kingdom	29	26.38
	Spain	29	61.60
	Total	87	
edu_perc_sien	Germany	29	50.03
	United Kingdom	29	45.91
	Spain	29	36.05
	Total	87	
edu_perc_hum	Germany	29	43.48
	United Kingdom	29	48.36
	Spain	29	40.16
	Total	87	

Ranks (continuation)

	country	N	Mean Rank
edu_perc_other	Germany	29	52.24
	United Kingdom	29	40.71
	Spain	29	39.05
	Total	87	
edu_perc_nouni	Germany	29	68.52
	United Kingdom	29	31.00
	Spain	29	32.48
	Total	87	
diff_edu_num	Germany	29	55.90
	United Kingdom	29	31.50
	Spain	29	44.60
	Total	87	
exec_perc	Germany	29	58.55
	United Kingdom	29	50.72
	Spain	29	22.72
	Total	87	
nonexec_perc	Germany	29	29.64
	United Kingdom	29	37.43
	Spain	29	64.93
	Total	87	
exec_perc_1mand	Germany	29	41.55
	United Kingdom	29	53.26
	Spain	29	37.19
	Total	87	
dir_perc_2mand	Germany	29	40.14
	United Kingdom	29	59.60
	Spain	29	32.26
	Total	87	

Test Statistics^{a,b}

	board_size	board_meetings	age_perc_under5 0	age_perc_older71	age_range
Chi-square	52.093	16.960	4.119	9.697	19.466
df	2	2	2	2	2
Asymp. Sig.	.000	.000	.128	.008	.000

a. Kruskal Wallis Test

b. Grouping Variable: country

Test Statistics^{a,b}

	age_Iqrange	age_stdev	dom_perc	internat_ratio	edu_perc_low
Chi-square	5.298	15.952	7.554	10.904	28.565
df	2	2	2	2	2
Asymp. Sig.	.071	.000	.023	.004	.000

a. Kruskal Wallis Test

b. Grouping Variable: country

Test Statistics^{a,b}

	edu_perc_sien	edu_perc_hum	edu_perc_other	edu_perc_nouni	diff_edu_num
Chi-square	4.698	2.305	12.204	62.618	16.857
df	2	2	2	2	2
Asymp. Sig.	.095	.316	.002	.000	.000

a. Kruskal Wallis Test

b. Grouping Variable: country

Test Statistics^{a,b}

	exec_perc	nonexec_perc	exec_perc_1mand	dir_perc_2mand
Chi-square	32.299	31.291	6.782	18.022
df	2	2	2	2
Asymp. Sig.	.000	.000	.034	.000

a. Kruskal Wallis Test

b. Grouping Variable: country

6) Outliers

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
age_range	87	100,0%	0	,0%	87	100,0%
board_size	87	100,0%	0	,0%	87	100,0%
female_perc	87	100,0%	0	,0%	87	100,0%
edu_perc_econs	87	100,0%	0	,0%	87	100,0%
nonexec_perc_1mand	87	100,0%	0	,0%	87	100,0%

Percentiles

		Percentiles			
		5	10	25	50
Weighted Average(Definition 1)	age_range	15,00	16,80	22,00	26,00
	board_size	9,00	10,00	11,00	14,00
	female_perc	,000000	,000000	,083333	,150000
	edu_perc_econs	,307692	,352381	,437500	,600000
	nonexec_perc_1mand	,170588	,268182	,416667	,550000
Tukey's Hinges	age_range			22,00	26,00
	board_size			11,00	14,00
	female_perc			,087121	,150000
	edu_perc_econs			,437500	,600000
	nonexec_perc_1mand			,416667	,550000

Percentiles

		Percentiles		
		75	90	95
Weighted Average(Definition 1)	age_range	30,00	34,00	36,00
	board_size	19,00	27,00	28,00
	female_perc	,214286	,272727	,317225
	edu_perc_econs	,750000	,888889	,960000
	nonexec_perc_1mand	,714286	,857143	,950000
Tukey's Hinges	age_range	29,50		
	board_size	19,00		
	female_perc	,212406		
	edu_perc_econs	,750000		
	nonexec_perc_1mand	,714286		

Extreme Values

			Case Number	Value
age_range	Highest	1	62	44
		2	64	44
		3	66	41
		4	68	36
		5	82	36
	Lowest	1	67	10
		2	44	14
		3	50	15
		4	45	15
		5	36	15
board_size	Highest	1	10	38
		2	28	30
		3	7	29
		4	8	28
		5	9	28 ^a
	Lowest	1	52	8
		2	44	8
		3	43	8
		4	87	9
		5	77	9 ^b
female_perc	Highest	1	44	,3750
		2	82	,3636
		3	2	,3200
		4	19	,3182
		5	73	,3158
	Lowest	1	85	,0000
		2	74	,0000
		3	71	,0000
		4	67	,0000
		5	59	,0000 ^c
edu_perc_econs	Highest	1	45	1,0000
		2	56	1,0000
		3	58	1,0000
		4	70	1,0000
		5	48	,9000 ^d
	Lowest	1	24	,1176
		2	21	,2105
		3	29	,2917
		4	26	,3077
		5	17	,3077
nonexec_perc_1mand	Highest	1	32	1,0000
		2	43	1,0000
		3	45	1,0000
		4	86	1,0000
		5	36	,8750 ^e
	Lowest	1	85	,1000
		2	63	,1000
		3	61	,1429
		4	68	,1667
		5	59	,1765

a. Only a partial list of cases with the value 28 are shown in the table of upper

b. Only a partial list of cases with the value 9 are shown in the table of lower

c. Only a partial list of cases with the value ,0000 are shown in the table of lower

d. Only a partial list of cases with the value ,9000 are shown in the table of upper

e. Only a partial list of cases with the value ,8750 are shown in the table of upper

q1	q3	g	q3-q1	g'	lower	upper	variable	Outlier
22.00	30.00	2.20	8.00	17.60	4.40	47.60	age_range	0
11.00	19.00		8.00	17.60	-6.60	36.60	board size	1
0.08	0.21		0.13	0.29	-0.21	0.50	female_perc	0
0.44	0.75		0.31	0.68	-0.24	1.43	econs	0
0.42	0.71		0.29	0.64	-0.22	1.35	nonexec_perc_1mand	0
<p>q3-q1 8.00</p> <p>g' 17.6 36.60 -6.60</p>								

	A	B	C	D	E	F	G	H	I
1	q1	q3	g	q3-q1	g'	lower	upper	variable	Outlier
2	22	30	2.2	=B2-A2	=D2*\$C\$2	=A2-(\$C\$2*(B2-A2))	=B2+(\$C\$2*(B2-A2))	age_range	0
3	11	19		=B3-A3	=D3*\$C\$2	=A3-(\$C\$2*(B3-A3))	=B3+(\$C\$2*(B3-A3))	board size	1
4	0.083	0.214		=B4-A4	=D4*\$C\$2	=A4-(\$C\$2*(B4-A4))	=B4+(\$C\$2*(B4-A4))	female_perc	0
5	0.44	0.75		=B5-A5	=D5*\$C\$2	=A5-(\$C\$2*(B5-A5))	=B5+(\$C\$2*(B5-A5))	econs	0
6	0.42	0.71		=B6-A6	=D6*\$C\$2	=A6-(\$C\$2*(B6-A6))	=B6+(\$C\$2*(B6-A6))	nonexec_per c_1mand	0
7									
8									
9									
10	<p>q3-q1 =B3-A3</p>								
11	<p>g' =G9*C2 =G10+B3 =A3-G10</p>								

APPENDIX D: Descriptive statistics for all countries**activity**

	Frequency	Percent
Manufacturing and Services	3	3.4
Services	41	47.1
Manufacturing	43	49.4
Total	87	100.0

industry

	Frequency	Percent
Telecommunication Services	3	3.4
Consumer Staples	5	5.7
Energy	5	5.7
Utilities	5	5.7
Health care	6	6.9
IT	8	9.2
Consumer Discretionary	11	12.6
Materials	13	14.9
Financials	15	17.2
Industrials	16	18.4
Total	87	100.0

board_size

N	Valid	87
	Missing	0
Mean		16.08
Median		14.00
Mode		11
Std. Deviation		6.389
Minimum		8
Maximum		38

board_meetings

N	Valid	87
	Missing	0
Mean		9.06
Median		8.00
Mode		5.00
Std. Deviation		4.25
Minimum		4
Maximum		29

awaydays

	Frequency	Percent
yes	17	19.5
not disclosed	70	80.5
Total	87	100.0

female_perc

N	Valid	87
	Missing	0
Mean		.15
Median		.15
Mode		0.00
Std. Deviation		.09
Minimum		0.00
Maximum		0.38

Director age

		age_perc_under5 0	age_perc_older71	age_range	age_Iqrange	age_stdev
N	Valid	87	87	87	87	87
	Missing	0	0	0	0	0
Mean		,18108	,070853	25,74	10,7845	8,074851
Median		,16667	,052632	26,00	10,5000	7,741393
Mode		,000	,0000	25 ^a	11,00	5,1305 ^a
Std. Deviation		,130912	,0794129	6,397	3,89789	2,2360242
Minimum		,000	,0000	10	1,00	3,6332
Maximum		,636	,3077	44	21,00	18,0826

a. Multiple modes exist. The smallest value is shown

dom_perc

N	Valid	87
	Missing	0
Mean		.720
Median		0.79
Mode		1.00
Std. Deviation		.25
Minimum		0.00
Maximum		1.00

internat_ratio

N	Valid	87
	Missing	0
Mean		.22
Median		0.19
Mode		0.17 ^a
Std. Deviation		.13
Minimum		0.05
Maximum		0.75

a. Multiple modes exist. The smallest value is shown

internat

N	Valid	87
	Missing	0
Mean		3.38
Mode		2
Std. Deviation		1.96
Minimum		1
Maximum		10

Director education

		edu_perc_nouni	edu_perc_econs	edu_perc_law	edu_perc_sien
N	Valid	87	87	87	87
	Missing	0	0	0	0
	Mean	.06	0.61	0.18	0.33
	Median	0.00	0.60	0.19	0.29
	Mode	0.00	0.50	0.00	0.33
	Std. Deviation	.11	0.20	0.14	0.22
	Minimum	0.00	0.12	0.00	0.00
	Maximum	0.50	1.00	0.59	0.92

Director education

		edu_perc_hum	edu_perc_other
N	Valid	87	87
	Missing	0	0
	Mean	0.04	0.01
	Median	0.00	0.00
	Mode	0.00	0.00
	Std. Deviation	0.07	0.02
	Minimum	0.00	0.00
	Maximum	0.40	0.09

diff_edu_num

N	Valid	87
	Missing	0
	Mean	3.2
	Mode	3
	Std. Deviation	.74
	Minimum	2
	Maximum	5

Outsider ratio

		exec_perc	nonexec_perc
N	Valid	87	87
	Missing	0	0
	Mean	.24	0.75
	Median	0.25	0.75
	Mode	0.25	0.75
	Std. Deviation	.11	0.11
	Minimum	0.07	0.50
	Maximum	0.50	0.93

ceo_duality

	Frequency	Percent
combined roles	17	19.5
separated roles	70	80.5
Total	87	100.0

Directors with other board mandates

		exec_perc_1mand	nonexec_perc_1mand	dir_perc_2mand
N	Valid	87	87	87
	Missing	0	0	0
Mean		.31	.57	.30
Median		.20	.55	.27
Mode		.00	.50	.20 ^a
Std. Deviation		.34	.22	.16
Minimum		.00	.10	.00
Maximum		1.00	1.00	.67

a. Multiple modes exist. The smallest value is shown

train_ind

	Frequency	Percent
not disclosed	41	47.1
yes	46	52.9
Total	87	100.0

train_cont

	Frequency	Percent
yes	41	47.1
not disclosed	46	52.9
Total	87	100.0

APPENDIX E: Descriptive statistics per country

1) The United Kingdom

activity

	Frequency	Percent
Manufacturing	12	41.38
Services	16	55.17
Manufacturing and Services	1	3.45
Total	29	100.00

industry

	Frequency	Percent
Health care	1	3.45
Telecommunication Services	1	3.45
Consumer Staples	2	6.90
Energy	3	10.34
IT	3	10.34
Consumer Discretionary	4	13.79
Industrials	4	13.79
Materials	5	17.24
Financials	6	20.69
Total	29	100.00

board_size

N	Valid	29
	Missing	0
Mean		11.69
Median		11.00
Mode		11
Std. Deviation		2.32
Minimum		8
Maximum		17

board_meetings

N	Valid	29
	Missing	0
Mean		9.72
Median		9.00
Mode		9
Std. Deviation		4.24
Minimum		5
Maximum		23

awaydays

	Frequency	Percent
no (not disclosed)	20	68.97
yes	9	31.03
Total	29	100.00

female_perc

N	Valid	29
	Missing	0
Mean		.18
Median		0.18
Mode		0.18 ^a
Std. Deviation		.09
Minimum		0.00
Maximum		0.38

a. Multiple modes exist. The smallest value is shown

Director age

	age_perc_under5 0	age_perc_older71	age_range	age_Iqrange	age_stdev
N	Valid	29	29	29	29
	Missing	0	0	0	0
Mean		.17	.05	21.72	9.81
Median		.14	.00	21.00	9.75
Mode		.00	.00	15.00 ^a	9.75 ^a
Std. Deviation		.14	.08	5.82	3.69
Minimum		.00	.00	14.00	4.75
Maximum		.50	.31	34.00	21.00

a. Multiple modes exist. The smallest value is shown

dom_perc

N	Valid	29
	Missing	0
Mean		.64
Median		0.64
Mode		1.00
Std. Deviation		.25
Minimum		0.13
Maximum		1.00

internat_ratio

N	Valid	29
	Missing	0
Mean		.29
Median		0.27
Mode		0.25 ^a
Std. Deviation		.15
Minimum		0.07
Maximum		0.75

a. Multiple modes exist. The smallest value is shown

internat

N	Valid	29
	Missing	0
Mean		3.34
Mode		3
Std. Deviation		1.696
Minimum		1
Maximum		7

Director education

		edu_perc_nouni	edu_perc_econs	edu_perc_law	edu_perc_sien
N	Valid	29	29	29	29
	Missing	0	0	0	0
Mean		.00	0.72	0.09	0.37
Median		0.00	0.73	0.00	0.29
Mode		0.00	0.50	0.00	0.33
Std. Deviation		.00	0.18	0.13	0.29
Minimum		0.00	0.42	0.00	0.00
Maximum		0.00	1.00	0.43	0.92

Director education

		edu_perc_hum	edu_perc_other
N	Valid	29	29
	Missing	0	0
Mean		0.06	0.01
Median		0.00	0.00
Mode		0.00	0.00
Std. Deviation		0.10	0.02
Minimum		0.00	0.00
Maximum		0.40	0.08

diff_edu_num

N	Valid	29
	Missing	0
Mean		2.79
Mode		3
Std. Deviation		.774
Minimum		2
Maximum		5

Outsider ratio

		exec_perc	nonexec_perc
N	Valid	29	29
	Missing	0	0
Mean		.27	0.72
Median		0.27	0.73
Mode		0.25	0.75
Std. Deviation		.10	0.11
Minimum		0.08	0.50
Maximum		0.50	0.92

ceo_duality

	Frequency	Percent
separated roles	28	96.55
combined roles	1	3.45
Total	29	100.00

Directors with other mandates

		exec_perc_1mand	nonexec_perc_1mand	dir_perc_2mand
N	Valid	29	29	29
	Missing	0	0	0
Mean		.42	.74	.39
Median		.40	.73	.42
Mode		.00	.83 ^a	.45
Std. Deviation		.33	.16	.14
Minimum		.00	.29	.11
Maximum		1.00	1.00	.64

a. Multiple modes exist. The smallest value is shown

train_ind

	Frequency	Percent
no (not disclosed)	5	17.24
yes	24	82.76
Total	29	100.00

train_cont

	Frequency	Percent
no (not disclosed)	13	44.83
yes	16	55.17
Total	29	100.00

2) Germany

activity

	Frequency	Percent
manufacturing and services	1	3.4
services	11	37.9
manufacturing	17	58.6
Total	29	100.0

industry

	Frequency	Percent
Consumer Staples	1	3.4
Telecommunication services	1	3.4
Industrials	2	6.9
Utilities	2	6.9
IT	3	10.3
Consumer Discretionary	4	13.8
Financials	5	17.2
Health Care	5	17.2
Materials	6	20.7
Total	29	100.0

board_size

N	Valid	29
	Missing	0
Mean		23.17
Mode		16
Std. Deviation		5.62
Minimum		14
Maximum		38

board_meetings

N	Valid	29
	Missing	0
Mean		7.28
Mode		5 ^a
Std. Deviation		4.54
Minimum		4
Maximum		29

a. Multiple modes exist. The smallest value is shown

awaydays

	Frequency	Percent
yes	8	27.6
no (not disclosed)	21	72.4
Total	29	100.0

female_perc

N	Valid	29
	Missing	0
Mean		.15
Mode		0.13 ^a
Std. Deviation		.08
Minimum		.00
Maximum		.32

a. Multiple modes exist. The smallest value is shown

Director age

		age_perc_under50	age_perc_older7 1	age_range	age_Iqrange	age_stdev
N	Valid	29	29	29	29	29
	Missing	0	0	0	0	0
Mean		.21	0.05	26.66	10.79	7.70
Mode		0.25	0.00	25.00 ^a	10.00	6.94 ^a
Std. Deviation		.12	0.06	3.55	3.35	1.04
Minimum		0.00	0.00	19.00	5.00	5.73
Maximum		0.64	0.25	33.00	19.00	10.39

a. Multiple modes exist. The smallest value is shown

dom_perc

N	Valid	29
	Missing	0
Mean		.74
Mode		0.88
Std. Deviation		.23
Minimum		0.07
Maximum		0.95

internat_ratio

N	Valid	29
	Missing	0
Mean		.20
Mode		0.07 ^a
Std. Deviation		.09
Minimum		0.07
Maximum		0.38

a. Multiple modes exist. The smallest value is shown

internat

N	Valid	29
	Missing	0
Mean		4.45
Mode		4
Std. Deviation		2.261
Minimum		2
Maximum		10

Director education

		edu_perc_nouni	edu_perc_econs	edu_perc_law	edu_perc_sien
N	Valid	29	29	29	29
	Missing	0	0	0	0
Mean		.16	.43	0.17	0.35
Mode		.00	0.31 ^a	0.00 ^a	0.20 ^a
Std. Deviation		0.13	.14	0.11	0.17
Minimum		0.00	0.12	0.00	0.06
Maximum		0.50	0.75	0.46	0.74

a. Multiple modes exist. The smallest value is shown

Director education

		edu_perc_hum	edu_perc_other
N	Valid	29	29
	Missing	0	0
Mean		0.03	0.02
Mode		0.00	0.00
Std. Deviation		0.06	0.03
Minimum		0.00	0.00
Maximum		0.19	0.09

diff_edu_num

N	Valid	29
	Missing	0
Mean		3.55
Mode		3 ^a
Std. Deviation		.686
Minimum		2
Maximum		5

a. Multiple modes exist. The smallest value is shown

Outsider ratio

		exec_perc	nonexec_perc
N	Valid	29	29
	Missing	0	0
Mean		.30	0.70
Mode		0.25	0.75
Std. Deviation		.08	0.08
Minimum		0.17	0.50
Maximum		0.50	0.83

ceo_duality

	Frequency	Percent
separated roles	29	100.0

Directors with other board mandates

		exec_perc_1mand	nonexec_perc_1mand	dir_perc_2mand
N	Valid	29	29	29
	Missing	0	0	0
Mean		.25	.49	.27
Median		.17	.50	.26
Mode		.00	.50	.19 ^a
Std. Deviation		.28	.15	.13
Minimum		.00	.25	.05
Maximum		1.00	.83	.67

a. Multiple modes exist. The smallest value is shown

train_ind

	Frequency	Percent
no (not disclosed)	25	86.2
yes	4	13.8
Total	29	100.0

train_cont

	Frequency	Percent
no (not disclosed)	20	69.0
yes	9	31.0
Total	29	100.0

1) Spain

activity

	Frequency	Percent
Manufacturing and Services	1	3.4
Manufacturing	14	48.3
Services	14	48.3
Total	29	100.0

industry

	Frequency	Percent
Health care	1	3.4
Telecommunication Services	1	3.4
Consumer Staples	2	6.9
Energy	2	6.9
IT	2	6.9
Materials	2	6.9
Consumer Discretionary	3	10.3
Utilities	3	10.3
Financials	4	13.8
Industrials	9	31.0
Total	29	100.0

board_size

N	Valid	29
	Missing	0
Mean		13.38
Std. Deviation		2.97
Minimum		9
Maximum		19

board_meetings

N	Valid	29
	Missing	0
Mean		10.17
Mode		11 ^a
Std. Deviation		3.454
Minimum		5
Maximum		17

a. Multiple modes exist. The smallest value is shown

awaydays

	Frequency	Percent
no (not disclosed)	29	100.0

female_perc

N	Valid	29
	Missing	0
Mean		.13
Std. Deviation		.10
Minimum		.00
Maximum		.36

Director age

		age_perc_under5	age_perc_older71	age_range	age_lqrange	age_stdev
N	Valid	29	29	29	29	29
	Missing	0	0	0	0	0
Mean		,15575	,107357	28,83	11,8707	9,379007
Median		,11111	,090909	28,00	12,2500	9,203260
Mode		,000	,0000	22 ^a	11,00	3,6332 ^a
Std. Deviation		,126154	,0872539	7,197	4,40151	2,7951287
Minimum		,000	,0000	10	1,00	3,6332
Maximum		,400	,2941	44	19,50	18,0826

a. Multiple modes exist. The smallest value is shown

dom_perc

N	Valid	29
	Missing	0
Mean		.79
Mode		1.00
Std. Deviation		.25
Minimum		0.00
Maximum		1.00

internat_ratio

N	Valid	29
	Missing	0
Mean		.19
Mode		0.13 ^a
Std. Deviation		.12
Minimum		0.05
Maximum		0.55

a. Multiple modes exist. The smallest value is shown

internat

N	Valid	29
	Missing	0
Mean		2.34
Mode		2
Std. Deviation		1.233
Minimum		1
Maximum		6

Director education

		edu_perc_nouni	edu_perc_econs	edu_perc_law	edu_perc_sien
N	Valid	29	29	29	29
	Missing	0	0	0	0
Mean		.00	.68	.28	.25
Std. Deviation		.03	.14	.13	.18
Minimum		.00	.43	.08	.00
Maximum		.14	1.00	.59	.60

Director education

		edu_perc_hum	edu_perc_other
N	Valid	29	29
	Missing	0	0
Mean		.02	.00
Std. Deviation		.05	.01
Minimum		.00	.00
Maximum		.20	.07

diff_edu_num

N	Valid	29
	Missing	0
Mean		3.21
Mode		3
Std. Deviation		.56
Minimum		2
Maximum		5

Outsider ratio

		exec_perc	nonexec_perc
N	Valid	29	29
	Missing	0	0
Mean		.16	.84
Mode		.09 ^a	.83 ^a
Std. Deviation		.07	.07
Minimum		.07	.67
Maximum		.33	.93

a. Multiple modes exist. The smallest value is shown

ceo_duality

	Frequency	Percent
separated roles	13	44.8
combined roles	16	55.2
Total	29	100.0

Directors with other board mandates

		exec_perc_1mand	nonexec_perc_1mand	dir_perc_2mand
N	Valid	29	29	29
	Missing	0	0	0
Mean		.25	.47	.23
Median		.00	.50	.18
Mode		.00	.50	.14
Std. Deviation		.39	.22	.17
Minimum		.00	.10	.00
Maximum		1.00	1.00	.67

train_ind

	Frequency	Percent
no (not disclosed)	11	37.9
yes	18	62.1
Total	29	100.0

train_cont

	Frequency	Percent
no (not disclosed)	13	44.8
yes	16	55.2
Total	29	100.0

APPENDIX F: Correlation Analysis

1) Pearson correlation for normally distributed metric variables:

		female_perc	edu_perc_econs	nonexec_perc_1mand
female_perc	Pearson Correlation	1	.171	.093
	Sig. (2-tailed)		.113	.394
	N	87	87	87
edu_perc_econs	Pearson Correlation	.171	1	.268*
	Sig. (2-tailed)	.113		.012
	N	87	87	87
nonexec_perc_1mand	Pearson Correlation	.093	.268*	1
	Sig. (2-tailed)	.394	.012	
	N	87	87	87

*. Correlation is significant at the 0.05 level (2-tailed).

2) Spearman correlation

Spearman's rho		train_ind	train_cont	board_meetings	awaydays	board_size	age_perc_older71	edu_perc_nouni	edu_perc_law	edu_perc_other	ceo_duality	nonexec_perc
train_ind	Correlation Coefficient Sig. (2-tailed) N											
train_cont	Correlation Coefficient Sig. (2-tailed) N	.615**										
board_meetings	Correlation Coefficient Sig. (2-tailed) N	.240*	.225*									
awaydays	Correlation Coefficient Sig. (2-tailed) N	.125	.181	.029								
board_size	Correlation Coefficient Sig. (2-tailed) N	-.556**	-.313**	-.236*	.095							
age_perc_older71	Correlation Coefficient Sig. (2-tailed) N	.052	-.045	-.199	-.282**	-.039						
edu_perc_nouni	Correlation Coefficient Sig. (2-tailed) N	-.435**	-.118	-.459**	.001	.646**	-.013					
edu_perc_law	Correlation Coefficient Sig. (2-tailed) N	-.106	-.117	.072	-.214*	.195	.269*	-.032				
edu_perc_other	Correlation Coefficient Sig. (2-tailed) N	-.319**	-.072	-.155	-.044	.370**	-.149	.388**	-.042			
ceo_duality	Correlation Coefficient Sig. (2-tailed) N	.059	.115	.264*	-.242*	-.301**	.280**	-.254*	.318**	-.122		
nonexec_perc	Correlation Coefficient Sig. (2-tailed) N	.115	-.005	.081	-.256*	-.146	.331**	-.293**	.325**	-.099	.413**	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

APPENDIX G: Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.568
Bartlett's Test of Sphericity	Approx. Chi-Square	1496.103
	df	406
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.545	15.673	15.673	4.545	15.673	15.673	3.242	11.179	11.179
2	4.277	14.747	30.421	4.277	14.747	30.421	2.845	9.809	20.988
3	2.310	7.964	38.385	2.310	7.964	38.385	2.818	9.719	30.706
4	2.118	7.302	45.687	2.118	7.302	45.687	2.531	8.729	39.436
5	1.950	6.725	52.413	1.950	6.725	52.413	2.459	8.481	47.916
6	1.646	5.677	58.090	1.646	5.677	58.090	2.117	7.300	55.216
7	1.470	5.068	63.158	1.470	5.068	63.158	1.819	6.274	61.490
8	1.312	4.524	67.682	1.312	4.524	67.682	1.796	6.192	67.682
9	1.116	3.848	71.530						
10	1.037	3.574	75.105						
11	.919	3.168	78.273						
12	.823	2.838	81.110						
13	.728	2.509	83.619						
14	.722	2.489	86.108						
15	.617	2.126	88.234						
16	.558	1.923	90.158						
17	.489	1.687	91.844						
18	.413	1.423	93.267						
19	.370	1.275	94.542						
20	.317	1.094	95.637						
21	.295	1.016	96.652						
22	.255	.878	97.531						
23	.212	.730	98.261						
24	.151	.519	98.780						
25	.131	.452	99.232						
26	.110	.378	99.609						
27	.065	.226	99.835						
28	.038	.130	99.965						
29	.010	.035	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component							
	1	2	3	4	5	6	7	8
age_stdev	.895							
age_range	.789							
age_Iqrange	.723							
age_perc_older71	.685							-.440
dir_perc_2mand		.835						
nonexec_perc_1mand		.764						
exec_perc_1mand		.685						
train_ind			.703					
edu_perc_econs			.652					
train_cont			.642					
edu_perc_sien			-.627					
awaydays			.481					
edu_perc_other			-.481					
diff_edu_num			-.443			.401		
dir_perc_2mand_sample				.812				
dir_perc_1mand_sample				.720				
board_size				.652				
edu_perc_nouni				.570				
exec_perc					-.905			
nonexec_perc					.896			
ceo_duality					.459			
internat						.848		
internat_ratio		.434				.665		
board_meetings							.670	
dom_perc							-.648	
edu_perc_hum						.503	.515	
age_perc_under50								.760
edu_perc_law								-.556
female_perc								.537

Extraction Method: Principal Component Analysis.

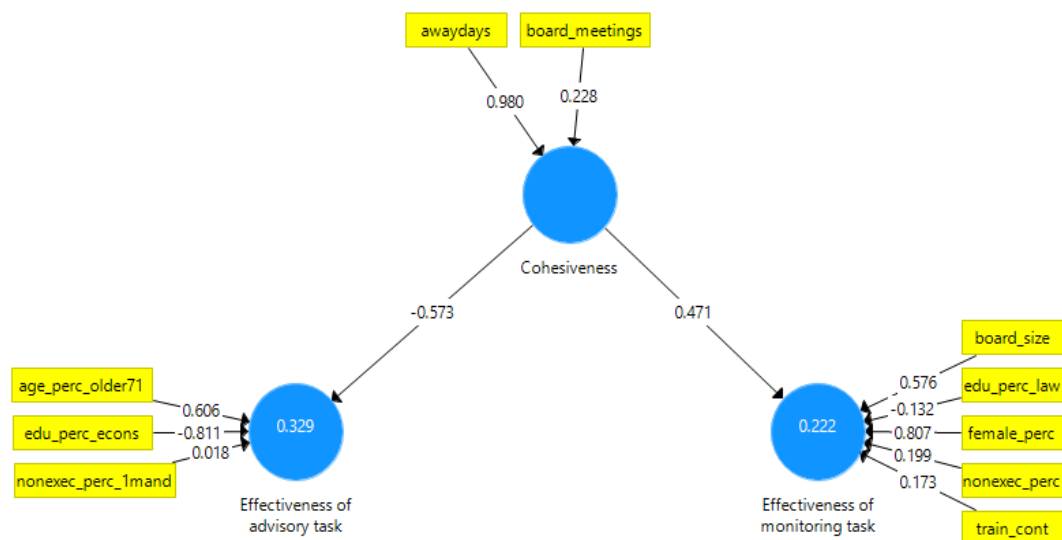
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 24 iterations.

APPENDIX H: PLS-SEM Model per country

1. Conducting the model using separate datasets for each country

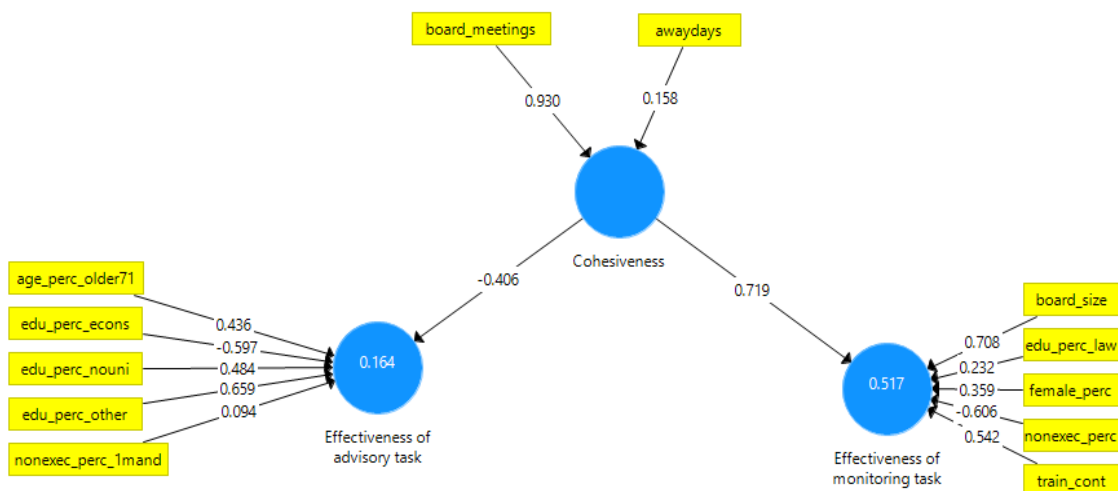
1.1. United Kingdom – FTSE100



FTSE100 path coefficients			
	Original sample	t-statistics	p-value
Cohesiveness – Effectiveness of advisory task	-0,573	4,082	0,000
Cohesiveness – Effectiveness of monitoring task	0,471	3,959	0,000

FTSE100 Outer weights			
	Original sample	t-statistics	p-value
age_perc_older71-Effectiveness of advisory task	0,606	2,474	0,013
away-days_Cohesiveness	0,980	5,823	0,000
board_meetings-Cohesiveness	0,228	0,900	0,368
board_size-Effectiveness of monitoring task	0,576	1,781	0,075
edu_perc_econs-Effectiveness of advisory task	-0,811	4,324	0,000
edu_perc_law-Effectiveness of monitoring task	-0,132	0,549	0,583
female_perc- Effectiveness of monitoring task	0,807	2,440	0,015
nonexec_perc- Effectiveness of monitoring task	0,199	0,861	0,389
nonexec_perc_1mand-Effectiveness of advisory task	0,018	0,088	0,930
train_cont- Effectiveness of monitoring task	0,173	0,647	0,518

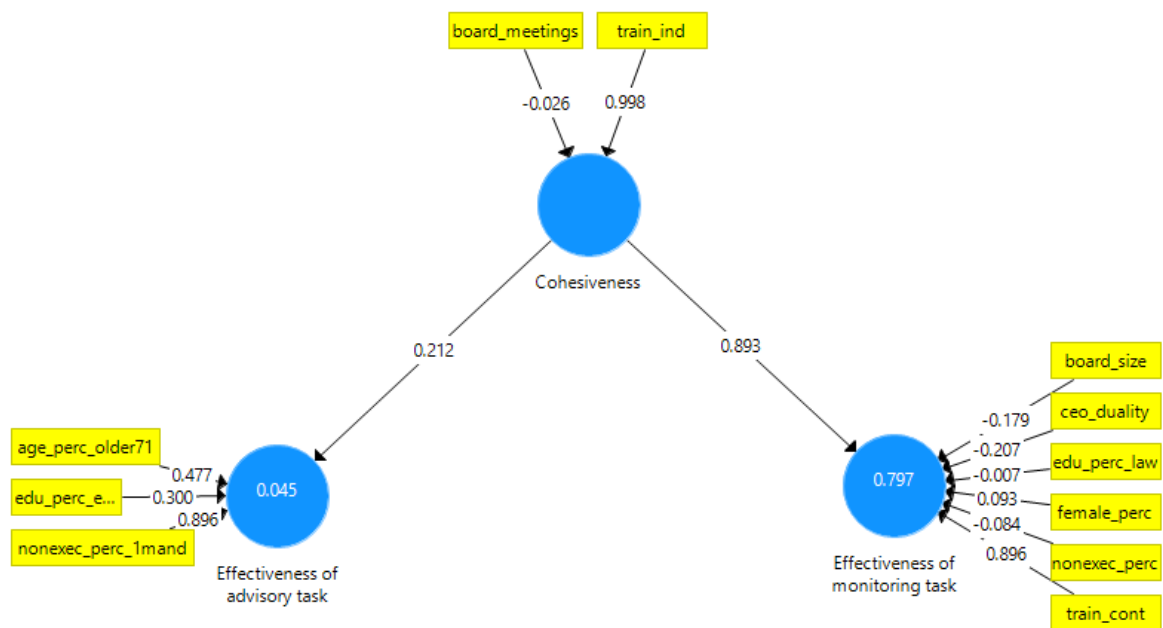
1.2. Germany - DAX30



DAX30 Path coefficients			
	Original sample	t-statistics	p-value
Cohesiveness – Effectiveness of advisory task	-0,406	3,881	0,000
Cohesiveness – Effectiveness of monitoring task	0,719	7,194	0,000

DAX30 Outer weights			
	Original sample	t-statistics	p-value
age_perc_older71-Effectiveness of advisory task	0,439	1,460	0,144
away-days_Cohesiveness	0,149	0,452	0,651
board_meetings-Cohesiveness	0,935	2,992	0,003
board_size-Effectiveness of monitoring task	0,712	2,349	0,019
edu_perc_econs-Effectiveness of advisory task	-0,597	2,068	0,039
edu_perc_law-Effectiveness of monitoring task	0,230	0,998	0,318
edu_perc_nouni-Effectiveness of advisory task	0,476	1,646	0,100
edu_perc_other-Effectiveness of advisory task	0,662	2,600	0,009
female_perc- Effectiveness of monitoring task	0,358	1,634	0,103
nonexec_perc- Effectiveness of monitoring task	-0,609	1,883	0,060
nonexec_perc_1mand-Effectiveness of advisory task	0,093	0,404	0,687
train_cont- Effectiveness of monitoring task	0,538	1,914	0,056

1.3. Spain – IBEX35

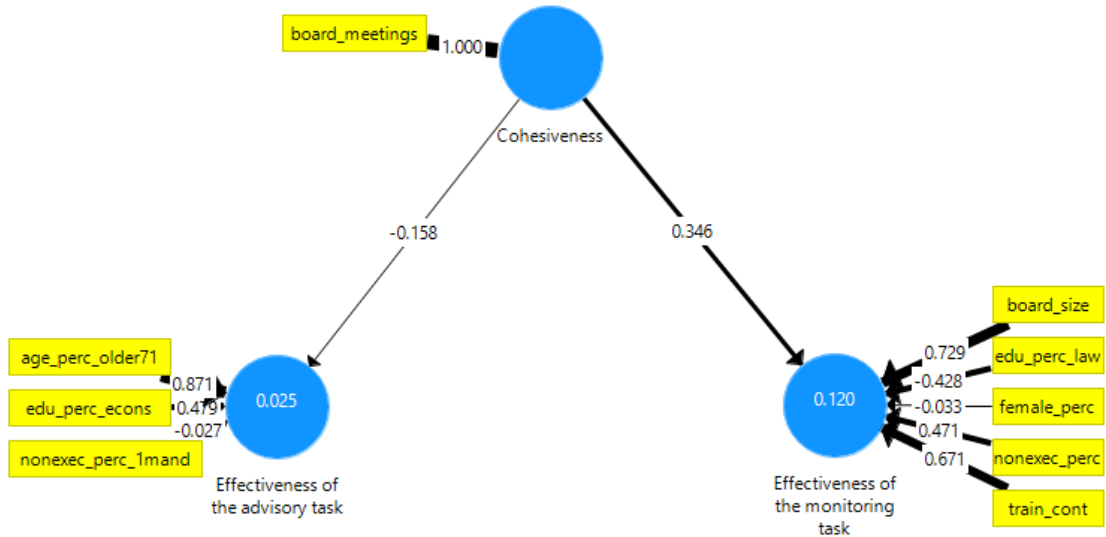


IBEX35 path coefficients			
	Original sample	t-statistics	p-value
Cohesiveness – Effectiveness of advisory task	0,212	1,305	0,192
Cohesiveness – Effectiveness of monitoring task	0,893	12,524	0,000

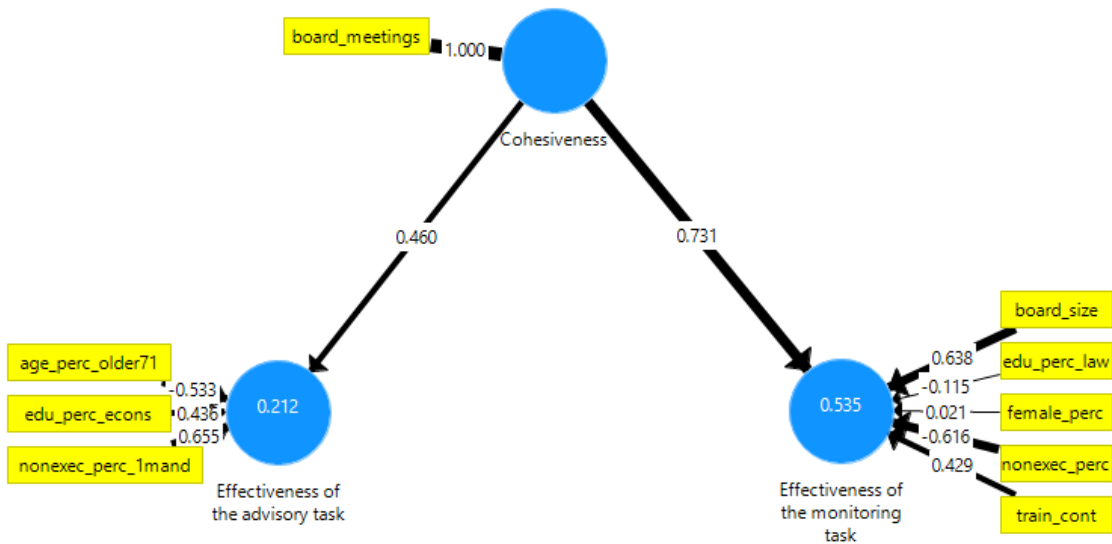
IBEX35 Outer weights			
	Original sample	t-statistics	p-value
age_perc_older71-Effectiveness of advisory task	0,477	1,522	0,128
board_meetings-Cohesiveness	-0,026	0,097	0,923
board_size-Effectiveness of monitoring task	-0,179	1,100	0,271
ceo_duality-Effectiveness of monitoring task	-0,207	1,089	0,276
edu_perc_econs-Effectiveness of advisory task	0,300	1,067	0,286
edu_perc_low-Effectiveness of monitoring task	-0,007	0,049	0,961
female_perc- Effectiveness of monitoring task	0,093	0,407	0,684
nonexec_perc- Effectiveness of monitoring task	-0,084	0,315	0,753
nonexec_perc_1mand-Effectiveness of advisory task	0,896	2,919	0,004
train_cont- Effectiveness of monitoring task	0,896	3,973	0,000
train_ind-Cohesiveness	0,998	4,676	0,000

3. SEM-PLS multi-group analysis (MGA)

3.1. Path coefficients for the United Kingdom



3.2. Path coefficients for Germany



3.3. Path coefficients for Spain

