Board processes revisited: an exploration of the relationship between board processes, board role performance and board effectiveness in comparable European listed companies

Peter AM Jansen

Abstract

Purpose – *This study aims to analyse the relationships between board processes, board role performance and board effectiveness for a cross-country (UK and Romania) sample of comparable European listed companies.*

Design/methodology/approach – *The research design is quantitative in nature and based on the survey method, a self-administered questionnaire which was send to 342 chairmen of selected Romanian and British listed companies and which contains validated statements measured through a seven-point Likert-type scale and grouped in validated constructs.*

Findings – *This study found further empirical evidence that board processes are stronger determinants of board effectiveness than board characteristics and that board roles mediate the relationship between board processes and board effectiveness. It further confirmed the relevance of the three board processes mentioned by Forbes and Milliken (1999) in their seminal work on board decision-making.*

Research limitations/implications – *The main limitation of this study is the relatively small number of responses (55), which indicates a reduced reliability and generalizability of the results. However, several steps were taken to assure the homogeneity of the sample, starting with a unique data set of firms of comparable size and industry representation.*

Practical implications – *This study is useful to board directors and chairmen of listed companies, as it can help them to better understand and manage board behaviour.*

Originality/value – *This study contributes to the limited body of research that investigates specific board process constructs derived from the small team literature and their effect on board effectiveness.*

Keywords *Corporate governance, Board role performance, Board effectiveness, Board processes, Board characteristics, European listed companies, UK and Romania*

Paper type *Research paper*

Peter AM Jansen is based at London School of Business and Finance, London, UK.

1. Introduction

This quantitative study aims to analyse the relationships between board characteristics, board processes, board role performance and board effectiveness for a cross-country (UK and Romania) sample of comparable (in size and industry type) European listed companies. Specifically, it tries to establish whether there is a relationship between board role performance and board effectiveness, whether board role performance mediates the relationship between board processes and board effectiveness and whether board

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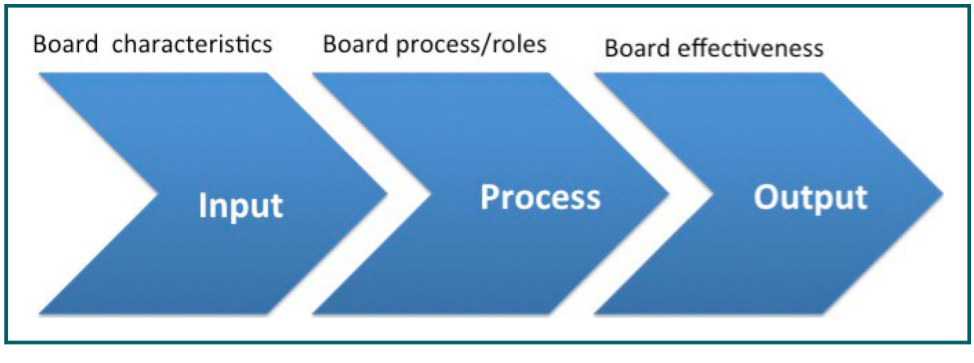
processes are stronger determinants of board role performance and ultimately board effectiveness than board characteristics.

It is inherently difficult to examine the effectiveness of corporate boards owing to issues of access and confidentiality (Adams *et al.*, 2010). Therefore, most academic research on corporate boards has taken a financial-economic perspective, using mainly quantitative research methods such as board characteristics and firm performance as proxies for board effectiveness (Kuoppamäki, 2018). This traditional focus on the impact of board characteristics on firm performance has come under close examination for several reasons. Firstly, it disregards processes that connect inputs and outputs and particularly how board processes affect board role performance (Minichilli *et al.*, 2009). Secondly, from a methodological point of view, there has been a dependence on historical data, which do not shed light on what actually happens inside boards (Finkelstein and Mooney, 2003). Finally, the empirical support for the impact of board characteristics on firm performance has been incongruent at best (Lawal, 2012). Only in the past two decades research was conducted which tries to shed some light on this "black-box" of actual board behaviour by exploring the relationships and behaviour between board members mutually and between the board and management, following Forbes and Milliken's (1999) seminal work on boards of directors as strategic decision-making groups (Basco and Voordeckers, 2015; Heemskerk, 2019; Pugliese *et al.*, 2015). In line with these authors, this research adopts a more holistic input-process-output (I-P-O) model of board effectiveness, assuming that board processes are the main micro-determinants of board effectiveness (Figure 1).

Nevertheless, there is sufficient reason to include key board characteristics such as board size (Kumar and Singh, 2013), board composition (Fernández-Temprano and Tejerina-Gaite, 2019), non-executive ratio (Gill, 2013) and CEO-Chair duality (Abels and Martelli, 2013), as they make relevant control variables, as shown by Minichilli *et al.* (2012) and can help explain some of the board process outcomes, the main focus of this study. Additionally, board characteristics also constitute excellent control variables. Control variables are variables the researcher is not primarily interested in, but which might have an effect on the dependent variable (DV) (i.e. board effectiveness) that the researcher wants to eliminate (Saunders *et al.*, 2016).

Using Huse's and Gabrielssons's (2004) taxonomy of board research, this study can be categorized as behavioural, where the behavioural perspective focuses on decision-making processes and interactions inside the boardroom. Furthermore, the focus of this study is limited to listed companies. Firstly, there are more publicly available data available about listed companies owing to disclosure requirements. Secondly, in most countries voluntary codes of corporate governance have become subject to capital market mechanisms and

Figure 1 Input-process-output (I-P-O) model of board effectiveness

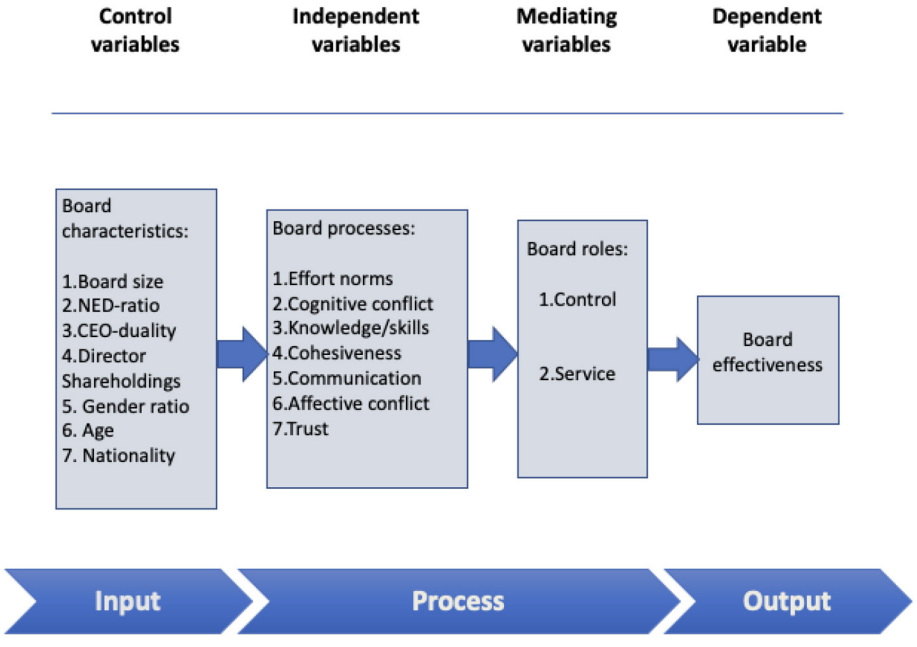


are even preconditions for stock market listing, making them quasi-mandatory (OECD, 2019), which further increases their comparability. Lastly, listed companies' behaviour often influences privately owned companies and ultimately sets a country's corporate governance standards (Aguilera and Cuervo-Cazurra, 2009).

The choice for UK and Romanian listed companies was based on several considerations. First, both countries have predominantly one-tier boards. Unlike in the UK, a one-tier board is not mandatory in Romania but almost 90% of listed companies have decided for a one-tier board structure (Bucharest Stock Exchange, 2019). Secondly, in both countries voluntary codes of corporate governance are preconditions for stock market listing (Bucharest Stock Exchange, 2019; London Stock Exchange, 2019). Finally, cross-national studies generally select countries with opposite characteristics with regard to the subject under research, owing to issues regarding cross-national data collection procedures, matching samples and model uniformity (Tsui *et al.*, 2007). Although the UK and Romania are European countries, they have gone through very different stages in their recent history, and, as a consequence, have very different social, political, legal and economic backgrounds (Solomon, 2013; Stanciu and Caratas, 2015).

There is a general lack of shared frameworks and theoretical concepts in corporate governance and board effectiveness research, which hampers empirical breakthrough and international comparison (Solomon, 2013). In keeping with increasing demands for a multi-theoretic view (Kuoppamaki, 2018), this research tries to bridge this gap by developing a multi-disciplinary and multi-theoretical perspective of boards effectiveness for listed European companies Figure 2. Furthermore, this study tries to fill a gap in the existing literature by using comparable (in size and industry type) listed companies in two different European countries, where most other cross-border studies

Figure 2 Theoretical construct for analysing board effectiveness



Source: Derived from Farquhar (2011) and Minichilli *et al.* (2012)

about board effectiveness do not use comparable data sets (Minichilli *et al.*, 2012), making their findings less comparable and generalizable. Equally rare are cross-border studies that consider board role performance as a mediator between board processes and board effectiveness (Farquhar, 2011) and which use a validated four-item construct based on previous literature to measure board effectiveness (Aguilera, 2005; Farquhar, 2011; Huse, 2005).

2. Theoretical background

2.1 Board role performance and board effectiveness

There exists a wide range of definitions of corporate governance, ranging from a narrow focus on shareholder interests to a broader view that incorporates the interests of several stakeholder groups (Ntim, 2018). In keeping with increasing demands for a multi-theoretic perspective (Gaur *et al.*, 2015), this research adopts a comprehensive view of corporate governance, in which systems are used to assure that managers respect the rights and interests of its stakeholders, and that those stakeholders are liable for acting responsibly with regard to the assurance, creation and dispersion of resources invested in the firm (Aguilera *et al.*, 2008). According to the OECD (2019), the corporate board plays a central role in corporate governance. However, the role of the board (what tasks it should perform) has been subject to considerable debate and ambiguous results, mainly because of ambiguity in terminology (Aberg *et al.*, 2019; Nicholson and Kiel, 2004). This study follows more recent research into the role of boards which indicates there are basically two principal board roles, the control role and the service role (Aberg *et al.*, 2019; Farquhar, 2011; Minichilli *et al.*, 2012). How effective boards are in carrying out their board roles is another key question in corporate governance research (Solomon, 2013). Although there is extensive research in corporate governance that examines board effectiveness, no single board effectiveness measure has arisen (Basco and Voordeckers, 2015). However, following an increasing number of researchers (Basco and Voordeckers, 2015; Farquhar, 2011; Minichilli *et al.*, 2012), this study defines board effectiveness as the board's ability to successfully carry out its board roles. More recent studies on board effectiveness use this concept of "board task performance" as a proxy for board effectiveness (Cheng *et al.*, 2017; Minichilli *et al.*, 2012). In this concept, board effectiveness is measured based on how satisfied the board is (self-evaluation) with the way they undertake their board roles, assuming there is a direct relationship between board role performance and board effectiveness. There is increasing empirical evidence that board role performance is a stronger predictor of board effectiveness than board characteristics (Basco and Voordeckers, 2015; Kuoppamäki, 2018; Minichilli *et al.*, 2012; Zattoni *et al.*, 2015).

Although this study acknowledges that board effectiveness is determined by the board's ability to successfully carry out their control and service roles, it does not use board role performance as a proxy for board effectiveness. Instead, it follows Farquhar (2011), who found that board role performance mediates the relationship between board processes (independent variables [IV]) and board effectiveness (DV). A mediator variable (MV) (also called intervening or process variable) intervenes in the relationship between the DV (board effectiveness) and the IVs, in this case board processes (Namazi and Namazi, 2016). In this model, the IVs (board processes) first influence the MVs (board roles), and then the MVs influence the DV board effectiveness (Baron and Kenny, 1986; Kenny, 2014; Namazi and Namazi, 2016). Furthermore, board effectiveness was measured by asking chairs to evaluate the effectiveness of their boards through a validated four-item construct based on previous literature (Aguilera, 2005; Farquhar, 2011; Huse, 2005). Additionally, board role performance evaluation (via the chair) was used to better understand the relationship between board processes and board effectiveness. Based on the above assumptions, the following theoretical framework for evaluating and measuring board effectiveness was developed.

This results in the following hypotheses:

H1. Board control and service role performance is positively related to board effectiveness.

H2. Board role performance is a stronger determinant of board effectiveness than board characteristics.

H3. Board control and service role performance mediates the relationship between board processes and board effectiveness.

2.2 Board processes and board effectiveness

As stated in the Introduction, this study takes an I-P-O approach to board effectiveness and looks at process variables that go further than the traditional characteristics-output models. It largely follows Forbes and Milliken's (1999) seminal work on boards as strategic decision-making groups, in which they observed that boards are basically teams who meet occasionally and have a cognitive output. Their work has been instrumental in putting actual board processes to the forefront of corporate governance research. It was mostly extracted from the I-P-O approach used in organizational small team studies (Cohen and Bailey, 1997; Hackman and Morris, 1975; Marks *et al.*, 2001). Marks *et al.* (2001) define team processes as "Members interdependent acts that convert inputs to outcomes through cognitive, verbal, and behavioural activities directed toward organizing task work to achieve collective goals" (p. 357). This definition is useful as it links inputs (board structural characteristics) to outputs (collective decisions) via team member activities (board processes) directed at board tasks (mediators). According to Hambrick *et al.* (2008), "behavioural processes" symbolize the main determinants of governance at micro-level. Especially the leadership skills of the chair, the relationship between the chair and CEO, the effectiveness of separate directors and good working relationships between the board and management have been identified as influencing overall board effectiveness (Leblanc and Schwartz, 2007). There is also increasing empirical evidence that board role performance and board processes are stronger predictors of board effectiveness than board characteristics (Basco and Voordeckers, 2015; Kuoppamäki, 2018; Minichilli *et al.*, 2012; Zattoni *et al.* (2015). Therefore, it was hypothesized that board processes are stronger predictors of board effectiveness than board characteristics.

H4. Board processes are stronger determinants of board effectiveness than board characteristics.

Forbes and Milliken (1999) highlighted the importance of researching intervening processes that affect team and eventually company performance. The authors identified three main board process variables or constructs, namely effort norms, cognitive conflicts and the use of knowledge and skills. These three process constructs are also used by Farquhar (2011) and Minichilli *et al.* (2012) in their empirical studies on board processes and board effectiveness and have been further analysed by Heemskerk (2019).

2.2.1 Effort norms. According to Forbes and Milliken (1999) "Effort norms are a group-level construct that refers to the group's shared beliefs regarding the level of effort each individual is expected to put towards a task" (p. 493). They stated that group effort norms increase individual group members' efforts, and therefore improve the performance of the whole group. Board members, by doing their "homework," better understand company specifics and strategic issues. An increasing body of board effectiveness literature shows that boards promoting high-effort behaviours are more likely to improve board effectiveness (Heemskerk, 2019; Minichilli *et al.*, 2012; and Zattoni *et al.*, 2015). Farquhar (2011) also found evidence that the relationship between board effort norms and board effectiveness is mediated by the board's control role and service role. The effort norms construct was

established as a three-item standard based on Forbes and Milliken's (1999) work and later validated by Farquhar (2011) and Minichilli *et al.* (2012). This leads to the following hypotheses:

H5. Board effort norms are positively related to board effectiveness, mediated by the board's control role and service role.

2.2.2 Cognitive conflict. According to Jehn (1995), cognitive conflicts are task-oriented differences in reasoning between group members, often exhibited in "disagreements about the content of the tasks being performed, including differences in viewpoints, ideas and opinions" (p. 258). An important string of (empirical) studies suggest that cognitive conflict allows groups to make better decisions when conflicting views are presented resulting in better outcomes and reduced group think (Farquhar, 2011; Zattoni *et al.* (2015). However, Heemskerk (2019) found no significant effect of cognitive conflict on board task performance and board effectiveness and partly attributes this to the multidimensionality of conflicts. Zona and Zattoni (2007) suggested that cognitive conflict might trigger the rise of negative emotions within the board, offsetting its positive effects. Minichilli *et al.* (2012) on the other hand found that cognitive conflict negatively affects both the control and service role of the board, suggesting a common unwillingness of boards to engage in frank and open discussion. Heemskerk *et al.* (2015), in their participant observation study of 11 supervisory boards, found that although high cognitive (task) conflict can be positive for board effectiveness, it can also bring about affective (relationship) conflict, which can decrease board effectiveness. This interaction may explain part of the empirical and theoretical confusion. Therefore, it is not probable that the relationship between cognitive conflict and board effectiveness is a linear one. It is more likely to be curvilinear, a type of relationship between two variables in which when one variable increases the other variable increases too, but only up to a certain point, after which, as one variable continues to increase, the other decreases (Baron and Kenny, 1986). This leads to the following hypotheses:

H6. Board cognitive conflict has a curvilinear relationship with board effectiveness, mediated by the board's control role and service role.

2.2.3 Use of knowledge and skills. The use of knowledge and skills refers to the board's capacity to use its knowledge and skills and apply them to board tasks (Forbes and Milliken, 1999). More recent studies (Bankewitz, 2016; Farquhar, 2011; Heemskerk, 2019; Zattoni *et al.*, 2015;) acknowledge that board effectiveness is improved when boards make better use of their knowledge and skills. These findings lead to the following hypothesis:

H7. The use of knowledge and skills by boards is positively related to board effectiveness, mediated by the board's control role and service role.

2.2.4 Cohesiveness. Board cohesiveness is defined as "the degree to which board members are attracted to one another and are motivated to stay on the board" (Forbes and Milliken, 1999, p. 496). Notably Beal *et al.* (2003), in their meta-analysis study of cohesiveness and group performance, found strong evidence that all three elements of cohesiveness (group pride, interpersonal attraction and task commitment) have a relationship with group performance, especially if the latter is defined as behaviour instead of an outcome. Although methodological issues with empirical research on the correlation between cohesiveness and performance have led to incongruent results, most authors now accept the possibility of a cohesiveness–performance relationship (Farquhar, 2011; Bankewitz, 2016). This leads to the following hypothesis:

H8. Board cohesiveness is positively related to board effectiveness, mediated by the board's control role and service role.

Forbes and Milliken's (1999) model was further expanded by Farquhar (2011), who identified and validated four additional board governance processes drawing on an extensive review of small group literature, namely cohesiveness, communication quality, affective conflict and trust.

2.2.5 Communication quality. Communication in organizations can diminish uncertainty, coordinate activities and analyse information. Good quality information is necessary to advance open debate, strengthen relationships and improve group decision-making (Massey and Dawes, 2007). For small groups like boards, the quality of communication is critical, and can be defined as the credibility, ease of understanding, relevance and usefulness of the information provided for the board (Massey and Dawes, 2007). Farquhar (2011) found empirical evidence that communication quality is an indicator of positive outcomes. This was further supported by Ye and Jermias (2016), who found that the way boards gather information and the quality of that information significantly affect board role performance. These findings result in the following hypothesis:

H9. Board communication quality is positively related to board effectiveness, mediated by the board's control role and service role.

2.2.6 Affective conflict. Where cognitive conflict is considered to have a positive effect on board effectiveness, the opposite is true for affective conflict (Heemskerk *et al.*, 2015). Affective conflict mainly arises owing to relationship or behavioural conflict, and negatively affects the information processing capabilities and decision-making skills of a team (Finkelstein and Mooney, 2003). There is ample empirical evidence that affective conflict has a negative effect on performance results (De Dreu and Weingart, 2003; Finkelstein and Mooney, 2003; Heemskerk *et al.*, 2015; Wang and Ong, 2005). These findings lead to the following hypothesis.

H10. Board affective conflict is negatively related to board effectiveness, mediated by the board's control role and service role.

2.2.7 Trust. Gillespie and Mann (2004) found that building trust is crucial for increasing team effectiveness. They identified three kinds of trust – cognitive, affective and behavioural trust. They also found that trust in leaders was built through team dialogue, open communication and a shared vision (Gillespie and Mann, 2004). Other studies have found that especially the impact of trust on on-going (long-term) teams – such as boards – has a positive effect on task performance, team member satisfaction and team performance (De Jong and Elfring, 2010). So far, very few studies have been conducted which researched trust on boards. In a study on board effectiveness in The Netherlands, Van Ees *et al.* (2008) found that trust negatively mediates the relationship between the use of knowledge and the control role but showed no other compelling findings. On the other hand, Farquhar (2011) found empirical evidence that trust is positively related to board effectiveness via both the control and service roles of the board. These findings lead to the following hypothesis:

H11. Board trust is related to board effectiveness, mediated by the board's control role and service role.

3. Methods

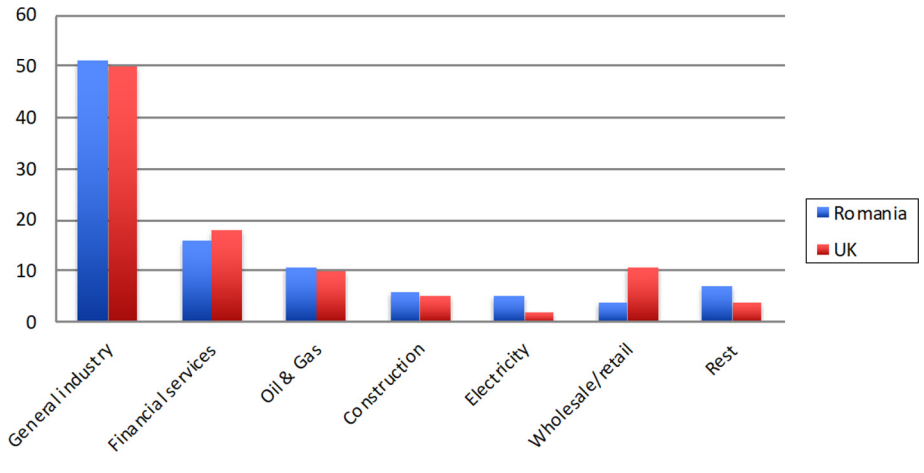
The purpose of this study is to analyse the relationships between micro-level determinants (board characteristics, board processes and board roles) of board effectiveness (Heemskerk, 2019; Judge and Talaulicar, 2017; Kirkman *et al.*, 2009; Minichilli *et al.*, 2012), based on a comparable European cross-country sample (UK and Romanian listed companies). The research design of the study is based on the survey method, a self-administered questionnaire which was send to 342 chairmen of selected Romanian and British listed companies, of which 55 responded (16%

response rate). It contains validated statements measured through a seven-point Likert-type scale and grouped in validated constructs or variables (Farquhar, 2011) which are averaged, allowing for quantitative analysis (descriptive and correlation and multiple regression analysis). It was further enhanced by multi-source data, specifically compiled databases of board characteristics (BoardEx, 2018; Directors Holdings, 2018).

3.1 Population sample and sampling strategy

This research was directed at listed companies in Romania and the UK. Romanian companies are listed on the Bucharest Stock Exchange (BSE). The BSE has a total market capitalisation of €37bn. In 2018, 88 companies were listed on BVB's main regulated market, but only 73 listed Romanian companies (population) had functioning boards which were not engaged in insolvency or bankruptcy procedures concerning special administrators (Bucharest Stock Exchange, 2019). By comparison, the London Stock Exchange (LSE) had a market capitalization of €4.6 trillion in 2018, making it the largest in Europe, ahead of Euronext, and the sixth-largest stock exchange in the world. The Main Market, where conditions of both the UK Listing Authority as well as LSE's own criteria have to be met and where the largest companies are listed, contains more than 1.150 large companies from 60 different countries, representing 98% of the total market value of the LSE (London Stock Exchange, 2019). As recommended by Tsui *et al.* (2007) in case of matching samples in cross-country research, a unique data set was build considering firms of comparable size and industry representation in both countries. As the BSE is much smaller than the LSE, the composition of the BSE in terms of industry representation and company size (turnover) was used as a template for selecting companies on the LSE, assuring a balance in these areas between the Romanian and UK sample. Turnover for LSE Main Market companies was capped at €3.6bn, representing the highest turnover of a company listed on the BSE. The final UK sample consisted of 269 listed companies (UK population). Industry representation for both countries looks as follows (Figure 3).

Figure 3 Industry representation samples for Romania and the UK (%)



Source: London Stock Exchange (2019) and Bucharest Stock Exchange (2019)

The above chart shows that wholesale/retail companies are slightly overrepresented in the Romanian sample compared to the UK, owing to the different composition of both stock exchanges and the limited number (88) of listed companies on the BVB, which did not allow for a reduction of the number of general industry/manufacturing companies. The other industry categories, however, are fairly evenly represented. The resulting data set included a total of 342 firms: 73 Romanian firms and 269 UK firms. In the case of the BSE the whole population (73 listed and functioning companies) was taken as a sample (volunteer sample), whereas in the case of the LSE purposive sampling was used. Although non-probability sampling offers fewer representative samples, it is generally accepted in organizational research studies where sample surveys are seldom based on random samples, owing to both practical (access to firms) and strategic (comparative analysis) reasons (Sharpe *et al.*, 2018).

The 342 surveys were sent out by mail, 269 in the UK and 73 in Romania and resulted in 28 responses for the UK (10%) and 27 for Romania (37%). The cross-country response was 55, representing a 16% response rate. This result is in line with previous research on boards of directors (Cycyota and Harrison, 2006). A comparison between the response sample (55) and the population (342) showed no significant industry differences between respondents and non-respondents, indicating there is no non-respondent bias owing to the sampling procedure. Although the response rates are satisfactory, the overall number of cross-national responses represents a problem in terms of reliability and generalizability. This is mainly because of the small number of listed companies on the BSE, whose structure (size and industry type) was used to select the UK sample. Although the sample is homogeneous (chairs of comparable listed companies), response rates are relatively high (meaning that each data set is fairly represented) compared to other board research and a series of ex ante and ex post procedures were used to minimize bias (see below), these relatively low numbers limit the overall generalizability of the research findings.

The survey data were based on responses from chairs on behalf of the whole board. Board effectiveness studies are mainly based on a sole respondent, usually the CEO, who is generally considered being best positioned in terms of knowledge of the company and the board (Daily *et al.*, 2003). However, as the focus of this study is on board processes, it is the chairman who is ultimately responsible for directing these processes and as such the most relevant person to question. Some authors also consider chairs to be more independent and less biased than CEO's (Farquhar, 2011).

Table 1 Descriptive statistics for all model variables

Variables	*Variable type*	*Minimum*	*Maximum*	*Mean*	*SD*
Board effectiveness	Dependent	3	7	6.16	0.78
Control role	Mediating	1	7	5.94	1.27
Service role	Mediating	1	7	5.41	1.24
Effort norms	Independ.	3	7	6.07	0.97
Cognitive conflict	Independ.	2	7	6.16	0.86
Use of knowledge and skills	Independ.	2	7	6.05	0.91
Cohesiveness	Independ.	1	7	5.54	1.16
Communication quality	Independ.	2	7	5.99	1.06
Affective conflict	Independ.	1	7	2.22	1.28
Trust	Independ.	1	7	5.74	1.14
Board size	Control	3	12	6.18	1.94
Non-executive ratio	Control	0%	100%	74%	1.88
CEO-Chairperson duality	Control	0	1	16%	0.37
Director shareholdings	Control	0%	94%	23.5%	29.71
Gender ratio	Control	0%	43%	17.6%	1.06
Average board age	Control	41	67	55	7.00
Foreigner ratio	Control	0%	67%	17%	1.50

3.2 Instrument validation

Common method bias happens when the variance as a result of the measurement method is one of the main causes of measurement error (Podsakoff *et al.*, 2003). As the board process and board effectiveness variables in the model are self-reported (by the chairs), checks for common method bias were required. To prevent common method bias and increase the validity and reliability of the data, several ex-ante procedural steps were taken. First, the respondents' anonymity was protected by promising confidentiality of their responses in the cover letter that accompanied the survey. Secondly, scale items were improved and ambiguity as much as possible diminished by assuring that survey questions were specific, to-the-point and used common words to avoid cryptic and nebulous expressions (Millar and Dillman, 2011). Where necessary, items were adapted to the specific context of boards as decision-making groups (Forbes and Milliken, 1999). Thirdly, to improve the construct validity of the survey items, a pilot study was conducted (Saunders *et al.*, 2016) by asking two chairmen in both Romania and the UK to review the questionnaire and eliminate ambiguous items. Each respondent was asked to find unclear and misleading questions. Additionally, questions were cautiously stated to diminish the possibility of a social desirability bias. To assure the validity of the Romanian survey, the English survey questions (validated by previous research) were first translated into Romanian by an authorised translator and then reviewed by two Romanian chairmen. Fourthly, the survey instrument was designed around established scales derived from the small team literature. To increase content validity, only previously tested constructs were used. After these ex-ante procedural steps, the Cronbach's alpha test was performed to examine the reliability of the constructs (variables) used. It is a measure of internal consistency or scale reliability, and it shows how closely related a set of items are as a group. In accordance with other researchers, 0.60 was used as the lowest acceptable threshold (Sharpe *et al.*, 2018). The reliability tests showed that the constructs (variables) for the individual board processes, the service role and control role of the board and board effectiveness were all reliable measures and that further statistical analysis could be applied to test for the relationships between these variables as hypothesized previously.

4. Results

4.1 Descriptive statistics for board effectiveness, board roles, board processes and board characteristics

Table 1 shows the descriptive statistics for the different variables in the model. First, the board characteristics (control variables) are discussed in more detail, as these are quantitative in nature and not based on perceptions of the chair on behalf of the board.

The average board size for both countries is 6.2, which is considerably lower than the European average, which is between 8 and 12 board members. This might be explained by the relatively small size (turnover $<$ €3.6bn) of the selected companies on the BSE and the LSE, who, as a result, need smaller boards to direct and control their companies.

The average number of non-executive board members in the combined data set is 4.4 or 74% of the total board size. Again, this is below the European average of 86% (ECGS, 2014) and coincides with the overall lower board size.

In the combined data set, 16.4% of the companies have the same person fulfilling both the CEO and chairman roles. This is slightly higher than the European average of 13% CEO/ Chairman duality (ECGS, 2014).

Average director shareholdings for both countries combined is 24.7%. This seems rather high for listed companies, the reason might be the smaller size (turnover $<$ €3.6bn) of the companies in the data set, being more entrepreneurial and with owners more firmly in control of management.

The average number of women in the boards in the combined data set is 1.09 or 17.6% of the total number of board members. This is lower than the European average of 22% of board members being female (ECGS, 2014). Again, the reason for the low percentages in the query

might be the more entrepreneurial profile (relatively small companies, higher CEO/Chairman ratio, higher shareholding) of the combined data sets. When looking at board chair positions held by women, the picture is even bleaker, with only 7% female chairs. However, this is still higher than the European average of 4% (European Women on Boards, 2016).

Regarding average age of board members, the combined data sets have an average board age of 55, more in line with the European average of 60 (Korn Ferry Institute, 2018). So far, little research has been done regarding the effect of board age on firm performance. Nakano and Nguyen (2011) found that older boards in Japan are more conservative and reluctant to take risks and particularly to engage in acquisitions. They indicate that this might be caused by shorter decision horizons or larger vested interests of older boards.

The average number of foreigners in the board for the combined national data sets is 1.02 or 17% of the total board size. This is low compared to the European average, where 39% of directors are non-nationals (Korn Ferry Institute, 2018). The relatively small size of the companies and their boards in both data sets (turnover < €3.6bn) offers a possible explanation for the lower number of foreign directors.

Next, the dependent, mediating and IVs are discussed, which are derived from the survey and based on perceptions of the chair on behalf of the board. A number of aspects stand out. First, chairs rate their boards rather high in terms of board effectiveness. This might not be very surprising, considering this is a self-evaluation. Secondly, the control role performance has a higher mean (5.91) than the service role performance (5.44) with a similar standard deviation. This suggests chairs (on behalf of the board) rate themselves higher when it comes to the control role functions of the board, although the service role is not far behind. Second, all board processes have a mean between high 5 and low 6, except for affective conflict (2.22), indicating that chairs do not consider affective conflicts playing a major role in their boards.

Finally, to increase the reliability and generalizability of the data, a multi-source secondary data research of board characteristic covering the whole data set (342 companies) was performed, using online databases. The results for the whole data set ($n = 342$) are compared to the results above ($n = 55$) to establish whether the latter are representative for the whole sample. In the case of the UK, the board characteristics data have been collected using mainly two databases, namely, BoardEx (2018) and Directors Holdings (2018). The first database provides data for five out of seven board characteristics (board size, non-executive directors, gender ratio, average age and nationality), while Directors Holdings provides information about director shareholdings and CEO/chairman duality. In cases where no specific company information was available, company websites were used. Unfortunately, Romanian listed companies are not covered in these databases. Therefore, company websites, the BSE website and databases such as Bloomberg, Reuters and Morningstar were used. In some cases, especially with regard to the average age of board members, companies were called by phone to obtain the necessary information.

Based on these queries, the following table has been computed (Table 2).

Table 2 Board characteristics for the cross-national data set

Characteristics	*Mean (n = 342)*	*%/total (n = 342)*	*Mean (n = 55)*	*%/total (n = 55)*
Board size	6.2	–	6.18	–
Non-executive ratio	4.17	67%	4.42	74%
CEO/Chairman ratio	0.2	20%	0.16	16.4%
Director (%) shareholdings	10.5	10.5%	24.7%	–
No of women	0.92	14.8%	1.09	17.6%
Average age	58.8	–	55	–
No. of foreigners	1.1	17.7%	1.02	17%

Sources: Derived from BoardEx (2018) and Directors Holdings (2018)

As shown in the above table, the board characteristics of the response sample fairly represent the overall survey sample. The most significant difference is constituted by the director's shareholdings (+14%), the other characteristics are in line with the overall population. These results further strengthen the reliability of the survey results.

4.2 Correlation and regression analyses among the model variables

In the following section, the relationships between the control and service roles, board characteristics, board processes and board effectiveness were established for the cross-country sample (Romania and UK), using correlation and regression analysis. But first it was tested whether the board effectiveness variable used in this study is a reliable measure. The board effectiveness variable was established as a four-item measure derived from previous literature (Aguilera, 2005; Huse, 2005; Farquhar, 2011). The items are presented in the items board effectiveness construct as follows:

- Our board adds value to the company.
- Our board improves company performance in the interest of shareholders and other stakeholders.
- Board members are satisfied with the board performance.
- Our board is satisfied with board members' role performance.

Source: Aguilera (2005); Huse (2005); Farquhar (2011).

Table 3 shows that the Cronbach's alpha for the four items is 0.835 ($p < 0.05$), indicating a high degree of reliability for the board effectiveness variable. This result is in line with Farquhar (2011), who found a Cronbach's alpha of 0.84 for the same board effectiveness construct.

The correlation analysis in Table 4 shows generally moderate to strong correlations (0.40–0.79; Sharpe *et al.*, 2018) among the board processes (IVs) and between board processes and board effectiveness and the control and service role, except for affective conflict. The board characteristics (control variables), as expected, show much weaker correlations (<0.40).

However, the strong correlation among some of the board processes might indicate potential multicollinearity between the variables (two or more independent predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a substantial degree of accuracy (Saunders *et al.*, 2016). Multicollinearity increases the standard errors of the coefficients which in turn may make some variables statistically insignificant when they should be significant. One way to measure multicollinearity is the variance inflation factor (VIF), which assesses how much the variance of an estimated regression coefficient increases if your predictors are correlated (Hair *et al.*, 2014) (Table 5).

According to Hair *et al.* (2014), If VIF values exceed 4.0, or by tolerance less than 0.2 then there is a problem with multicollinearity. The output above shows that all values are below 4.0 and above 0.2, suggesting there is no multicollinearity problem. In the next section, *H1* is tested, using multiple regression analysis.

Table 3 Reliability analysis for board effectiveness

Cronbach's alpha	*No. of items*
0.835	4

Table 4 Correlation analysis between the variables

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1. Board effectiveness																	
2. Control role	0.525																
3. Service role	0.672	0.395															
4. Effort norms	0.453	0.387	0.249														
5. Cognitve conflict	0.771	0.556	0.595	0.707													
6. Knowledge & skills	0.771	0.430	0.651	0.493	0.782												
7. Cohesiveness	0.532	0.212	0.451	0.302	0.559	0.605											
8. Communication	0.622	0.447	0.392	0.541	0.626	0.615	0.399										
9. Affective conflict	−0.586	−0.275	−0.386	−0.519	−0.766	−0.587	−0.469	−0.383									
10. Trust	0.657	0.300	0.489	0.399	0.648	0.647	0.498	0.566	−0.530								
11. Board size	−0.005	0.086	0.005	0.095	0.063	0.131	−0.005	0.084	−0.064	0.060							
12. Non executives	0.169	0.097	0.144	0.017	0.072	0.144	−0.006	0.072	−0.012	0.005	0.757						
13. CEO/Chair	0.129	0.009	0.027	0.152	0.143	0.155	0.179	0.227	−0.151	0.198	−0.350	−0.257					
14. Dir. shareholdings	0.010	−0.102	0.152	−0.140	−0.035	0.049	−0.065	−0.138	0.000	0.036	−0.343	−0.146	0.111				
15. Women	0.238	0.180	0.177	0.060	0.167	0.251	−0.025	0.183	−0.131	0.021	0.471	0.417	−0.179	−0.128			
16. Board age	−0.185	−0.021	−0.190	0.129	−0.047	−0.038	−0.205	0.036	0.141	−0.222	0.367	0.107	−0.156	−0.375	−0.103		
17. Foreigners	0.197	0.211	0.233	0.177	0.248	0.243	0.108	0.253	−0.257	0.171	0.459	0.365	−0.039	−0.274	0.163	0.367	

Table 5 Variable inflation factor analysis independent and control variables

Variables	*Variance inflation factor (VIF)*		*Variance inflation factor (VIF)*
Control role	1.760	Trust	0.884
Service role	0.727	Board size	1.527
Effort norms	0.781	Non-executive ratio	0.963
Cognitive conflict	2.730	CEO/Chair duality	0.417
Knowledge and skills	1.349	Director shareholdings	0.460
Cohesiveness	0.676	Gender ratio	0.629
Communication	0.728	Average board age	0.789
Affective conflict	1.009	Foreigner ratio	0.542

The values in Table 6 show that board control role performance is positively related to board effectiveness at the 95% confidence level, and the service role is positively related to board effectiveness at the 99% confidence level, supporting the probability of *H1* being true.

Next, it was tested whether board role performance and board processes are stronger determinants of board effectiveness than board characteristics, using multiple regression analysis. Table 7 below shows the relationship between board role performance, board

Table 6 Regression analysis of board roles and board effectiveness

	Board effectiveness	
	Board control role	*Board service role*
β	0.438*	0.562*
Adjusted R^2	0.262	0.441
F change	20.141	43.582

Notes: The table shows the standardized coefficient (β), the value of the adjusted R^2 and the value of the *F* change. The level of significance is *<0.05

Table 7 Regression analysis of board role performance, board characteristics, board processes and board effectiveness

Variables	*Board control role*		*Board service role*		*Board effectiveness*	
	Model I	*Model II*	*Model I*	*Model II*	*Model I*	*Model II*
Board size	−0.045	0.536	−0.101	−0.089	−0.129	−0.160*
Non-executive ratio	0.013	−0.046	0.068	0.055	0.099	0.126**
CEO-Chair duality	0.022	−0.088	−0.042	−0.226	0.167	−0.090
Dir. share-holdings	−0.002	−0.002	0.004	0.002	−0.000	−0.001
Gender ratio	0.116	−0.040	0.113	0.032	0.147	0.091
Av. board age	−0.009	−0.027	−0.020	−0.013	−0.013	0.009
Foreigner ratio	0.113	0.064	0.178*	0.102	0.111	−0.016
Effort norms		−0.076		−0.159		−0.015
Cognitive conflict		1.022		0.538		0.034
Knowledge/skills		0.082		0.360		0.159
Cohesiveness		−0.163		0.055		0.052
Communication quality		0.167		−0.052		0.091
Affective conflict		−0.182		0.176		−0.112
Trust		−0.182		0.071		0.208*
Control role						0.132
Service role						0.122
Adjusted R^2	−0.054	0.230	0.074	0.417	0.091	0.732**
F change	0.607	2.150*	1.620	3.763*	1.711	10.216**

Notes: The table shows the standardized coefficient (β), the value of the adjusted R^2 and the value of the *F* change. The levels of significance are *<0.05 and **<0.01

characteristics, board processes and board effectiveness. Model I includes only the control variables (board characteristics), while model II includes the IVs (board processes) and control variables (board characteristics). In the case of board effectiveness, the mediating variables (board roles) are also added to Model II.

In Model I, the board control role shows a very low adjusted R^2 of −0.054 and an insignificant F change of 0.670, while Model II shows a higher adjusted R^2 of 0.230 and an F change of 2.150 ($p < 0.05$). These results indicate that board structural variables hardly influence board control role performance. Board processes on the other hand increase the strength of the model considerably. The board service role results also show a significantly higher adjusted R^2 and F change in Model II (1.620 and 3.763) compared to Model I (0.074 and 1.620), indicating that board characteristics hardly affect the board service role, while board processes increase the strength of the model considerably. These results support the possibility of *H2* being true at the 95% confidence level.

Regarding the board effectiveness construct, Model I shows a very low adjusted R^2 of 0.091 and a low F change of 1.771, indicating that the control variables (board characteristics) have no significant effect on board effectiveness. However, Model II with a high adjusted R^2 of 0.732 and a significant F change of 10.216 ($p < 0.01$) shows that board processes are stronger determinants of board effectiveness than board characteristics. These results support the probability of *H4* being true at the 99% confidence level.

The next step was to try to establish the relationship between all the board processes (effort norms, cognitive conflict, the use of knowledge and skills, cohesiveness, communication quality, affective conflict and trust) and board effectiveness and whether board role performance mediates the relationship between board processes and board effectiveness. A variable may be considered a MV to the extent to which it carries the influence of a given IV to a given DV. Generally speaking, mediation can be said to occur when (1) the IV significantly affects the mediator, (2) the IV significantly affects the DV in the absence of the mediator, (3) the mediator has a significant unique effect on the DV and (4) the effect of the IV on the DV shrinks upon the addition of the mediator to the model (Baron and Kenny, 1986; Preacher, 2017).

4.2.1 Effort norms. First, it is important to establish whether the control and service role have a mediating effect on the effort norms construct by following the steps indicated by Baron and Kenny (1986) (Table 8).

The above table shows that (1) effort norms (IV) affect the control and service role mediator MV (0.366 and 0.235), although with a slightly lower significance level (<0.07) for the service role, (2) effort norms (IV) significantly affect board effectiveness (DV) in the absence of the control and service mediator (0.358), (3) the control and service mediator (MV) have a significant unique effect on the DV (0.438 and 0.562) and (4) the effect of the IV on the DV shrinks upon the addition of the control and service mediator to the model (0.233 < 0.358 and 0.241 < 0.358). These findings fulfill Baron and Kenny's (1986) mediation criteria and support that effort norms are positively related to board effectiveness, mediated via the board's control and service role. The above results support *H5.*

Table 8 The relationship between effort norms and board effectiveness, mediated via the control and service role of the board

Effort norms (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.366*	0.358**	0.438*	0.233*
Service role	0.235	0.358**	0.562**	0.241*

Notes: The table shows the standardized coefficients (β). The levels of significance are *<0.05 and **<0.01

Table 9 Regression analysis of cognitive conflict and board effectiveness

	Board effectiveness	
Cognitive conflict squared	*Model I*	*Model II*
Cognitive conflict	0.698**	
Cognitive conflict squared		0.059**
Adjusted R^2	0.587	0.582
F change	77.820**	76.434**

Notes: The table shows the standardized coefficient (β), the value of the adjusted R^2 and the value and significance of the *F* change. The level of significance is **<0.01

4.2.2 Cognitive conflict. It was hypothesized that the relationship between cognitive conflict and board effectiveness might be a curvilinear one. Table 9 shows the testing of the first part of *H6*. In Model 1, the IV, cognitive conflict was regressed against the DV, board effectiveness. To check whether the relationship between cognitive conflict and board effectiveness was a non-linear one, cognitive conflict squared was regressed against board effectiveness (Model II).

The results show a significant variability in board effectiveness when cognitive conflict is squared, indicating a curvilinear effect. This result supports the first part of *H6*.

The results in Table 10 indicate that the control and service role mediate the relationship between cognitive conflict and board effectiveness and that cognitive conflict has a curvilinear relationship with board effectiveness. However, the *p*-value for the control role in the final regression (IV+MV/DV) shows a much lower significance level (0.190), which might further indicate a curvilinear relationship between cognitive conflict and board effectiveness, mediated via the control role. These results support *H6*.

4.2.3 Use of knowledge and skills. The results in Table 11 support the probability of *H7* being true at the 95% confidence level.

4.2.4 Cohesiveness. The results in Table 12 show that (1) cohesiveness (IV) does not affect the control role mediator MV (0.179), owing to a reduced significance level ($p = 0.121$). These findings do not support Baron and Kenny's (1986) mediation criteria and reject that cohesiveness is positively related to board effectiveness, mediated via the board's control role. The results show that cohesiveness is positively related to board effectiveness,

Table 10 Relationship between cognitive conflict and board effectiveness, mediated via the control and service role of the board

Cognitive conflict (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.603*	0.698**	0.438*	0.116
Service role	0.645**	0.698**	0.562**	0.520**

Notes: The table shows the standardized coefficients (β). The levels of significance are *<0.05 and **<0.01

Table 11 Relationship between use of knowledge and skills and board effectiveness, mediated via the control and service role of the board

Use of knowledge/skills (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.414**	0.620*	0.438*	0.538*
Service role	0.626**	0.620*	0.562**	0.466**

Notes: The table shows the standardized coefficients (β). The levels of significance are *<0.05 and **<0.01

Table 12 Relationship between cohesiveness and board effectiveness, mediated via the control and service role of the board

Cohesiveness (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.179	0.375**	0.438*	0.310**
Service role	0.380**	0.375**	0.562**	0.203*

Notes: The table shows the standardized coefficients (β). The levels of significance are *<0.05 and **<0.01

mediated via the board's service role. This implies that *H8* is only partially accepted, as cohesiveness is only related to board effectiveness via the board's service role.

4.2.5 Communication quality. The results in Table 13 indicate that communication quality is positively related to board effectiveness, mediated via the control and service role. This result supports the probability of *H9* being true at the 95% confidence level.

4.2.6 Affective conflict. In the case of the control role, the effect of the IV on the DV increases upon the addition of the control role mediator to the model (0.328>−0.215) (Table 14). This does not support Baron and Kenny's (1986) mediation criteria and reject that affective conflict is mediated via the board's control role. The above results suggest that affective conflict is negatively related to board effectiveness and is only mediated via the service role. This result only partially supports *H10.*

4.2.7 Trust. The results in Table 15 support the probability of the alternative *H11* being true at the 95% confidence level.

Table 13 Relationship between communication quality and board effectiveness. mediated via the control and service role of the board

Com. quality (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.455**	0.528**	0.438*	0.411**
Service role	0.398**	0.528**	0.562**	0.360**

Notes: The table shows the standardized coefficients (B). The levels of significance are *<0.05 and **<0.01

Table 14 Relationship between affective conflict and board effectiveness, mediated via the control role of the board

Affective conflict (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	−0.215*	−0.382**	0.438*	0.328**
Service role	−0.301**	−0.382**	0.562**	−0.250*

Notes: The table shows the standardized coefficients (B). The levels of significance are *<0.05 and **<0.01

Table 15 Relationship between affective conflict and board effectiveness, mediated via the service role of the board

Trust (IV)	*IV/MV*	*IV/DV*	*MV/DV*	*IV+MV/DV*
Control role	0.275*	0.502**	0.438*	0.420**
Service role	0.448**	0.502**	0.562**	0.330**

Notes: The table shows the standardized coefficients (β). The levels of significance are *<0.05 and **<0.01

5. Discussion

First, it was established that the board effectiveness construct used in this study is a reliable measure of board effectiveness. This is in line with Farquhar (2011) and further strengthens the reliability and validity of the construct. Next, it was analysed whether board role performance is related to board effectiveness (*H1*). The results show that board control role performance is positively related to board effectiveness at the 95% confidence level. This is in line with Farquhar (2011), who found that board control performance is positively related (0.544) to board effectiveness at the 99% confidence level and supports the generally accepted definition in board role literature of the board control role as monitoring and assessing company performance, strategy implementation, top management performance, and hiring and firing of the CEO (Van den Heuvel *et al.*, 2006). The survey results further show that board service role performance is positively related to board effectiveness at the 99% confidence level. Again, this is supported by Farquhar (2011), who found that the board service role is positively related to board effectiveness (0.485) at the 99% confidence level. The survey result indirectly supports Farquhar's (2011) definition of the board's service role as helping the firm with strategic decision-making and advice and counsel to management, acquiring key resources, legitimizing the firm in the environment and networking and mentoring. This provides more clarity about the definition of the service role, which has so far been incongruent (Judge and Talaulicar, 2017).

Next, it was tested whether board process constructs are stronger determinants of board role performance and board effectiveness than board characteristics. Most board effectiveness studies had been financial-economic in nature based on agency theory, focusing on direct links between board characteristics and board task performance (Kuoppamäki, 2018). This study followed a more recent string of researchers who found increasing evidence indicating that board processes are stronger indicators of board effectiveness than board characteristics (Basco and Voordeckers, 2015; Minichilli *et al.*, 2012, Pugliese *et al.*, 2015). The survey results among UK and Romanian listed companies confirm this. First, it was found that both the board control and service roles are stronger determinants of board effectiveness than board characteristics (*H2*). Board structural variables (characteristics) hardly influence board control and service role performance, whereas board processes significantly increase the model strength. These findings are in line with Farquhar (2011), who also found higher values for board processes compared to board characteristics for both the board control role (adjusted R^2 of 0.613 and a F change of 9.451) and the board service role (adjusted R^2 of 0.480 and a F change of 5.933, $p < 0.01$), indicating that board processes are better predictors of board control role and service role performance than board characteristics. The survey results further show that board processes are stronger determinants of board effectiveness than board characteristics (*H4*) confirming earlier findings (Basco and Voordeckers, 2015; Pugliese *et al.*, 2015).

Next, the relationship between individual board processes (constructs) and board effectiveness was analysed in more detail. The survey results show that effort norms are positively related to board effectiveness, mediated via the board's control and service role (*H5*). This is in line with Farquhar (2011), who found that effort norms are positively related to board effectiveness via the control and service role. Equally, Minichilli *et al.* (2012); Ye and Jermias (2016); and Zattoni *et al.* (2015) found evidence that effort norms are positively related to board task performance. This supports Forbes and Milliken's' (1999) original argument that better prepared board members result in higher board effectiveness. The next board process construct, cognitive conflict, showed a curvilinear relationship with board effectiveness, mediated via the board's control and service role (*H6*). Curvilinear relationships can be U-shaped, meaning that two variables are related negatively until a certain point and then are related positively, or inverted U-shaped (bell-shaped), meaning that two variables are related positively to a certain point and then are related negatively

(Frey *et al.*, 1999). In the case of cognitive conflict, it is assumed that the relationship with board effectiveness is bell-shaped and that the relationship turns negative at a certain point. Farquhar (2011) did not look for a curvilinear relationship but found evidence that the board control role does not mediate the relationship between cognitive conflict and board effectiveness and that the service role only has a weak mediating effect. Heemskerk *et al.* (2015) and Zattoni *et al.* (2015) on the other hand suggest that cognitive conflict has a stronger effect on the board control role than on the service role. Heemskerk (2019), in a mega-analysis of the Forbes and Milliken (1999) model of board behaviour, concludes that the findings regarding cognitive conflict are inconclusive and are representative of the ongoing discussion about the positive effects of task-related conflict. These contradicting findings further strengthen the argument for a curvilinear relationship between cognitive conflict and board effectiveness. The next board process construct, use of knowledge and skills, is positively related to board effectiveness, mediated via the board's control and service role (*H7*). This is partly supported by Farquhar (2011), who only found a positive relationship between the control role and board effectiveness and in line with Minichilli *et al.* (2012) and Zattoni *et al.* (2015), who found a positive relationship between use of knowledge and skills and board role performance for both the control and service role.

The analysis of the next board process construct, cohesiveness, shows that it is only positively related to board effectiveness via the service role, only partially confirming *H8*. This is contradicting Farquhar (2011), who found that the relationship between cohesiveness and board effectiveness is mediated via both board roles. The survey results might also imply a curvilinear relationship between cohesiveness and board effectiveness, where too much cohesiveness leads to groupthink and neglect of the control role of the board. Communication quality is generally considered an indicator of positive outcomes (Farquhar, 2011; Huse, 2007; Massey and Dawes, 2007). This is confirmed by the survey results, which show that board communication quality is positively related to board effectiveness, mediated via the board's control and service role (*H9*). This is in line with Farquhar's (2011) findings and further confirmed by Ye and Jermias (2016), who found that quality of information has a significant effect on board role performance. Most empirical evidence indicates that affective conflict has a negative effect on performance outcomes (Wan and Ong, 2005; Farquhar, 2011). This is confirmed by the survey results (*H10*), which indicate that affective conflict is negatively related to board effectiveness. However, the results only found evidence for the mediating role of the service role. This is contradicted by Farquhar (2011), who found that the service role is not a mediator for affective conflict, but instead found evidence that the control role mediates the relationship between affective conflict and board effectiveness. Finally, it is generally accepted that developing trust is critical in terms of developing and sustaining team and board effectiveness (De Jong and Elfring, 2010; Ye and Jermias, 2016). This is confirmed by the survey results (*H11*), which found evidence that board trust is positively related to board effectiveness, mediated by the board's control and service role. This is partly in line with Farquhar (2011), who found that trust is positively related to board effectiveness via the control role of the board, but not via the service role.

Based on the above analysis of the relationship between board processes (IVs), board role performance (mediating variables) and board effectiveness (DV), the results show that the board control and service roles mediate the relationship between board processes and board effectiveness, with the exception of board cohesiveness and affective conflict, where the relationship is only mediated via the board service role. This only partially supports the probability of *H3* being true.

6. Conclusion

The main aim of this study was to analyse the relationships between board characteristics, board processes, board role performance and board effectiveness for a cross-country (UK

and Romania) sample of comparable European listed companies. A comparable model of board effectiveness for listed companies was developed based on a multi-theoretic and multi-disciplinary perspective in line with increasing demands (Gaur *et al.*, 2015; Kuoppamäki, 2018) and mostly quantifiable variables, by synthesizing recent corporate governance theories on boards of directors and board effectiveness into a new theoretical model (Figure 2). In contrast to most existing models of board effectiveness, it accounts for the mediating influence of board roles on board processes and the relevance of those board processes as predictors of board effectiveness. The model was tested via a survey sent to 342 chairs of listed companies in the UK (269) and Romania (73) containing validated statements measured through a Likert-type scale and grouped in validated constructs (Farquhar, 2011).

In line with an increasing string of studies (Basco and Voordeckers, 2015; Farquhar, 2011; Minichilli *et al.*, 2012), this study acknowledges that board effectiveness is determined by the board's capacity to successfully execute their board roles. However, unlike other studies who use the concept of 'board task performance' as a proxy for board effectiveness (Cheng *et al.*, 2017; Minichilli *et al.*, 2012), this study followed Farquhar (2011), who found that board role performance mediates the relationship between board processes and characteristics (IVs) and board effectiveness (DV). This is confirmed by the survey results, who show that the board control and service roles mediate the relationship between board processes and board effectiveness, with the exception of board cohesiveness and affective conflict, where the relationship is only mediated via the board service role. The survey also confirmed that the control role and service role constructs used in this research are a reliable measure of board task performance, in line with Farquhar (2011) and that they are positively related to board effectiveness. This is an important finding, as it sheds more light on what boards actually do, what tasks they perform and what roles they play. This is especially relevant for the service role of the board, which lacks a generally accepted definition (Judge and Talaulicar, 2017).

Instead of using board role performance as a proxy for board effectiveness, this study used a validated four-item construct of board effectiveness based on previous literature (Farquhar, 2011). The survey results confirm that the board effectiveness construct is a reliable measure of board effectiveness. The study also confirmed that board processes (represented by board process constructs) are stronger determinants of board role performance and ultimately board effectiveness than board structural characteristics and that the latter have hardly any impact on board task performance and board effectiveness. However, there were some board characteristics which showed a limited impact on board effectiveness. First, board size showed a (mostly negative) effect on board effectiveness for six out of seven board processes, indicating that a smaller board size improves board effectiveness. This might be because of the high director shareholdings (lower separation of ownership and control) in the sample (24.7%), implying that less control (and therefore directors) is needed. Secondly, non-executive ratio showed a (positive) effect on board effectiveness in 5 out of 7 board processes, indicating that more non-executive directors improve board effectiveness. Finally, the study showed that all board process constructs are positively related to board effectiveness, mediated by the board's control and service role, except for affective conflict, which is negatively related to board effectiveness, and cohesiveness and affective conflict, which are related to board effectiveness mediated via the service role only.

This study contributes to the limited body of research that investigates specific board process constructs (IVs) derived from the small team literature and their effect on board role performance (MV) and ultimately board effectiveness (DV) of European listed companies. It further confirmed the relevance of the three board processes mentioned by Forbes and Milliken (1999) in their seminal work on board decision-making and added a few additional processes, in particular communication quality and trust. Especially relevant is the finding that cognitive conflict has a curvilinear relationship with board effectiveness, which might

explain the generally incongruent results regarding cognitive conflict until now (Heemskerk, 2019) and change the ongoing discussion about the positive effects of task-related conflict. It equally provides more clarity about the definition of the service role of the board, which lacks a generally accepted definition (Judge and Talaulicar, 2017).

This study has several limitations. However, these limitations also offer opportunities for future research. The main limitation is the relatively small number of responses (55), 28 (10%) from the UK and 27 from Romania (37%), which indicates a reduced reliability and generalizability of the results. Although the response rates are satisfactory when compared to other board effectiveness studies (Huse, 2009), the relatively small number of responses represents a problem in terms of reliability and generalizability. However, unlike other board effectiveness studies (Farquhar, 2011; Minichilli *et al.*, 2012), this study has taken several steps to assure the homogeneity of the sample, starting with a unique data set of firms of comparable size and industry representation. More future research using a similar multi-theoretical and multi-disciplinary perspective to board effectiveness is needed to further strengthen the board effectiveness model and constructs used in this study to increase their validity and reliability.

Another potential limitation to the reliability of the data was the use of a single respondent on behalf of the whole board (Minichilli *et al.*, 2009). However, Heemskerk (2019) in his meta-analysis review of board processes found no evidence that studies based on multiple board members change the relationship between board processes and board effectiveness. Furthermore, this research chose the chairman as the representative of the board, while most board effectiveness studies are based on answers from the CEO, who is generally considered being best positioned in terms of knowledge of the company and the board (Heemskerk *et al.*, 2015; Minichilli *et al.*, 2012). However, as the focus of this study is on board processes, it is the chairman who is ultimately responsible for directing these processes and as such the most relevant person to question. Some authors also consider chairs to be more independent and less biased than CEO's (Farquhar, 2011). In line with suggestions made by Heemskerk (2019), further research at the micro-level is needed to identify differences in answers from chairs, CEO's and other board members.

The cross-sectional survey design of this study means that effects are measured at one specific point in time, indicating that the results are likely to suffer from short-term bias. Future research which takes a longitudinal approach in which board effectiveness is measured over a longer period of time might reduce this effect.

Finally, although the survey results show that board process constructs are generally related to board task performance and board effectiveness, there has been criticism of the I-P-O framework as being too linear, indicating a singular path from inputs via processes to outputs, effectively disregarding the possibility of feedback loops (Ilgen *et al.*, 2005). Future research which focuses on cyclical causal feedback could provide a more dynamic approach to studying boards.

This section ends with a set of practical recommendations for both practitioners (board members) and policy makers. The results of this study suggest that board members, and especially the chair, should be more focused on the underlying processes and behaviours in the board, if they want to turn their boards into more effective ones. The chairman in particular should make sure that board members do their homework and put sufficient effort into their role. Equally important is that chairs create a culture in which board members can engage in open debate and are invited to use their specific knowledge and skills. This means that task related discussions should be encouraged, but at the same time try to make sure they do not result in relational conflict, not an easy task considering that boards are usually made up of strong characters and egos. A prerequisite for an effective board is that the information provided to the board is of the highest quality, so board members can discuss and decide based on relevant and adequately presented information which is

made available to all board members at the same time. Board cohesiveness, in the sense that board members are stimulated to work together to achieve higher performance levels should be encouraged (e.g. via induction programs), but also comes with a warning. Too much cohesiveness can lead to "group think" and board members neglecting the control role of the board. The same applies to board trust. Although positively related to board effectiveness, it should be earned and based on dialogue and open communication.

Although this study showed that board characteristics generally have little or no influence on board effectiveness, they cannot be neglected altogether. Especially the non-executive ratio shows a (positive) effect on board effectiveness in five out of seven board processes, indicating that more non-executive directors improve board effectiveness.

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Corresponding author

Peter AM Jansen can be contacted at: peter.jansen@lsbf.org.uk