



Director knowledge, shared leadership, and board service performance

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ABSTRACT

This study examines the coordinative and integrative function of shared leadership that can enable board members to better leverage their specialized expertise and achieve higher board service performance in a private firm context. Furthermore, we examine an important but overlooked antecedent of shared leadership within the board, namely the extent to which board members have a clear understanding of who possesses which knowledge and skills within the board. Using a unique multi-respondent sample of 32 boards, we find an indirect relationship between board members' awareness of each other's knowledge and skills and board service performance. We find that shared leadership serves as a mediator on this relationship. By taking a leadership perspective, our study explicitly responds to recent calls to focus on mediating variables that affect a board of director's service performance. These findings have some important implications for both academic research and governance practices.

1. Introduction

Private small and medium-sized enterprises (SMEs) represent a substantial part of the business community, not only in terms of quantity but also weighed in economic importance. Compared to their much larger publicly-listed counterparts, these firms face specific management challenges that may pose important constraints on the realization of their economic and growth potential (Kindström et al., 2024). Such challenges can be particularly pronounced during crisis moments, such as the recent pandemic which had severe effects on SMEs around the world, posing significant threats to their survival (Belitski et al., 2022; Lathabhavan & Kuppusamy, 2024). Indeed, due to a general lack of professional management, limited human resources and often a weak knowledge base in the top management team (Fasth et al., 2024; Kindström et al., 2024; Sharma et al., 2024), SMEs have been disproportionately affected. Managers in these firms are often entrepreneurs with relatively little experience in general management and strategic decision-making (Hauser et al., 2020) which increases the need for advice and a "sounding board" on strategic issues. Operating at the upper echelons of the organization, the board of directors exactly performs such an important advisory role, which has consequently received

more scholarly attention in recent SME governance literature (Barroso-Castro et al., 2022; Uhlaner et al., 2021).

While scholars have examined the effect of board features on a company's financial performance (García-Ramos & Díaz, 2021; Pucheta-Martínez & Gallego-Álvarez, 2020), there is an increasing amount of research that aims to identify the underlying mechanisms that explain board performance (Elms & Pugliese, 2023; Uhlaner et al., 2021). To understand the true value of the board, corporate governance scholars started to examine the inner workings of the board by exploring behavioral perspectives (Latif et al., 2024; Trinh et al., 2023). However, research on board leadership is largely underdeveloped within this domain, and scholars call for "new perspectives on the leadership approaches necessary to manage the unique group dynamics that surround the board" (Vera et al., 2022, p. 8).

Extant research increasingly characterizes corporate boards as elite decision-making teams, which are generally made up of a set of competent high-ranking individuals, perform a wide range of complex and interdependent tasks, and operate in highly intricate and dynamic environments (Klarner et al., 2021). This makes it highly unlikely for one individual to invariably be the most apt to lead the board, signaling the merit of board leadership not only emanating from the Chair, its

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appointed leader, but from other directors as well. Recent research has pointed out that the presence of effective leaders is critical for board effectiveness, especially during crisis situations (Krause et al., 2024; Lathabhavan & Kuppusamy, 2024). However, little is known about the exact role of shared leadership in the boardroom (Samimi et al., 2022). In line with prior literature, we define *shared leadership* within the boardroom as a mutual, interactive and dynamic peer influence process among directors in which they take mutual responsibility for their tasks, lead one another to the achievement of board and firm goals, and selectively utilize the skills and expertise within the whole team (Döös & Wilhelmson, 2021; Friedrich et al., 2016). Uncoupling the phenomenon from the individual (Cullen-Lester & Yammarino, 2016), leadership is conceived as an emergent team property collectively brought to fruition by its members, not as the prerogative of a single authoritative leader (Zhu et al., 2018). Shared leadership thus contrasts with the conventional leadership paradigm, referred to as ‘vertical leadership’ (Binci et al., 2016; Hsu et al., 2017), which emphasizes top-down influence emanating from the formal leader who, elevated by hierarchy, is solely responsible for the team’s processes and outcomes.

Our study adopts a behavioral and process-oriented perspective on boards of directors within the context of private SMEs and argues that the extent to which leadership is shared among directors constitutes an important determinant of *board service performance*, i.e., the extent to which the board provides advice and counsel to the firm and participates in strategic decision-making (Åberg et al., 2019; Uhlaner et al., 2021). Our focus is on the board’s service role performance, as this role covers the strategic guidance previously mentioned, which is especially crucial in private SMEs (Bauweraerts et al., 2023; Uhlaner et al., 2021). In this context, shared leadership is anticipated to play a key role. More specifically, we argue that shared leadership is associated with a more effective deployment of the human capital present within the board (Oliveira et al., 2022) and, consequently, superior board service performance. Furthermore, we examine an important but overlooked antecedent of shared leadership within the board, namely the extent to which board members have a clear understanding of who possesses which knowledge and skills within the board; i.e., the transactive memory, alluding to “who knows what” or the label and location information about what other board members know (Faraj & Sproull, 2000; Ren & Argote, 2011). Thus, we will focus in this study on knowing expertise *location* (Ellwart et al., 2014; Faraj & Sproull, 2000) in boards as an antecedent of shared leadership and board service performance. Having a clear understanding of the knowledge and skills of peer directors will materialize through the group’s interactions (Zattoni et al., 2015) and is proposed to enhance shared leadership in the board. Therefore, a focus on this variable will fuel new insights in the debate about why some boards deliver up to expectations while other boards will not.

We provide several contributions to the field. First, this study explicitly responds to recent calls to adopt a behavioral and process-oriented perspective on the board of directors because intermediate board mechanisms and processes are pivotal when it comes to determining board effectiveness (Bettinelli et al., 2023; Kumar & Zattoni, 2019; Stathopoulos & Talaulicar, 2020). Furthermore, this study contributes to the board literature by supplementing the few studies that have begun to examine actual leadership dynamics within the boardroom (Kanadli et al., 2018; Machold et al., 2011; Veltrop et al., 2021). Second, we contribute to the debate regarding the importance of directors’ knowledge and skills within the boardroom. Prior board research has suggested that the mere presence of director knowledge and skills does not guarantee effective board performance (Gabaldon et al., 2018; Vandebeek et al., 2024), and needs to be put to use in an effective way in order for it to perform well. Therefore, we will argue and put to a test, that the relationship between the board members’ awareness of each other’s knowledge and skills and board service performance is mediated by shared leadership in the board. Thereby, we make the distinction between task-oriented and team-oriented shared

leadership which is a distinction largely overlooked in prior shared leadership studies. Third, this study extends the literature on shared leadership within organizations by responding to calls to examine shared leadership within the board (Samimi et al., 2022; Sweeney et al., 2019; Zhu et al., 2018). Lastly, from a practitioner perspective, by offering insight into an important antecedent of shared leadership, this study can assist SMEs with knowledge about how to create an environment that fosters shared leadership in order to achieve the best service performance in their boards.

2. Theoretical background

2.1. Board service performance

Effective boards of directors perform board roles in a way that they can positively influence corporate performance (Forbes & Milliken, 1999; Hillman & Dalziel, 2003; Pandey et al., 2023). An important board role in private SMEs, which attracted far less attention in past research than the board’s monitoring duties (Åberg et al., 2019; Crucke & Knockaert, 2021), is the service role. This board role is traditionally seen as consisting of a range of service-related tasks such as providing advice and counsel to top management, securing valuable resources for the firm and actively participating in strategic decision-making (Åberg et al., 2019; Knockaert et al., 2015; van den Heuvel et al., 2006). Furthermore, the board’s service role is also recently viewed as crucial for boards of directors of SMEs to contribute to value co-creation (Hamidi & Machold, 2020). As boards of directors represent collections of interacting individuals operating at the highest level of decision-making within organizations, the performance of the board’s service role is dependent upon the extent to which a board functions as an effective team (He & Huang, 2011; Vandebeek et al., 2016). Indeed, several studies have found that factors which have been associated with increased performance in the team literature also contribute to board effectiveness. For example, board processes such as cognitive conflicts, constructive effort norms, and critical debate have been found to positively impact board performance (Minichilli et al., 2012; Veltrop et al., 2021; Zattoni et al., 2015).

We argue that an important but largely overlooked element that will determine the board’s ability to function as an effective team, is their ability to share leadership. Shared leadership is particularly beneficial for tasks that score high on complexity and interdependence and, therefore, require the effective integration of team members’ specialized expertise (Müller et al., 2018). Given the complex nature of corporate decision-making, shared leadership can thus be expected to be strongly linked to the performance of the board’s service role, especially the service-related tasks *providing advice on a diverse set of strategic matters and participating in the strategic decision-making process* (Crucke & Knockaert, 2021; Uhlaner et al., 2021). The board’s control role on the other hand, entails less interdependent and more routine elements as it includes activities such as scrutinizing firm performance, hiring and firing top management, and determining executive compensation, for which shared leadership is likely less beneficial (Hillman & Dalziel, 2003). In addition, because of the usually strong overlap in shareholder rights and managerial responsibilities in private SMEs, the control role is often less important in these firms.

Using a behavioral perspective on boards of directors, we view board processes as essential to effectiveness, with members’ awareness of each other’s knowledge and skills being a crucial factor in fully utilizing individual expertise and integrating the diverse expertise of all members (Gardner et al., 2012). We expect that knowledge about each other’s expertise will foster shared leadership in a board context as it provides directors with a better judgment of when to exert, and accept, leadership influence within the board (Friedrich et al., 2016; Vandewaerde et al., 2011). Such a shared leadership approach may in turn be an important determinant of board service performance.

2.2. Board members' awareness of each other's knowledge and skills and board service performance

Boards of directors are often composed of a wide range of individuals, including business experts (e.g., current and former top executives and directors of other firms), support specialists (e.g., accountants, lawyers, bankers, auditors), community influencers (e.g., politicians, academics), and insiders, all of whom contribute to the board by drawing on the specific expertise and abilities they bring to the board meeting table (Adams et al., 2018; Klarner et al., 2021; Zattoni et al., 2023). Because board work mostly involves knowledge work producing cognitive-based output (Forbes & Milliken, 1999; Vandebek et al., 2024), expertise is one of the board's most important resources and board members are often attracted for their knowledge and skills in particular areas of board work (Meng & Tian, 2020). For example, there is an upcoming importance of digitally skilled directors in SMEs as boards that possess a mix of digital skills are more likely to drive successful digital initiatives and guide their organizations through the complexities of digital transformation, thereby enhancing overall governance and performance (Chen & Hao, 2022; Oliveira et al., 2022). Some directors might also be more skilled to navigate the changing ESG environment and thus critical for ESG-related decision-making (Heubeck, 2024). However, the mere presence of such director knowledge and skills is insufficient for high-quality board performance (Forbes & Milliken, 1999; Gabaldon et al., 2018; Minichilli et al., 2012; Vandebek et al., 2024; Zattoni et al., 2015). Such knowledge and skills should not only be present, but board members should also have a clear understanding of *who possesses which* knowledge and skills, which is an important component of the transactive memory of a team (i.e., "label and location information about what other members know", Ren & Argote, 2011, p. 192). In particular, we argue that board members' awareness of each other's knowledge and skills enables them to better manage and leverage their differentiated expertise, which in turn will positively affect board service performance. Therefore, we propose our baseline hypothesis:

Hypothesis 1. *The extent of board members' awareness of each other's knowledge and skills is positively related to board service performance*

2.3. Shared leadership within the boardroom and board service performance

While it follows from the behavioral perspective that the extent of board members' awareness of each other's knowledge and skills likely has an effect on board service performance, the literature remains silent on how leadership can play an important mediating role in this relationship. In line with functional leadership theory, which is the most prominent and well-known team leadership model (Fleishman et al., 1991; Homan et al., 2020; Morgeson et al., 2010; Yukl & Gardner, 2019; Zaccaro et al., 2001), we view leadership as a social influence process among interacting individuals whereby intentional influence is exerted with the aim of team need satisfaction.

Effective board leadership involves the satisfaction of critical board needs which, consequently, fosters board effectiveness and is conducive to the achievement of board and organizational goals (Luciano et al., 2020). Given its broad and complex nature, the board's Chair as a single individual often lacks the full range of abilities required to fulfill the functions of leadership (Banerjee et al., 2020). Therefore, boards in which directors take up leadership collectively benefit from the cognitive and behavioral capabilities of a larger number of individuals (Crevani et al., 2007). Sharing the responsibility of leadership among those with complementary abilities affects leadership and team effectiveness (Chamberlin et al., 2024; Hmieleski et al., 2012; Samimi et al., 2022), and can thus influence the service performance of the board.

Shared leadership can be conceptualized as "a set of interactive influence processes in which team leadership functions are voluntarily shared among internal team members in the pursuit of team goals"

(Nicolaidis et al., 2014, p. 924). In shared leadership "this influence process often involves peer, or lateral, influence and at other times involves upward or downward hierarchical influence" (Pearce & Conger, 2003, p. 1). Shared leadership thus entails a team setting in which the board as a whole, not solely its Chair, guides the board in fulfilling critical board functions. Furthermore, leadership is determined by a director's ability to influence fellow board members based on the board's leadership needs (both task and team-oriented) at a given time, rather than on formal authority (Friedrich et al., 2016; Friedrich et al., 2009; Pearce & Conger, 2003).

Such patterns of reciprocal influence in shared leadership, where directors continually exert and accept leadership influence based on knowledge and expertise in the board, can boost the board's ability to effectively perform its service role (Carson et al., 2007; Vandewaerde et al., 2011). Indeed, shared leadership is found to enhance a team's transactive memory system (i.e., "the shared division of cognitive labor with respect to the encoding, storage, retrieval, and information from different domains"; Lewis & Herndon, 2011, p. 1254) as it facilitates shared experiences, a better information flow, team communication among team members (He & Hu, 2021), and the development of a knowledge repository (Ren & Argote, 2011) which will lead to more differentiated and new collective group knowledge (Lewis & Herndon, 2011). In addition, "as behavioral processes do not occur in a cognitive vacuum", a well-developed transactive memory system will "serve as a cognitive architecture that guides subsequent interactions" among board members (Heavey & Simsek, 2017, p. 938) which, in turn, may have a positive impact on team performance (Ren & Argote, 2011).

Shared leadership orientations have also been found to relate positively to mobilizing organizational change (Canterino et al., 2020), and has been labelled as essential in SMEs (Soni et al., 2023). As it entails concerted action to access required expertise, share and integrate knowledge, collaborate, and make joint decisions (Gardner et al., 2012), shared leadership results in a more effective use of the board's human capital which positively reflects on the board's problem-solving and decision-making capabilities as well as its ability to function well as a collection of individuals (Cristofaro et al., 2023; Zhou et al., 2015). Therefore, we argue:

Hypothesis 2. *The degree of shared leadership in the board is positively related to board service performance.*

2.4. Shared leadership as a mediator between directors' awareness of each other's knowledge and skills and board service performance

As detailed above, prior research suggests that teams in which members hold a clear understanding of who possesses which knowledge and skills perform better as they should be better able to manage their specialized expertise (Faraj & Sproull, 2000; Gardner et al., 2012; Lewis, 2003). In this paper, we propose and test the idea that shared leadership presents a mediating mechanism by which awareness of directors' expertise results in superior board service performance as it serves such a coordinative and integrative function.

The leadership literature suggests that leadership emergence within teams results from a social construction process in which team members claim and grant leader and follower identities on the basis of a number of personal and situational determinants (DeRue & Ashford, 2010; Zhu et al., 2018). Shared leadership within the boardroom entails a team setting in which leadership is not the prerogative of a single authoritative leader (e.g., the CEO or Chair), but instead shared among directors in a collective process depending on the leadership needs associated with the situation at hand (Friedrich et al., 2009; Meuser et al., 2016; Nicolaidis et al., 2014; Pearce & Conger, 2003; Zhu et al., 2018). In this regard, directors' understanding of each other's knowledge and skills can be considered a pivotal antecedent of shared leadership as it provides them with the cues necessary to judge the appropriateness of exerting or accepting leadership influence in different situations (Muethel et al., 2012; Vandewaerde et al., 2011). That is, as board

members are more aware of each other's knowledge and skills, they are better able to selectively put to use their differing expertise in distributing the leadership role within the board.

Shared leadership offers an effective approach to harnessing plurality in the boardroom, as it allows leadership to be guided by a director's ability to influence fellow board members based on the board's specific leadership needs in a given situation. For example, if there are external changes in competition caused by digitalization, it would be most beneficial if digitally savvy directors take on the leadership role in related strategic decision-making (Oliveira et al., 2022). Thus, we propose that as directors are more knowledgeable about each other's competencies, the board will perform better as it enables different individuals to adopt leadership within the boardroom based on situational proficiency, allowing board members to more effectively integrate and capitalize on their differentiated expertise. This reasoning implies that board members' awareness of each other's knowledge and skills enhances board service performance by enabling the sharing of leadership in the boardroom. Therefore, we hypothesize:

Hypothesis 3. *The degree of shared leadership in the board mediates the relationship between the extent of board members' awareness of each other's knowledge and skills and board service performance.*

The research model is presented in Fig. 1

3. Methods

3.1. Sample and data collection

All hypotheses were tested through a quantitative analysis of survey data drawn from a sample of Belgian non-listed SMEs.² Belgium delivers a unique setting for investigating boards in non-listed firms. Indeed, whereas in most countries worldwide non-listed firms adhere to the governance recommendations for publicly-listed firms – emphasizing the board's monitoring role, which has limited relevance for non-listed SMEs – Belgium is one of the first countries in the world that developed a unique (non-compulsory) governance code for unlisted firms (SMEs and family firms) in which the service role has a central place (Uhlaner et al., 2007; van den Heuvel et al., 2006). Therefore, Belgium provides an interesting context in which to investigate the topic of shared leadership in relation to the service role of the board in non-listed firms. The data was collected in 2012, during the challenging aftermath of the 2008 financial crisis (Chen et al., 2018).³

The choice to collect primary data stems from this study's objective to assess actual board behavior and processes as a means of understanding what determines board service performance, going beyond the traditional use of secondary data as proxies for these intermediate mechanisms in board research (Kumar & Zattoni, 2019). Due to difficulties in gaining access to process data on boards of directors, board studies using primary data are typically based on a single respondent (e.g., Minichilli et al., 2012; Zona & Zattoni, 2007). However, given the collective nature of the core construct under study, we opted to diverge from this methodological tradition and collected multiple director responses for each board, resulting in a unique dataset that allows us to measure board processes at the group level. Thus, our *independent variables* are first measured at the individual director level and then aggregated at the board level. However, in line with prior board research (Veltrop et al., 2021; Zattoni et al., 2015), our *dependent variable* is measured by asking the CEO to rate the service performance of the board. We made this choice because of two reasons. First, the CEO is

commonly considered as being in a better position to rate the board's service contribution than other directors as he/she is the main receiver of the strategic advice and counsel of the board (Zattoni et al., 2015). In addition, using two different rating sources eases common method bias concerns (Veltrop et al., 2021); i.e., all board members for the independent variables and the CEO for the dependent variable.

Obtaining detailed board process data from multiple board respondents is documented to be a difficult empirical endeavor (Leblanc & Schwartz, 2007). Accordingly, following previous upper-echelon research (Eddleston et al., 2008; Ling & Kellermanns, 2010), the survey was conducted with the cooperation of one of the leading Belgian employers' organizations which provided the mailing list used to solicit board participation and explicitly endorsed this study. From this mailing list of individual members of the employer organization, we selected the private firms and thus excluded publicly-listed firms as well as subsidiaries of international groups and consultants and accountants. Next, we compiled a list of private firms that have a formal board of directors which provided us with a list of 637 firms. As our research required 'active' boards to assess the implications of team functioning for board effectiveness, to avoid artefactual effects confounding our findings, boards that likely only existed to fulfil a firm's legal obligations ('paper' boards) were excluded from the sample a priori based on an assessment of a number of board characteristics (e.g., board size, number of meetings, presence of outside directors) available in the employer organization's database.⁴ Following these criteria, about half of the firms in the database could be classified as having an active board of directors. After contacting these firms, we found 38 firms with an active board of directors to be prepared to cooperate in this demanding research project. To increase the response rate, we promised the participating firms an individual benchmarking report containing suggestions to improve the functioning of their board after we finished the data analysis of this research project. In addition, we guaranteed full confidentiality. This aspect also included confidentiality of responses within the board team. Therefore, all individual board members received the questionnaire via their email in Qualtrics so that only the research team had access to the answers. Thus, individual board members did not know what other colleague directors answered. Before sending the questionnaires out, we executed a pilot test with directors of the employer organization and some entrepreneurs who were active as board members. After incorporating their feedback, we sent the questionnaire to the firms that agreed to participate in the study.

These data collection efforts resulted in responses from 185 directors representing 38 boards from which at least two directors provided information on our independent variables. As is usually the case in private firms, the CEO is a formal board member in all our firms. Thus, all board members including the CEO received the questionnaire but the questionnaire contained some additional questions for the CEO and the chairman (on board demographics which we used as control variables, see the section below "3.2 Measures"). The deletion of responses with missing data and two non-profit boards from our database yielded 157 useful responses and a final sample size of 32 boards of directors to be used in the analyses, which represents a response rate of more than 10 %. Given the substantial challenges in conducting a multirespondent research project on boards in private firms, which are often characterized by a high level of discretion, we consider this response satisfactory. In addition, our final sample is comparable with other upper-echelon studies in the context of private firms (e.g., Boone & Hendriks, 2009). The median response rate at the board level was 85.7 %. We also checked for a potential sample selection bias by comparing the average Return on Assets (ROA) of the firms in our sample with the ROA of the

² While Belgian SMEs have the option to choose between a one-tier and a two-tier board structure, they predominantly operate under the one-tier board system (i.e., both executive and nonexecutive directors form one board).

³ This post crisis period was characterized by a lack of access to credit, slowing investment levels and corporate failures (Chen et al., 2018) which presented (SME) boards with substantial strategic challenges.

⁴ Investigating team dynamics and outcomes such as shared leadership and board service performance is not meaningful for a board that does not have board meetings and could bias our results substantially if included in the sample.

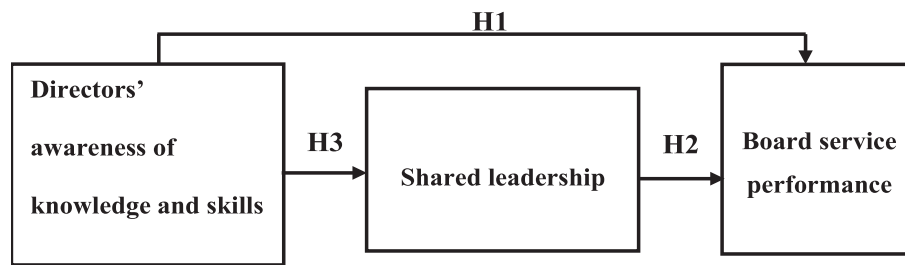


Fig. 1. Conceptual model.

population of private firms located in the region of the employer organization. Although the ROA is slightly higher for the firms in our sample, the differences are not significant.

3.2. Measures

Both dependent and independent variables were operationalized as multiple-item constructs measured using 7-point Likert-type scales.

3.2.1. Dependent variable

Our dependent variable *board service performance* refers to the board's performance concerning strategic advice and counsel. It was measured using three items developed by Westphal (1999), which were slightly adapted to the contemporary and private SME context, asking the CEO to assess (a) the extent to which the board provides assistance to the CEO in the formulation of corporate strategy, (b) the extent to which the board serves as a "sounding board" on strategic issues to the CEO and (c) the degree to which directors provide advice and counsel in discussions concerning strategic issues (see also Appendix). The Cronbach's α is 0.84.

3.2.2. Independent variables

To assess the extent to which directors were knowledgeable about each other's capabilities, we adopted three items from the *expertise location* scale of Faraj and Sproull (2000) which measures the awareness of "who knows what" (cf. structural component of transactive memory, Ren & Argote, 2011) and asked all directors to rate these items. That is, *board members' awareness of each other's knowledge and skills* (Cronbach's $\alpha = 0.91$) measures the extent to which board members (a) have a good map of each other's talents and skills, (b) know what task-related knowledge and skills they each possess, and (c) know who on the board has specialized skills and knowledge which are relevant to their work within the board.

To measure *shared leadership*, a comprehensive list of ten items representing a universal set of leadership functions to be performed within teams was composed based on prior literature on functional leadership theory (Fleishman et al., 1991; Morgeson et al., 2010; Zaccaro et al., 2001) and director interviews. A preliminary list of items was scrutinized and refined by the members of the research team as well as researchers not involved in the study and subsequently subjected to an exploratory factor analysis using data gathered from undergraduate students working on a team-based project which required primarily cognitive-based output (De Vellis, 2003; Hinkin, 1995). This process led to the deletion or rewording of several items (e.g., due to redundancy, ambiguous wording, or limited relevance) and ultimately resulted in a concise but comprehensive set of items which reflected two distinct dimensions of shared team leadership directed at the team's work output on the one hand (*task-oriented shared leadership*) and the team's internal dynamics and group life on the other (*team-oriented shared leadership*) (Hackman & Walton, 1986; Han et al., 2021; Lord, 1977; Yukl & Gardner, 2019). Confirmatory factor analysis on our sample confirmed the underlying structure and validity of the measure. Consequently, *shared leadership* was measured in this study by asking directors, on the

basis of ten items, to evaluate the extent to which board members shared in task- ($\alpha = 0.89$) and team-oriented ($\alpha = 0.90$) leadership within their respective boards (see Appendix for all items and key validity statistics).

In contrast to our dependent variable which was rated by the CEO, all independent variables were aggregated to the board level (Zhu et al., 2018); i.e., we aggregated the collected multiple director responses into one score for each board. The variable *board members' awareness of each other's knowledge and skills* was conceptualized according to a referent-shift consensus model (Chan, 1998), with board members assessing the construct at the board level. Therefore, we assessed whether data aggregation is suitable. We first calculated the intra-class correlation coefficients which are 0.23 for ICC(1) and 0.58 for ICC(2), which suggests a fair reliability (Cicchetti, 1994) and provide support for aggregation (Woehr et al., 2015). In addition, we calculated the $r_{WG(J)}$ within-group agreement statistic (Interrater Agreement (IRA)) (James et al., 1984). This statistic measures the extent to which board members' ratings are interchangeable for scales composed of multiple items (Bliese, 2000). The $r_{WG(J)}$ value is 0.86 which can be interpreted as a strong agreement and justifies aggregation of our variable *board members' awareness of each other's knowledge and skills* (Biemann et al., 2012).

Both *shared leadership* variables are conceptualized as compilation-based constructs. This view is consistent with the dynamic delegation leadership literature (e.g., Klein et al., 2006) as the distribution of specific and various leadership functions among directors are assumed as the board tasks demand (Drescher et al., 2014). As the lower-level (individual) director behavior and perceptions concerning leadership may vary substantially in the board,⁵ there are no constraints "on within-group variability on the individual-level construct, and summative or mean measures are appropriate" (Drescher et al., 2014, p. 775).

3.2.3. Control variables

Board-level and shared leadership control variables were included in our analysis in order to control for the systematic variance in board effectiveness not attributed to the board characteristics and processes discussed above. Due to sample size limitations, we focused on board-level controls as their impact on board functioning and performance can be expected to be the most profound. In particular, we controlled for two of the 'usual suspects' in board (Finkelstein & Mooney, 2003) as well as shared leadership research (Sweeney et al., 2019). As larger boards have been argued to perform worse due to them being less participative, less cohesive, and less able to reach consensus (Tuggle et al., 2010; Veltrop et al., 2015), we controlled for *board size*, measured as the number of board members. In addition, we controlled for *board diversity* by asking the chairman of the board to evaluate on a 7-point Likert scale the extent to which the board has a wide degree of diversity in (1) educational background; (2) age; (3) personality; (4) functional backgrounds; (5) industry backgrounds; and (6) working styles (Zona et al., 2013). Board diversity is measured as the average

⁵ Indeed, Drescher et al. (2014) point to the fact that some individual team members (i.e., directors in our study) do not fulfil any leadership functions while some other team members assume all leadership positions, depending on the tasks.

score on the six survey questions. A factor analysis showed one single factor and the Cronbach's alpha for this scale was 0.80.

3.3. Validity of measures

By collecting the data for the dependent and independent variables from different sources (i.e., CEO for the dependent variable and all responding board members for the independent variables), we substantially eased common method variance concerns (CMV). However, to ease CMV bias regarding our independent variables, we applied a number of procedural remedies in the survey development and administration phase (Podsakoff et al., 2003). First, given the sensitive nature of evaluating board processes and functioning (Kiel & Nicholson, 2005; Minichilli et al., 2007), to avoid socially desirable and lenient responses, our cover letter guaranteed anonymity and confidentiality and explicitly encouraged directors to answer questions as honestly as possible. Second, the survey instrument was subjected to several rounds of research team review in order to reduce item ambiguity and minimizing the likelihood of social desirability bias (Podsakoff et al., 2003; Podsakoff et al., 2024). Survey pre-tests, which involved several board members assessing the instrument and its items, further aided in fine-tuning the questionnaire and enhanced the construct validity of the measures included (De Vellis, 2003). Further, responses for all perceptual measures were averaged over multiple directors which mitigates the impact of perceptual bias of individual respondents. Third, although we significantly reduced the potential for common method variance (CMV) by following several procedural measures, we further checked this potential issue by estimating an *unmeasured latent method factor* (Podsakoff et al., 2003) of the independent variables and found a common variance of 0.2116. Next, we tested the differences in the estimated coefficients of the model *with* versus the model *without* a common latent factor. All changes in the standardized coefficients between the two models are below 0.2. These findings suggest that the likelihood that our findings are the result of CMV are low.

The variables in our model (except the control variables) are perceptual measures. Therefore, we also assessed the construct validity of our key variables. First, we checked the discriminant validity of the variables above by comparing the Average Variance Extracted (AVE) estimates of each measure with the shared variance (squared correlation) (Hair et al., 2014) and found that the average variance extracted estimates are all greater than the shared variance which supports the discriminant validity of our measures. In addition, the AVE scores of the four measurement variables pass the threshold of 0.50 (*Board members' awareness of each other's knowledge and skills* = 0.73; *Team-oriented shared leadership*: 0.58; *Task-oriented shared leadership*: 0.55; *Board service performance*: 0.72) supporting convergent validity (Fornell & Larcker, 1981). As an additional test, we also computed the Composite Reliability (CR) and found for all variables a value above the threshold of 0.70 (*Board members' awareness of each other's knowledge and skills* = 0.89; *Team-oriented shared leadership*: 0.87; *Task-oriented shared leadership*: 0.86; *Board service performance*: 0.88), which further supports convergent validity (Fornell & Larcker, 1981).

3.4. Analysis

To test hypotheses 1 and 2, we use OLS regression models. To test the mediation hypothesis (H3), we use causal mediation analysis which is an OLS regression-based path analysis (Hayes, 2022; Hicks & Tingley, 2011). This technique allows us to partition the effect of the independent variable on the dependent variable into a direct effect and an indirect effect. Hence, we can test hypotheses regarding how the X variable transmits its effect on the Y variable. The model can be written as (in which M is the mediator):

$$M_i = \beta_0 + \beta_1 X_i + \varepsilon_i \quad (1)$$

$$Y_i = \alpha_0 + \alpha_1 M + \alpha_2 X_i + \varepsilon_i \quad (2)$$

The product of β_1 and α_1 represents the indirect effect of X on Y through M which is used to test hypothesis 3. Because of the irregularity of the sampling distribution, inference is based on bootstrapping techniques. Note that an association between the dependent and independent variable is not a precondition for establishing mediation (Hayes, 2022).

4. Results

Table 1 shows the means, standard deviations, min–max values, and correlations for the variables included in our analyses. Participating boards ranged in size from 3 to 10 directors (an average size of 5.38) and were generally characterized by a fair degree of board diversity (mean value of 5.48). The mean of *Board service performance* in the sample firms was 5.04 and shows a wide variation from 2 to 7. *Board members' awareness of each other's knowledge and skills* is generally good (mean value of 5.54) and ranges from average (4.17) to strong (6.78). The correlation between this variable and our dependent variable board service performance is positive but insignificant, which is not in support of hypothesis 1. The mean levels of our shared leadership variables are 4.98 for task-oriented and 5.03 for team-oriented shared leadership. Both shared leadership dimensions show a strong and significant correlation with *Board service performance*, providing preliminary support for hypothesis 2, and *Board members' awareness of each other's knowledge and skills*, which is a requirement for hypothesis 3.

To verify that our results were not distorted by multicollinearity, we calculated variance inflation factors (VIF). The maximum VIF found within our models was 1.57, indicating that multicollinearity does not pose a threat to our findings (Hair et al., 2014). Heteroscedasticity was assessed using the Breusch-Pagan and the White test. Both tests suggest that there is no heterogeneity issue in our analyses, as the test statistics were insignificant at the 0.05 level (White, 1980).

4.1. Direct effects

Prior to testing the mediation hypothesis (H3), we tested the direct effects hypothesized between our independent variable (*Board members' awareness of each other's knowledge and skills*) and the mediator (the two Shared leadership dimensions) as well as the dependent variable (*Board service performance*). Table 2 presents the OLS models and results that are relevant for hypothesis 1. Examining Model (1), hypothesis 1 does not seem to be supported as the coefficient is not significant (Model (1): $\beta = 0.343$, $p > 0.10$). However, a direct association between our independent and dependent variable is not a precondition for a potential underlying effect of the independent on the dependent variable (Hayes, 2022). Therefore, we investigate a potential mediation path (indirect relation) between the two variables through the Shared Leadership variable as mediator in section 4.2.

Table 3 presents the models that are relevant to hypothesis 2. Examining Models (1) and (2), we find support for hypothesis 2. The effect of task-oriented shared leadership on board service performance is positively significant (Model (2): $\beta = 1.282$, $p < 0.05$), which provides evidence in support of hypothesis 2. For the team-oriented dimension, a similarly significant effect is found on board service performance (Model (1): $\beta = 0.961$, $p < 0.05$). Regarding the control variables, board diversity is significant in model (2).

4.2. Mediation by shared leadership

Finally, in order to test hypothesis 3, we executed a causal mediation analysis with the Mediation package in Stata (*medeff* command) (Hicks & Tingley, 2011), which has the advantage that it also allows to address potential endogeneity problems with the *medsens* command. To establish mediation, the relationship between board members' awareness of

Table 1

Descriptives and Pearson correlation coefficients.

	Mean	SD	Min	Max	1	2	3	4	5
1. Board service performance	5.04	1.40	2.00	7.00					
2. Board members' awareness of each other's knowledge and skills	5.54	0.63	4.17	6.78	0.129				
3. Task-oriented shared leadership	4.98	0.56	3.53	6.13	0.414**	0.563***			
4. Team-oriented shared leadership	5.03	0.71	3.87	6.60	0.433**	0.520**	0.754***		
5. Board size	5.38	1.83	3.00	10.00	0.007	−0.343*	−0.236	−0.115	
6. Board diversity	5.48	0.79	3.60	6.80	0.291	0.033	0.004	0.035	−0.142

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; $n = 32$; All perceptual variables are measured on a 7-point Likert-type scale.

Table 2

Regression results for board member's awareness of each other's knowledge and skills and board service performance.

	Board service performance
	(1)
Board members' awareness of each other's knowledge and skills	0.343 (0.423)
Board size	0.078 (0.147)
Board diversity	0.530 (0.319)
R^2_{adj}	0.012
F-statistic	1.130

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; Intercept included; $n = 32$; St. dev. between brackets.

Table 3

Regression results for board member's awareness of each other's knowledge and skills, shared leadership and board service performance.

	Board service performance	
	(1)	(2)
Board members' awareness of each other's knowledge and skills	−0.250 (0.546)	−0.284 (0.548)
Task-oriented shared leadership		1.282** (0.648)
Team-oriented shared leadership	0.961** (0.444)	
Board size	0.050 (0.125)	0.099 (0.129)
Board diversity	0.506 (0.318)	0.550** (0.265)
R^2_{adj}	0.174	0.183
χ^2	17.50***	10.14**

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$, Intercept included; $n = 32$; St. dev. between brackets.

Table 4

Regression results for board member's awareness of each other's knowledge and skills and shared leadership.

	Team-oriented shared leadership	Task-oriented shared leadership
	(1)	(2)
Board members' awareness of each other's knowledge and skills	0.617*** (0.209)	0.489*** (0.112)
Board size	0.029 (0.055)	−0.016 (0.045)
Board diversity	0.025 (0.135)	−0.015 (0.108)
Adj. R^2	0.190	0.25
χ^2	9.95**	24.58***

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$, Intercept included, $n = 32$; St. dev. between brackets.

each other's knowledge and skills and the two different dimensions of shared leadership in the boardroom have to be examined as well (Baron & Kenny, 1986). We find in Table 4 that board members' awareness of each other's knowledge and skills is a significant variable explaining both team- (Model (1): $\beta = 0.617$, $p < 0.01$) and task-oriented (Model (2): $\beta = 0.489$, $p < 0.01$) shared leadership in the boardroom, which is an important criterion in a mediation model because “the independent variable must affect the mediator” (Baron & Kenny, 1986, p. 1177).

Next, we decompose the total effect of board members' awareness of each other's knowledge and skills on the board service performance measure into the average causal mediation effect (ACME) and the average direct effect (ADE) following a mediation path through team- (Model (1) of Table 5) and task-oriented (Model (2) of Table 5) shared leadership using the *medeff* command in STATA. We investigated the potential mediation path through team-oriented shared leadership (Model (1) in Table 5) and found a significant ACME of 3.610 ($p < 0.05$) and an insignificant ADE of −1.430 ($p > 0.10$). Thus, we find an *indirect* effect of board members' awareness of each other's knowledge and skills on board service performance which is mediated by team-oriented shared leadership. Similarly, the mediation decomposition of this effect through task-oriented leadership (Model (2) in Table 5) shows a similar picture with an ACME of 3.810 ($p < 0.01$) and an insignificant ADE of −1.633 ($p > 0.10$). Hence, task-oriented as well as team-oriented shared leadership mediate the relationship between board members' awareness of each other's knowledge and skills and board service performance, which is in support of hypothesis 3.

Causal mediation analysis builds on the assumption of sequential ignorability (i.e., unconfoundness, exogeneity and absence of omitted variable bias; VanderWeele, 2015). As this assumption cannot be tested directly, we performed a sensitivity analysis to assess the robustness of the latter mediation result using the *medsens* command in the Mediation package of STATA. The sensitivity parameter ρ at which the ACME = 0 is equal to 0.44 (for Model (1) in Table 4) and 0.4498 (for Model (2) in Table 4). This figure means that the error correlations between the mediator and outcome model have to be at least 0.44 or 0.4498 before the ACME becomes insignificant. This result suggests that our findings are quite robust to a violation of the sequential ignorability assumption and thus that endogeneity is of lesser concern (Hicks & Tingley, 2011; Imai et al., 2011).

Table 5

Mediation bootstrap results for indirect effects.

	Board service performance	
	Team-oriented shared leadership	Task-oriented shared leadership
	(1)	(2)
ACME	3.610**	3.810***
ADE	−1.430	−1.633
Total effect	2.179	2.177

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; Number of simulations: 1000; $n = 32$.

5. Discussion

5.1. Theoretical implications

In private SMEs, an important board role that has historically received less attention in research compared to the board's monitoring duties is the service role (Åberg et al., 2019). Effectively performing this role is crucial for boards, especially during crisis situations, as it involves providing advice and counsel to top management, securing valuable resources for the firm, and actively participating in strategic decision-making (Åberg et al., 2019; Krause et al., 2024). As boards of directors can be seen as groups of interacting individuals operating at the highest level of organizational decision-making, the performance of the board's service role depends on how effectively the board functions as a team (Crucke & Knockaert, 2016; He & Huang, 2011; Vandebeek et al., 2016). We have argued that an important but overlooked element of the board's ability to function as an effective team is their ability to share leadership. In line with prior research, we first conceptualized board members' awareness of each other's knowledge and skills as a crucial factor enabling the board to fully utilize individual expertise and integrate the diverse expertise of other members. Moreover, we argued that knowledge about each other's expertise especially fosters shared leadership in the board as it provides directors with a better judgment of when to exert, and accept, leadership influence within the board. Such a shared leadership approach would in turn be an important determinant of board service performance.

This study was designed to gain more insight into the determinants of board service performance by revisiting the relationship between board leadership and performance from a behavioral and process-oriented perspective. Making use of a unique dataset measuring board processes at the board level, our findings show that shared leadership within the boardroom, characterized by multiple directors fulfilling critical board leadership functions, results in a more effective use of the human capital within the board as reflected in superior board effectiveness. More specifically, we find that task- and team-oriented shared leadership within the boardroom is positively related to board service performance. Furthermore, we argued that board members' awareness of each other's knowledge and skills reflects positively on board service performance as it enables them to better integrate and coordinate their expertise, and found that shared leadership serves as a coordination and integration mechanism as it mediates the indirect relationship between board members' knowledge of each other's capabilities and board service performance. These findings have important implications for both academic research and governance practices.

First, this study explicitly responds to recent calls to adopt a behavioral and process-oriented perspective on the board of directors because intermediate board mechanisms and processes are pivotal when it comes to determining board effectiveness (Kumar & Zattoni, 2019; Stathopoulos & Talaulicar, 2020). However, to date, behavioral board research has offered limited insights into *leadership dynamics* within the boardroom and their implications for performance. Therefore, this study contributes to the board literature by supplementing the limited research that has begun to examine actual leadership dynamics within the boardroom (Kanadli et al., 2018; Machold et al., 2011; Veltrop et al., 2021). However, contributing novel insights to the understanding of board leadership, we departed from these studies' emphasis on the role of the board's appointed leader (i.e., the Chair) and focused on leadership influence emanating from the board as a whole. In particular, we found that shared leadership, in which directors collectively take charge of fulfilling a number of critical board leadership functions, positively associates with the board's work output as reflected in board service performance.

Second, we contribute to the debate regarding the importance of directors' knowledge and skills within the boardroom. Boards of directors are generally composed of a number of individuals who bring specialized expertise and experiences to the table (Forbes & Milliken,

1999; Hillman et al., 2000). However, as prior board research has suggested, the mere presence of director knowledge and skills does not guarantee effective board performance (Gabaldon et al., 2018; Gardner et al., 2012; Minichilli et al., 2012; Vandebeek et al., 2024; Zattoni et al., 2015). The board's available human capital needs to be put to use in an effective way in order for it to perform well. Our results demonstrate that if directors know better who holds which expertise within the board, the board will better perform its service tasks as board members are better able to effectively channel the plurality of expertise within the boardroom via the mechanism of shared leadership.

Third, this study extends the literature on shared leadership within organizations in several ways. Responding to calls within strategic leadership literature to examine shared leadership in different contexts (Döös & Wilhelmsson, 2021; Samimi et al., 2022; Singh et al., 2023; Sweeney et al., 2019; Zhu et al., 2018), we examined the effects of shared leadership within the boardroom. In particular, we find that not only task-oriented shared leadership has a positive effect on board service performance. Our results suggest that also team-oriented shared leadership – an often neglected shared leadership dimension – seems to play an important role in reaching higher board service performance. Indeed, team-oriented shared leadership may have a positive impact on a number of team conditions related to the nature and quality of the team's dynamics, thereby impacting team performance (Zhu et al., 2018).

Finally, this study also contributes to the understanding of the antecedent conditions that enable shared leadership to develop within teams in general. In particular, we show that team members' awareness of each other's knowledge and skills is an important determinant of shared leadership within teams. Knowledge regarding who possesses which capabilities within the team provides team members with cues regarding the appropriateness of exerting, and accepting, leadership influence in different situations, which is essential for different team members to step up based on situational proficiency.

5.2. Practical implications

Board practitioners, particularly in SMEs, would benefit from paying more attention to factors related to the board's ability to function effectively as a team. Having a well-designed board has been identified as a challenge of SMEs (Kindström et al., 2024), and we show that directors require a sufficient level of awareness of each other's knowledge and skills in order for them to be able to effectively integrate and capitalize on the human capital present among its members. Specifically, given that boards meet episodically, directors in SMEs should strive to becoming sufficiently knowledgeable about one another's expertise and abilities. In this regard, we expect that periodically evaluating board performance and the contributions of individual board members will be insightful. Such periodic assessment may be used to 'map' the knowledge, skills, and abilities that are relevant to the particular board and assess how the current composition meets these needs. The director profiles which would materialize from such an exercise may aid directors in assessing who holds which expertise within the boardroom and provide them with helpful cues to assess when to claim or grant leadership and follower identities in particular situations. For example, a board member with deep financial expertise might lead discussions on budgetary matters, while another with experience in technology might take charge of digital transformation initiatives. In addition, in order for directors who join the board at later stages to be able to effectively contribute to the board, such director profiles could be included in director introduction packages as well.

Belgium is one of the first countries in the world that issued a corporate governance code for non-listed firms and more countries are currently following this trend. Our findings could be helpful for those initiatives as guidelines could be drafted to outline how to overcome the challenge of moving from a traditional hierarchical model to a shared leadership model, by specifying how leadership responsibilities will be

distributed, and who will take the lead on particular issues based on their expertise. Regulators could issue best practice guides on developing director profiles and utilizing them to foster shared leadership. This could include templates or recommendations for evaluating director skill sets, aligning leadership roles, and structuring board leadership succession.

Furthermore, the board could invest in specific actions to create an environment where shared leadership can thrive. For example, transformational leadership behaviors could be trained, as such behaviors are found to positively impact shared leadership by fostering team identification (Schummer et al., 2024). In addition, directors could give more attention to behavioral competencies when selecting directors. Prior research also shows the importance of intragroup trust – trust between the different members of the board (Abson et al., 2024). By giving the board time to develop and space to learn about each other, trusting relationships can be developed that support shared leadership. This could be done by regularly evaluating the board of directors, but putting more emphasis on the board's mission and vision, their shared values and goals, which can also heighten the identification of directors with the board as a team and thus shared leadership behaviors (Vandebeek et al., 2016). When directors are united in their purpose, it might be easier for them to trust each other in leadership roles, knowing that everyone is working toward the same outcomes. In addition, board evaluations should assess not only the board's collective performance but also how effectively leadership responsibilities are being shared among members. Guidelines in corporate governance codes could prompt boards to include specific criteria in their evaluations that assess the effectiveness of leadership sharing.

In sum, we encourage policymakers to develop clear guidelines on how an environment can be created that fosters shared leadership, such as by using director profiles, but also on how to design effective board evaluations that could heighten team identification. Regulators could encourage or require companies to disclose leadership evaluation outcomes and the ways they are fostering shared leadership in corporate governance reports. This transparency could increase accountability to stakeholders, but also might enhance the adoption of shared leadership practices.

5.3. Future research directions

This study shows that shared leadership within the board is associated with higher board performance and therefore contributes to good corporate governance. However, this relationship may be moderated by previously unexplored factors such as the industry or the region. Therefore, for example, in countries where weak governance is an issue, shared leadership on corporate boards could benefit decision-making. While in recent years, non-Western countries, such as South Korea, China, and Taiwan, are increasingly paying attention to shared leadership (Han et al., 2023), empirical studies into the topic within SMEs in different global contexts are still limited. Therefore, we encourage future research that examines shared leadership in SMEs in such contexts.

The effectiveness of shared leadership can in fact also be influenced by cultural variations, and shared leadership could manifest differently in high-power distance cultures compared to low-power distance cultures (Han et al., 2023). In cultures where hierarchical structures are the norm, shared leadership on corporate boards might face more resistance. Therefore, future research could examine how boards operating in diverse cultural settings can adapt their shared leadership strategies to align with local norms and values (Fausing et al., 2015; Soni et al., 2023).

5.4. Boundary conditions and limitations

As all empirical research, this study is not without limitations, which create several opportunities for further research. First, as is

commonplace in corporate governance research (Kumar & Zattoni, 2019), this study is cross-sectional in nature. Future board research could benefit from a longitudinal design in order to provide more insights on shared leadership behaviors over time. However, complex and demanding as our current research design already is, similar longitudinal efforts may prove to be a real challenge. Another potential limitation of this study is its relatively modest sample of 32 boards used in the analyses. Although this study has produced significant results, and sample sizes of that order are not uncommon for small group studies into shared leadership nor upper echelon performance (Buyl et al., 2011; Lorinkova & Bartol, 2021), studies utilizing larger samples may bolster confidence in our findings.

Second, boundary conditions under which shared leadership may be more or less effective (or even ineffective) within the board should be examined. New technological advances could impact the dynamics of shared leadership and digital technologies are increasingly used for communication and interaction (Oliveira et al., 2022). It could be interesting to examine the impact of the degree of board virtuality. Should boards always have the capacity to meet face to face? Or if the board chooses to meet (only) online, do all directors have enough experience with virtual technology tools to ensure that shared leadership behaviors are not limited (Chamberlin et al., 2024)? Therefore, future research could examine the virtuality of the boardroom as a boundary condition that could impact shared leadership behaviors.

Finally, our study encourages board scholars to focus more on board internal mediating processes and mechanisms related to board leadership as a way of gaining insight into how boards can be effective and contribute to good corporate governance. From a methodological point of view, adopting a qualitative research design may be particularly meritorious for board (shared) leadership research as leadership scholars increasingly acknowledge that the richness and complexity of leadership phenomena are particularly well grasped by qualitative examination (e.g., Abson et al., 2024; Cisneros et al., 2022; Sweeney et al., 2019).

6. Conclusion

Boards of directors are key instruments in an effective corporate governance system as they perform critical firm functions such as the provision of strategic advice to the firm, which is extremely valuable for private firms like those investigated in our study. Comprehending what determines a board's service effectiveness is therefore essential. In this regard, this study provided important contributions by highlighting the importance of board leadership for board service performance. More specifically, boards in which leadership functions were taken up collectively were found to be more effective in carrying out their service tasks, signaling the importance of conceiving the board as a collection of interacting individuals to advance the study and understanding of boards of directors. This study directly addresses recent calls for a behavioral and process-oriented perspective on boards of directors, emphasizing the importance of intermediate board mechanisms and processes in determining board effectiveness. Additionally, this study enhances the board literature by complementing the limited research on actual leadership dynamics within the boardroom. Furthermore, we contribute to the ongoing debate about the significance of directors' knowledge and skills within the boardroom, and expand the literature on shared leadership within organizations by responding to recent calls to explore shared leadership within the board context.

CRedit authorship contribution statement

Wim Voordeckers: Writing – review & editing, Writing – original draft, Supervision, Methodology, Formal analysis. **Alana Vandebeek:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Conceptualization. **Frank Lambrechts:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Yannick**

Bammens: Supervision, Methodology, Conceptualization. **Maarten Vandewaerde:** Writing – original draft, Supervision, Methodology,

Data curation, Conceptualization.

Appendix:. Constructs and measures

Construct	Rotated factor loadings	Average variance extracted	Alpha
<i>Board service performance</i>		0.72	0.84
• The extent to which the board provides assistance to the CEO in the formulation of corporate strategy	0.797		
• The extent to which the board serves as a “sounding board” to the CEO on strategic issues	0.843		
• The degree to which directors provide advice and counsel in discussions concerning strategic issues	0.895		
<i>Board members' awareness of each other's knowledge and skills</i>		0.73	0.91
• Board members have a good map of each other's talents and skills	0.825		
• Board members know what task-related knowledge and skills they each possess	0.863		
• Board members know who on the board has specialized skills and knowledge which are relevant to their work within the board	0.875		
<i>Task-oriented shared leadership</i>		0.55	0.89
• Board members share in obtaining the information and resources required in order for the board to be able to carry out its work	0.718		
• Board members share in establishing expectations and goals for the board's work	0.796		
• Board members share in planning how the board's work gets done	0.701		
• Board members share in advancing solutions for the board's work problems	0.775		
• Board members share in taking actions to get or keep the work going	0.717		
<i>Team-oriented shared leadership</i>		0.58	0.90
• Board members share in looking out for the personal well-being of board members	0.718		
• Board members share in taking actions to avoid and resolve interpersonal conflicts within the board	0.691		
• Board members share in doing things to make it pleasant to be a member of the board	0.771		
• Board members share in fostering a cohesive board atmosphere	0.799		
• Board members share in creating an environment in which people feel 'safe' to participate	0.824		

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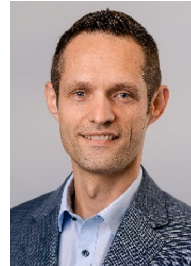
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