The impact of the board’s strategy-setting role on board-management relations and hospital performance

Vera Antonia Büchner
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Background: The appropriate governance of hospitals largely depends on effective cooperation between governing boards and hospital management. Governing boards play an important role in strategy-setting as part of their support for hospital management. However, in certain situations, this active strategic role may also generate discord within this relationship.

Purpose: The objective of this study is to investigate the impact of the roles, attributes, and processes of governing boards on hospital performance. We examine the impact of the governing board’s strategy-setting role on board-management collaboration quality and on financial performance while also analyzing the interaction effects of board diversity and board activity level.

Methodology: The data are derived from a survey that was sent simultaneously to German hospitals and their associated governing board, combined with objective performance information from annual financial statements and quality reports. We use a structural equation modeling approach to test the model.

Findings: The results indicate that different board characteristics have a significant impact on hospital performance ($R^2 = .37$). The strategy-setting role and board-management collaboration quality have a positive effect on hospital performance, whereas the impact of strategy-setting on collaboration quality is negative. We find that the positive effect of strategy-setting on performance increases with decreasing board diversity. When board members have more homogeneous backgrounds and exhibit higher board activity levels, the negative effect of the strategy-setting on collaboration quality also increases.

Practice Implications: Active strategy-setting by a governing board may generally improve hospital performance. Diverse members of governing boards should be involved in strategy-setting for hospitals. However, high board-management collaboration quality may be compromised if managerial autonomy is too highly restricted. Consequently, hospitals should support board-management collaboration about empowered contrasting board roles.

Key words: Governing boards, hospitals, performance, structural equation modeling

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In recent decades, the importance of corporate governance in hospital management practice and research has increased consistently (Daily, Dalton, & Cannella, 2003), and governing boards have begun to take a more active role in guiding hospitals (Alexander & Lee, 2006). In particular, governing boards now play an important role in strategy-setting and supporting hospital management. However, in certain situations, this active strategy-setting role may lead to discord, undermining the relationship between governing boards and hospital management. This is a serious issue because the strategic success of hospitals largely depends on the ability of governing boards and management to work effectively together. Moreover, governing boards differ substantially in terms of their specific characteristics and modes of operation. Although some boards have diverse members and work very intensively, other board compositions are rather homogenous, and their members rarely meet (e.g., Eeckloo, van Herck, & van Hulle, 2004; Naranjo-Gil, Hartmann, & Maas, 2008). Therefore, the impact of a governing board's active strategy-setting role on board-management collaboration quality and, ultimately, on a hospital's financial performance may be dependent on the board's composition and activity level.

Existing literature analyzing the impact of governing boards on organizational hospital performance is an enormous field of research. Several studies have examined the impact of the governing board's strategy-setting role on financial performance in the hospital context. One group of studies has analyzed board roles in the hospital sector in general. Lee, Alexander, and Wang (2008) have developed a taxonomy for hospital governing board roles by clustering governing boards with regard to their three main board roles (strategy-setting, performance evaluation and oversight, and external relations).

Other studies have examined the impact of board roles on financial performance (e.g., Kane, Clarke, & Rivenson, 2009). The results of Kane et al. revealed differences between financially high- and low-performing hospitals with regard to board processes and behavioral dynamics. Another group of studies has focused on the strategy-setting role in the hospital context (e.g., Ford-Eickhoff, Plowman, & McDaniel, 2011). These studies suggested that, if board members are involved in the early stages of decision making, the hospital's goals will be more externally focused. Within this group of studies, a few papers have examined the impact of strategic roles on hospital performance (e.g., Judge & Zeithaml, 1992a, 1992b; Young, Beekun, & Ginn, 1992). The results of these studies have been mixed. Although some of these studies have found a positive impact of board's strategic roles on financial performance measured as profitability (Judge & Zeithaml, 1992b; Young et al., 1992), Judge and Zeithaml indicated that a board's involvement in strategy-setting can have a negative impact on sales growth.

Our study goes beyond existing studies in several ways. First, to our knowledge, this is the first study to examine the impact of the board's strategy-setting role on board-management collaboration quality. The existing studies have focused exclusively on the impact of the board's strategy-setting role on hospital performance (e.g., Alexander, Fenell, & Halpem, 1993). If board-management collaboration quality had an important impact on hospital performance, this would add an additional dimension. Second, unlike the existing studies, we found it important from a methodological perspective to incorporate information from a source other than the governing board itself to measure board-management collaboration quality. Thus, we surveyed the hospital management to avoid common method bias. Third, another limitation of previous studies is that none of these studies have examined how contextual factors can change the effect of a board's strategy-setting role, although board characteristics differ and may be highly relevant in this respect. Up until now, only Naranjo-Gil et al. (2008) have analyzed the moderating effect of board heterogeneity on the relationship between strategic change and performance in the hospital sector. To address this limitation, we allowed for interaction effects of board diversity and board activity level in the relationship between the strategy-setting role, board-management collaboration quality, and performance. By considering interaction effects, the study allowed a more in-depth view on the relationship between the strategy-setting role and performance. Significant moderating effects of board diversity and board activity level would reveal that findings of prior studies solely focusing on the relationship of the strategy-setting role and performance should be reconsidered. Finally, existing studies have primarily focused on single financial indicators in measuring hospital performance (e.g., Molinari, Hendryx, & Goodstein, 1997). To incorporate broader performance effects and to cover the various financial goals of hospitals, we employed a more detailed and comprehensive concept of performance using secondary data. Using a broader set of performance indicators allowed a broader view at the effects of the strategy-setting role, whereas the use of secondary data for the dependent variable reduced the risk for biased estimates. This study investigated the impact of the governing board's strategy-setting role on board-management collaboration quality and hospital financial performance. In doing so, we relied on the stewardship theory for hypothesis development.

**Conceptual Framework**

In contrast to principal agent theory, stewardship theory proposes that managers do primarily act in their self-interest but act as responsible stewards of the assets they control (Davis, Schoorman, & Donaldson, 1997). After stewardship theory, managers are intrinsically motivated (Sundaramurthy & Lewis, 2003) and require no external control or monitoring by governing boards. There is no conflict of interest between managers and owners. Thus,
Based on stewardship theory, governing boards can be seen as fulfilling a supportive function focusing on strategy-setting rather than control (Sundaramurthy & Lewis, 2003; Zahra & Pearce, 1989). Although the board's strategic tasks are widely recognized as its most important category of tasks (e.g., Golden & Zajac, 2001; Zahra & Pearce, 1989), our understanding of the board's involvement in strategy-setting remains elusive (Golden & Zajac, 2001; Judge & Zeithaml, 1992a). According to McNulty and Pettigrew (1999), the board's strategic role involves shaping the context, conduct, and content of strategy. With the help of a board that is actively involved in the formulation of the hospital's strategy, uncertainty related to market and regulatory developments may be reduced. Considering these external perspectives will help to ensure the hospital's success in the hospital market. As such, governing boards, active in the strategy planning, do not limit themselves to approving managerial choices; rather, they initiate and develop strategic changes or help CEOs to finalize their strategic plans (Zahra, 1990). Consequently, the active participation of governing boards in the formulation of strategy is an important factor in hospital performance (Judge & Zeithaml, 1992b).

**Hypothesis 1a:** The Board's Strategy-Setting Role is Positively Related to Hospital Performance.

However, a board's active involvement in strategic planning can also have drawbacks. The external guidance of governing boards may negatively affect hospital managers' willingness to collaborate. Through a strong influence on strategy-setting, a board limits the autonomy of hospital managers (Westphal & Zajac, 1995). Consequently, managers may become concerned that they are responsible for implementing risky strategies but will not reap the full benefits of successfully doing so.

Concerning their collaboration, board members clearly have an advantage because of their formal authority over management (Westphal & Zajac, 1995). Empowered boards may also detract from the power (e.g., giving strict direction or even hire and fire CEOs). In turn, this may lead to conflicts between board and managers (Alexander et al., 1993). Another source of conflict and mistrust of governing boards is the lack of observability of information about relevant board members' personal agendas, backgrounds, or orientations (Wade, O'Reilly, & Chandratat, 1990). Thus, if governing boards dictate an agenda, there is a limited opportunity for open debate (Zajac & Westphal, 1996). This is another characteristic of boards that may restrict the acceptance of externally influenced strategic goals. Hence, a governing board's strategy-setting role may have a negative impact on board-management collaboration quality.

**Hypothesis 1b:** The Board's Strategy-Setting Role is Negatively Related to Board-Management Collaboration Quality.

However, stewardship theory states that the crucial task of governing boards is to collaborate with managers (Sundaramurthy & Lewis, 2003). A collaborative approach consistently signals the need for an enduring board-management relationship. According to Alexander et al. (1993), the board and top management should work together as one unit. Sundaramurthy and Lewis noted that social ties between managers and governing board's members can increase goal alignment and loyalty between these boards. As a consequence, communication in dyads (e.g., governing boards and hospital management; Roberts & O'Reilly, 1974) and the transfer of implicit knowledge can be enhanced. According to Daily et al. (2003), the analysis of board-management collaboration should focus on the assistance of directors by providing valued resources to organizations and, thus, serving as a source of advice and counsel for managers. In doing so, a compatible leadership and communication style between governing boards and hospital managers can facilitate their interaction and communication (Wagner, Pfeffer, & O'Reilly, 1984). With the help of a trustful cooperative relationship, performance can be improved. According to earlier studies (e.g., Zahra, 1990), we assumed that there is a positive relationship between board-management collaboration quality and hospital performance.

**Hypothesis 2:** Board-Management Collaboration Quality is Positively Related to Hospital Performance.

As indicated above, the efficacy of strategy-setting by boards may be influenced by the board members' diversity and activity level. Diversity is a multidimensional construct that refers to the combination of individual characteristics or experiences of team members. Types of diversity may include, for example, variations in age or professional background (Milliken & Martins, 1996). According to Sundaramurthy and Lewis (2003), promoting diversity may enable firms to improve their performance. With the help of board diversity, a greater variety of perspectives is brought to bear on decisions. This greater creativity and innovativeness on the part of board members may make it easier to solve problems (Milliken & Martins, 1996). Hospital strategies must address diverse issues, including medical, economic, and social matters. The backgrounds of board members should include experience in fields that will allow them to provide valuable competences and meet hospital requirements. According to Westphal and Zajac (1995), there is evidence for a relationship between age and a variety of work-related attitudes. For instance, regarding age diversity, a hospital may take advantages of elder board members because of their experience; they tend to involve more information and take more time before making decisions (Taylor, 1975). Thus, a higher degree of board diversity in this and other respects was expected to generate more valuable decisions and exhibit a moderating effect on...
the relationship between the board’s strategy-setting and performance.

**Hypothesis 3a:** Higher Board Diversity is Associated With a More Positive Relationship Between the Board’s Strategy-Setting and Hospital Performance.

Using the image of a “double-edged sword,” Milliken and Martins (1996) described the benefits and drawbacks of board diversity. They suggested that heterogeneity on governing boards may not be beneficial in all circumstances. Varied skills and experiences may increase conflicts between board members (Rindova, 1999). Board members’ views and orientations could generally deviate from that of hospital managers; this may result in greater conflict and instability (Alexander et al., 1993). It is also likely that diverse groups communicate more formally and are less well integrated in these creative debates (Smith et al., 1994). Having a stronger voice and more power makes the governing board’s strategy-setting efforts more relevant and more difficult to ignore. In such a scenario, managerial autonomy may decrease. In summary, board diversity can generate challenges within the collaboration between the governing board and the hospital management by creating communication or integration problems (Milliken & Martins, 1996; Smith et al., 1994). Therefore, we proposed that the interaction effect of board diversity would reinforce the negative relationship between the strategy-setting role and board-management collaboration quality.

**Hypothesis 3b:** Higher Board Diversity is Associated With a More Negative Relationship Between the Board’s Strategy-Setting Role and Board-Management Collaboration Quality.

According to Payne, Benson, and Finegold (2009), board activity may determine the impact of the governing board’s strategic role. Therefore, we analyze board activity level as a second moderator within our model. Board activity level can be used to characterize the extent of task execution of governing boards. As in the “double-edged sword” vision of board diversity, we assume benefits and drawbacks of board activity level. In this context, we follow the assumptions of stewardship theory, which emphasize an involvement-oriented management philosophy. Board members do not exert formal control; rather, they exert an informal influence and operate based on trust. Therefore, a board’s perceived role may be to provide advice or counsel (Davis et al., 1997). Spending more time on relevant activities may contribute to effective board functioning (here, strategy-setting) and may consequently have a positive impact on performance (Payne et al., 2009). We expected that a high level of board activity would enhance the relationship between strategy-setting and hospital performance.

**Hypothesis 4a:** Higher Board Activity Level is Associated With a More Positive Relationship Between the Board’s Strategy-Setting Role and Hospital Performance.

Eeckloo et al. (2004) understood board activity as an indicator of the authority of governing boards. On the basis of this suggestion, it seems that board activity may further restrict prescribe managerial autonomy as described above. Therefore, a board’s activity level may be perceived as negative in the context of the collaboration with hospital managers. Managers may feel frustrated and unable to develop effective cooperative working relationships with principals because of the high board activity level (Davis et al., 1997). Thus, the moderator board activity level may strengthen the predicted negative impact of strategy-setting on board-management collaboration quality.

**Hypothesis 4b:** Higher Board Activity Level is Associated With a More Negative Relationship Between the Board’s Strategy-Setting Role and Board-Management Collaboration Quality.

The described relationships are summarized in Figure 1.

### Methodology

**Data**

The German hospital market consists of more than 2,000 hospitals and features three types of ownership structures: private for-profit, private non-profit, and public. Our survey was conducted in three phases. First, experts in hospital research helped us to frame the questionnaire stronger appropriately for the German hospital market. Second, the questionnaire was discussed with several hospital practitioners with the aim of incorporating a practical perspective into the study. Finally, the questionnaire was finalized using a focus group. To ensure the comparability of the hospitals in the sample, hospitals that provided only psychiatric care, university hospitals, day or night clinics, and hospitals with only outpatient treatment and with fewer than 50 beds were excluded from the sample. We sent our survey simultaneously to 1,382 hospitals and their governing boards in 2011. We asked the responsible chairs of governing boards and hospital chief executive officers to relate their responses to 31.12.2010. One hundred ninety-two hospital CEOs and 214 chairs of governing boards responded to the survey. Similar studies concerning governing boards present comparable response rates of approximately 20% (Ford-Eickhoff et al., 2011; Lee et al., 2008). Multiple dyadic combinations exist between hospitals and governing boards, which involve the same CEO or...
the same board in several hospitals. In our analysis, we only included hospitals in the analysis, for which both CEO and chair of governing board were different persons and answered the questionnaires. After plausibility checks, we obtained a final data sample of 61 hospitals, for which the hospital CEO and their associated governing board both completed the survey. We performed a test for nonresponse bias whether the characteristics of respondent hospitals differed from those of nonrespondent hospitals. Respondent and nonrespondent hospitals were not significantly different throughout the characteristics included as control variables in our model. Most of the responding hospitals had private legal form. The distribution of the sample with regard to legal forms and hospital size (in beds) makes the sample roughly representative of the German hospital market. To avoid common method bias, we used multiple sources of information: We used two informants, the hospital CEO and the chair of each governing board (Van Bruggen, Lilien, & Kacker, 2002). Moreover, we used data from annual financial statements and quality reports for the year 2011 as measures for hospital performance (Kumar, Louis, & Anderson, 1993). In doing so, we followed the advice of Podsakoff, MacKenzie, Lee, and Podsakoff (2003) that the independent and dependent variables should not be the same as the respondent’s view. We assumed a time lag of 1 year to avoid the problem of reverse causality.

**Variable Measurement**

The indicators used to measure the construct of strategy-setting were based primarily on the work of Lee et al. (2008). On the basis of the pretest with researchers and practitioners, we refined the set of indicators and adapted them to the requirements of the German hospital market. In general, the constructs were based on the results of the surveys of the governing boards. To evaluate the board’s strategy-setting role, we measured the responses regarding the impact of the governing boards on strategic planning for different objectives using a 5-point Likert scale, with items generated from information provided by the chair of the governing board. Using factor analysis, we reduced the number of factors to four: market-related, employment, social, and innovation-oriented objectives. Factor analysis confirmed the existence of a single factor within each dimension with an Eigenvalue greater than 1.

The latent variable board-management collaboration quality measured the quality of the collaboration between the hospital management teams and governing boards. To avoid single-source bias, we measured this construct (unlike all of the other constructs) from the perspective of hospital managers; the responses of the CEOs of the targeted hospitals were used to determine board-management collaboration quality. Because of the dearth of appropriate scales for measuring collaboration between management and governing boards in the hospital setting, we used an existing scale from a general management context and adapted it to the hospital setting (Gabris, Golembiewski, & Ihrke, 2000). Board-management collaboration quality was measured using four indicators. Using a 5-point Likert scale, we asked questions concerning board-management collaboration quality, including questions on the communication culture, the length of the decision-making process, and the involvement of governing boards in operative decision making.

The first moderator board diversity was defined as the degree of heterogeneity within a board. We used three indicators: the diversity of gender, age, and occupational background (Naranjo-Gil et al., 2008). Gender diversity was measured as the percentage of women of the total number of members in governing boards (Alexander et al., 1993; Alexander & Lee, 2006). The distribution
of occupational backgrounds on governing boards has been previously described as occupational heterogeneity (Alexander et al., 1993; Alexander & Lee, 2006; Young et al., 1992). The occupational categories assessed were as follows: physicians, other health professionals, lawyers, educators, bankers/financiers, retirees, and others. Different indices have been used to measure diversity: the Gini index (e.g., Young et al., 1992), the Blau index (Naranjo-Gil et al., 2008), and the Herfindahl index (Alexander & Lee, 2006). Consistent with the approach that Alexander and Lee used in hospital settings, we used the Herfindahl index, which is commonly used as a standard measure of market concentration. Respectively, we calculated the breadth of occupations represented on each board, evaluating each of seven mutually exclusive occupation groups as a percentage of the board, which were squared and then summed. The reverse score was used as an indicator. The age diversity of the board members was assigned to the following classes: members younger than 30 years old, between 30 and 44 years old, between 45 and 59 years old, and older than 60 years old (Siciliano, 1996). Board age diversity was measured using the Herfindahl index, which is scaled in reverse. We measured the second moderator, board activity level, using a single item: frequency of annual board meetings (Eeckloo et al., 2004). In measuring performance, we followed most of the prior studies in this field and focused on financial performance (Molinari et al., 1997; Molinari, Morlock, & Alexander, 1993). On the basis of objective information, we measured financial hospital performance using four reflective indicators as suggested by Miller (1991). We identified the following indicators: return on investment (ROI), operational cash flow, earnings before interest, taxes, depreciation, and amortization (EBITDA); and equity ratio (e.g., Alexander & Lee, 2006).

Moreover, for sensitivity analysis, we analyzed the impact on “nonfinancial” hospital performance as an alternative specification to the commonly used financial performance measure (Kane et al., 2009). Nonfinancial performance was measured using the following indicators: full-time equivalents per inpatient case, case-mix per inpatient case, and case-mix per full-time equivalent. To obtain hospital financial and nonfinancial performance, we used annual financial statements and nationwide standardized quality reports for the year 2011. By using secondary data, we were able to avoid single-source bias. Furthermore, we included control variables that may affect the relationship between the board’s strategy-setting role and hospital performance. These variables were hospital size, ownership, chain membership, and legal form. We measured hospital size using the number of available beds in the hospital. Ownership was calculated as a dummy variable, with the value 0 indicating that the hospital is private and the value 1 indicating that it is a public and nonprofit hospital. We also created the system affiliation variable to control for whether each hospital is a freestanding single hospital (0) or part of a multihospital system (1; Golden & Zajac, 2001; Molinari et al., 1993). Finally, we controlled for the legal form of hospitals (private legal form = 0, 1).

### Statistical Model

We used a structural equation modeling (SEM) approach to empirically test the model. Several studies have used SEM to examine the impact of different aspects of board roles, attributes, and processes on performance (Judge & Zeithaml, 1992a; Miller, 1991; Naranjo-Gil et al., 2008). The partial least squares (PLS) path modeling method was used to estimate the structural model, which has several advantages over using the covariance-based SEM method. PLS is suitable for small sample size, does not require any distributional assumptions, and allows an unrestricted handling of formative measurement (Hair, Sarstedt, & Ringle, 2012; Henseler, Ringle, & Sinkovics, 2009). We used the SmartPLS 2.0 software to estimate the model (Ringle, Wende, & Will, 2005). To maximize the explained variance of the endogenous constructs and to avoid convergence problems, we used the factor weighting scheme for the model estimation (Hair et al., 2012).

### Results

#### Properties of the Measurement Model

To ensure indicator reliability, most factor loadings should reach a threshold of at least 0.7, which is the case in our model (Henseler et al., 2009). Only two indicators, communication culture and mode of cooperation with the governing board (both were included in the construct board-management collaboration quality), have smaller values (0.6). However, to guarantee contextual validity, these indicators must remain part of the construct. All of the relationships between the indicators and their constructs are highly significant (at least $p < .05$). All constructs also exceed the thresholds of 0.5 for average variance extracted and 0.6 for composite reliability. The estimated loadings including composite reliability and average variance extracted (AVE) are shown in Table 1. In summary, the measurement model can be interpreted as valid and reliable. Table 2 presents the correlations between the latent variables in the model.

#### Structural Model Results

To analyze the hypotheses in the structural model, we ran a model with the interaction terms, board diversity and
board activity level (the results are summarized in Table 3). The inference statistics were derived from a bootstrapping procedure that used 500 randomly drawn samples with replacement.

We assumed a positive impact of strategy-setting role on hospital performance (H1a). The results show a positive and highly significant path coefficient for H1a (0.191). Therefore, the model supports that a board’s strategy-setting

<table>
<thead>
<tr>
<th>Latent variable</th>
<th>Indicator</th>
<th>Loadings</th>
<th>Mean (SD)</th>
<th>Composite reliability</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy-setting role: Impact of governing board on strategy planning for…</td>
<td>Market-related objectives</td>
<td>0.953**</td>
<td>0.953 (0.005)</td>
<td></td>
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<tr>
<td></td>
<td>Employment objectives</td>
<td>0.956**</td>
<td>0.955 (0.004)</td>
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<tr>
<td></td>
<td>Social objectives</td>
<td>0.943**</td>
<td>0.942 (0.007)</td>
<td>0.97</td>
<td>0.90</td>
</tr>
<tr>
<td></td>
<td>Innovation-oriented objectives</td>
<td>0.951**</td>
<td>0.951 (0.005)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Board management collaboration quality</td>
<td>Estimation of communication culture</td>
<td>0.576***</td>
<td>0.545 (0.109)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mode of cooperation with board</td>
<td>0.604***</td>
<td>0.607 (0.073)</td>
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<tr>
<td></td>
<td>Assessment of length of decision-making</td>
<td>0.866***</td>
<td>0.860 (0.034)</td>
<td>0.81</td>
<td>0.53</td>
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<tr>
<td></td>
<td>Involvement of board in operative decision-making</td>
<td>0.824***</td>
<td>0.823 (0.040)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Board activity level</td>
<td>Board meeting frequency</td>
<td>1 a</td>
<td>1 (0)</td>
<td>1 a</td>
<td>1 a</td>
</tr>
<tr>
<td>Board diversity</td>
<td>Gender diversity</td>
<td>0.967**</td>
<td>0.812 (0.262)</td>
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<tr>
<td></td>
<td>Age diversity</td>
<td>0.697**</td>
<td>0.722 (0.355)</td>
<td>0.85</td>
<td>0.65</td>
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<tr>
<td>Performance</td>
<td>Occupational heterogeneity</td>
<td>0.820***</td>
<td>0.782 (0.280)</td>
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<tr>
<td></td>
<td>Equity ratio</td>
<td>0.656***</td>
<td>0.653 (0.032)</td>
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<tr>
<td></td>
<td>ROI</td>
<td>0.662***</td>
<td>0.660 (0.030)</td>
<td>0.86</td>
<td>0.62</td>
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<td></td>
<td>Operational cash flow</td>
<td>0.903***</td>
<td>0.900 (0.015)</td>
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<tr>
<td></td>
<td>EBITDA</td>
<td>0.909***</td>
<td>0.911 (0.013)</td>
<td></td>
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</tbody>
</table>

Note. n = 61. SD = standard deviation; AVE = average variance extracted; ROI = return on investment; EBITDA = earnings before interest, taxes, depreciation, and amortization.

*Single item.

**p < 0.05.

***p < 0.01.
role positively affects hospital performance. H1b proposed that the strategy-setting role has a negative impact on board-management collaboration quality. The path coefficient is negative and highly significant (−0.178). Therefore, H1b could also be supported. H2 expected a positive impact of board-management collaboration quality on hospital performance, which can be supported based on a positive highly significant path coefficient (0.127). We can deduce that an intense collaboration between a board and a hospital may improve hospital performance.

Two hypotheses cover the moderating effect of board diversity. H3a proposed that board diversity can strengthen the positive relationship between board-management collaboration and hospital performance. In addition, board diversity can enhance the negative relationship between the strategy-setting role and board-management collaboration quality (H3b). Both hypotheses must be rejected. In contrast to the suggested associations, the path coefficients both show the opposite direction but are highly significant.

In contrast to H3a, the moderator board diversity diminishes the positive relationship between the strategy-setting role and performance (−0.107). Therefore, strategy-setting becomes more relevant for hospital performance when a board is more homogenous. On the basis of the results for H3b, it seems that board diversity intensifies the relationship between the strategy-setting role and board-management collaboration quality (0.072). According to board diversity, we assumed two hypotheses analyzing the impact of the second moderator board activity level. H4a predicted that the moderator board activity level strengthens the relationship between the strategy-setting role and hospital performance. The path coefficient is not significant. Therefore, the data do not support H4a. H4b suggested that the board activity level negatively moderates the relationship between the strategy-setting role and board-management collaboration quality. The path coefficient is negative and highly significant (−0.178). Therefore, H4b is supported.

The path coefficients of the structural model for financial and nonfinancial performance are summarized in Figure 2.

To bolster the results of the regression analyses regarding the moderating effects of board diversity and activity level (H3a, H3b, and H4b), the relationships are further analyzed using post hoc probing of the simple slopes (Aiken & West, 1991). Figure 3 displays the simple slopes for the two-way interaction effect between the moderators and strategy-setting role on financial performance and board-management collaboration quality, using only low and high values for the independent variables (one standard deviation below and above the mean). The diamonds (squares) indicate a low (high) level of both moderators. If board diversity is relatively low (upper half, left side, Figure 3), performance increases with higher levels of board strategy role. In contrast, if board diversity is high, a more intense involvement of boards in strategy-setting will influence performance only marginally. A lower board diversity also emphasizes the negative impact of strategy-setting role on board-management collaboration quality (upper half, right side, Figure 3). Supporting H4b, the lower half of Figure 3

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Financial performance</th>
<th>Nonfinancial performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Strategy-setting role &gt; performance</td>
<td>0.191***</td>
<td>0.058**</td>
</tr>
<tr>
<td>H1b: Strategy-setting role &gt; board-management collaboration quality</td>
<td>−0.178***</td>
<td>−0.271***</td>
</tr>
<tr>
<td>H2: Board-management collaboration quality &gt; performance</td>
<td>0.127***</td>
<td>0.171***</td>
</tr>
<tr>
<td>Board activity level &gt; board-management collaboration quality</td>
<td>0.098***</td>
<td>ns</td>
</tr>
<tr>
<td>Board activity level &gt; performance</td>
<td>−0.307***</td>
<td>−0.229***</td>
</tr>
<tr>
<td>Board diversity &gt; board-management collaboration quality</td>
<td>−0.113***</td>
<td>−0.044*</td>
</tr>
<tr>
<td>Board diversity &gt; performance</td>
<td>0.091***</td>
<td>0.234***</td>
</tr>
<tr>
<td>H3a: Moderator board diversity*Strategy-setting role &gt; performance</td>
<td>−0.107***</td>
<td>−0.246***</td>
</tr>
<tr>
<td>H3b: Moderator board diversity*Strategy-setting role &gt; board-management collaboration quality</td>
<td>0.072***</td>
<td>0.062**</td>
</tr>
<tr>
<td>H4a: Moderator board activity level*Strategy-setting role &gt; performance</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>H4b: Moderator board activity level*Strategy-setting role &gt; board-management collaboration quality</td>
<td>−0.178***</td>
<td>−0.186***</td>
</tr>
</tbody>
</table>

$R^2 = .37$ $R^2 = .20$

Note. $n = 61$. ns = nonsignificant; control variables are included.

*p < .10.

**p < .05.

***p < .01.
displays that very active boards, which are involved in strategy-setting, may have difficulties in establishing a relevant positive relationship with hospital management.

The coefficients of the control variables mostly have the expected signs and are significant. When the interaction terms are included, $R^2$ is .37. Therefore, the explained variance can be categorized as strong (Chin, 1998). Stone–Geisser criterion $Q^2$ values range above the threshold level of 0. We ran several sensitivity analyses using alternative model specifications. First, instead of using the board diversity construct, we re-estimated the model using age and gender diversity as single-item interaction effects. Second, we extended the existing construct of board diversity and included board tenure as an additional indicator to measure
the interaction effect of board diversity. Third, we varied the selection of indicators that were used to measure board-management collaboration quality. Finally, we re-estimate our model including the excluded hospitals, where CEO is simultaneously chair of the governing board (n = 65). Finally, as suggested by Kane et al. (2009), we used a “non-financial” specification of hospital performance as an alternative to the commonly used financial performance measure. The signs of the relevant coefficients did not change when the re-estimated models were used, and these findings indicated the robustness of the presented results.

Discussion

The objective of this study was to examine the impact of the board’s strategy-setting role on hospital performance. We developed a conceptual framework that examined the impact of this strategy-setting role and board-management collaboration quality on hospital performance while allowing for the interaction effects of board diversity and board activity level. The data were obtained from surveys that were simultaneously sent to German hospitals and their governing boards. To empirically test the model, we used an SEM approach. We found that the board’s strategy-setting role and board-management collaboration quality have a positive impact on hospital performance. However, we found a negative impact of the strategy-setting role on board-management collaboration quality. The relationship between strategy-setting and performance is negatively influenced by a more diverse board composition. The negative effect of the strategy-setting role on board-management collaboration quality becomes stronger when a board is more homogeneous and when the board activity level is higher. Our study has a number of strengths compared with previous studies. First, this study is, to our knowledge, the first to simultaneously consider information from questionnaires sent to hospitals and their governing boards with the objective of analyzing the impact of board roles, attributes, and processes on financial performance using quantitative methods. Second, to avoid single-source bias, we used data from annual financial statements and quality reports for the year 2011 as measures of hospital performance. We thus attained a more objective view in analyzing hospital performance. Third, by including the interaction effects of board diversity and board activity level within our research model, we generated more detailed information on the various relationships. Fourth, our study adds to the existing research on board strategy-setting by analyzing board-management collaboration quality. We analyzed not only the direct impact of strategy-setting on performance but also its impact on board-management collaboration quality. Finally, this study is different from other studies because of its more detailed measurement of hospital performance using a set of different financial performance indicators.

Our study results are consistent with those of other studies that have found evidence of the positive impact of strategy-setting on hospital performance (Judge & Zeithaml, 1992a; Young et al., 1992). The active strategic role of governing boards helps hospitals to avoid mistakes and contributes to hospital performance by reducing hospital uncertainties (Judge & Zeithaml, 1992a). Therefore, the positive relationship between strategy-setting and hospital performance has been supported. The findings also endorse the theory-driven hypothesis of a negative link between strategy-setting and board-management collaboration quality. Because of the perceived authority of governing boards, hospital managers may feel patronized. Moreover, intergroup conflict and mistrust can decrease managerial autonomy. The impact that governing boards have by fostering particular strategies may be perceived negatively by hospital managers. Consequently, the quality of board-management collaboration may be negatively influenced by a board’s strategy-setting role (Sundaramurthy & Lewis, 2003).

However, our findings indicate that the quality of the collaboration between hospital management and governing boards has a positive impact on hospital performance. These results are consistent with those of existing studies on CEO–board relations. According to Molinari et al. (1997), effective governance includes the ability of hospital managing teams and governing boards to share power. There is a need for fruitful relationships between managers and board members, which will be encouraged by a positive working climate for both parties.

One surprising finding was the weakening effect of the moderator board diversity on the relationship between strategy-setting and hospital performance. Existing studies in the hospital context, however, reveal a positive direct effect of board diversity on hospital performance. Young et al. (1992) found occupational heterogeneity to be positively associated with financial performance. Furthermore, Naranjo-Gil et al. (2008) are the only authors who use several indicators (e.g., age and gender) to measure board diversity. They suggest that strategic change poses a threat to organizations’ operational performance but that relatively heterogeneous boards are able to protect their organizations from this threat and successfully battle downturns in operational performance. In contrast to the results above, the weakening effect of diversity may be caused by a focus on the moderating effect of board diversity in strategy-setting. Higher board diversity generates varied capabilities, skills, and experiences. As a result of this diversity, communication or integration problems and conflicts within boards may be observed (Milliken & Martins, 1996; Rindova, 1999). This phenomenon may induce more formal or even less frequent communication between board members. As a consequence, the use of essential bureaucratic control mechanisms will slow down decision making and hamper the efficacy of strategy-setting (Smith et al., 1994). An increase in board diversity may also reduce the likelihood of
consistent beliefs and goals on governing boards (Milliken & Martins, 1996). Therefore, strategic initiatives may be ambiguous to some extent and, as such, may have a less potent influence on performance. Finally, it is possible that, on highly diverse governing boards, single people dominate communication processes, and boards do not effectively use the diversity of their expertise. Consequently, the influence of a governing board on hospital strategy is not necessarily suitable to the hospital’s needs.

Nevertheless, our findings did not support the hypothesis that the moderating effect of board diversity strengthens the relationship between strategy-setting and board-management collaboration quality. Diversity in teams may signal positive working conditions (Turban & Greening, 1997). This positive working behavior among board members may be observed by hospital managers and can reduce the negative effect of strategy-setting on their collaboration with the board. Because of their diversity-related varied ideas, creativity, and innovativeness, governing board members may be open-minded to new ideas generated by hospital managers. This positive attitude on boards decreases the potential for conflict in their collaboration with hospital managers and fosters intergroup cooperation. Furthermore, diversity on governing boards may facilitate communication with individuals from outside the group (in this case, hospital managers) because of a higher likelihood that members of both groups will have comparable characteristics (Milliken & Martin, 1996). The existence of similar thoughts or perspectives across teams may reduce the negative consequences of empowered boards. Therefore, the possibility that an influenced board’s strategy corresponds with the expectations of the hospital managers is likely to increase. In addition, on diverse governing boards, individual board members may be unfamiliar with the hospital context. In such scenarios, the task of hospital managers, mainly CEOs, is to provide information to these members. In shaping the development of hospital strategy, such board members will rely more on the opinions of CEOs than on their own perspectives. Therefore, the attitudes of the two groups may converge, and strategy recommendations made by the board may be less likely to conflict with the opinions of the hospital management.

The moderating effect of board activity level strengthens the observed negative impact of strategy-setting on board-management collaboration quality. The board activity level may be interpreted as the extent of the external guidance provided to hospital managers. A higher number of board meetings per year will give the governing board more authority (Eeckloo et al., 2004). Consequently, hospital managers may be more likely to feel patronized by governing boards. Therefore, the level of board activity may also be understood as one form of board involvement. Following Judge and Zeithaml (1992a), board involvement can be seen as the overall level of participation of board members, which affects the long-term performance of an organization. A higher participation level may generate a more formalized control and interaction style, limiting cooperative, trusting work behavior (Sundaramurthy & Lewis, 2003).

Our study has several limitations. First, our sample is rather small. Because we conducted a simultaneous double-sided but separate survey, we received questionnaires from hospitals and governing boards that could not be matched because the answers from one side or the other were missing. A common critique of the use of small samples is that the results are not robust. However, we addressed this concern by using alternative model specifications that confirmed the robustness of our results. Second, this study measured hospital performance using several indicators for financial performance. To measure financial performance, we used earnings before interest, taxes, depreciation, and amortization (EBITDA), which may be understood as a “political” reporting measure. However, the use of other indicators for financial performance was limited by data availability. Further research should include other indicators, such as efficiency costs, as measures of hospital performance. Third, as a means of measuring board activity level, the indicator frequency of board meetings is not necessarily the best option. Further research should extend the measurement model by including more indicators, for example, active participation during meetings or the existence of separate board committees for audits (Lee et al., 2008).

Practice Implications

Both managers and scholars seek to explain the impact of the governing board’s strategy-setting role on hospital performance. We have provided important insight into the board’s roles, attributes, and processes and have shed light on their influence on hospital performance. First, our results suggest that active strategy-setting by a governing board may improve hospital performance. Therefore, members of governing boards should invest in comprehensive strategic planning. Chairs should be aware of the importance of strategy-setting and should expand the role of governing boards in shaping strategy. Second, contrary to the positive impact of strategy-setting on hospital performance, there is a negative impact of strategy-setting on the quality of board’s collaborative work with hospital management. This negative impact may be exacerbated by the activity level of governing boards. Board activity may impede cooperative relationships between boards and hospital managers. To maintain the balance within a working relationship between managers and governing boards, both parties must be aware of potential interaction problems and should be able to take timely measures as necessary to maintain a trustful relationship. Third, our results show that the quality of board-management collaboration positively impacts hospital performance. This finding provides an additional reason for managers to help to develop intense and trustful collaborative relationships with their governing
boards. Enduring interteam cooperation between the two parties may be attained with the help of instruments of teamwork. Finally, our findings suggest that board diversity weakens the relationship between the strategy-setting role and hospital performance. Therefore, hospitals should carefully consider how much diversity is required within governing boards to ensure continual improvements in long-term hospital performance. Nonetheless, board diversity ought to be considered as an important factor in the recruitment of governing board members because a more diverse board may have a positive direct impact on performance and may help hospitals to avoid the negative consequences of their board’s strategy-setting on the quality of board-management relationships. In summary, variety within governing boards should be considered carefully.

References


Taylor, R. N. (1975). Age and experience as determinants of...


