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An analysis of board attributes that contribute to decision quality in state-owned companies in South Africa

Abstract

Using Ordinary Least-Squares (OLS), the paper empirically examines the effect of board attributes that literature has shown to have an effect on board decision quality. The following five variables are incorporated in a model that seeks to identify the strongest predictor of board decision quality: (1) board independence, (2) effort norms, (3) expert knowledge and skill, (4) cognitive conflict and (5) information quality. The findings show that information quality is the strongest predictor of board decision quality followed by expert knowledge and skill. As expected, expert knowledge does not only increase the cognitive capacity of the board, but it also positively affects company competitiveness. The findings also show that cognitive conflict has a negative association with decision quality. The paper argues that political influence exerted by board political appointees may explain the negative relationship between cognitive conflict and board decision quality. The major contribution of this paper is that it provides a 28-item instrument that can be used practically by public entity boards in the reflective process to improve board decision quality. The paper concludes by offering avenues for further research.

Keywords: corporate governance, state-owned companies, board-decision quality, board cultural cognition, South Africa.

JEL Classification: M10.

Introduction

How corporations behave and how stakeholder interests are protected and guided by a wide range of standards and principles laid out in guidelines and policy frameworks such as those set out in the United Nations Global Compact. Boards are able to use corporate governance principles to enhance performance by providing strategic advice. In South Africa the Governance Framework was developed through the establishment of the King Committee led by Mervin King. This committee released a set of guidelines to promote the highest standards of corporate governance. The first Governance Framework report known as King I was released in 1994. This was revised to what became King II in 2002, which was subsequently revised to what is known as King III Report in 2009. In addition to the King's set of governance principles, there are a set of regulations that govern state-owned companies – notably – the Public Finance Management Act (Act No. 1 of 1999), as amended by Act No. 29 of 1999, and the Municipal Finance Management Act (Act No. 56 of 2003).

State-owned companies (SOCs) are a focus of attention in this study because they provide enormous opportunities to grow the South African economy. Further, SOCs are involved in economic subsectors that provide key infrastructure and services critical to economic growth and development. In 2013, the Minister of Finance announced that the South African government is to spend R827 billion on infrastructure over the next three years, 50% of which will be

coming from SOCs (National Treasury, 2013). SOCs are largely financed by tax revenue, thus requiring board of these entities to adhere to strict accountability requirements introduced in the Companies Act (Act No. 61 of 2008). The South African Companies Act of 2008 requires a board of directors of SOCs to discharge of their fiduciary duty with a degree of care, skill and diligence. Care, skill and diligence are statutory responsibilities which encompass exercising utmost good faith, honesty and integrity as well as avoiding conflicts of duties and interests. Key amongst directors' responsibilities is to ensure that procedures and systems are in place to act as checks and balances in caring of company assets. The momentousness of such decisions raises several questions about the requisite skills of SOCs board to discharge their fiduciary responsibility in the light of the 2013 Auditor General Report that revealed that out of 536 South African public entities audited for the financial year 2011-2012, only 22% received clean audit opinions. The key questions that the study seeks to address are: What counts when making board quality decision in SOCs? Is skill and knowledge more important than other board attributes such as board independence, effort and board culture?

Internal board attributes and processes are usually neglected when board performance is evaluated, even though there is consensus in literature that these contribute substantially to board quality decisions (Huse, 2007; Kakabadse and Kouzmin, 2001; Korac-Kakabadse, Finkelstein and Mooney 2003; Maharaj, 2007). Bauer (2013) wrote that state owned enterprise boards do not adequately fulfil their legally mandated responsibilities due possibly

to political interference and lack of clarity of mandate amongst other reasons. Consequently state-owned enterprises run at a loss due to incorrect or ill-informed decision making processes within and outside board structures. What is not clear from literature is the extent to which decision quality is attributed to internal board attributes as opposed to external attributes. This study focuses on internal board attributes, and seeks to identify those internal board attributes that have the highest predictive power to explain poor or superior board quality decisions.

1. Relevant literature

To investigate internal board attributes requires exploration of board engagements in different contexts. A number of authors have attempted to identify these attributes. For example, Forbes and Milliken (1999) identified three board attributes that are likely to impact on quality decisions: (1) functional area knowledge, (2) effort norms and (3) board culture. Scarborough, Haynie and Shook (2010) on the other hand identified a link between functional area knowledge, board composition and effort norms with organization performance. Other scholars focused on decision routines, group dynamics, decision steps, dialectical inquiry, devil's advocacy, consensus seeking and procedural justice (Coleman, 2007; De Sanctis and Gallupe, 1987; Engle, 2011).

A study by Spetzler, Arnold and Lang (2005) proposed basic requirements to attain decision quality – namely – meaningful, reliable, clear values and trade-offs; logical correct reasoning, commitment to action; appropriate frame, and creative, doable alternatives. Further, Spetzler et al. (2005) proposed a board decision quality approach that encompasses a collaborative process with four key elements: (1) the directors and line managements' understanding of the requirements of decision quality, (2) the board's agreement on the strategic agenda for the coming year, (3) role clarity with respect to designation of board decisions, and (4) board's engagement in structured dialogue with management.

The requirement for high quality information and expert knowledge in making sound board decisions is further buttressed by different works (see for example Erakovic and Goel, 2008; Hillman, Canella and Paetzol, 2000). As pointed out by Finkelstein and Mooney (2003), the internal board attributes mentioned above (e.g. effort norms, cognitive conflict, information quality, expert knowledge) are usually neglected when boards are formed. Various researchers who conducted board attributes research

draw attention to the importance of context when looking at board attributes. For example, research done by Bonn and Pettigrew (1987) that distinguishes between inner and outer board contexts informed subsequent work by Pye and Camm (2003) that looked at the effect of context issues when trying to understand board dynamics. The context issues that Pye and Pettigrew (2005) highlighted include historical legacy and future strategic ambitions of an organization.

Among inner context variables, *effort norms*, has received considerable attention. Forbes and Milliken (1999) define effort norms as group's shared beliefs regarding the level of effort and time, each individual is expected to put toward a task. The time and effort directors devote to their tasks can differ considerably across boards, and these differences can significantly determine the degree to which boards are able to represent shareholders' interests successfully and make meaningful contributions to strategy.

2. Conceptual framework and hypotheses

This study focuses on five internal board attributes that extant literature has shown to have an impact on decision quality: (1) board independence; (2) effort norms; (3) expert knowledge and skills; (4) cognitive conflict; and (5) board information quality. A model of how the relationship among the variables is hypothesized is depicted in Figure 1.

2.1. Board independence. According to the King Report published by the Institute of Directors in Southern Africa (2009), good corporate governance is enhanced by director independence and board independence. This is further buttressed by Higgs (2003) work that showed that non-executive directors with strong levels of independence would give vigor to their board. Scarborough, Haynie and Shook (2010) also argue that having an independent board would alleviate conflicts of interests by making board activism more likely. Further, Scarborough et al. (2010) contend that effective decision control is dependent on the independence of the board of directors from executive management. In addition, the independence of the board would allow organizations greater access to information and other critical resources, which promote the activism of the board. As such, this study hypothesizes that a larger proportion of outside directors bring objectivity, better knowledge, and increased information quality.

Hypothesis 1: There is a positive relationship between board independence and information quality.

2.2. Effort norms. As pointed out earlier, effort norms relate to sufficient time and effort put in, in

order to perform given tasks effectively. This includes the effort and time spent on preparing for a board meeting, going through the board pack, embarking on extra research to verify information in the board pack. With high effort norms boards are likely to engage in robust discussion that would lead to quality strategic decision. As such this study hypothesizes that:

Hypothesis 2: There is a positive relationship between effort norms and board decision quality.

2.3. Cognitive conflict. Scarborough et al. (2010) work showed that cognitive conflict is particular effective in small groups if it is harnessed towards a diverse set of solutions, because it leads to superior decision perspectives. Cognitive conflict is defined by Scarborough et al. (2010) as a form of dissent or disagreement about issues under discussion. Differences in viewpoints should be encouraged in the board for robust and intelligent discussions to arrive at the right decisions.

This means that good quality decisions are likely to be arrived at when board members are given space to intensely explore and deepen the analysis of options put forth. However, cognitive conflict can only be harnessed for quality decisions if the culture within the boardroom encourages board members to express their disagreements and concerns in full and frank debates. Cognitive conflict encompasses a few attributes including: tolerance for differences in opinions, cognitive competence to express disagreements in a constructive fashion. This study therefore seeks to test the hypothesis that high levels of cognitive conflict impacts positively on board decision quality.

Hypothesis 3: There is a positive relationship between cognitive conflict and board decision quality.

2.4. Expert knowledge and skill. Expert knowledge and skill refer to detailed information about the firm and an intimate understanding of its operations and internal management issues. Expert knowledge is critical to both the scope and the ultimate quality of directors' decision-making. Scholars such as Maharaj (2007) and Roy (2008) have argued that both expert knowledge and cognitive capacity of board members have to match the cognitive demands of a corporation's business environment. Board members as the highest officials in strategy formulation are expected to have access to external networks to bridge knowledge capacity gaps that may exist. Generally

there is agreement in literature that knowledge and expertise at board level facilitates effective and quality decisions. It is on this basis that this study advances a hypothesis that:

Hypothesis 4: Diverse and high levels of expert knowledge and skill increase the propensity to make high quality board decisions.

2.5. Information quality. Information quality is the board's ability to provide meaningful oversight and useful advice that adds value to operations of an entity. As pointed out by Thomas, Schrage, Bellin and Marcotte (2009), information quality is determined by the quality, accessibility, timeliness, relevance and credibility of the information. To cope with complexity, uncertainty and volatility of the external environment and to develop strategic options that reduce risks, directors require high quality information. It is therefore not possible to make high quality decision without high quality information. As such, this study advances the following hypothesis:

Hypothesis 5: High quality information is likely to impact positively on quality board decisions.

2.6. Board decision quality. McDonnell and Moynihan (2011) put forward a contention that to facilitate the decision-making process, the board should have at its disposal high-quality information, access to expert opinions, and sufficient time to debate and challenge the issue at hand. Further, McDonnell and Moynihan (2011) argue that boards should be aware of factors that limit effective board decision quality, such as dominant personalities.

McDonnell and Moynihan (2011) also propose that factors which may distort judgment in the decision-making process such as conflicts of interest, emotional reliance or inappropriate reliance on previous experience. McDonnell and Moynihan (2011) further recommend a number of safeguards for situations where judgment may be distorted, or appear to be distorted, including obtaining expert advice, introducing a devil's advocate or establishing a sub-committee for the area under review. It is against this background that this study puts forward a hypothesis that:

Hypothesis 6: Board independence, effort norms, board cultural cognition, information quality and functional area knowledge have a simultaneous effect on board decision quality.

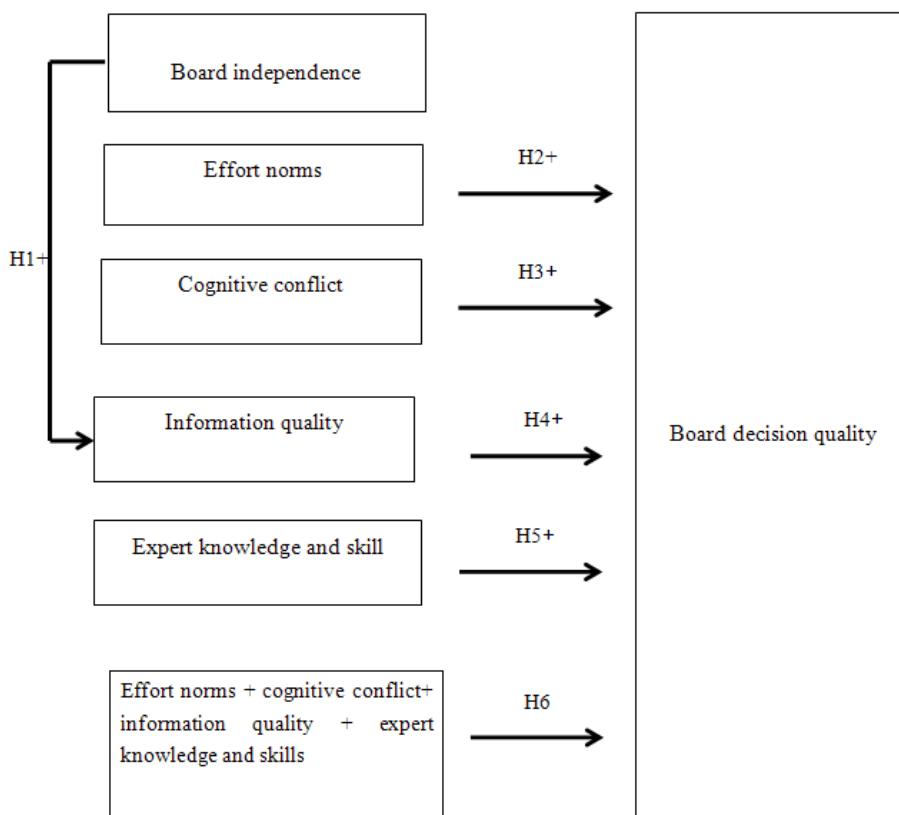


Fig. 1. Research hypotheses

3. Methodology

3.1. Study population. There are 289 public entities listed in the Public Finance Management Act No. 1 of 1999 (PFMA). These entities are categorized into four broad groups: (1) Constitutional Organizations listed in Schedule 1 of the PFMA; (2) Major Public Entities – listed under Schedule 2; (3) Part A: National Public Entities listed under Schedule 3; (4) Part B: National Government Business Enterprises listed under Schedule 3; (5) Part C: Provincial Public Entities listed under Schedule 3; and (6) Part D: Provincial Entities listed under Schedule 3.

Constitutional organizations are those institutions established to strengthen constitutional democracy in Republic of South Africa such as the South African Human Rights Commission and the Commission on Gender Equality. Public entities on the other hand are trading entities operating within the administration of a national or provincial department.

Table 1. Public entities listed in the PFMA (1999)

Types of entities	Schedule 1	Schedule 2	Schedule 3
Constitutional organization	9	-	-
Major public entities	-	21	-
Part A: National public entities	-	-	148
Part B: National government business enterprises	-	-	29
Part C: Provincial public entities	-	-	9
Part D: Provincial entities		-	73

Subtotal	9	21	259
Total			289

Source: Department of National Treasury (2012), PFMA Schedules, www.treasury.gov.za/legislation/pfma/.

3.2. Sampling. Self-report questionnaires capturing the five variables shown in Figure 1 were emailed to 289 public entity board chairpersons and in some instances to secretaries of the boards identified on annual reports of the public entities. The covering letter, which assured participants confidentiality and anonymity, encouraged any one participating in the board to voluntarily participate in the survey. One hundred and eight questionnaires were returned. Sixty-five percent (65%) of the respondents were male and thirty five percent (35%) female. Thirty-four percent (34%) of the board members were between the ages 31–40 years; thirty-three percent (33%) were between the ages 41–50; whereas thirty-one percent (31%) were between 51–60 years of age. More than sixty percent (60%) of the board members had a Bachelors Degree and thirty percent (30%) had a Masters Degree.

3.3. Measures. Table 2 below shows 28 items used to measure the six variables: (1) board independence; (2) effort norms; (3) cognitive conflict; (4) information quality; and (5) expert knowledge and skills. The respondents were asked to indicate the extent to which each item applied to their organization on a five-point Likert Scale of 1–5, where 1 = strongly disagree and 5 = strongly agree.

Table 2. Variables and measures

Variables	Items	Source
Board independence	<ul style="list-style-type: none"> ◆ I believe board members of my company are truly independent from the CEO. ◆ Board discussions show that directors are independent of the senior management of the company. ◆ Sometimes the board disagrees with the management position. ◆ The board always interrogates management decisions. 	Developed specifically for this study
Effort norms	<ul style="list-style-type: none"> ◆ I carefully scrutinize board information prior to meetings. ◆ I research important issues presented in the board pack. ◆ I invest whatever time is necessary to become an informed and active board member. ◆ I question management and other board members when necessary. 	Adapted from Forbes and Milliken (1999)
Cognitive conflict	<ul style="list-style-type: none"> ◆ All board and executive team members have ample opportunity to constructively challenge and debate decisions brought to the board. ◆ The culture within the boardroom encourages board members to express their disagreements and concerns when issues are presented to the board. ◆ The board is able to reach collectively shared decisions following a full and frank debate. ◆ During board meetings, the board chair creates an environment where all board members are comfortable expressing their opinions without fear of retribution. 	Adapted from Forbes and Milliken (1999)
Information quality	<ul style="list-style-type: none"> ◆ Data to make decisions is easily available. ◆ The volume of data is appropriate and helpful for the task at hand. ◆ The data is not missing and is of sufficient breadth and depth for the task at hand. ◆ Available data to make decisions is true, credible and reliable. ◆ The information to make board decisions is available in time to perform the task at hand. ◆ The data provided is easy to comprehend. 	Adapted from Thomas, Schrage, Bellin and Marcotte (2009)
Expert knowledge and skill	<ul style="list-style-type: none"> ◆ All board members apply their skills and capabilities for effective board decisions. ◆ Committee assignments are made with the intention of ensuring the best use of each director's skills and capabilities. ◆ During board discussions the most knowledgeable members of the board, regarding the subject area under discussion, generally have the most influence. ◆ All board members have a good understanding of the skills and capabilities of the other board members. ◆ The board consults outside experts as and when needed. ◆ The knowledge and skills of board members are updated. 	Developed specifically for this study
Board decision quality	<ul style="list-style-type: none"> ◆ There are dominant personalities in our board that limit effective decision-making. ◆ Conflicted members who are part of board deliberations limit effective decision quality. ◆ Emotional reliance of previous information by some board members distorts judgment in the decision making process. ◆ Inappropriate reliance in previous experience by some board members distorts judgment in the decision making process. 	Developed specifically for this study

3.4. Analytical procedures. The OLS regression analytical tool was used to test the six hypothesis depicted in Figure 1 above. A regression model was developed for each hypothesis. The symbols used for the regression coefficient(s) and error term for each regression model are defined as follows: β_{ij} is the regression coefficient for variable i in model j , $i = 1, 2, 3, 4$ and $j = 1, 2, 3, 4, 5, 6$; E_j is the error term for regression model j , $j = 1, 2, 3, 4, 5$.

Using these symbols, the regression model for hypothesis 1, 2, 3, 4, 5, and 6 were developed and are presented respectively as follows:

$$\text{Model 1: } \text{Independence} = \beta_{11} \text{Information quality} + E_1 \quad (1)$$

$$\text{Model 2: } \text{Board decision quality} = \beta_{12} \text{Effort norms} + E_2 \quad (2)$$

$$\text{Model 3: } \text{Board decision quality} = \beta_{13} \text{Cognitive conflict} + E_3 \quad (3)$$

$$\text{Model 4: } \text{Board decision quality} = \beta_{14} \text{Information quality} + E_4 \quad (4)$$

$$\text{Model 5: } \text{Board decision quality} = \beta_{15} \text{Expert knowledge} + E_5 \quad (5)$$

$$\text{Model 6: } \text{Board decision quality} = \beta_{16} \text{Effort norms} + \beta_{26} \text{Cognitive conflict} + \beta_{36} \text{Information quality} + \beta_{46} \text{Expert knowledge} + E_6 \quad (6)$$

4. Empirical results

4.1. Basic statistical values and Cronbach's reliability test for the data. Prior to testing the hypotheses, data was tested for internal consistency and reliability. Table 3 shows the means, standard deviations, and inter-correlations of the study variables. The values of the Cronbach's alpha reliability coefficients for the instruments used for testing the variables: independence, effort norms, cognitive conflict, expert knowledge and skill, information quality and board decision quality are 0.76, 0.85, 0.85, 0.91, 0.94, and 0.85 respectively. Using George and Mallory's rule (George and Mallory, 2003), it can be concluded that the internal consistency reliabilities for the scales or instruments used for measuring all the variables in the six equation models are acceptable. These results establish a good justification for using these instruments for collecting the data for the study.

The correlation matrix presented in Table 3 shows that correlation coefficient value of effort norms and

independence is -0.16. That means there is a negative relationship between director independence and level of effort norms displayed by public entity boards. The findings also show that there is a negative relationship between director independence and cognitive conflict within public entity boards ($r = -0.24$). The results show a significant negative relationship between director independence and expert knowledge and skills ($r = -0.25$).

For information quality and independence the findings show a positive weak relationship ($r = 0.02$). This means that when information quality increases, director decision quality improves and vice versa. Cognitive conflict is strongly associated with effort norms ($r = 0.67$), while expert knowledge and skills correlate strongly with cognitive conflict ($r = 0.72$) and effort norms ($r = 0.50$).

Table 3. Descriptive statistics, reliabilities and intercorrelations among study variables

	Mean	Std. deviation	C. alpha α	1	2	3	4	5	6
1. Board independence	2.32	.68	.76	1.000					
2. Effort norms	3.75	.56	.85	-.163	1.000				
3. Cognitive conflict	3.80	.63	.85	-.242	.666	1.000			
4. Knowledge & skills	3.95	.66	.91	-.252	.503	.724	1.000		
5. Information quality	3.69	.81	.94	.018	.419	.491	.614	1.000	
6. Board decision quality	4.06	.63	.85	-.207	.454	.536	.600	.564	1.000

4.2. Results of regression analyses and tests. Table 3 presents the regression analyses. The table shows the dependent and independent variables for each model, the values of the regression coefficient(s), the calculated F - and t -values, and the p -values for the test of significance of regression coefficients. Both the F -

test and t -test show that the information quality relates much more strongly with board independence ($F = 2.80, p < .05$) than it does with board quality decision ($F = 0.03, p = .86$), which confirms Hypothesis 1. The direction of the relationship between board independence and information quality is as postulated.

Table 3. Tests of significance for the models' coefficients

Equation	Dependent variable	Independent variable	Beta coefficient	F -calculated	p -value	t -calculated	p -value
1	Independence	Information quality	$\beta_{11} = 0.16$	2.80	0.04	2.39	.04
2	Board decision quality	Effort norms	$\beta_{12} = 0.24$	6.36	0.00	2.52	.00
3	Board decision quality	Cognitive conflict	$\beta_{13} = -0.25$	6.93	0.01	-2.63	.10
4	Board decision quality	Information quality	$\beta_{14} = 0.02$.03	.86	.18	.86
5	Board quality decision	Expert knowledge & skills	$\beta_{15} = 0.20$	4.13	.04	2.03	.04
6	Board decision quality	Effort norms	$\beta_{16} = -.019$	26.17	0.000	2.01	0.05
		Cognitive conflict	$\beta_{17} = -.113$		0.000	3.31	.004
		Expert knowledge & skill	$\beta_{18} = -.277$		0.000	2.93	.001
		Information quality	$\beta_{19} = .336$		0.000	2.03	0.05

The results also show that the coefficient of effort norms in model 2 ($\beta_{12} = 0.24$) is statistically significant ($F = 6.36, p < .01$) lending support to Hypothesis 2. The F -test shows that there is a significant linear and negative relationship ($F = 6.93, p < .05$) between board decision quality and cognitive conflict. This indicates that in the context of public entities, while cognitive conflict is a strong predictor of board quality decision as envisaged in Hypothesis 3, the direction of the relationship is not as envisaged. Increased levels of cognitive conflict may result in poor decision quality. As indicated earlier, Hypothesis 4 that relates information quality to board decision quality is not supported in a bivariate analysis, but in a multivariate setting as will be shown later, information quality is the strongest predictor of board decision quality. As Table 3

shows, expert knowledge is a good predictor of board decision quality ($F = 4.13, p < .1$), thus lending support to hypothesis five.

Model 6 was specified to examine the simultaneous effect of (1) effort norms, (2) cognitive conflict, (3) expert knowledge and skill, and (4) information quality on board decision quality. The findings in Table 3 show that information quality is the strongest predictor of board decision quality ($\beta_{19} = .336, p < .1$), followed by expert knowledge and skill ($\beta_{18} = -.277, p < .1$). Cognitive conflict is a stronger predictor of board decision quality ($\beta_{17} = -.113$) than effort norms ($\beta_{16} = 0.20$).

Discussion and conclusion

The OLS regression analysis showed that with the exception of Model 4 (Hypothesis 4) that relates

information quality to board decision quality all the models fit the data. It is highly likely that multicollinearity may have affected the results of the *t*-test for the significance of information quality in Model 4. The findings confirm the notion that independent directors on the board help not only to alleviate the extent to which there are conflicts of interests as indicated in work by Hillman, Canella and Paetzold (2000), independence also improves effort norms of board directors.

The paper postulates that cognitive conflict encourages robust discussions with multiple perspectives that facilitate high quality decision making. The findings in this paper however show that cognitive conflict is a strong predictor of board decision quality but the direction of the relationship is not as hypothesized. Possibly, the political influence exerted by board political appointees in state-owned enterprise boards may explain the negative relationship between cognitive conflict and board decision quality. It is likely that public entity boards in South Africa are under pressure to conform with the social integration mandate of government that places emphasis on cohesion. Further research is needed to look into whether privately owned companies would exhibit a similar pattern or whether the negative relationship between

cognitive conflict and board decision quality is a feature of boards that have a high proportion of government representation in its composition.

As expected, expert knowledge does not only increase the cognitive capacity of the board, but it also improves decision quality and the competitiveness of an organization. Information quality with its key attributes that include accessibility, adequacy, sufficiency, relevance, and reliability has proven to be the prime variable that explains board quality decision. Put differently, poor quality information overtly limits the effectiveness of board decisions. What still needs further investigation is the extent to which quality information impacts on the high turnover rate of CEO's of state-owned enterprises in South Africa.

One of the major contribution of this paper is that it provides a 28-item instrument that can be used practically by boards in the reflective process to improve board decision quality. The small sample size limits the generalizability of these findings. Further research with a bigger sample size is needed to validate the research instrument presented in this paper. Further research is also needed to look into whether there is a relationship between company performance and board decision attributes.

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