

Selection system orientations as an explanation for the differences between dual leaders of the same organization in their perception of organizational performance

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Published online: 26 September 2015

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Abstract We investigate to what extent individual managers operating in a dual leadership structure have different perceptions of how well his/her organization is performing. Using selection system theory we develop hypotheses on the relationships between a leader's selection system orientation and his/her perception of performance along multiple dimensions: market performance, expert performance and peer performance. The hypotheses are tested using dyadic data from 59 organizations in the performing arts led by two—hierarchically equivalent—managers. Our results show that dual leaders' differences in terms of market orientation and expert orientation relate positively to perceived performance differences along the same dimensions. This relationship is not found with respect to peer selection orientation. Generally, the relationship between orientation differences and perceived performance differences is stronger if the process of interpreting signals to construct a perception of organizational performance leaves more room for equivocality and uncertainty.

Keywords Dual leaders · Co-leaders · Perception of performance · Selection systems · Mental models

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1 Introduction

Most organizations have more than one organizational objective (Cuccurullo and Lega 2013; Denis et al. 2012). One possible structural solution to handle multiple strategic objectives in small and large firms is the dual executive leadership structure (i.e. co-CEO structure) (Alvarez and Svejnova 2005; Denis et al. 2012; Reid and Karambayya 2009), in which the organization is led by two hierarchically equivalent executives, each of whom is responsible for one of the main objectives. Dual leadership can bring many advantages, resulting from the ability of the individual managers to be more specialized than a single CEO could be, and also because of the broader field of vision two managers with strongly different perspectives will have together (Alvarez and Svejnova 2005; Fjellvaer 2010; Heenan and Bennis 1999; Reid and Karambayya 2009).

Of course, compared to a single CEO, a dual executive leadership structure will also increase the risk of disagreement (Reid and Karambayya 2009). When one leader thinks achieving aim *x* is more important than aim *y*, he/she will want to prioritize actions leading to *x*, while his/her colleague has the opposite opinion. This can lead to fruitless conflict and issues with respect to politics and power (Eisenhardt and Zbaracki 1992), but also useful tensions and the need to present more evidence and stronger arguments for one's views than a single CEO would do (Amason and Sapienza 1997). However, a more insidious form of disagreement can ensue from the two leaders having different interpretations of the 'facts' and especially the 'facts' pertaining to their own organization's past performance. As Mezas and Starbuck (2003) already noted, managers within the same organization often have a personal perception of the organization's performance which may only be weakly related to the organization's real performance (see also: Denrell 2004; Starbuck 2004).

The main aim of this study is to provide a better understanding of how dual executive leaders create a personal perception of their organizations' performance. How can two managers at the same level in the organization be confronted with the same performance indicators, and one conclude that they have done well and the other that they have done poorly? Answering this question is important, because it implies that it is not the factual organizational performance, but rather how specific managers interpret signals about their organization's performance that are the base for future strategies and consequent choices with regard to resource allocation. Since aligning strategy with performance measurements is often problematic (Bagnoli and Vedovato 2014; Parisi 2013) it is essential to expand the management literature with knowledge about the formation of perceptions of organizational performance. To date, researchers mostly approached organizational performance and signals of organizational performance only as an outcome variable and neglect the role of managerial interpretations of organizational performance in the strategy making process (for overview see e.g.: Combs et al. 2005; Maltz et al. 2003; Tosi et al. 2000; Venkatraman and Ramanujam 1986).

We will employ the theoretical framework of selection system theory (Priem 2007; Wijnberg and Gemser 2000) to investigate relation between manager's

selection system orientations (Bhansing et al. 2012)—the relative importance managers attach to the evaluations of the three main selectors: market consumers, experts and peers—and perception of organizational performance. One of the advantages of selection system theory is that it allows distinguishing between three clearly defined dimensions of performance that are linked to the three main types of selectors. Organizations produce goods with characteristics that are more (or less) likely to satisfy the preferences of each type of selector, and therefore the organization's performance can also be assessed along corresponding dimensions. Organizations that perform well along the market dimension will have greater attractiveness to the consumers themselves, usually shown by their products' popularity and market share; those that perform well along the expert dimension will gain more favorable expert evaluations, as shown by, for instance, reviews in the media; those that perform well along the peer dimension are praised or rewarded by their peers, for instance by being awarded peer awards. A selection system orientation can be considered an important structural element of a mental model and mental models play a key role in how managers interpret signals from their strategic environment and, consequently, how they react to that environment (Daft and Weick 1984; Dearborn and Simon 1958; Garg et al. 2003; Hambrick and Mason 1984; Jackson and Dutton 1988; Kiesler and Sproull 1982; Lant 2002; March and Simon 1958; Meyer 1982; Starbuck 1976; Walsh 1988; Weick et al. 2005).

Performance perceptions are based on the signals of performance that are perceived and interpreted. The process of perception and interpretation of the signals is subject to a degree of equivocality and uncertainty (Daft and Lengel 1986). In this study, we argue that perceptions of organizational performance can be categorized along the three different dimensions of selection systems and that signals that can be interpreted along these different dimensions lead to sensemaking processes characterized by specific levels of equivocality and uncertainty. Precisely because this study focuses on pairs of dual executive leaders who are responsible for different functional areas in the same organization it allows for an investigation of differences in managerial cognition concerning perceptions of performance, while controlling for organizational characteristics and environment.

The setting for this empirical study is provided by performing arts organizations in the UK in which dual leadership structures are widely used, and multiple objectives and dimensions of performance are explicitly considered.

2 Theory and hypotheses

2.1 Selection system orientations

Selection system theory studies competitive processes by focusing on the actors whose judgments determine the value of the goods that competitors produce (Priem 2007; Wijnberg and Gemser 2000). This theoretical framework suggests that a major task for managers is to identify the dominant selectors: those actors whose evaluations matter most to the organization realizing its objectives. Each manager has beliefs about the extent to which his/her organization's performance is primarily

determined by the judgment of selectors of a particular type—market, expert or peer—and these beliefs constitute their selection system orientation. Thus, top managers who consider their organization's success primarily dependent on the market will give more credence to consumer awards and to revenue data. In contrast, those whose selection systems are oriented towards experts will be most concerned with reviews, awards by expert juries and opinions of scholars in their field and those with high peer selection system orientations will be more concerned with how managers in similar organizations evaluate them—as evidenced, for instance, by industry association awards.

Selection system orientations are important in top managers' strategy making processes and decision-making. Mental models, such as orientations, provide managers with an understanding of signals and important issues in their organization's environment (e.g. Hambrick and Mason 1984; Stubbart 1989; Weick 1995). Managers' mental models are the "internal representations that individual cognitive systems create to interpret the environment" (Denzau and North 1994, p. 4), which they acquire through their work, training and broader life experience. The mental model concept has been investigated under different names: schemas, frames, dominant logics, cognitive maps and belief systems (e.g. Gary and Wood 2011). While many studies focus on the mental model at the individual level without taking the subsequent interaction at the group level into full account, there are other studies that focus precisely on processes of interaction and give attention to the specificities of the discourse or the linguistic devices that are employed (e.g. Cornelissen and Clarke 2010). Kwon et al. (2014), for instance, use a discourse-historical approach to investigate how managers deploy a repertoire of discursive strategies to create shared views around strategic issues and Kaplan (2008) shows that managers interact with each other in a competitive process to make their cognitive frames into the frames that are dominant in the organization. The mental model individual and interactional approach may seem at odds, but one could simply argue that one approach complements the other, since interpretations of signals resulting from managers' mental models such as selection system orientations, shape and are shaped by the social process of interaction, as we will discuss below.

2.2 Perception of organizational performance

Managers are involved in an ongoing process of recognizing a variety of signals in their environment and comparing their perceptions of their organization's current and past performance, which allows them to understand more fully how effectively they have used their resources and whether they have gained a competitive advantage. Perceptions of performance are personal interpretations of signals that indicate organizational performance. Such interpretations can guide organizational actions, which in turn play a crucial role in realizing organizational objectives (Hauser 2001). Studies concerning strategic control systems show the importance of performance insight in strategizing (Atkinson 2006; Goold and Quinn 1990; Otley 1999; Tavakoli and Perks 2001). An organization's performance shows its position relative to its competitors and thus the areas where it may need to take strategic

action. Organizational performance tells managers what organizational issues have to be dealt with and which strategic actions have priority (see e.g. Kaplan and Norton 1992). Previous research suggests that managers rely less on control system information when environmental uncertainty is higher (Govindarajan 1984), that their tolerance for ambiguity moderates the relationship between uncertainty and the appropriateness of, for example, accounting performance measures (Hartmann 2005), and that different managers may also weigh different information sources differently (Hauser 2001). In other words, the construction of managers' perceptions of organizational performance is a complicated process and those perceptions may substantially deviate from their organization's reported organizational performance (Starbuck and Milliken 1988).

Selection system theory suggests that organizations may compete along different performance dimensions. Similarly, Carton and Hofer (2006) suggest that an organization can have different types of organizational performance that coexist, and that each performance type may have multiple indicators. Organizations may serve multiple groups—or stakeholders—which may hold different views about what constitutes successful organizational performance and even within a specific performance type, a number of indicators—each possibly containing multiple measures—can be used to construct a perception of organizational performance. Scholars also recognize that different types of organizational performance may be essential for organizational survival (Drucker 1954), that organizations need to try to realize both organizational objectives and stakeholders' objectives (Freeman 1984), and that financial and non-financial performance measures can exist side by side (Venkatraman and Ramanujam 1986). Porac and Thomas (1990) also discuss different categories of stakeholders and that organizations can compete for organizational success in each category. Of course, signals of one performance dimension may be easier to identify and assess than another.

Daft and Lengel (1986) identify two forces in organizations that influence information processing: equivocality and uncertainty. Equivocality concerns the potential ambiguity of information—while a signal may seem equally clear to two managers, each may interpret it differently and so attribute different meanings to it. Signals that increase equivocality are those that give ambiguous information about an event, allowing multiple interpretations of a signal. High equivocality can result in confusion and lack of understanding about (possibly important) signals (Daft and Lengel 1986). Uncertainty denotes the perceived availability of necessary information and has been defined as “the difference between information possessed and information required to complete a task” (Downey and Slocum 1975: in Tushman and Nadler 1978, p. 615), and therefore exists where individuals have to act and make decisions, but have less than complete knowledge about the situation. A signal can explain an event to a greater or lesser extent. The more signals that are noticed, the more likely it is that a clear message emerges, but if the new signals are ambiguous, uncertainty will be increased. Where uncertainty is high, decision makers may have to leave questions unanswered (Daft and Lengel 1986).

2.3 Dual leaders and perceived organizational performance

In a dual executive leadership structure, each of the dual executives will focus on one particular set of issues and pay less attention to other areas. This structure also implies functional assignment diversity in the top of the organization (Bunderson and Sutcliffe 2002). Previous studies have shown that teams with high functional assignment diversity have a higher degree of external communication (Ancona and Caldwell 1992), and are more likely to perform well in a turbulent environment (Keck 1997) and engage in strategic reorientation (Lant et al. 1992). Alvarez and Svejenova (2005) suggest that role complementarity is a key advantage of the dual leadership structure. However, this structure also brings other discrepancies in the top of the organization and a potential danger of conflict between the representatives of the two functions (Reid and Karambayya 2009). The dual leaders can be dissimilar in many ways, with regard to demographic attributes, such as age or sex, or with regard to attributes that directly represent cognitive attitudes and values (e.g. Voss et al. 2006), such as selection system orientations. In addition, social interactional processes in organizations, such as organizational politics, can result from differences in the goals (Eisenhardt and Zbaracki 1992) and cognitive frames of decisions makers, and can lead to problems of coordination or wasteful power struggles. Moreover, especially in dual leadership structures, the interaction between social processes and cognitive frames may influence managers' perceptions of organizational performance.

Where selection system orientations affect the process of the interpretation of signals, social interactional processes can affect both the strength of the selection system orientations of the individual managers and the way in which different perceptions of performance by different managers, resulting from different selection system orientations, affect subsequent strategic choices of the organization they are leading and, in turn, future performance. With regard to the social interactional processes as antecedents of the strength of selection system orientation, we refer back to the already cited studies by Kaplan (2008) and Kwon et al. (2014) about how managers also compete in trying to force particular cognitive frames upon each other. The consequences of social interactional processes on how the differences in selection systems will affect the organization as a whole can be even more significant. First, the larger the differences in perception of performance, the larger the differences will be in respect to the strategic conclusions that can be drawn and the greater the scope for social interaction to actually determine future choices; second, the differences in perceived performance together with power struggles can easily lead to difficulties in aligning business strategies with performance measures and may consequently create an unreliable image of the organization in the eyes of its stakeholders (Van Riel 2012).

In an earlier study, Bhansing et al. (2012) focused on the selection system orientation of managers as a crucial part of the managers' cognition and attitude, precisely to investigate whether differences in respect to that attribute had an effect on organizational performance. This study takes a step backwards, as it were, from the question of the effect of heterogeneity among top managers on performance to first ask the question whether the differences, with regard to selection system

orientations among managers, leads to different perceptions of that performance. When dual executive leaders both seek to make sense of the same event—the current state of their organization’s performance—one may be strongly and the other weakly oriented towards a specific type of selector. The selection system orientations denote particular individual choices in respect to the bounded rationality applied to seeking information and interpreting it. Signals are (unconsciously) interpreted in the context of their different selection system orientations, leading them to weigh and process the signals differently and identify different cause-and-effect relationships based on their different presumptions about how the signal has influenced the organization. In other words, dual leaders process the same information differently, because their backgrounds have thought them to make sense of information in a particular way, allowing more cognitive capacity to be allocated to relations they understand well and signals they can interpret with more certainty and less equivocality.

As mentioned before, the setting of this study is the performing arts and many organizations in this industry have a dual executive leadership structure. In this setting, the dual leaders, an artistic and managing director, may be asked how expert critics have evaluated their organization over recent years, about which both will have a perception. The artistic director may have a stronger expert orientation than the managing director and values these signals differently, remembering that experts evaluate the extent to which the organization is innovative as a sign of good performance. The managing director may have an idea about the overall evaluations that the organization has received from expert critics in the past year, and remembers that this was lower than that accorded to other organizations, and therefore may perceive the organization’s expert performance as poor: so the two may believe different actions are necessary to create or sustain successful organizational performance in the expert dimension. These considerations bring us to the following hypothesis.

H1 Differences in dual leaders’ selection system orientations are positively related to differences in their perceptions of the organization’s performance in the same dimension.

2.4 Ambiguity and availability of signals

As mentioned before, each selection system dimension has different signals of performance and these signals result in different levels of equivocality and uncertainty (Table 1). Market data are comparatively unambiguous. It is often easily available, clear and well defined and based on factual data such as sales figures (Daft and Lengel 1986). Signals about expert performance are usually available, but the assessment of specific signals may be open to more interpretations. Examples of expert performance signals are newspaper reviews from expert critics (Deephouse and Carter 2005), certification (Rao 1994) and opinions of other experts, such as government subsidy organizations (Bhansing et al. 2012). Different experts often have different opinions and different reviews may have different positives and negatives. In such situations dual leaders may value the same signals in expert

Table 1 Equivocality and uncertainty in the interpretation of performance in each selection system dimension

Type	Signals	Multiple signals	Factual data	Equivocality	Uncertainty
Market	Box-office, performance fees, attendance rates	High	Yes	Low	Low
Expert	Newspaper reviews	Moderate	No	High	Moderate
Peer	Conversations, word of mouth, peer awards	Low	No	High	High

reviews differently. Perceptions of the organization's peer performance can be highly equivocal and highly uncertain and signals that are available often come in many different forms, so it can be difficult to value it and assign weights. There are few explicit signals except for peer awards, but even the information transmitted by that signal can be considered far from clear or certain, compared to the signals denoting performance along the other dimensions. For example, only a few organizations gain peer awards in any year, so even the most high-performing organizations will not receive one every year. The meaning of having received an award in the past is more difficult to interpret than, for instance, past attendance figures.

We expect that dual leaders perceive performance by using their key selection system orientations and that the influence of the orientations gets stronger when the process of interpreting the signals along this performance dimension is more equivocal and uncertain. That is to say, it is more likely that the particular selection system orientation—as part of a mental model that lets the individual dual leader make sense of his/her environment—is activated to a higher degree when information is less easy to interpret, increasing the impact of that particular selection system. In turn, this suggests that if signals pertaining to particular selection systems are more ambiguous and less available, the effect of differences in strength of that selection system orientation on the perception of organizational performance will be more pronounced. This will not just be the case in respect to the individual manager, as considered in isolation, but even more so if one considers the individual manager in the context of the social interactional processes we discussed in Sect. 2.3. This study looks at the effect of the selection system orientations that are measured at the same time as the perceptions of performance. The possible effects of social interactions on the individual orientations is therefore already included in what we measure. If we find that different managers have different strengths of particular orientations this difference has, as it were, survived the political process and the competition between cognitive frames. It is to be expected that these surviving differences will express themselves most forcefully in those areas where the scope of consequent social interaction is greatest, namely where the signals are more ambiguous and less available, making the process of interpretation more equivocal and uncertain.

In sum, market signals are readily available from accounting and relatively easy to understand and their interpretation is the least equivocal and uncertain, allowing

less room for the difference in the strength of the market selection orientation to influence the interpretation of these data and assessing the organization's position in relation to its competitors. Signals with which to construct a perception of the organization's expert performance are also widely available, but more ambiguous, so the influence of the difference between the dual leaders' selection system orientations in constructing their perception of their organization's competitive position will be stronger with regard to this dimension. Signals of the peer performance dimension exhibit high levels of ambiguity and unavailability, so the influence of the differences between the leaders' selection system orientations are likely to be at its strongest with respect to this dimension. These arguments suggest the following hypothesis.

H2 The positive relationship between differences in dual leaders' selection system orientation and differences in their perceptions of the organization's performance is influenced by the equivocality and uncertainty pertaining to the interpretation of the signals used to perceive performance along a particular dimension.

3 Research design

This study was designed to address how the mental model or cognitive frame of managers influences the interpretation of organizational performance. Early studies about managerial cognition mostly focus on personal characteristics as a proxy for managerial cognition, whereas in this study we attempt to measure the selection system orientation, as an important part of the individual manager's mental model or cognitive frame, directly. We focus on dual executive leaders, because of their hierarchical equivalence and similar information needs. In the setting of a performing arts industry the different performance dimensions exist next to each other and are relatively similar in their impact on the organizations as a whole. We utilized Lincoln's (1984) method for dyadic analysis of similarity and dissimilarity, and the construction of our key variables, making the dyad the unit of analysis. This section further explains the source of the data, and the measurements of the dependent, independent and control variables.

3.1 Setting and data

In the performing arts sector the dual executive leadership structure is common (Reid and Karambayya 2009). Theatre companies, the empirical subject of this study, are often led by one executive—the artistic director—who is responsible for the artistic or creative objectives of the organization, and another—the managing director—who is responsible for the organization's commercial objectives. The managers of performing arts organizations focus on particular signals in constructing their perceptions of each specific type of organizational performance. For their perception of market performance it is likely that they focus on sales: managers usually have access to exact data on the number of visitors to their productions and will often benchmark these figures. Many cultural industry studies focus on

performance indicators based on audience attendance, such as box office figures (Gemser et al. 2007; Zuckerman and Kim 2003). For their perception of expert performance, managers may focus on expert reviews and on the perceptions of other expert evaluators who decide about subsidies. These expert evaluators may have different beliefs about quality from those expressed by the market at large (Berger et al. 2010). European performing arts organizations are highly subsidized, so those individuals who decide about subsidy levels also play an important role in the industry. With respect to peer performance, peer opinions are usually highly valued in artistic environments (Caves 2000; Eikhof and Haunschild 2007; Hirschman 1983) and cultural organizations which display their commercial aspirations openly may be perceived as producing poor quality (Caves 2000).

Data were gathered by means of a survey among UK performing arts organizations where dual executive leadership structures are widely used. The UK has a rich performing arts tradition: there are more than 800 theatre venues and competition is fierce for the 76 % of the British public who attend a performance at least once a year (Department for Culture, Media and Sport 2010). Most performing arts companies receive some form of subsidy, often from four specialist government arts funding agencies: Arts Council England, the Arts Council of Northern Ireland, the Scottish Arts Council and the Arts Council of Wales. Since multiple selection systems are present in this industry, we can study a range of performance dimensions at the same time.

The UK association of performing arts organizations (The Independent Theatre Council) provided a list of 412 organizations, including theatre and dance companies, from which we selected only those 186 organizations whose websites revealed that they had a dual leadership structure. In spring 2011, we telephoned all these performing arts organizations to ask both the artistic and managing director to participate in the study by filling in our online survey. 224 individuals visited the online survey. We matched 132 individuals as dual leaders of 66 organizations, 59 of which provide usable data, resulting in a response rate of 32 %.

3.1.1 Sample

No significant differences were found between the average scores on the key constructs between early and late respondents, providing additional support that non-response is not a major concern. Moreover, a Harman's single factor test shows that there is no common method variance between the dependent and independent variables.

Our data show interesting patterns in the composition of management in the UK performing arts organizations. Table 2 shows demographic differences between the artistic and managing directors in our sample. More females (76 %) than males (24 %) hold managing director positions and the managing director's 4-year average tenure is considerably shorter than that of the average artistic director (11 years), who were also (at 46 years old) somewhat older than the average managing director (41 years old). Table 3 shows the revenue structure of the organizations, with subsidies (52 %) and box-office (29 %) accounting for the bulk, and 19 % being made up of corporate funds and sponsorship.

Our limited sample size did not allow us to include the personal characteristics in the main analysis. In our research design we already have measurements for the

Table 2 Means and standard deviations of the artistic and managing directors' perceptions of performance, selection system orientations and demographics

	Artistic director		Managing director		Across organizations	
	M	SD	M	SD	M	SD
<i>Perception of performance</i>						
Market	3.85	0.60	3.73	0.72	3.79	0.54
Expert	3.82	0.67	3.80	0.64	3.81	0.54
Peer	4.17	0.71	4.09	0.69	4.13	0.57
<i>Selection system orientations</i>						
Market	4.51	0.51	4.41	0.53	4.46	0.38
Expert	3.68	0.61	3.68	0.76	3.68	0.59
Peer	3.65	0.59	3.89	0.63	4.26	0.47
<i>Demographics</i>						
Gender (% female)	49	–	76	–	–	–
Tenure (years)	11	8	4	3	–	–
Age (years)	46	10	41	11	–	–

managerial cognitions, and therefore have less need for personal characteristics which are mainly used as proxy for cognitions. We did include the distinctive organizational characteristics in the performing arts, those mentioned above, including the control variables mentioned below.

3.2 Dependent and independent variables

3.2.1 Difference in perception of performance

We developed the market, expert and peer performance measurement scales of Bhansing et al. (2012) from one to five items (“Appendix”). The additional scale items were based on the work of Harris (2001), Morgan and Berthon (2008) and Richard et al. (2009). The operationalization for the organization’s market performance (four items, Cronbach’s alpha 0.84), expert performance (five items, Cronbach’s alpha 0.74) and peer performance (four items, Cronbach’s alpha 0.81) proved to be reliable. Each item was scored on a five-point Likert-type scale by both the artistic and managing director in terms of how they rated their own organization (cf. Dess and Robinson 1984).

We calculated the three (peer, expert, and market) Euclidean distances between the artistic and managing directors (Sohn 2001), for the perceptions of organizational performance.

$$D_{ij} = \sqrt{\sum_k (x_{ik} - x_{jk})^2}$$

where D_{ij} = the Euclidean distance between the artistic (i) and managing director (j) of a particular organization (k), X_{ik} = the score of the artistic director of the k th organization, X_{jk} = the score of the managing director of the k th organization.

Table 3 Individual level correlation matrix of differences in perception of performance, selection system orientations and control variables

	M	SD	1	2	3	4	5	6	7
<i>Differences in the perception of performance</i>									
(1) Market	1.84	0.76							
(2) Expert	2.18	1.13	0.442**						
(3) Peer	1.91	1.14	0.238	0.612**					
<i>Selection system orientations artistic director</i>									
(4) Market	4.51	0.51	-0.149	0.048	-0.012				
(5) Expert	3.68	0.61	0.133	-0.080	-0.091	0.248			
(6) Peer	3.65	0.59	0.033	-0.123	-0.138	0.399**	0.317*		
<i>Selection system orientations managing director</i>									
(7) Market	4.41	0.53	-0.158	0.065	0.037	0.055	0.101	0.013	
(8) Expert	3.68	0.76	-0.048	0.091	0.067	-0.058	-0.145	-0.076	-0.083
(9) Peer	3.89	0.63	-0.114	-0.240	-0.011	-0.279*	-0.039	-0.099	0.343**
<i>Control variables</i>									
(10) Orientation Overlap	24.80	0.25	-0.033	0.076	-0.119	0.484**	0.283*	0.609**	0.298*
(11) Subsidy	51.53	24.56	-0.084	0.036	-0.028	-0.022	0.043	0.196	-0.115
(12) Sales	28.56	20.32	-0.105	-0.435**	-0.288*	-0.123	-0.033	0.070	-0.051
(13) Size	45.39	47.51	0.066	-0.157	-0.183	-0.006	0.152	0.128	-0.021
(14) Touring	0.83	0.38	-0.199	-0.281**	-0.362**	0.103	0.111	0.060	-0.006
(15) Theatre	0.88	0.33	0.096	0.072	-0.164	0.125	0.141	-0.053	0.129
(16) Non-kids	0.51	0.50	0.175	0.141	0.195	-0.151	0.245	-0.088	0.090
M		SD							
<i>Differences in the perception of performance</i>									
(1) Market	1.84	0.76							
(2) Expert	2.18	1.13							

Table 3 continued

	M	SD	8	9	10	11	12	13	14	15
(3) Peer	1.91	1.14								
<i>Selection system orientations artistic director</i>										
(4) Market	4.51	0.51								
(5) Expert	3.68	0.61								
(6) Peer	3.65	0.59								
<i>Selection system orientations managing director</i>										
(7) Market	4.41	0.53								
(8) Expert	3.68	0.76								
(9) Peer	3.89	0.63	0.076							
<i>Control variables</i>										
(10) Orientation Overlap	24.80	0.25	-0.022	-0.336**						
(11) Subsidy	51.53	24.56	-0.091	0.162	-0.068					
(12) Sales	28.56	20.32	0.041	-0.101	0.084	-0.416**				
(13) Size	45.39	47.51	-0.288*	0.184	0.068	-0.030	0.176			
(14) Touring	0.83	0.38	0.053	-0.193	0.119	0.047	0.069	-0.395***		
(15) Theatre	0.88	0.33	-0.013	-0.113	0.095	0.055	0.065	-0.204	0.253	
(16) Non-kids	0.51	0.50	-0.002	0.176	-0.028	-0.022	-0.096	0.099	0.008	-0.151

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

3.2.2 Selection system orientations and dyadic differences

We extended each selection system orientation measurement of Bhansing et al. (2012) with two new scale items (“Appendix”). These additional scale items were based on the work of Voss et al. (2000) and Wijnberg and Gemser (2000). This improved the reliability of the market (five items, Cronbach’s alpha 0.79), expert (five items, Cronbach’s alpha 0.80) and peer (five items, Cronbach’s alpha 0.70) selection system orientation measurements. Each item was scored by both the artistic and managing director on a five-point Likert-type scale. We followed Lincoln’s (1984)¹ method of analyzing relations in dyads by constructing a measure of similarity/dissimilarity between scores of the dual leaders (*dyadic difference*). We mean-centered the orientation type scales and multiplied each of the artistic directors’ orientation scores by those of the managing director.

3.2.3 Control variables

We included several organizational characteristics as control variables because the main focus of the study is at the level of the dyad, averaging the responses of both executives in each case to obtain the organizational score. The self-reports show high and significant correlations between the dual leaders’ perceptions of these core organizational characteristics (see Table 4 for the correlation matrix). We control for the organization’s income sources (the percentages from *subsidies* and *box-office*) and for organizational *size* [the number of fulltime staff equivalents (FTE)]. We constructed dummy variables to account for the fact that some companies only focus on children theatre (non-kids = 0) and others on a wider spectrum of *non-kids* shows (non-kids = 1) and whether the organization *toured* (touring = 1) their productions or only performed in their ‘home’ venues (touring = 0) and whether they produced plays (theatre = 1) or other types (theatre = 0) of performances (*theatre*).

In addition, we constructed a variable to measure the degree of overlap between the executives’ orientations. If one dual leader scored a 4 on expert orientation and the other a score of 5, then they had an overlap of 0.8 (Gibson and Vermeulen 2003). The overlap was calculated for each orientation scale and then we computed the composite variable (*selection system overlap*) by summing the overlap from each selection system dimension.

¹ According to Lincoln (1984), in attempting to predict relationships between dyads, the properties of each individual are likely to have effects, and so should be specified in a statistical model, and how those properties combine must also be taken into account. Our model therefore includes a variable for the interaction between the dual leaders’ orientations (dyadic difference). This approach allowed us to test the influence of combinations of individual properties and their inter-relationships instead of just testing the individual properties or measuring the distance between them. When the properties concerned the same variable for both executives, the interaction can be seen as a similarity/dissimilarity effect: the more negative its coefficient the larger the effects of differences, while positive and significant signs indicate the influence of similarity.

Table 4 Correlation between dual leaders' scores of organizational characteristics

	Subsidy A	Sales A	Size A	Touring A	Theatre A	Non-kids A
Subsidy B	0.748**					
Sales B		0.597**				
Size B			0.757**			
Touring B				1.000**		
Theatre B					0.926**	
Non-kids B						0.934**

"... A" is response of artistic director. "... B" is response of managing director

** Correlation is significant at the 0.01 level (2-tailed)

4 Empirical results

4.1 Results

Before the hypotheses tests are presented, the data is explored, showing some insights regarding mean scores of the artistic and managing directors' orientations and perceptions of organizational performance in each selection system dimensions.

The correlation matrix is presented in Table 3. The correlation matrix confirms the scale validations in that correlations between orientations are not high, indicating that market, expert and peer orientation are relatively independent constructs.

As mentioned before, we followed Lincoln (1984) and modeled perceived performance differences to account for the similarity/dissimilarity between the dual leaders' selection system orientations. A negative sign for an orientation difference variable indicates that larger orientation differences are related to larger perceived performance *dissimilarities* (Lincoln 1984).

To test hypotheses 1 and 2, we estimated (two-tailed) a set of regression models (Table 5). The results show that there is a significant negative relationship between market orientation differences and perceived market performance differences ($\beta = -0.225$, $p \leq 0.10$). A similar effect is visible between the artistic and managing directors' expert orientation differences and perceived expert performance differences ($\beta = -0.357$, $p \leq 0.01$). Regarding the peer dimension, we find that larger differences in the orientations are related to more similarities in perceptions of peer performance ($\beta = 0.265$, $p \leq 0.05$). This supports hypothesis 1 where it concerns the market and expert selection system dimension.

With respect to hypothesis 2, we compare the regression coefficients of the independent variables across the three models (because there are no differences in the scaling properties of the measures). We expected that the orientation difference coefficient would become larger for the more equivocal and uncertain performance dimensions. Table 5 shows that the regression coefficients of orientation difference are larger and stronger in model 1b than in model 1a (model 1a: $\beta = -0.225$, $p \leq 0.10$; model 1b: $\beta = -0.357$, $p \leq 0.01$). Also, model 1b explains considerably more variance in perceived performance differences than model 1a (model 1:

Table 5 Results of multiple regression analysis for each selection system dimension

	Model 1a Difference perception market performance β (t)	Model 1b Difference perception expert performance β (t)	Model 1c Difference perception peer performance β (t)
Constant	4.048*** (3.103)	1.521 (0.996)	6.270*** (3.224)
<i>Market selection system orientation</i>			
Artistic director	-0.289** (-1.887)		
Managing director	-0.264*** (-1.945)		
Dyadic difference	-0.225* (-1.625)		
<i>Expert selection system orientation</i>			
Artistic director		-0.249** (-1.957)	
Managing director		0.173* (1.414)	
Dyadic difference		-0.357*** (-2.485)	
<i>Peer selection system orientation</i>			
Artistic director			0.061 (0.391)
Managing director			-0.089 (-0.713)
Dyadic difference			0.265** (2.000)
<i>Controls</i>			
Orientation overlap	0.249* (1.563)	0.241** (2.116)	-0.185 (-1.087)
Subsidy	-0.229* (-1.615)	-0.142 (-1.201)	-0.047 (-0.351)
Box-office	-0.273** (-1.811)	-0.425*** (-3.459)	-0.245** (-1.875)
Size	-0.006 (0.041)	-0.281 (-2.088)	-0.329** (-2.534)
Touring	-0.276** (-1.898)	-0.366 (-3.000)	-0.442*** (-3.437)
Theatre	0.241** (1.792)	0.230** (2.005)	-0.089 (-0.747)
Non-kids	0.199* (1.529)	0.144 (1.262)	0.211** (1.816)
<i>Model</i>			

Table 5 continued

	Model 1a Difference perception market performance β (<i>t</i>)	Model 1b Difference perception expert performance β (<i>t</i>)	Model 1c Difference perception peer performance β (<i>t</i>)
R ²	0.262	0.465	0.412
Adjusted R ²	0.108	0.353	0.289
F	1.705*	3.443***	3.358***

We conducted a similar analysis that included demographic variables: age, tenure and gender, but this resulted in no substantive change of the regression coefficients of the difference in selection system orientation variables

* $p < 0.10$ (1-tailed); ** $p < 0.05$ (1-tailed); *** $p < 0.01$ (1-tailed)

$R^2 = 0.262$; model 2: $R^2 = 0.465$). However, no support is found with regard to the peer dimension, because the relationship between peer orientation differences is related to similarity in performance perception along the peer dimension (see above). This supports hypothesis 2 where it concerns the market and expert selection system dimension.

The regression results also show that companies with a higher box-office are less dissimilar in their perceptions of organizational performance along each dimension (model 1a: $\beta = -0.273$, $p \leq 0.05$; model 1b: $\beta = -0.425$, $p \leq 0.01$; model 1c: $\beta = -0.245$, $p \leq 0.05$). Companies that produce plays have dual leaders that are more dissimilar in their perception of market and expert performance, but this effect is not significant along the peer dimension (model 1a: $\beta = 0.241$, $p \leq 0.05$; model 1b: $\beta = 0.230$, $p \leq 0.05$; model 1c: $\beta = -0.089$, $p > 0.10$).

4.1.1 Post hoc analysis

The multiple regression models have ten predictor variables and they are estimated on dyadic data from 59 organizations. As a rule of thumb, it is recommended that the observed statistical power exceeds 0.8. The post hoc statistical power for model 1a (0.84) model 1b (0.99) and model 1c (0.99) all pass this test at $p \leq 0.5$ (Cohen 1988; Soper 2014).

4.2 Robustness checks

We ran additional analyses to check the robustness of our findings. To exclude the possibility that the selection system orientations in themselves were strong predictors of perceived performance, we performed a regression analysis to test if there were direct relationships between the strength of selection system orientations and perceptions of organizational performance along the matching dimensions at the individual level, but we found no significant relationships for peer ($\beta = -0.100$, $p = 0.281$), expert ($\beta = -0.008$, $p = 0.933$) or market ($\beta = -0.038$, $p = 0.684$) orientations. In addition, we performed a structural equation analysis (Schumacker and Lomax 2004) in which we ran models 1a and 1b simultaneously. This also showed that the hypothesized relationship between orientation difference and difference in perception of performance was stronger in the expert dimension than in the market dimension.

We explored whether differences in the strength of the selection system orientations could be explained by demographic variances, via a model that included age, tenure and gender variables, estimated as suggested by Lincoln (1984), but only found a significant (positive) influence of similarity in dual executives' ages on the difference in their expert selection system orientations ($\beta = 0.301$, $p \leq 0.05$)—i.e. the closer their ages, the more different was the strength of their expert selection system orientations, suggesting that selection system orientations is a complex phenomenon and are influenced by many factors throughout artistic and managing directors' careers. Introducing the same demographic variables into models 1a, 1b and 1c produced no substantive changes in the estimates of the effects of the orientation difference variables.

5 Discussion

The main aim of this study is to better understand dual executive leaders' perceptions of their organizations' performance, and especially, the drivers of differences in performance perceptions. To do this, we focused on managers' selection system orientations, an essential structural element of their mental model. We also presented arguments why the levels of equivocality and uncertainty could create differences between perceived performance along different dimensions and how signals of greater ambiguity and unavailability allowed more room for the managers' orientations to affect their perception of organizational performance.

The first major finding of this study shows why dual leaders have different perceptions of their organization's performance. Our results suggest that the differences between top managers in their selection system orientations are antecedents for differences in their perceptions of organizational performance. As expected, differences in dual leaders' perceptions of performance are greater, the greater the differences between their orientations in both the market and expert dimension. This was not so for the peer performance dimension—here, the more similar their peer orientations are, the greater the difference in their perceptions of performance. So managers with strongly dissimilar peer orientations seem to have weighed the available peer opinions similarly. A possible explanation for this arises from the interactive and discursive nature of the peer evaluations themselves. Peer evaluations—in the industry that is the subject of this study—arise in a smaller community of peers with a high degree of interaction, at least among those peers they consider equals. More than is the case with the signals of market and expert performance, the signals of peer performance arise from discursive processes among peers, similar to the discursive processes among managers studied by Kwon et al. (2014), which makes it more likely that even dual leaders with very dissimilar peer orientations will encounter the same outcomes of that discursive process and will find it difficult to interpret the available signals differently.

The second major finding of this study is that the influence of differences in selection system orientations is greater if the perception and interpretation of performance can be characterized as more equivocal and uncertain. Specifically, market performance data are the most available and least ambiguous, expert performance data is less available and more ambiguous, and peer performance data usually the least available and most ambiguous. Our results show that the impact of the differences in managers' selection system orientations on their perceptions of performance in the same dimension is indeed greater for expert selection and less for market selection, while (as discussed above) the result on the peer selection dimension was different to what we expected.

At a more general level, our results provide new insights for the managerial cognition literature concerning the impact of particular mental models on managerial interpretation of signals. This study suggests that the cognitions of managers not only determine what type of issues they focus on, but also how they interpret the outcomes of organizational behavior with regard to these issues. Our empirical evidence shows that selection system orientations are fundamental to how

managers construct their understandings of their business environments and that the way top managers value the opinions of evaluators influences how they weigh signals and how they process them in building their understanding of events. Furthermore, it suggests that signals of performance do not speak for themselves in the strategy making process, but are subjected to interpretations of managers, and thus that any subsequent interactions and decision regarding these signals are based on the initial interpretations of managers.

5.1 Limitations

The dual-leadership structure lends itself well to studying the differences between managers with regard to their perception of organizational performance, because the dual leaders have structurally equivalent positions, so we do not have to control for the rank in the hierarchy, and they are together at the top of one single organization, so the object of their perception is exactly the same. With this advantage comes the disadvantage that our results should be interpreted with caution before being applied to managers that are not in the same structural position as the dual leaders, for instance, the differences in perception between the CEO and another board member or between a line-manager and a staff manager. Of course there are also further limitations to this study, which affect the generalization of the results. First, we examined one setting in one country. Therefore, we could not take into account sectoral or national differences with respect to the processes of perception and interpretation. Also, the interpretation of the results of this study is limited by the number of participating organizations—more responses would have provided stronger effects in our statistical models. Second, the industry we studied is populated by organizations that recognize very explicitly multiple organizational performance objectives, along multiple dimensions. This could affect the extent to which individual orientations have an influence over perceived performance. Managers in organizations that aim to perform only, or mostly, along one single dimension might also perceive this performance more uniformly. Thirdly, we argue that different performance dimensions differ in the extent to which the signals along a dimension will contribute to the equivocality and uncertainty of the process of interpretation, but we did not empirically test whether the managers themselves experienced these different levels of equivocality and uncertainty. Finally, we do not investigate a possible reverse causality, namely that disagreements between the dual leaders, and especially the differences in perceptions of organizational performance within organizations, influence external evaluators' perceptions of organizational performance, which in turn produce those signals the managers interpret.

5.2 Managerial implications

In general, cognitive differences that may exist in management teams have been argued to provide information diversity at the top of the organization and to be beneficial to the organization as a whole (e.g. Alvarez and Svejnova 2005). The dual executive leadership structure confronts the upper echelon of an organization

with the possibility that signals of performance can be interpreted differently. This is important, as perceptions of past performance are the bases for planning future strategies. Organizations with a single CEO structure may react more speedily to changes in the environment but dual leaders may be more effective in making high quality strategic decisions, since they can incorporate different or more complete perceptions of the organizational environment and its performance in their strategic decisions.

If the dual leaders disagree in their perceptions of organizational performance this can, on the one hand, amplify the disadvantages of cognitive differences. In particular, such differences give more scope for managers to disagree about the effectiveness of past strategic choices, the advisability of particular strategies in the future and the opportunity to argue in behalf of their personal interest. However, being more aware of the effects of their differing orientations and the effects of equivocality and uncertainty should allow managers to avoid future disagreements more easily. Therefore, the results of this study could help managers to recognize and better deal with this specific type of disagreement.

On the other hand, where there is no consensus about performance, this can increase the need to collect more signals and to discuss their ambiguousness. There are many circumstances in which this need to be better informed and, especially, subject information to a higher degree of discussion could be to the advantage of the organization and its eventual performance. Again, the results of this study can contribute to convincing managers of the reasonableness of such further investments in informing themselves and considering the available information in depth.

In a more narrow sense, the results of this study allow organizations to make more reasoned decisions about how great the differences between members of a management team should be—especially between dual leaders. Given a desired level of difference, the organizations can actively strive to fill particular functional positions with individuals with selection system orientations of particular strengths. Finally, this study has implications for situations in which managers are themselves sources of information about their organization's performance to outsiders, for instance, in the context of reporting to a subsidizing institution or in a close collaboration with another organization. By being aware that different managers can have different perceptions of their own organization's performance, one can better select the one whose perception will be most useful to the organization in that particular context.

5.3 Further research

We hope this study will stimulate more research in the perception of organizational performance, as this subject is still underexplored. The limitations we discussed above point the way towards specific extensions of this study: for instance, by also including the differences with regard to organizational performance between managers who are not hierarchically equivalent. Other important questions, which may have significant implications for management and strategic literature, remain unanswered. For example, "Does reported

organizational performance capture the state of an organization and how does this reported performance relate to the performance as observed by specific stakeholders, and especially by the organization's managers themselves?" Our paper shows that dual leaders can have quite different perceptions of organizational performance, which implies that at least one of them has a perception of performance that differs from the reported performance. If managers' perceptions of performance are different from reported performance, it seems of great importance to further investigate factors that lead managers to interpret signals of performance in particular ways. This study focused on the divergences in the perception of the organizational performance and did not investigate the effects of subsequent interaction between the managers. Therefore, it provides a useful foundation for more detailed studies of precisely these interactive processes, given the expected differences in original perception. Finally, as briefly mentioned at the start of this paper, the perception of past performance is the basis on which decisions about future strategies are made. Future studies should analyze how the differences between top managers in respect to their perception of past performance influence future strategic choices and organizational performance.

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Appendix: Scale items

Peer orientation

I think that my peers are a good judge of the quality of our organization's productions.

I am often aware of my peers' opinions about our productions.

In the decisions I make, it is especially useful to consider the opinions of my peers.

I sometimes wonder what effect my decisions will have on the opinions of my peers.

The opinions of my peers are an important measure of the success of our productions.

Expert orientation

I think that experts are a good judge of the quality of our organization's productions.

I am often aware of expert's opinions about our productions.

In the decisions I make, it is especially useful to consider the opinions of experts.

I sometimes wonder what effect my decisions have on the opinions of experts.

Opinions of experts are an important measure of success of our productions.

Market orientation

I think that our audience is a good judge the quality of our organization's productions.

I am often aware of our audience's opinions about our productions.

In the decisions I make, it is especially useful to consider the opinions of our audience.

I sometimes wonder what effect my decisions have on the opinions of our audience.

The opinions of our audience are an important measure of success of our productions.

Peer performance

In terms of [...] over the past 5 years my organization belongs to the...

[familiarity of your company amongst other companies within the industry]

[a good reputation amongst peers]

[growth in the appreciation among peers for our performances]

[serving as an example of good practice for other companies]

Expert performance

In terms of [...] over the past 5 years my organization belongs to the...

[the positive reviews from critics]

[a good reputation amongst experts]

[growth in the appreciation among experts for our performances]

[attention from the media]

[success in attracting funds from the art council]

Market performance

In terms of [...] over the past 5 years my organization belongs to the...

[attendance rate (% of the maximum number of occupiable seats) during the performances]

[a good reputation with the audience]

[growth in attendance rates]

[sold out performances]

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