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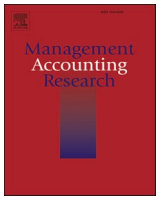

Controllers and strategic decision-making: The role of cognitive flexibility in controller-manager collaboration

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ABSTRACT

Extending research about controllers' different roles, we develop new insights into how controllers collaborate with line managers and thereby shape strategic decision-making quality and speed. We introduce the concept of cognitive flexibility as an important characteristic of the controller-manager collaboration and hypothesize that the business partner role is positively related to cognitive flexibility in controller-manager collaboration, whereas the watchdog and scorekeeper roles are expected to have a negative association. Data collected through three surveys empirically supports these hypotheses for the business partner and scorekeeper roles. Furthermore, our results support the notion that cognitive flexibility in interpersonal collaboration is a key mechanism through which controller roles can influence strategic decision-making. Specifically, we find that the positive (negative) relation between the business partner (scorekeeper) role and the quality of strategic decisions is mediated by cognitive flexibility.

1. Introduction

Controllers in organizations perform a multitude of different tasks such as preparing financial reports, monitoring performance, and providing advice to management (Goretzki et al., 2018; Hartmann and Maas, 2011; Järvenpää, 2007; Maas and Matějka, 2009; Pierce and O'Dea, 2003). Over time, some operational controller tasks have become increasingly automated (Caglio, 2003; Granlund and Malmi, 2002; Scapens and Jazayeri, 2003), while controllers' support in strategic decision-making processes has gained in importance (Cadez and Guilding, 2008; Ma and Tayles, 2009; Goretzki and Messner, 2019). However, our theoretical understanding of how controllers contribute to organizations' strategic decision-making, as well as empirical evidence of their contribution in this area is rather limited (Cadez and Guilding, 2008; Erhart et al., 2017; Zoni and Merchant, 2007).

Prior research indicates that an important intermediary step in controllers' contribution to organizational outcomes is their collaboration with line managers (Byrne and Pierce, 2007; Chenhall and Langfield-Smith, 1998; Lambert and Sponem, 2012). However, there is little insight into how controllers collaborate with line managers in strategic decision-making and how this collaboration, in turn, can shape decision-making outcomes. Accordingly, to advance our understanding of how controllers contribute to strategic decision-making, this study forges a link between controller roles (i.e., controllers' emphasis on *business partner*, *watchdog*, and *scorekeeper* tasks (Fourné et al., 2018)) and their collaboration with line managers. Theoretically and empirically, we examine how the controller-manager collaboration varies depending on a controller's role emphasis and, in turn, how this collaboration is associated with the quality and speed of strategic decision-making.

Strategic decisions are expected to have a profound effect on the organization's long-term success (e.g., via major capital expenditures, acquisitions, or divestments) (Mintzberg et al., 1976; Moschieri and Mair, 2008; Schilit, 1987). They are characterized by uncertainty regarding decision alternatives and require a deep understanding of how information is synthesized, combined in (more or less) creative ways, and interpreted when controllers and managers interact. We, therefore, introduce the concept of cognitive flexibility from the strategic management literature to characterize the collaboration between controllers and managers. This concept captures the degree to which collaborating actors openly listen to each other, freely embrace different perspectives, flexibly change their opinions based on input from each other, and are

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willing to consider different decision alternatives (Fourné, 2014; Martin and Rubin, 1995; Raes et al., 2011). As a collaboration characteristic, cognitive flexibility is thus a determining factor for the decision alternatives that controllers and managers may jointly develop, evaluate, and ultimately select. We expect that it is related to the quality and speed of strategic decision-making. In sum, our study addresses two research questions: (1) *How are different controller roles related to the degree of cognitive flexibility in controller-manager collaboration?* (2) *How is cognitive flexibility in controller-manager collaboration related to the quality and speed of strategic decision-making*?

To address these questions, we draw on information processing theory (Dooley and Fryxell, 1999; Galbraith, 1973) and role theory (Katz and Kahn, 1978). Our theorizing builds on the notion that the three controller roles are associated with cognitive flexibility in interpersonal collaboration in different ways because the latter depends on the type of information provided by both collaborators, their openness towards different (and possibly conflicting) information, interpersonal communication skills, and role expectations (Raes et al., 2011). Moreover, we argue that cognitive flexibility may be positively associated with the quality of strategic decision-making, but negatively associated with speed.

Our analyses are based on survey data collected from a panel of controllers working in Germany, Austria, and Switzerland in three waves between June 2015 and May 2016. Using structural equation modeling (SEM), we estimate the relations between the three controller roles, the level of cognitive flexibility in controller-manager collaboration, and the quality and speed of strategic decision-making. We find a positive (negative) relation between the business partner (scorekeeper) role and cognitive flexibility in the controller-manager collaboration. Cognitive flexibility, in turn, is positively associated with the quality of strategic decision-making, but shows no significant association with the speed of making such decisions.

Our study contributes to the literature in at least three ways: First, we advance research on how controllers operate and why they may make different contributions to strategic decision-making. Specifically, we shed light on controller-manager collaboration as an intermediary step between controllers' roles and the quality, as well as the speed of strategic decision-making. While highlighting the significance of collaboration between controllers and line managers, previous management accounting research lacks insights into how controller-manager collaboration unfolds and how it affects organizational outcomes such as strategic decision-making (Byrne and Pierce, 2007; Lambert and Sponem, 2012). Similarly, management research has called for empirical examination of how specific collaboration characteristics affect decision-making outcomes (Raes et al., 2011; Simsek, Heavey, & Fox, 2018). Addressing both literature streams, we show that the roles controllers emphasize are related to cognitive flexibility as a key characteristic of controller-manager collaboration, which, in turn, influences strategic decision-making.

Second, by introducing the concept of cognitive flexibility to the management accounting literature, we address Byrne and Pierce's (2007) call to identify relevant characteristics of controller-manager collaboration. This is a pathway towards understanding controllers' work in different organizational situations and their joint contributions with line managers to organizational outcomes. More specifically, and based on prior management studies (Currie and Procter, 2005; Raes et al., 2011), we argue that the degree of cognitive flexibility in interpersonal collaboration may play a central role in how controllers and managers jointly synthesize, debate, and make sense of information, and by extension, how these actors combine different interpretative schemas. Cognitive flexibility, therefore, may capture a key characteristic of controller-manager collaboration when dealing with uncertainty and serve as an antecedent of strategic decision-making outcomes (Cadez and Guilding, 2008; Morales and Lambert, 2013). Our finding of a full mediation highlights its importance for decision-making quality.

Third, we contribute to recent research, which emphasizes that internal (and external) collaboration of managers in strategic decision-making activities warrants additional attention (Van Doorn et al., 2022). We provide insights into collaboration characteristics as an intermediary step, reveal the functional and dysfunctional contributions that come with the emphasis on different roles, and thereby explain when and why employees in similar positions may make varying contributions to strategic decision-making. While our contribution is focused on cross-functional collaboration (i.e., between members of the finance function and line managers), our results bear insights for both non-hierarchical and hierarchical collaborations in strategic decision-making. How actors collaborate in strategy formulation and implementation is not only determined by their positions (Heyden et al., 2017; Raes et al., 2011). Our study provides theorizing and evidence that collaboration in strategic decision-making is (also) shaped by the roles that collaborating actors emphasize.

The remainder of this paper is structured as follows. In Section 2, we provide the conceptual background on controller roles and controller-manager collaboration. We then develop our hypotheses starting with the link from the controller roles to cognitive flexibility and then turning to the link from cognitive flexibility to quality and speed of strategic decision-making. Section 3 presents our data and methods. Section 4 presents our results. Finally, we discuss the implications of our research and suggest ways to build on it in future studies in Section 5.

2. Theoretical background and hypotheses

2.1. Controller roles

Roles reflect recurring tasks and activities which are rather stable over time (Katz and Kahn, 1978). In management accounting research, prior literature has examined how controllers' tasks can be grouped into role profiles and which individual and organizational outcomes these roles entail (Goretzki et al., 2018; Lambert and Sponem, 2012; Maas and Matějka, 2009). For controllers, the literature suggests three different roles and associated tasks (Fourné et al., 2018). The *business partner* role captures participation in managerial decision-making and involves providing forward-looking information and analyses regarding the business environment (Eskenazi et al., 2016; Hartmann and Maas, 2011; Maas and Matějka, 2009). Next, the *watchdog* role involves analyzing performance relative to targets, verifying adherence to budgets, and using backward-looking information (Fauré and Rouleau, 2011; Fourné et al., 2018). Finally, the *scorekeeper* role is defined as preparing standard reports, correcting data entry errors, and ensuring transparency and quality of financial information (Hopper, 1980; Järvenpää, 2007; Morales and Lambert, 2013).

Whether watchdog and scorekeeping tasks represent a single role or two separate roles is debated. Some scholars argue that when controllers exercise corporate control (i.e., watchdog) duties, they also engage in scorekeeping, leading to labels such as "bookkeeper" (Hopper, 1980, p. 402) or "bean counter" (Granlund and Lukka, 1998, p. 202). However, Järvenpää (2007) suggested that scorekeeping tasks reflect a separate controller role. In a recent scale development study conducted by Fourné et al. (2018), interviews and quantitative evidence supported this distinction, and discriminant validity was established between the business partner, watchdog, and scorekeeper constructs.

Traditionally, controllers were expected to focus on scorekeeper tasks, such as providing managers with financial reports and analyses (Järvenpää, 2007), and watchdog tasks, such as performance monitoring and control (Hartmann and Maas, 2011). However, controllers have expanded their task profile by serving as internal advisors (Maas and Matějka, 2009; Pierce and O'Dea, 2003). Today, most controllers pursue all three roles to some extent given the monitoring, control, and decision-making contributions that are expected from them (Chang et al., 2014). While scholars argue that the business partner role enhances strategic decision-making (Cadez and Guilding, 2008; Siegel et al., 2003), they also conclude that the watchdog and scorekeeper roles

may entail (at least some) dysfunctional contributions (Cadez and Guilding, 2008; Pierce and O'Dea, 2003). Interpersonal collaboration among controllers and line managers can enhance (Byrne and Pierce, 2007), as well as politicize (and sometimes slow down) decision-making (Ezzamel and Burns, 2005; Vaivio, 2004; Windeck et al., 2015). Accordingly, our model captures how different controller roles may indirectly shape strategic decision-making through their collaboration with line managers.[1]

2.2. Controller-manager collaboration in strategic decision-making

Information processing theory conceptualizes actors as having incomplete information, which is a key challenge as they attempt to make decisions and understand their contexts. From that perspective, strategic decision-making is facilitated if actors can access, share, and interpret relevant and timely information (Dooley and Fryxell, 1999; Galbraith, 1973; Martin and Eisenhardt, 2010). To achieve this in a strategic decision-making context, collaborative interaction with other organizational members is crucial (Raes et al., 2011).

The construct of cognitive flexibility characterizes collaboration and is defined as collaborators' (a) awareness that multiple options exist to deal with a situation, (b) willingness to be flexible and adapt to new situations, and (c) self-efficacy in being flexible (Bilgin, 2009; Fourné, 2014; Martin and Rubin, 1995; Raes et al., 2011). This means that actors openly listen to each other and draw on different information as they generate and evaluate decision alternatives. Furthermore, they are willing to change their opinions and formulate plans based on others' input (even if it included unusual approaches). As such, cognitive flexibility in controller-manager interaction encompasses their joint discussions, how they combine their cognitive schemas, and how they interpret information to generate, evaluate, and select decision alternatives.

2.3. Hypotheses development

We develop five hypotheses regarding the dynamics of controller-manager collaboration; three linking the different controller roles to cognitive flexibility, and two linking cognitive flexibility to key aspects of strategic decision-making (i.e., quality and speed). Four mechanisms are relevant to understanding the association between the different controller roles and cognitive flexibility in controller-manager collaboration: type and relevance of the information provided, flexibility in embracing and processing different information (and formality of meetings), interpersonal communication, and role expectations that shape conversations about decision alternatives.

2.3.1. The business partner role and cognitive flexibility

Controllers who emphasize the business partner role share both financial and non-financial information about external factors, (e.g., competitor benchmarks or customer profitability analyses) as well as forward-looking predictions with managers (Cadez and Guilding, 2008; Pierce and O'Dea, 2003). Such information is relevant in decision-making situations (Cadez and Guilding, 2008; Pierce and O'Dea, 2003). Accordingly, managers tend to be interested in reviewing information and engaging in discussion and analysis with controllers who enact the business partner role (Burns and Baldvinsdottir, 2005). This engagement can help controllers and managers to expand their knowledge of their respective business environments. In addition, it tends to stimulate creative thinking about competitors' capabilities and intentions or customer needs. This results in an improved understanding of the decision-making context, which, in turn, may help them to identify new decision alternatives (Bouwens and Abernethy, 2000). Since the business partner controller provides a broad range of information and helps to interpret the information provided by a manager (e.g., in light of changing environmental conditions) (Naranjo-Gil and Hartmann, 2007), information flows both ways. This makes it easier for both actors to understand the implications of alternative choices in different scenarios, which is a key facet of cognitive flexibility (Raes et al., 2011).

In addition, interactions between a controller who emphasizes the business partner role and a manager are not strictly scheduled and often do not follow pre-defined agendas; instead, managers may ask for advice as needed and business partners respond proactively (Burns and Baldvinsdottir, 2005). A lack of preparation for meetings can encourage actors to consider all options with an open mind and to discuss them in unfiltered ways, without any pre-set agenda or focus. Moreover, ad hoc interactions are rarely politicized; because collaborators are not constrained by political thinking, they may draw on new information and derive unexpected insights (Souitaris and Maestro, 2010). Collaboration between business partner controllers and managers entails informal discussions (Burns and Baldvinsdottir, 2005; Järvenpää, 2007), which enable them to welcome different opinions and critically question alternative courses of action (Byrne and Pierce, 2007). This provides for a more comprehensive and creative joint interpretation of information pertinent to a decision and its context (i.e., interpretation is less constrained by formal procedural thinking).

In terms of communication, business partner controllers have a strong belief in their ability to influence managers (ten Rouwelaar et al., 2020) and tend to draw on a full repertoire of interpersonal communication skills (Burns and Baldvinsdottir, 2005; Windeck et al., 2015). This results in a more open-minded and flexible approach to conversing with managers, which benefits cognitive flexibility in controller-manager collaboration (Raes et al., 2011).

Lastly, the expectations of a business partner controller and a manager may stimulate constructive conflict in which both actors are willing to challenge each other's viewpoints. Both expect the other to raise questions. A business partner anticipates the manager's changing information needs based on the questions raised, and tries to tailor additional information accordingly (Burns and Baldvinsdottir, 2005; Byrne and Pierce, 2007).

H1. Emphasis on the business partner role is positively associated with cognitive flexibility in the interaction between a controller and a manager.

2.3.2. The watchdog role and cognitive flexibility

A controller emphasizing the watchdog role shares budget-related information and highlights differences between actual and planned performance (Burns and Baldvinsdottir, 2005; Fauré and Rouleau, 2011). The information provided helps managers to understand how past actions affected financial performance (Johnston et al., 2002; Schaltegger and Zvezdov, 2015). Understanding which actions led to desired performance might help managers "know we are doing something right" (Byrne and Pierce, 2007, p. 484). Likewise, a watchdog may direct managers' attention to shortcomings in performance. In both cases, the information provided tends to be backward-looking and internally focused, and hence less relevant to generating and evaluating forward-looking decision alternatives than information provided by business partner controllers, ultimately resulting in collaboration with low cognitive flexibility.

[1] Two aspects are worth noting. First, our arguments regarding positive or negative consequences of a certain role emphasis apply to the strategic decision-making context but may not be interpreted as arguments regarding the general (un)desirability of a certain role. Second, prior research suggests that controllers' role multiplicity, i.e., the simultaneous focus on multiple roles, can lead to role conflict (e.g., Maas and Matějka, 2009). While it is possible that role multiplicity and potentially resulting role conflict may have effects on cognitive flexibility in the controller-manager collaboration beyond the individual direct effects of controller roles, these effects are beyond the scope of this study. We discuss the possibility for future research regarding this topic in Section 5.

Emphasis on the watchdog role may also be associated with low cognitive flexibility due to the rather formal nature of the interactions. Meetings between a watchdog controller and a manager to review budget-related performance typically occur on a monthly or quarterly basis and tend to be arranged formally (Burns and Baldvinsdottir, 2005). As watchdog-manager interactions offer very little flexibility when it comes to embracing different pieces of information and fewer options are debated, cognitive flexibility is low. In many cases, information older than two weeks is outdated and no longer useful for managerial purposes (Pierce and O'Dea, 2003). Rather than waiting for a controller who emphasizes the watchdog role to supply information about performance patterns, managers might therefore explore alternative sources of information (Pierce and O'Dea, 2003). Review meetings with watchdogs may then come to be perceived as an uninformative duty, with limited potential for managers to gain insights. Given the type of information involved, the formal nature of scheduled meetings, and potential issues of timeliness, we argue that the more a controller emphasizes the watchdog role, the lower the cognitive flexibility in controller-manager collaboration.

In terms of communication, the watchdog controller ensures that managers have followed corporate rules and regulations, and informs "others in the organization if individuals in the organization have violated laws or ethical norms" (Merchant and Van der Stede., 2012, p. 619). Because managers may not feel comfortable communicating openly with controllers who report violations, interpersonal communication may be rather reserved and potentially defensive. Furthermore, the watchdog role requires controllers to maintain independence from managers; keeping up perceived boundaries between them reduces open debate (ten Rouwelaar et al., 2020). Overall, this makes for less constructive conversations in decision-making contexts. In terms of role expectations, managers do not envisage much debate or mutual questioning and instead anticipate being informed or challenged by the watchdog in a one-sided manner. As an example, managers who expect rejection (e.g., when compliance with budgetary limits is uncertain) could become reluctant to propose ideas to watchdog controllers (Siegel et al., 2003). This has a negative impact on cognitive flexibility in controller-manager collaboration.

H2. Emphasis on the watchdog role is negatively associated with cognitive flexibility in the interaction between a controller and a manager.

2.3.3. The scorekeeper role and cognitive flexibility

In terms of information, a controller focused on the scorekeeper role provides routine, standardized reports, or analyses about past financial performance (Järvenpää, 2007). These reports enable both controllers and managers to compare performance across multiple organizational units and periods (Hall, 2010). Moreover, scorekeeper controllers tend to be methodological experts (Schaltegger and Zvezdov, 2015) who ensure the accuracy of financial information (Granlund and Lukka, 1998; Morales and Lambert, 2013).

Providing routine financial information makes a seemingly limited contribution to cognitive flexibility since controllers and managers rarely engage with this information together and scorekeepers follow a rigid reporting schedule and specifications (Zoni and Merchant, 2007), which require them to focus on data collection, performing predetermined analyses, and preparing for the reporting period (Järvenpää, 2007).

Emphasizing the scorekeeper role also limits the scope and openness of interpersonal communication. As "numbers-related" complexity and accuracy rise, controller-manager collaboration may suffer from "numbers-induced fatigue" (Pierce and O'Dea, 2003), and little attention and energy may be dedicated to creative thinking and open debate.

In terms of role expectations, managers are unlikely to approach scorekeeper controllers for ad hoc or informal meetings for decision-making purposes if little useful forward-looking information is expected. Cognitive flexibility, consequently, is low because it requires more informal interactions involving debate on relevant and timely information for decision-making (Raes et al., 2011). Instead, direct collaboration of a scorekeeper controller and a manager is likely to revolve around correcting data entry errors and making data reliable (Morales and Lambert, 2013), not on embracing new information. These interactions are therefore unlikely to contribute to cognitive flexibility. Finally, from the managers' perspective, scorekeepers have little information to offer. Reliance on scorekeepers' formalized systems is a barrier to providing and questioning novel or unstructured information for decision-making purposes (Raes et al., 2011). In such situations, cognitive flexibility in controller-manager collaboration is low.

H3. Emphasis on the scorekeeper role is negatively associated with cognitive flexibility in the interaction between a controller and a manager.

2.3.4. Cognitive flexibility and the quality of strategic decision-making

We argue that controller-manager collaboration characterized by high cognitive flexibility increases the quality of strategic decisions for three reasons: First, high cognitive flexibility means that diverse information put forward by collaborating actors is used effectively to generate and evaluate alternatives (Raes et al., 2011). Cognitive flexibility in such collaborations enables actors to interpret information about the decisions at hand and associated contexts more creatively, thereby enabling them to generate and evaluate more alternatives and select the best solution. Consequently, from an information access and usage perspective, decision quality likely improves.

Second, high cognitive flexibility encourages controllers and managers to organize information in meaningful ways, which enables deeper causal understanding in decision-making. In particular, controllers and managers can jointly outline cause-and-effect chains and benefit from an improved understanding of how certain actions translate to desired performance (Raes et al., 2011). A controller can use controlling-related toolkits, such as balanced scorecards or strategy maps (Kaplan and Norton, 2004), and managers can use other instruments, such as causal loop diagrams (Kunc, 2008). Combining their cognitive schemas to make sense of the diverse information provided by both actors enhances their understanding of causal chains, thereby improving the quality of strategic decision-making (Raes et al., 2011).

Third, when there is a high level of cognitive flexibility, the controller and the manager can be expected to act as a well-aligned subgroup within larger decision-making teams (Priem, 1995). Scholars have argued that such sub-groups can benefit decision-making because they can handle cognitive conflict constructively during team discussions (Priem, 1995). They also help prevent groupthink (Janssen et al., 1999), and stimulate, "cognitive shifts," while remaining open to shifts proposed by others (Raes et al., 2011, p. 111). The ability to make cognitive shifts ensures that decisions are not based on general assumptions or influenced by powerful individuals' preferences and biases (Raes et al., 2011), but rather rely on the most relevant information for the decisions at hand and associated contexts, which enhances decision quality (Dooley and Fryxell, 1999; Raes et al., 2011).

H4. *Cognitive flexibility in controller-manager collaboration is positively associated with the quality of strategic decision-making.*

2.3.5. Cognitive flexibility and the speed of strategic decision-making

If controllers and managers exhibit high levels of cognitive flexibility in their interpersonal collaboration, they may be aware of multiple decision-making alternatives and criteria to evaluate them in parallel, resulting in faster decisions. However, we argue that cognitive flexibility in interactions between controllers and managers is associated with slower decision-making for two reasons: First, in addition to being aware of multiple options, cognitive flexibility implies that actors strive to understand alternatives and their merits in depth (Fourné, 2014). For this understanding, a review of extensive information and a detailed

understanding of each alternative is required to satisfy both controllers' and managers' concerns. The higher the degree of cognitive flexibility in controller-manager collaboration, the more their debate may therefore prolong the comparison of alternatives. Searching for additional information about the decision or its context may also delay a final decision, as it may lead to option refinement and additional criteria being considered in the evaluation of options. The time required for such extensive research is inconsistent with the "breadth-not-depth" approach outlined by Eisenhardt (1989) and may delay decision-making.

In collaborations characterized by high cognitive flexibility, controllers and managers tend to combine detailed information in creative ways (Raes et al., 2011), potentially resulting in innovative solutions that deviate from an organizational unit's past behavioral patterns. When made explicit to others, however, these innovative ideas are likely to be misunderstood or may cause dissent and conflict (Amason, 1996). Such misunderstandings or conflicts hinder team cooperation (Jehn et al., 2008), require more explanation, and may cause delays in reaching a final decision (Roberto, 2004). Furthermore, to overcome potential conflict, controllers and managers might need to defend their judgments within the organization (Roberto, 2004). To convince others, formal techniques and analyses are frequently required and controllers as well as managers need time to conduct such analyses and to develop comprehensive communication strategies supporting their preferred options (Wally and Baum, 1994). We, therefore, hypothesize that the higher the cognitive flexibility in controller-manager collaboration, the slower these two organizational actors jointly make decisions.

H5. *Cognitive flexibility in controller-manager collaboration is negatively associated with the speed of strategic decision-making.*

3. Research design

3.1. Sample

Given the research questions and hypotheses, our goal was to obtain data on the roles of controllers and how these roles affect controllers' working relationships with managers. We collected data through the WHU Controller Panel. Founded in 2006, this panel conducts three to four surveys per year with the aim of identifying best practices and benchmarks in the finance and controlling function, as well as supporting research in this area. Participation in the panel is targeted toward controllers, but is open to all finance function employees in Germany, Austria, and Switzerland. Participation in the panel is voluntary and free of charge. At the time of data collection, the panel had approximately 1000 members. All panel surveys were administered as online questionnaires based on Dillman et al.'s (2009) recommendations regarding the design of the e-mail cover letter, the length of the survey, and the order of the questions to ensure response-friendliness. Participants were assured of anonymity and respondents received a detailed results report after the study. Since most of the panel's participants speak German, all panel surveys are administered in German. All items are translated into German using the back-translation procedure outlined by Daniel and Reitsperger (1991) to ensure measurement validity. Surveys regularly yield response rates of over 40%, and data collected through this panel have been used extensively in prior management accounting research (e.g., Becker et al., 2016; Erhart et al., 2017; Hiller et al., 2014).

To mitigate the risk of common method bias (Podsakoff et al., 2003), we collected three waves of data for our dependent and independent

Table 1
Sample characteristics.

Characteristics of sample	Final sample	
	N	%
Hierarchical position		
CFO / Head of finance	66	16.5
Head of controlling and other financial executives	224	56.1
Other pos. in the finance function at least two levels below the CFO	109	27.3
Level		
Corporate level	249	59.0
Business unit level	173	41.0
Firm ownership		
Public firms	86	22.3
Private firms	299	77.7
Firm size		
< 100 mio €	89	25.6
100 mio € - 1 bn €	133	38.3
1 bn € - 5bn €	66	19.0
> 5 bn €	59	17.0
Industry		
Agriculture, Forestry, and Fishing	2	0.5
Consumer Goods	30	7.7
Machinery and Plant Engineering	42	10.8
Chemicals and Allied Products	22	5.7
Electrical Engin. / Precision Engin. / Optics / Fabr. of Office Machines	30	7.7
Automotive Manufacturing	26	6.7
Metal Production and Fabricated Metal Products	19	4.9
Other Manufacturing Industries	22	5.7
Energy and Water Supply	15	3.9
Construction	12	3.1
Trade, Maintenance, and Repair of Automotive and Durable Goods	24	6.2
Hospitality	3	0.8
Transportation and Communications Services / Logistics	22	5.7
Credit Business and Insurance	21	5.4
Real Estate, Renting of Moveable Property	6	1.6
Public Admin. / Health and Social Services / Educational Services	37	9.5
Other Business Services	25	6.4
Media / IT	30	7.7
Total*	388	100.0

* Due to missing data in survey responses, the total number of observations varies slightly by variable.

variables: controller-manager interactions and cognitive flexibility (June and July 2015), quality and speed of strategic decision-making (September and October 2015), and controller roles (April & May 2016). This sequence of data collection is not fully aligned with our assumed chain of causality, as implied by our hypotheses. Even though data on roles were collected last, they may be antecedents of cognitive flexibility and strategic decision-making characteristics, because the roles of organizational actors are considered stable as long as there are no major positions and/or assignments changes (Cliff, 1983; Katz and Kahn, 1978).

Surveys were sent to 931 participants in the first wave, 945 participants in the second wave, and 1018 participants in the third wave, yielding 433 responses (response rate: 47%), 390 responses (response rate: 41%), and 465 responses (response rate: 46%), respectively. To arrive at our final sample, we matched data from all three surveys and dropped responses with missing values on the main constructs of interest, cases where the respondents changed their position within our focal timeframe, and respondents who identified their position as, "Head of the executive board/CEO."[2] To maximize the sample size, we did not drop responses with partially missing data, resulting in differences in the sample size across our analyses. Table 1 shows the characteristics of our sample. Our respondents work in a wide range of industries; the average respondent is 44.3 years old with an organizational tenure of 11.5 years and a tenure of 6.7 years in their current position.

3.2. Variable measurement

Before we conducted the surveys, we translated all measurement instruments into German based on an iterative, expert-team approach (Douglas and Craig, 2007). This approach ensures the conceptual equivalence of the translated items and is appropriate if researchers are familiar with both the target and original language of the items (Douglas and Craig, 2007). Table 3 provides an overview of all variables together with the survey items used to capture them.

3.2.1. Business partner, watchdog, and scorekeeper controller roles

To capture the three controller roles (*ROLE_BP*, *ROLE_WD*, and *ROLE_SK*), we adopted the measurement instruments developed by Fourné et al. (2018). The scales for all three roles exhibit convergent, discriminant, and nomological validity. All roles are operationalized in terms of the frequency of representative tasks (Katz and Kahn, 1978) measured on a seven-point Likert scale (1 = never, 2 = every 6 months, 3 = every 3 months, 4 = every month, 5 = every 2 weeks, 6 = every week, 7 = multiple times per week). Hence, these three role constructs capture the emphasis that a controller places on each of the three roles.

3.2.2. Cognitive flexibility

To measure cognitive flexibility (*COGNITIVE_FLEX*) in controller-manager collaboration, we adapted the original cognitive flexibility scale devised by Martin and Rubin (1995) in line with recent research focusing on managers' interpersonal collaboration (Fourné, 2014). Due to restrictions regarding the overall number of items in the data collection phase and in an attempt to minimize response bias associated with lengthy surveys (Hinkin, 1998), one item (item nine) of the initial 12-item scale was dropped before data collection. We feel that this omission is appropriate because the scale is conceptualized as unidimensional and reflective (Fourné, 2014; Martin and Rubin, 1995). Items are expected to correlate, and dropping an item does not change the meaning of the construct (Bisbe et al., 2007; Jarvis et al., 2003). The content of item nine is also covered by item five, as both items concern behavioral choices. The final 11-item construct was measured based on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree).

Before being exposed to the items about cognitive flexibility in their collaborations, a filter question ensured that respondents worked with at least one line manager outside of the finance function. In the introduction to the 11 items, respondents were asked to refer to their general interactions with the line manager outside of the finance function with whom they worked most intensively. We focused on these general interactions to capture formal interactions, as well as informal or ad hoc interactions that were unscheduled, spontaneous, and not necessarily limited to one specific topic or agenda (Raes et al., 2011). To ensure controllers accurately assessed the quality of interaction and could report on all 11 items as reliably as possible, these items were preceded by several questions regarding the area in which the manager worked (e.g., board level, marketing, or operations), hierarchical differences between the manager and the controller, the duration of their working relationship, and the number of formal and informal interactions per month.

3.2.3. Quality and speed of strategic decision-making

We used Dooley and Fryxell's (1999) six-item scale to measure the quality of a specific strategic decision (*DECISION_QUAL*). All items were measured on a seven-point Likert scale (1 = strongly disagree to 7 = strongly agree). Each strategic decision has its own unique characteristics and is not necessarily comparable to previous or future decisions made in the same firm or organizational unit (Dooley and Fryxell, 1999). To take this into account, in the introduction to this question we asked the controllers to identify one specific strategic decision and to answer all items in the context of that decision. To aid the identification process, we specified a strategic decision as one that was made in the last 12 months and would influence the long-term direction and financial performance of the firm or business unit (Meissner and Wulf, 2014). Moreover, we asked controllers to identify one decision in which they and the manager with whom they worked most intensively (outside the domain of controlling/finance) were involved. To ensure that the controllers accurately described the decision, this question was preceded by introductory questions about the type of strategic decision (adapted from Michie et al., 2006), the number of alternatives discussed (Judge and Miller, 1991), the size of the decision-making team (Dooley and Fryxell, 1999), and the duration of the strategic decision-making process (Eisenhardt, 1989).

Adopting Eisenhardt's (1989) approach, we defined the duration of a specific strategic decision (*DECISION_SPEED*) as the number of months between the beginning and end of the decision-making process, with the beginning being, "the first reference to a deliberate action such as scheduling a meeting or seeking information," and the end being the point at which the actors committed to action (Eisenhardt, 1989, p. 549). As a final step, we translated this measure of decision duration into a speed measure by reversing the scale (Judge and Miller, 1991). We subtracted all decision durations from 25 because 24 was the highest number of months in our data set. Higher values, therefore, indicate greater speed.

3.2.4. Control variables

Control variables for the link between controller roles and cognitive flexibility were chosen in line with research on cognitive flexibility in interpersonal collaboration, which highlights the importance of characteristics of the working relationship of collaborating actors and of the overall work context in terms of psychological safety (e.g., Raes et al., 2011; Fourné, 2014). We controlled for environmental dynamism because it could create the need for controllers to play different roles, as well as correlate with cognitive flexibility through a different decision-making approach, depending on the dynamics of the firm's environment. We measured environmental dynamism (*DYNAMISM*) using the five-item scale previously applied by Jansen et al. (2006),

[2] We retained respondents who identified their position as "CFO/Head of the finance function" because CFO panel members typically work at the business unit level and/or for smaller companies where their job profiles fit with the controller role instruments. Our results remain qualitatively similar if CFOs/heads of the finance function are dropped.

which captures the rate of change and instability of the external environment in which a firm or business unit operates. All items were measured using a seven-point Likert scale (1 = not at all applicable to 7 = fully applicable). To capture the characteristics related to the controller-manager dyad, our model includes the duration of the working relationship in months (*DURATION*) and differences in hierarchical levels (*REL_HIERARCHY*), because longer work relationships and less hierarchical separation enable controllers to better understand managerial information needs and provide more options to engage with a manager (Byrne and Pierce, 2007). In terms of organizational climate, we also control for psychological safety (*PSY_SAFETY*) (Baer and Frese, 2003), which has been associated with cognitive flexibility in previous research (Fourné, 2014) and might be equally related to the roles of controllers (Collins, 1982).

For the analysis of the link between cognitive flexibility and decision quality and speed, we include all controls described above, as well as three additional control variables that were chosen to account for other factors that might drive the speed and quality of the strategic decision in question. Specifically, we include the size of the decision-making team (*TEAM_SIZE*) measured as the number of employees involved in the respective decision (Dooley and Fryxell, 1999), the indicator *DECISION_TYPE* which captures the type of strategic decision made (adapted from Michie et al. (2006)), and firm size (*SIZE*) measured as the natural logarithm of sales of the respondent's firm.

3.3. Method

Our hypotheses imply a structural model where the business partner role (watchdog and scorekeeper roles) is positively (are negatively) associated with cognitive flexibility in controller-manager collaboration. Cognitive flexibility in controller-manager collaboration is, in turn, positively associated with quality and negatively associated with the speed of strategic decision-making. Our complete model is presented in Fig. 1.

We used SEM to estimate our overall model, as it offers several advantages. All structural equations can be estimated simultaneously in a single model (e.g., Hair et al., 1998) and latent variables (i.e., the three controller roles, cognitive flexibility in controller-manager collaboration, psychological safety, and environmental dynamism, each of which we captured using multiple items) can be modeled as such, while accounting for estimated measurement error (e.g., Hair et al., 1998). Furthermore, SEM allows for several methods (e.g., full-information maximum likelihood) to use partial information to minimize the loss of power due to missing data (e.g., Olinsky et al., 2003; Graham et al., 2013). This is important in our case because we collected data in three survey waves and missing values for individual variables reduce our usable sample size. To utilize as much data as possible, we employe the full-information maximum likelihood method using the "mlmv" option in Stata 16.

4. Results

4.1. Non-response bias and missing data

Before analyzing our data, we test for indications of non-response bias. We follow prior research (e.g., Erhart et al., 2017; Maas and Matějka, 2009) and compare responses of early versus late respondents based on the idea that late respondents are similar to non-respondents. We run *t*-test comparisons for all variables used in our analysis between early (first quintile) and late (last quintile) respondents in each of the three surveys. Results show no differences that are statistically significant at $p < 0.05$ for any of the variables providing no indication that non-response bias poses a threat to the validity of our analyses.

To test for indications of possible bias caused by non-random missing values, we compare data from respondents with and without missing values on our variables of interest. The *t*-test comparisons for two individual-level variables (position and tenure) and two firm-level variables (size, public/private status) show no differences that are statistically significant at $p < 0.05$ for any of the variables, supporting our assumption that missing values are random and are unlikely to affect the validity of our analyses.

4.2. Construct validity and descriptive statistics

To establish the validity of our measure of controller roles, we first conduct an exploratory factor analysis (EFA) using the principal component factor method and retaining factors with an eigenvalue > 1. As expected, the EFA results suggest that the controller role items load on three distinct factors. Factor loadings using varimax rotation with Kaiser normalization are presented in Table 2. Overall, the EFA results show that items used to capture the controller roles exhibit strong loadings on their respective factors (almost all > 0.7) with no considerable cross-loadings. We interpret this as support for the validity of the instrument developed by Fourné et al. (2018).

Furthermore, we evaluate the appropriateness of our measurement model with regard to internal consistency reliability, convergent validity, and discriminant validity (Hair et al., 2014). Internal consistency reliability occurs when the composite reliability (CR) of a construct exceeds 0.7 (Hair et al., 2014). Although Cronbach's alpha is an alternative to CR, it can underestimate internal consistency reliability because it is particularly sensitive to the number of items used to measure a construct (Hair et al., 2014). Convergent validity is assumed if average variance extracted (AVE) estimates exceed 0.5 (Hair et al., 2014). AVE values that exceed 0.4 and are close to 0.5 are considered acceptable if CR estimates align with the recommended cutoff values (Hartmann and Maas, 2011). A construct exhibits discriminant validity if its AVE square root is larger than its correlation with any other construct (Farrell, 2010; Fornell and Larcker, 1981; Hair et al., 2014).

As summarized in Table 3, all CR values and Cronbach's alpha values exceed the cutoff value of 0.7 for all constructs. AVE estimates for all constructs exceed the cutoff value of 0.5. As such, our measurement instruments exhibit acceptable levels of internal consistency and convergent validity. Table 3 presents an overview of all items used for the main analysis together with CR, Cronbach's alpha, and AVE values. Table 4 presents descriptive statistics of our variables of interest.

4.3. Hypothesis testing

The results of our main analysis are presented in Table 5.

H1–H3 predict a positive (negative) relation between the business partner role (the watchdog and scorekeeper roles) and cognitive flexibility in controller-manager interaction. The coefficients of the direct paths from the controller roles to cognitive flexibility presented in Panel A of Table 5 support H1 and H3, indicating a positive relation between the business partner role and cognitive flexibility ($\beta = 0.161$, $p < 0.05$) and a negative relation between the scorekeeper role and cognitive flexibility ($\beta = -0.091$, $p < 0.10$). However, we find no statistically significant support for H2 (i.e., the expected negative relation between the watchdog role and cognitive flexibility in controller-manager collaboration).

H4 and H5 predict a positive (negative) relation between cognitive flexibility in controller-manager interaction and the quality (speed) of strategic decision-making. Coefficients of the direct paths from cognitive flexibility to decision quality and decision speed presented in Panel A of Table 5 support H4, indicating a positive relation between cognitive flexibility and decision quality ($\beta = 0.298$, $p < 0.01$) but do not support H5 (i.e., the expected negative relation between cognitive flexibility and decision speed).

In sum, our results provide support for three of our hypotheses (H1, H3, and H4), while we do not find statistically significant support for H2 and H5. We discuss possible reasons for this lack of empirical support in the discussion section.

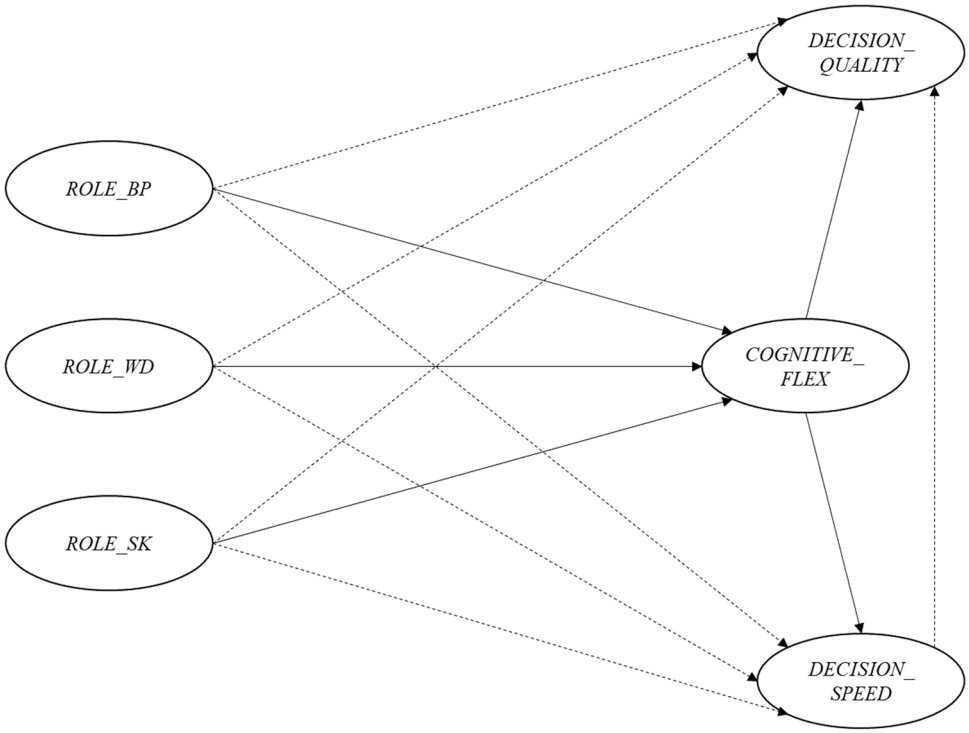

Fig. 1. Overall structural model of the relation between controller roles and strategic decision-making mediated by cognitive flexibility.

Table 2
Results of the EFA of the controller role constructs.

Item	Loading on Factor 1	Loading on Factor 2	Loading on Factor 3
ROLE_BP_1	0.771	0.227	-0.023
ROLE_BP_2	0.755	0.124	-0.075
ROLE_BP_3	0.781	0.201	-0.006
ROLE_BP_4	0.811	0.159	-0.025
ROLE_BP_5	0.760	0.101	0.045
ROLE_BP_6	0.779	0.151	0.036
ROLE_WD_1	0.098	0.765	0.164
ROLE_WD_2	0.136	0.799	0.105
ROLE_WD_3	0.233	0.772	0.107
ROLE_WD_4	0.223	0.784	0.115
ROLE_WD_5	0.235	0.806	0.060
ROLE_SK_1	-0.053	0.190	0.724
ROLE_SK_2	-0.069	0.039	0.738
ROLE_SK_3	-0.020	0.007	0.776
ROLE_SK_4	0.019	0.067	0.762
ROLE_SK_5	0.026	0.178	0.703
ROLE_SK_6	0.054	0.070	0.700

PCF analysis yields three factors with Eigenvalues > 1. Eigenvalues of retained factors: Factor 1 (5.235), Factor 2 (3.409), Factor 3 (1.813). Factor loadings are based on varimax rotation with Kaiser normalization.

Our overall model posits that the roles enacted by controllers affect strategic decision-making through the intermediate step of cognitive flexibility in controller-manager collaboration. Thus, even though it is not explicitly hypothesized, cognitive flexibility is expected to mediate the relations between the controller roles and decision speed and quality. Coefficients for the direct paths between the controller roles and decision speed and quality presented in Panel A of Table 5 do not indicate statistically significant *direct* associations between any of the three controller roles and either decision quality or decision speed except for the link from the scorekeeper role to decision speed. However, coefficients for the indirect paths presented in Panel B of Table 5 indicate that the *indirect* relation with decision quality is positive for the business partner role ($\beta = 0.052$, $p < 0.05$) and negative for the scorekeeper role ($\beta = -0.036$, $p < 0.05$). Thus, we find support for a full mediation of the relations between the business partner and scorekeeper roles and decision quality.[3]

5. Discussion

By revealing links between controller roles and their collaboration with line managers and by linking this collaboration to strategic decision-making quality and speed, we strive to advance our understanding of how controllers support strategic decision-making. We thus extend research that has focused either solely on controller roles or on relations between roles and more distant organizational outcomes (Chang et al., 2014; Mahlendorf, 2014). Specifically, we find that the business partner role is associated with higher levels of cognitive flexibility in controller-manager collaboration, whereas the watchdog role shows no significant association, and the scorekeeper role has a negative association with cognitive flexibility. With respect to our second research question, we are able to show that cognitive flexibility in controller-manager collaboration is positively associated with the quality of strategic decision-making, but not with its speed.

[3] In our sample, the frequency of interaction with line managers varies among respondents. To ensure that our results are not confounded by cases where controllers and managers collaborate very frequently or very infrequently, we conduct two additional analyses. First, we re-estimate our main model omitting extreme cases where respondents collaborate with line managers less than once per week (5.8% of observations) or more than four times per day (4.5% of observations). The results we obtain are very similar to the results of our main analysis, suggesting that our inferences are robust to the exclusion of extreme cases of (in)frequent collaboration. Second, we re-estimate our main model and include the number of personal interactions between controller and manager as a control variable in the relations between the controller roles and cognitive flexibility, as well as when estimating the relations between cognitive flexibility and the quality and speed of strategic decision-making. The results of these analyses are almost identical to the results of our main analysis, suggesting that the number of interactions between controller and manager is neither significantly associated with the degree of cognitive flexibility in the controller-manager interaction nor with the quality or speed of strategic decision-making.

Table 3
Items and assessment of multi-item measurement instruments.

Constructs and corresponding items	β[a)]	α[b)]	CR	AVE
Business partner role		**0.88**	**0.91**	**0.63**
I work on scenario analyses to support strategic planning purposes	0.81			
I discuss future business perspectives with management	0.77			
I conduct sensitivity analyses on key drivers of business performance	0.80			
I pro-actively explain to management how changes in non-financial performance measures affect profitability	0.82			
I discuss strategic issues with senior management	0.77			
I join steering committees to present financial implications of strategic options	0.80			
Watchdog role		**0.87**	**0.90**	**0.65**
I analyze in what organizational units performance targets were not achieved	0.77			
I analyze variances between actual and planned performance of organizational units for control purposes	0.80			
I inform accountable managers and their superiors together about variances from budgeted targets	0.81			
I highlight negative budget variances within official reports to ensure higher level managers notice them	0.82			
I revise budget targets to ensure they serve as an up-to-date basis for control purposes	0.83			
Scorekeeper role		**0.83**	**0.88**	**0.55**
I instruct others how to enter data correctly within the internal financial systems	0.75			
I check whether interfaces between data systems work correctly	0.74			
I cooperate with colleagues from the financial accounting department to clarify data entry errors in financial systems	0.77			
I update cost center plans within the financial systems of the organization	0.76			
I correct data entry errors within the financial systems of the organization	0.73			
I collect data on operational processes that shall be included within periodic reports	0.69			
Cognitive flexibility		**0.94**	**0.95**	**0.64**
We can communicate ideas in many different ways	0.78			
We are willing to deal with new and unusual situations	0.84			
We feel like we get to make decisions	0.82			
We can find workable solutions to seemingly unsolvable problems	0.83			
We often have choices when deciding how to behave	0.69			
We are willing to work at creative solutions to problems	0.82			
We are able to act appropriately in any given situation	0.83			
We act as a result of conscious decisions that we make	0.78			
We find it easy using our knowledge on a given topic in business situations	0.73			
We are willing to listen and consider alternatives for handling a problem	0.85			
We have the self-confidence necessary to try different ways of behaving	0.83			
Quality of strategic decision		**0.89**	**0.92**	**0.66**
The decision was based on the best available information	0.72			
The decision was made based on valid assumptions	0.79			
The decision helps the firm/business unit achieve its objectives	0.86			
The decision makes sense in light of the firm's/business unit's current financial situation	0.86			
The decision is consistent with the firm's/business unit's current strategy	0.82			
The decision contributes to the overall effectiveness of the firm/business unit	0.80			
Speed of strategic decision		**1.00**	**1.00**	**1.00**
Duration of decision-making process in months	1.00			
Environmental dynamism		**0.89**	**0.92**	**0.70**
Environmental changes in our local market are intense	0.83			
Our clients regularly ask for new products and services	0.80			
In our local market, changes are taking place continuously	0.88			
In a year, a lot has changed in our market	0.89			
In our market, the volumes of products and services to be delivered change fast and often	0.78			
Duration of work relation		**1.00**	**1.00**	**1.00**
Duration of work relation with manager outside domain of controlling/finance in months	1.00			
Differences in hierarchical level		**1.00**	**1.00**	**1.00**
0 = no diff.; 1 = one level diff.; 2 = two level diff.; 3 = diff. of three or more levels	1.00			
Climate for psychological safety		**0.89**	**0.91**	**0.60**
When someone in our firm / business unit makes a mistake, it is not held against them	0.74			
As an employee in our firm / business unit one is able to bring up problems and tough issues	0.84			
In our firm / business unit, no one is rejected for being different	0.75			
In our firm / business unit, one is free to take risks	0.69			
It is easy to ask others for help in our firm / business unit	0.80			
No one in our firm / business unit would deliberately act in a way that undermines others' efforts	0.77			
The people in our firm / business unit value others' unique skills and talents	0.82			

[a)] Factor loadings using pcf and varimax rotation with Kaiser normalization[b)] Cronbach's alpha

Furthermore, the findings suggest that the business partner and the scorekeeper role are indirectly related to decision quality and that these relations are mediated by cognitive flexibility in controller-manager collaboration.[4]

Our empirical results provide no evidence for two of the relations we hypothesize. Results do not support a negative association between a focus on the watchdog role and cognitive flexibility in controller-manager collaboration (H2). An explanation could be that the watchdog role offers also (so far unexplored) benefits for cognitive flexibility in the controller-manager collaboration which offset the downsides we discuss in our theorizing. Hence, this may, in sum, lead to an insignificant relation. Moreover, in line with research that assumes some controller roles could result in delayed decision-making (Ezzamel and Burns, 2005; Vaivio, 2004; Windeck et al., 2015), we find a negative direct association between controllers' focus on the scorekeeper role and speed of strategic decision-making. However, in contrast to our H5, we find no support for links between controller roles and decision speed mediated by cognitive flexibility. A possible explanation might be that cognitive flexibility enables collaborators to consider and evaluate more information when making decisions and to interact flexibly and more proactively, thereby avoiding delays. This would be consistent with research showing that fast decision-making can rely on more rather than less information, and benefits from developing and – ideally, simultaneously – considering more alternatives (Eisenhardt, 1989; Judge and Miller, 1991).

[4] It is worth noting that neither our theory nor our results of a full mediation should be interpreted in a way that cognitive is the *only possible* intermediary mechanism between controller roles and strategic decision-making outcomes. Future research could explore other and/or additional mechanisms.

Table 4
Descriptive statistics.

		N	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)	*ROLE_BP*	398	2.77	1.19												
(2)	*ROLE_WD*	387	3.60	0.94	0.41 * **											
(3)	*ROLE_SK*	386	2.84	1.19	0.02	0.26 * **										
(4)	*COGNITIVE_FLEX*	378	5.46	0.97	0.18 * **	0.01	-0.10									
(5)	*DECISION_QUALITY*	291	5.28	1.09	0.15 * *	-0.03	-0.09	0.44 * **								
(6)	*DECISION_SPEED*	276	42.98	5.68	0.10	0.06	-0.14 *	0.11	0.15 * *							
(7)	*DYNAMISM*	339	4.49	1.28	0.18 * **	0.13 *	0.07	0.05	0.03	-0.05						
(8)	*DURATION*	385	50.04	49.52	-0.20 * **	-0.08	0.03	0.11 * *	-0.03	0.05	-0.15 * **					
(9)	*REL_HIERARCHY*	380	3.06	0.84	-0.22 * **	-0.04	0.08	-0.05	-0.01	-0.03	0.03	-0.04				
(10)	*PSY_SAFETY*	376	5.03	1.10	0.02	-0.01	0.02	0.53 * **	0.43 * **	0.10	0.01	0.11 * *	0.06			
(11)	*DECISION_TYPE*	292	0.30	0.46	0.03	-0.12 *	0.01	0.10	0.09	-0.13 * *	-0.01	0.09	-0.05	0.16 * *		
(12)	*TEAM_SIZE*	271	6.87	4.83	0.15 * *	0.05	-0.08	0.01	0.00	-0.19 * **	0.14 *	-0.13 *	0.10	0.01	-0.06	
(13)	*SIZE*	309	5.24	2.21	0.24 * **	-0.02	-0.24 * **	0.05	0.08	-0.08	0.04	-0.08	0.21 * **	-0.10 *	-0.06	0.36 * **

*, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively.

Table 5
SEM results of the relation between controller roles and strategic decision-making.

Panel A: Path coefficients

From	To	Coefficient	Standard error
ROLE_BP	*COGN_FLEX*	0.161 * *	0.065
ROLE_WD	*COGN_FLEX*	-0.054	0.097
ROLE_SK	*COGN_FLEX*	-0.091 *	0.053
DYNAMISM	*COGN_FLEX*	0.032	0.045
DURATION	*COGN_FLEX*	0.002 * *	0.001
REL_HIERARCHY	*COGN_FLEX*	-0.047	0.055
PSY_SAFETY	*COGN_FLEX*	0.524 * **	0.059
COGN_FLEX	*DECISION_QUAL*	0.298 * **	0.086
ROLE_BP	*DECISION_QUAL*	0.099	0.073
ROLE_WD	*DECISION_QUAL*	-0.076	0.123
ROLE_SK	*DECISION_QUAL*	0.010	0.069
DECISION_SPEED	*DECISION_QUAL*	0.013	0.010
DYNAMISM	*DECISION_QUAL*	0.018	0.059
PSY_SAFETY	*DECISION_QUAL*	0.307 * **	0.082
SIZE	*DECISION_QUAL*	0.058	0.036
TEAM_SIZE	*DECISION_QUAL*	-0.012	0.013
DECISION_TYPE	*DECISION_QUAL*	-0.022	0.124
COGN_FLEX	*DECISION_SPEED*	0.254	0.493
ROLE_BP	*DECISION_SPEED*	0.303	0.419
ROLE_WD	*DECISION_SPEED*	0.845	0.666
ROLE_SK	*DECISION_SPEED*	-0.719 *	0.378
DYNAMISM	*DECISION_SPEED*	-0.333	0.359
PSY_SAFETY	*DECISION_SPEED*	0.592	0.465
SIZE	*DECISION_SPEED*	0.317	0.200
TEAM_SIZE	*DECISION_SPEED*	-0.306 * **	0.075
DECISION_TYPE	*DECISION_SPEED*	-1.893 * *	0.743

Panel B: Indirect effects

From	To	Coefficient	Standard error
ROLE_BP	*DECISION_QUAL*	0.052 * *	0.024
ROLE_WD	*DECISION_QUAL*	-0.006	0.032
ROLE_SK	*DECISION_QUAL*	-0.036 *	0.020
ROLE_BP	*DECISION_SPEED*	0.041	0.081
ROLE_WD	*DECISION_SPEED*	-0.014	0.037
ROLE_SK	*DECISION_SPEED*	-0.023	0.046
Obs.: 576	χ^2: 2078.344 (0.000)	RMSEA: 0.035	CFI: 0.911

*, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed confidence level, respectively. Standard errors are reported in parentheses.

5.1. Theoretical implications

By introducing cognitive flexibility in interpersonal collaboration to management accounting research, we propose a novel way to examine how members of the finance function may collaborate with line managers. The indirect negative link between the scorekeeper role and strategic decision-making quality complements prior case-based research that has raised skepticism about the (positive) influence of controllers on decision-making and highlights the context-specific interactions with line managers (Lambert and Sponem, 2012). That said, controller roles serve different purposes and thus likely vary in their effectiveness across different conditions or situations involving collaboration with line managers. We note that the scorekeeper role and the watchdog role, while not conducive to our intermediary mechanism, do serve other purposes and may indirectly and/or directly support other outcomes (e.g., related to monitoring, information transparency and quality, budget adherence). As such, their associated tasks may be beneficial in other conditions or situations.

Our study also offers implications for research about interpersonal collaboration by focusing on cross-functional relationships between staff and line managers, and by empirically examining cognitive flexibility in relation to specific roles. We thus complement Raes et al.'s (2011) theorization by explaining that collaboration is shaped not only by managers' hierarchical position (and the associated priorities and agendas) but also by their emphasis on particular roles. By forging a link between role theory and information processing theory it is therefore

possible to develop a deeper understanding of potential (dys)functional consequences of particular roles for collaboration between finance staff and line managers. Such collaboration may become more important in uncertain times (Oetzel and Oh, 2021), which tend to require expertise from different functions or parts of an organization to develop holistic adaptation and recovery plans. We also encourage future research to pay attention not only to *who* collaborates but also to *which role(s) an actor emphasizes*. If collaborators play different roles (e.g., middle managers as stewards of their business unit or as members of project/innovation teams), those roles likely warrant attention to both their hierarchical and non-hierarchical collaborations.

Furthermore, we recommend future research to examine potential differences between hierarchical and non-hierarchical collaborations. In both contexts, information is made available by collaborating actors and is jointly synthesized, debated, and evaluated. Therefore, cognitive flexibility matters in both, the direct leader-follower relationships studied by strategic management scholars and in the collaboration of controllers and managers that is of interest to management accounting scholars. Different findings might result from varying degrees of independence and a lower need for caution in a relationship that is *dotted* rather than *solid* (Vuori and Huy, 2016).

Another aspect that might warrant attention in future research concerns the antecedents and consequences of cognitive flexibility in controller-manager collaboration in different environmental conditions. When controller-manager collaboration is characterized by a high degree of cognitive flexibility, the simultaneous consideration of information and alternatives is possible (e.g., Eisenhardt, 1989). This interpretation indicates that cognitive flexibility in controller-manager collaboration may be more beneficial in dynamic or uncertain business environments or in industries that require more extensive, simultaneous consideration of different strategic alternatives—without undermining the speed of making decisions.

Additionally, future research could build on our findings regarding the relations between different controller roles and cognitive flexibility by also considering the effects of role multiplicity. Different arguments could be made regarding how role multiplicity and potentially resulting role conflict might affect cognitive flexibility in controller-manager collaboration. On the one hand, role conflict may be dysfunctional for the collaboration due to the stress of the controller, distractions, or providing potentially conflicting messages when collaborating. On the other hand, role multiplicity may entail benefits in the form of different types of information (e.g., backward and forward-looking, financial and non-financial, internal control and market-related) and perspectives being presented in controller-manager collaboration.

5.2. Practical implications

Our results provide a more nuanced, role-based (and thus task-dependent) understanding of drivers of interpersonal collaboration in strategic decision-making. In line with our findings, organizations interested in controllers' contribution to strategic decision-making should design controller tasks in a way that is more aligned with the business partner role and enable controllers accordingly. We highlight not only how controllers can increase their contributions to strategic decision-making but also that they need to be aware of dysfunctional consequences of emphasizing certain roles.

Second, our results suggest that a business partner's competencies and approach to communication are valuable for collaborating in strategic decision-making with managers from other functions. Insights regarding the contributions and (dys)functional consequences of certain role profiles for cognitive flexibility in collaborations of managers are likely relevant in both non-hierarchical and hierarchical collaborations in strategic decision-making (Heyden et al., 2017).

Finally, we highlight the importance of cognitive flexibility in controller-manager collaboration. Organizations should therefore help controllers to develop the necessary competencies and establish organizational contexts that make this form of collaboration possible.

5.3. Limitations

Our results are subject to some caveats. First, we only asked controllers about their interactions with managers, rather than asking both actor types about their interpersonal collaboration. While this approach is unlikely to result in common-method bias given our multi-wave data collection, controllers might provide biased information on their interaction with managers either due to social desirability or halo effects (Speklé and Widener, 2018).

Second, we cannot speak unequivocally to the direction of causality. Following existing theory on controller roles and interpersonal collaboration (i.e., drawing on role and information processing theory), we argue that role expectations develop over time, and affect how a controller converses with a manager. Roles change slowly and are recurrent and routinized (Katz and Kahn, 1978). Consistent with this, Goretzki and Strauss (2018) find in their review of controller roles that these are relatively stable over time. Furthermore, the concept of person-role fit suggests embracing a role more deeply over time, performing the associated tasks better and more reliably due to experience, feedback, and routinization (Caldwell and O'Reilly, 1990). Hence, even if strategic decision-making requires a change in role focus, implementing the respective role changes may be challenging and slow.

Last but not least, country-specific factors may influence how controllers interact with managers (Ahrens and Chapman, 2000) and how a certain type of interaction translates into outcomes such as the quality and speed of strategic decision-making. In our research setting, the status of controllers in their respective organizations is rather high (Goretzki and Strauss, 2018). While controllers in this setting tend to have more knowledge and opportunities to collaborate with line managers, future research may extend our findings on cognitive flexibility by examining other environmental or personal factors that may facilitate or limit such collaboration.

In conclusion, our theorizing strives to explain how controllers contribute to strategic decision-making through their collaboration with line managers. It may be possible to build on our study by focusing on how controller roles shape the collaboration with line managers in other situations and to investigate trade-offs between the contributions that a controller can make to strategic decision-making and the contributions to other processes or outcomes, especially those which may likely benefit from the scorekeeper or watchdog roles. Such research may uncover how members of the finance function can shape cross-functional collaboration in other situations and how they may allocate their time across different tasks to influence different organizational outcomes.

Data availability

The data that has been used is confidential.

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