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Misaligned control: The role of management control system imitation in supply chains

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ABSTRACT

This study investigates how interorganizational imitation influences management control decisions in a supply chain setting. Control design in interfirm exchanges is traditionally thought to be based on the principle of matching, where organizations install MCS that align with the transaction context. However, despite these theorized interrelationships, misaligned transactions commonly exist in practice. In this study, we propose a framework on the potential sources of such misalignment. We argue that control misalignment can be attributed to imitating behavior, by which organizations adopt MCS following the example of other organizations. Based on survey data collected from firms involved in a supply chain triad, we demonstrate that buyers control their upstream suppliers partially by imitating how their downstream customer controls them. Notably, buyers appear to imitate despite variations in transaction context, creating a basis for misalignment in line with our predictions.

1. Introduction

The design of proper management control systems (MCS) is crucial for the management and performance of interfirm relationships.[1] As such, management accounting researchers have devoted considerable effort to explaining firms' MCS choices in such relationships. Predominantly informed by transaction cost economics (TCE), prior research on interfirm collaborations, and supply chain relations in particular, has considered transaction risk as a key determinant of these choices (Dekker, Sakaguchi, & Kawai, 2013). When engaging in interfirm exchanges, firms may experience a variety of risk factors, such as heightened vulnerability and the potential for transaction partners to opportunistically exploit the dependence relationship (Kang, Wu, Hong, & Park, 2012; Langfield-Smith, 2008). Without appropriate control measures in place to manage these risks, firms may not achieve intended or desired objectives of the relationships they engage in (Anderson, Christ, Dekker, & Sedatole, 2015). The general contention is, then, that transactions with attributes suggesting higher levels of risk, require more extensive use of controls as to foster mutual coordination and collaboration.

According to this perspective, MCS design is essentially based on the principle of *matching*, where firms install MCS that align with the transaction context to mitigate underlying transaction risk. Although this notion of alignment is widely accepted, an organization's control structure and transaction context may often be out of alignment (Anderson & Dekker, 2015). Specifically, choices that entail either insufficient or excessive use of MCS relative to the transaction risk, represent instances of misaligned control. Despite the fact that such misalignments commonly exist in practice (cf. Handley, 2017), our understanding remains limited as to why misalignment occurs. In this study, we argue that the managerial process of *imitating* provides a potential explanation for control misalignment.

Substantial literature documents that individuals and, by extension, organizations rely on imitation in decision-making processes (Nikolaeva, 2014; Ordanini, Rubera, & DeFillippi, 2008). Applied to MCS design, this means that organizations may come to imitate each other's control structures. No studies, however, have hitherto empirically examined the role of imitation in explaining

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[1] Although management control has various definitions, within interfirm relationships, it can be broadly described as the set of mechanisms and practices put in place that motivate and facilitate transaction partners to achieve desired objectives (e.g., Dekker, 2004; Langfield-Smith, 2008; Mahama, 2006).

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MCS. We fill this gap in the literature by examining how interorganizational imitation influences MCS decisions in a supply chain setting. Previous work has indicated that interfirm linkages within the supply chain constitute an important channel for imitating management practices (Fu, 2012; McFarland, Bloodgood, & Payan, 2008). Accordingly, we submit that imitation effects in the supply chain often have an important impact on MCS choices, which implies that the MCS of a given transaction may not be based solely on the specific transaction context. Specifically, we advance the argument that MCS are sometimes perceived as valuable or worth imitating, irrespective of the specific transaction context, thus providing a basis for control misalignment.

We test our model using survey data from firms involved in a supply chain triad. Our analyses involve two main steps. First, we examine the relation between MCS extensiveness, transaction context, and performance in a typical supply chain dyad. The results provide new empirical insights supporting the existence of misalignment between the extent of MCS use and transaction context in buyer-supplier relationships. Specifically, we find that the extent of MCS use is related to the transaction context, but significant variations exist across firms, as evidenced by performance differences. Similar to Anderson, Dekker, and Van den Abbeele (2017), this stage also yields a measure of control misalignment, captured by the residuals in the regression between transaction context and MCS extensiveness. Second, turning to the question of why such misalignment occurs, we investigate whether imitative behavior in the supply chain influences MCS use. We expand our view beyond dyadic interactions and consider the customer-buyer relationship in addition to the buyer-supplier one. In our empirical study, we focus on whether the downstream MCS that customers use with specific buyers result in imitative MCS use by the same buyers with upstream suppliers. After controlling for transaction context similarities in the supply chain, our results provide support for imitation effects. Subsequent analyses show that imitation correlates positively with our measure of control misalignment, indicating imitation as a potential source of the observed misalignment.

This study extends prior accounting literature by showing that, in addition to the dyadic focus on supply chain relationships, it is worthwhile to consider a larger network of relationships when studying MCS choices. Although TCE-based studies contribute to our understanding of interfirm management control, most current knowledge is based on the effects of particular mechanisms within the dyad (Kumar, Heide, & Wathne, 2011). Supply chains, however, typically involve multiple interconnected relationships (Meira, Kartalis, Tsamenyi, & Cullen, 2010). Therefore, to gain further insights on MCS choices and, in particular, to explain deviations from TCE-determined patterns, analysis beyond the individual dyad is useful. Specifically, considering imitative behaviors in a supply chain triad, this study provides novel evidence on the behavioral mechanisms underlying MCS design, and points out that MCS decisions can have consequences not only in the focal dyadic relationship, but also in adjacent relationships. We find that the uncritical imitation of other firms' practices in the supply chain can explain why MCS choices may not always fit the transaction context as predicted by traditional transaction cost logic.

From a practical perspective, by providing a deeper understanding of the process of control practice selection, our evidence provides guidance for organizations to achieve a better fit. For many managers, imitation is an important fact of organizational life. Abundant references to best practices in practitioner literature provide indication on the prevalence of willful imitation (Csaszar & Siggelkow, 2010; Sousa & Voss, 2008). However, best practices may not work universally due to contextual mismatches. Therefore, the insights of this study are important, because ignoring the limits of control practices may lead to imitation and application in unsuitable contexts. To imitate appropriately and, hence, avoid situations of misalignment, firms should consider adapting MCS to meet their specific relationship needs.

The remainder of the paper is organized as follows. Section 2 reviews previous research and introduces our hypotheses. Section 3 presents the research methodology. We then discuss our analysis and results in Section 4. Section 5 concludes.

2. Literature review and hypotheses development

2.1. Theoretical foundation

Extant research on management control in interfirm relationships has generally adopted TCE as a theoretical framework. TCE is based on the premise that organizations make efficient choices in selecting governance forms and management controls to match transaction conditions (Anderson & Dekker, 2015). Indeed, "the calculative choice approach towards management control in interfirm relationships implies the assumption of an outsourcer's efficiency-seeking behavior regarding the structuring of management control" (Vosselman & Van der Meer-Kooistra, 2006, p. 135). Although transaction cost efficiency is pertinent to explaining matching between control structures and transactions, it is not fully deterministic (Speklé, 2001, p. 422). In reality, it is possible that not all organizations adopt efficient MCS design at all times (King & Clarkson, 2015). Of direct relevance, if MCS are designed optimally in relation to the transaction context, this should enhance performance, whereas deviating from proper context-control alignment should adversely influence performance (Yvrande-Billon & Saussier, 2005). Increasing evidence shows that misalignment often occurs with negative performance implications (e.g., Anderson & Dekker, 2005; Mooi & Ghosh, 2010). However, extant research still provides limited insight into the sources of misalignment. Whereas TCE adopts behavioral assumptions of bounded rationality and allows for the possibility of misalignment and resultant performance implications, it has paid little attention to how it affects the decision-making process that accompanies MCS design. Integrating TCE with behavioral theories can provide important insights, and might help explain why some managers behave in ways inconsistent with predictions based on optimal or efficient choice (Chenhall, 2003, p. 159).

Along this line, studies in the organizational literature introduce satisficing search behaviors into an efficiency-based adoption framework (Roberts & Greenwood, 1997). The satisficing principle posits that decision-makers conduct limited searches among available alternatives to obtain satisficing rather than optimizing solutions (Cyert & March, 1963; March & Simon, 1958).[2] In search of solutions, decision-makers especially seek directions from their own immediate environment and may be motivated to copy the decisions of others (Ketokivi & Schroeder, 2004). For MCS design, this implies that organizational decision-makers may imitate each other's MCS (see Vosselman, 2002). Such imitation allows saving costs and time, because it avoids extensive search and comparison of alternatives by making choices based on other decision-makers' actions (Ordanini et al., 2008; Sun, 2013). However, if this leads firms to imitate MCS uncritically, this might also preclude complete assessment of transaction hazards and, consequently, aligned MCS selection. Hence, in this study, we introduce the role of interorganizational imitation as a potential source of misalignment between

[2] This does not imply that decision-makers do not care about efficiency; rather, the adoption of organizational practices may be viewed as efficiency-seeking, instead of efficiency-optimizing, under certain cognitive constraints.

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MCS and transaction context in interfirm relationships, and supply chains in particular.

In the subsections that follow, we develop our hypotheses. In the first part, our purpose is to empirically evaluate the existence of control misalignment in a supply chain setting. To do so, we examine variations in the relation between the extent of MCS use, transaction context, and performance in a typical supply chain dyad. Following Argyres and Liebeskind (1999, p. 59), if MCS choices are not always optimal, we would expect to observe a considerable degree of empirical variation in how a given type of transaction is controlled. This brings us to the core of our study: the question why firms differ in their responses to transaction contexts when designing MCS and, essentially, why misalignment occurs. In the second part, we therefore expand our view beyond dyadic interactions and investigate whether MCS choices involve imitating other firms. Fig. 1 illustrates our research setting by depicting a vertical supply chain that involves dyadic relationships at two levels (cf. McFarland et al., 2008).[3] Fig. 2 summarizes the research model (cf. Anderson et al., 2017).

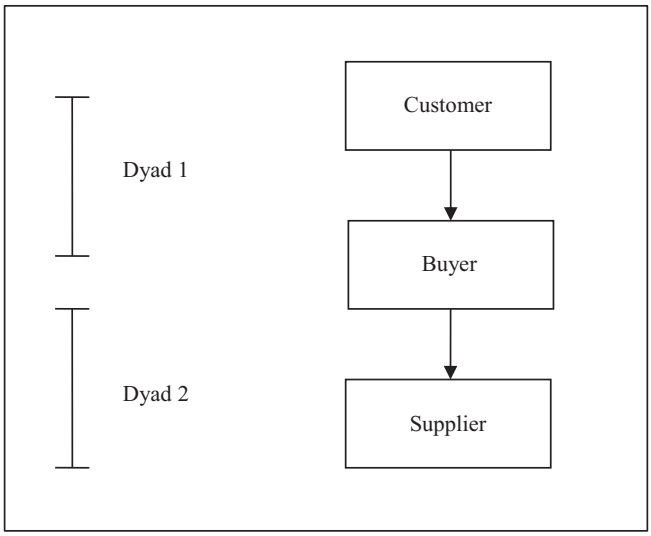

Fig. 1. Triadic/Dual dyadic supply chain configuration. *Note:* The first-level dyad involves the relationship between the customer and the buyer. The second-level dyad involves the relationship between the buyer and the supplier. The arrows indicate the direction of MCS usage examined in this study.

2.2. MCS, transaction context, and performance: A dyadic perspective

Our first hypothesis examines how the extent of MCS use relates with elements of the transaction context and how this interacts with relationship performance in a typical buyer-supplier dyad (i.e., Dyad 2 in Fig. 1), consistent with extant theory.

In line with previous supply chain and outsourcing research, we take the perspective of the buyer who typically initiates the relationship and chooses the mechanisms for managing it (Dekker et al., 2013). Firms likely use several control mechanisms to motivate and enable supply chain partners to cooperate and work towards desired objectives. Specifically, consistent with prior studies (e.g., Dekker, 2004; Langfield-Smith & Smith, 2003), we follow Ouchi (1979) and conceptualize MCS as combinations of outcome, behavior, and social controls. Outcome control focuses on measuring and monitoring expected results, whereas behavior control ensures that processes are appropriate rather than focusing on the results itself. Social controls do not specify outcome targets or desirable behaviors, but entail goal alignment through socialization activities. Although these control types are all intended to achieve cooperation, they are not mutually exclusive, firms often using them in combination (Anderson et al., 2015). We thus consider MCS as a collection of control mechanisms that firms use to manage supplier relationships.

Traditional transaction cost reasoning posits that transaction hazards arise as a function of transaction characteristics and that increasing concerns about these transaction hazards induce firms to use controls more extensively. One key transaction characteristic is uncertainty. Important causes of uncertainty stem from the environment, such as market and technological fluctuations, which leads to exchanges that are more conducive toward opportunism and thus exacerbate transaction risks (Carson, Madhok, & Wu, 2006). The primary consequence of environmental uncertainty is that it warrants a more extensive use of controls to manage these risks (e.g., Dekker, 2008; Ding, Dekker, & Groot, 2013). While a vast amount of empirical evidence supports the view that firm responses to transaction characteristics, such as uncertainty, are important in explaining MCS, the economic and social context between exchange partners can also significantly influence MCS use (Dekker, 2008; Tomkins, 2001). Two important variables related to the economic and social context in which transactions take place are partner interdependence and relationship duration. Resource considerations and complementarity are important drivers for relationship formation, but they also typically increase firms' economic dependence on each other (Dekker, 2008). As this interdependence raises firms' costs and risks if the association collapses, highly interdependent firms may make more extensive use of controls to avoid such collapses. Thus, interdependence increases firms' reliance upon each other, generating a higher need for MCS to manage these interdependencies and sustain the relationship (e.g., Lusch & Brown, 1996; Mahapatra, Narasimhan, & Barbieri, 2010). Conversely, long-standing relationships can create a social bond between partners, which reduces goal conflicts and mitigates opportunism risks, thus limiting the need for MCS (e.g., Das & Teng, 1998; Inkpen & Currall, 2004). Long-term relationships typically involve familiarity and trust between partners, thereby enabling them to use controls to a lesser extent in organizing their relationships. Perhaps even more importantly, excessive use of controls may also foster a relationship damaging distrust (Dekker, 2008).

In sum, control choices are to be aligned with underlying context characteristics to effectively mitigate transaction risks. Consistent with the notion that performance differences may be attributed to matching MCS with the transaction context, we expect better buyer-supplier relationship performance when selected MCS adhere to this logic (i.e., more extensive use of controls under conditions of environmental uncertainty and partner interdependence, and less extensive use of controls with longer relationship duration) than when MCS are not so chosen. Our first hypothesis then directly follows:

H1. High-performing buyer-supplier relationships have better alignment between MCS extensiveness and transaction context than low-performing buyer-supplier relationships.

2.3. Supply chain triads and MCS similarities

The aforementioned arguments imply that, despite the hypothesized benefits of alignment, not all firms select aligned controls (see Sampson, 2004; Yvrande-Billon & Saussier, 2005). Given

[3] Hereinafter, we refer to the relationship between downstream customer and buyer as first-level dyad and to the relationship between buyer and upstream supplier as second-level dyad.

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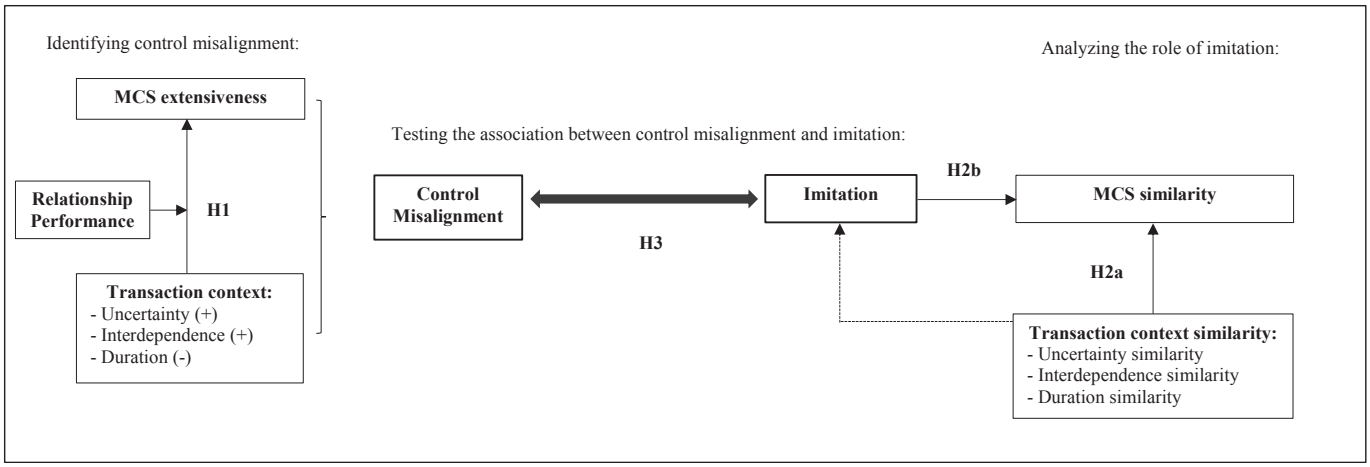

Fig. 2. Research model and summary of hypotheses. *Note:* The left half of the diagram depicts the relation between MCS extensiveness and transaction context, and its interaction with relationship performance. This first stage also yields a measure of control misalignment (i.e., the residual of the regression relating transaction context to MCS extensiveness). The right half of the diagram introduces interorganizational imitation as a significant factor in explaining MCS similarities in the supply chain. The final stage of the analysis directly tests the association between imitation and control misalignment. Imitation is considered after controlling for similarity in the transaction context and is measured accordingly (i.e., the residual value from the model that regresses imitation on the set of transaction context similarities).

this, we contend that MCS use is not based solely on the context characteristics of that specific transaction, but that effects beyond the dyad may be critical determinants of MCS use within the supply chain.

Modeling or imitation theories, in particular, point to predictive factors outside of a focal cooperative relationship itself (Smith, Carroll, & Ashford, 1995). Following prior research, interorganizational imitation occurs when the use of certain practices by an organization increases the likelihood of other organizations using similar practices (Haunschild & Miner, 1997; Ordanini et al., 2008). From a management control perspective, it is thus interesting to examine whether this would also affect MCS choices. Therefore, we expand our view beyond buyer-supplier dyads and introduce the customer-buyer relationship as an additional level in the supply chain (i.e., Dyad 1 in Fig. 1). In this setting, the buyer takes the position of in-between, as it has access to information on the MCS used by the downstream customer towards them, and itself maintains a relationship and installs MCS with the upstream supplier. Considering such customer-buyer-supplier triads,[4] our research model evaluates the relative ability of transaction cost and imitation theories to explain MCS similarities in the supply chain, which reflects the degree of resemblance between customer's and buyer's use of MCS in managing their respective relationships.

First, according to the transaction cost or alignment perspective, a systematic relationship should exist between MCS similarity and similarity in the transaction context. Similarities then result from firms' independent responses to common conditions (Lieberman & Asaba, 2006). Specifically, MCS similarity may occur because firms in first- and second-level dyads are subject to similar transaction conditions. As previously indicated, prior research stipulates that control choices must be aligned with underlying context characteristics to effectively mitigate transaction risks (e.g., Anderson & Dekker, 2005). Taking this a step further, customers and buyers that face similar transaction conditions would use similar MCS because of similar underlying transaction hazards. Thus, to the extent that firms are subject to similar transaction conditions, one would expect them to make reasonably similar control choices.[5]

Second, from the imitation perspective, MCS similarity may also arise in the supply chain due to imitative behavior. Organizational scholars suggest that firms facing uncertainty about many alternatives often rely on others' actions for clues on interpreting their own situation and guiding their choices (Baum, Li, & Usher, 2000). Thus, rather than making independent choices, firms may prefer to imitate others as a way to accelerate the decision-making process. Such imitation requires observing other actors' behavior (Greve, 1998; Sun, 2013). Since MCS used by the customer are readily identifiable by the buyer in our context, we argue that the buyer can determine how to control its own supplier relations by simply looking at how its customer controlled them.[6] MCS would then be copied from the first- to the second-level dyad in the network.

Consistent with the above conceptualization of MCS as a collection of control mechanisms, MCS imitation specifically comprises the replication of such a set of controls. According to Williams (2007, p. 867), replication enables the transfer of practices without necessarily understanding their causes, consequences, and interdependence. Hence, by copying a set of control practices exactly, the buyer insures that the transferred practices contain all essential elements, which increases the likelihood of their effectiveness and, thus, their value to the firm. Therefore, we consider imitation as an intended decision (cf. Nikolaeva, 2014; Ordanini et al., 2008) on behalf of the buyer in response to observing the MCS used by the downstream customer, which results in a similar set of controls being used in interactions with the upstream supplier.[7]

[4] This triad can be seen as one of many subsets in a wider network (Caglio & Ditillo, 2008). Any focal dyad may be influenced by a range of third-party relationships. Since our intention is not to obtain a complete model for all network effects, we consider one specific triad, consisting of a customer-buyer and a buyer-supplier relationship.

[5] This is under the assumption that firms face similar control costs for a given transaction risk and, hence, will make similar control-residual risk trade-offs.

[6] Here, the main motivation behind imitation is to economize on information search and use others as examples for own decision-making. However, buyers may also imitate for legitimacy reasons or, for instance, in an attempt to increase their perceived validity by the customer firm. While there are various potential motives underlying imitative behavior, our primary goal is not to answer why firms imitate but rather to investigate whether firms imitate in a way that matters for MCS design.

[7] Since our focus is on intentional imitative behavior, it is important to contrast this with compliant adoption where firms are forced to adopt certain structures or practices by other organizations upon which they are dependent. The latter may be a form of isomorphism, but not of imitation, because firms do not intentionally try to copy the behaviors of others (Ordanini et al., 2008). In the robustness checks described below, we control for such alternative explanations of communalities in the supply chain.

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Taken together, we predict that MCS similarities may stem not only from transaction context similarity, but also from interorganizational imitation in the supply chain:

H2. MCS similarity across first- and second-level dyads is positively related to (a) transaction context similarity and (b) imitation.

2.4. MCS imitation as a source of control misalignment

MCS imitation in the supply chain might help explain why transactions are sometimes controlled in ways that are suboptimal if the transaction context alone would be considered. Under uncertainty, replicating the exact strategies of other firms may be perceived as safe, but this simple imitation may not always be effective because outcomes can depend on the context in which an organization operates (Kim & Miner, 2007). Prior research, therefore, cautions against imitation without context similarity, referring to the degree to which practices that work in one context are likely to work in another (e.g., Csaszar & Siggelkow, 2010). The impact of context similarity is particularly relevant for the study of MCS imitation, given the importance of firms choosing MCS that match the transaction conditions.

In particular, Speklé (2001, p. 420) points out that the control structure should be uniquely tailored to the control needs of the specific transaction and cannot be simply replicated within other transactions. An inherent risk of imitating a seemingly successful set of controls is thus not fitting the underlying attributes of the considered transaction, creating the prerequisite for control misalignment. For example, buyers may be inclined to copy MCS throughout the supply chain, but the transaction context of the upstream relationship may not necessarily mirror that of the downstream one. In this case, MCS imitation could lead to the use of MCS that are not fully aligned with the transaction context. Misalignment, in this sense, imposes either insufficient MCS, thus exposing firms to substantial residual risks, or excessive MCS, that is, involving more control than needed given the transaction risks faced (Anderson & Dekker, 2015; Sampson, 2004). If control misalignment indeed results partly from imitation, a positive correlation should exist between the two. This leads to the following hypothesis:

H3. Misalignment between MCS extensiveness and transaction context is positively associated with imitation.

3. Research methodology

3.1. Sample design and data collection

Survey data were collected at the level of the buyer in the supply chain triad. The population was drawn from the database of European associations for supply chain professionals. The survey was particularly directed towards supply chain directors, supply chain managers, and other top managers in charge of supply chain and outsourcing engagements. In total, 2086 potential respondents were sent an email message with a link to the online survey.

We divided the survey questionnaire into two parts. First, we asked the respondents to complete a short questionnaire to assess whether their companies were suitable, that is, having a collaborative relationship with both a customer firm (first-level dyad) and a supplier firm (second-level dyad). Respondents who met this criterion were guided to the main questionnaire, which asked about the specific relationships with customer and supplier firms as per the knowledge of the respondent. To avoid selection bias but capture salient exchange relationships, respondents were specifically instructed to answer the questions for the most recent relationship with a customer and supplier firm in which they were personally involved.

To maximize response rates, the survey questionnaire was resent approximately two and four weeks after the initial mailing. Additionally, phone calls were made to respondents who started the first part of the questionnaire but failed to complete the second. We received 184 completed questionnaires, for which informant quality was evaluated using a series of questions that assessed the informant's ability to respond to questionnaire items, level of involvement with the partner firms, and knowledge of their firm's dealings with its partners. We excluded 14 respondents with low scores on the informant quality questions. Further, given the level of detail required in answering the questions, several responses missed values or were not fully completed. This amounted to 51 responses to be removed because of missing data. The final sample thus contains 119 usable responses.[8]

The average age of buyer firms in the sample is 42 years. The sample covers small (fewer than 100 employees; 32%), medium (100–500 employees; 28%), and large buyer firms (more than 500 employees; 40%). Regarding industry representation, buyers were asked to indicate the main industry of their own firms and their suppliers, which were then classified using two-digit SIC codes for five general industry groups, namely manufacturing (43% of buyers, 61% of suppliers), transportation (7% of buyers, 3% of suppliers), wholesale and retail (11% of buyers, 8% of suppliers), finance and real estate (6% of buyers, 4% of suppliers), and services (18% of buyers, 13% of suppliers). About 15% of the buyers and 11% of the suppliers could not be classified within the given categories and were classified as “other”.

To test for non-response bias, we compared early and late respondents on the study variables and company demographics. The insignificant differences between the responses of early and late returned surveys support the absence of significant non-response bias.

Since our data were collected from a single respondent, we tried to reduce common method bias by separating the measurements of predictor and criterion variables in the main questionnaire (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). In fact, by constructing the survey so that respondents had to first report on the first-level dyad, subsequently on the second-level dyad, and finally on the similarities between the two dyads, questions were anchored to a specific setting. As these actions may reduce but not completely rule out common method bias, we still assessed its presence by performing the Harman's single-factor test. Because the unrotated principal component factor analysis did not result in a single-factor solution with the first factor explaining most of the variance, we conclude that the potential for common method bias is low.

3.2. Variable measurement

Scales for measuring the constructs were derived from extant literature and refined through a series of pretests with executives and scholars in the field. We discuss the variable measurements in turn. Table 1 provides an overview, including item descriptive statistics and measurement model estimates. All items were measured on a five-point scale, unless stated otherwise. For each

[8] Although our screening procedure yields a relatively low response rate (6% of the total list of contacts), it ensures a high response reliability. The final sample includes respondents who (1) work for companies that have collaborative relationships of the type referred to in the questionnaire and (2) are knowledgeable about managing their company's customer and supplier relationships.

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multi-item construct, we calculated individual scores as mean scores for combined scale items. Table 2 reports correlations and summary statistics.

3.2.1. MCS extensiveness

To measure MCS extensiveness, buyers were asked to indicate the extent to which their firm uses a variety of control mechanisms to manage supplier relationships. Based on extant literature, we constructed a list of different mechanisms for exercising partner control that applies to various forms of interfirm relationships, and supply chains in particular (e.g., Chen, Park, & Newburry, 2009; Choudhury & Sabherwal, 2003; Dekker, 2004; Johansson & Siverbo, 2011; Langfield-Smith & Smith, 2003). In line with the previously outlined typology, we included outcome, behavior, and social controls. Within a portfolio of controls, each control type can be implemented through multiple control mechanisms. Examples of control mechanisms directed at outcomes include target setting and practices to help measure and evaluate performance. Typical behavior controls are structural specifications, such as planning, procedures, rules, and regulations, but also organizational arrangements for holding partners accountable for their actions and mechanisms that facilitate direct behavior observation and monitoring. Social controls can be enacted through organizational structuring by, for example, setting up joint teams and task forces that enhance shared decision-making and goal setting, as well as through socialization activities that promote shared values and understandings, such as frequent meetings, trainings, and communications. These mechanisms are jointly intended to motivate and enable transaction partners to work toward desired objectives. Following previous studies (e.g., Fayard, Lee, Leitch, & Kettinger, 2012), they form a single formative construct that captures the extent to which buyers employ various control mechanisms for relationship management. An average score on all items was computed to obtain an overall reflection of MCS extensiveness. Higher scores indicate buyers use control mechanisms to manage their supplier relationships to a greater extent.

3.2.2. Transaction context

We measured three elements associated with the transaction context, namely uncertainty, interdependence, and duration. Uncertainty relates to the unpredictability of relevant aspects surrounding the transaction between buyer and supplier and is measured on a four-item scale, based on Wuyts and Geyskens (2005), and Zaheer, McEvily, and Perrone (1998). Interdependence reflects the dependence of the buyer and supplier on each other and is measured on a two-item scale, following Li, Xie, Teo, and Peng (2010), and Lusch and Brown (1996). Relationship duration is operationalized as the number of years the buyer and supplier have worked together, of which we take the logarithm in our model.

3.2.3. Relationship performance

Relationship performance was measured as the supplier's performance on various dimensions relative to the buyer's expectations. Although performance involves many aspects, we focused on its operational dimensions because of its salience in the supply chain context. Specifically, we use an operational measure of performance relating to key relationship outcomes, including quality, delivery, responsiveness, sales and/or technical support, and cost. The measurement of this construct is based, amongst others, on Chen and Paulraj (2004), Mahama (2006), Prahinski and Benton (2004), and Wu, Choi, and Rungtusanatham (2010). By taking the average of these key dimensions, we obtained an overall measure reflecting relationship performance. In line with prior literature (e.g., Johnston, McCutcheon, Stuart, & Kerwood, 2004), this construct was treated as a formative scale because the various dimensions do not have common underlying meanings per se.

3.2.4. MCS similarity

To measure MCS similarity, buyers were asked to indicate the extent to which they consider the controls they are using with the supplier similar to those the customer used towards them. As we expect firms to use a variety of controls to ensure relationship objectives are met, MCS similarity was designed to capture different types of controls by including the extent to which the use of outcome, behavior, and social controls is similar for both relationships. We relied on previous studies that distinguish among these types of control (e.g., Dekker & Van den Abbeele, 2010; Stouthuysen, Slabbinck, & Roodhooft, 2012), and modified the measures to capture similarity. Since the three types of control are typically combined, the three similarity measures together describe the extent to which the customer and buyer overlap on MCS use in managing their relationships. Thus, we modeled overall MCS similarity as a second-order construct, comprising the three first-order similarity measures. An average score of the three dimensions is used in the analysis.[9]

3.2.5. Transaction context similarity

To examine transaction context similarity, we considered the three previously identified elements of the transaction context, namely uncertainty, interdependence, and duration similarities. Uncertainty similarity refers to the extent to which the level of uncertainty on the market is similar in both relationships. Interdependence similarity is the extent to which the degree of interdependence between partner firms is similar in both relationships. Duration similarity indicates whether the number of years the partner firms have been working together is similar for both relationships. The model is then tested by incorporating each of these three context similarity factors.[10]

3.2.6. Imitation

We drew on Williams (2007) to develop a measure of imitation that reflects the replication or exact copying of control practices. Specifically, the three-item measure directly reflects whether the buyer tried to manage its relationship with the supplier in the same way as the customer did towards them.[11]

3.2.7. Coercion

As the decision to adopt certain practices may also relate to pressures exerted by dominant other organizations, we included a

[9] The correlation matrix reveals that the three types of control similarities move together in a systematic positive pattern, which supports aggregation to the overall MCS similarity construct. A principal-components-based exploratory factor analysis also shows that the three first-order similarity measures load on one factor (explained variance: 72.64%, eigenvalue: 2.18, Cronbach's alpha: 0.81), further indicating that they have one common underlying factor that reflects overall MCS similarity.

[10] To assess validity, we correlated the three items with an additional questionnaire item, asking for respondents' overall impression of transaction context similarity. Buyers were asked to indicate the extent to which they consider the transaction context of the relationship with the customer to be similar to that of the relationship with the supplier. As expected, we found significant and positive correlations ($r = 0.29$, $p < 0.05$; $r = 0.36$, $p < 0.01$; $r = 0.44$, $p < 0.01$, respectively), indicating that the three similarity factors are important aspects from which the transaction context is considered.

[11] To validate the imitation measure, we compared it with an alternative one reflecting intentional imitation in the supply chain. We asked the buyers to indicate the extent to which their firm's use of MCS towards the supplier was inspired by the customer's use of MCS towards them. Our main imitation measure is positively correlated with this alternative measure ($r = 0.63$, $p < 0.01$), increasing confidence it captures the proposed imitation effects.

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Table 1
Survey measures.

	Descriptive Statistics						Measurement Model Estimates	
Panel A. First-level dyad	Min	Max	Mean	Std Dev	Skew	Kurt	Factor loading	t-value
Coercion								
Buyer dependence [a]								
We are dependent on this firm as a customer of the product/service.	1	5	3.60	1.06	−0.65	−0.32	N.A.	
Panel B. Second-level dyad	Min	Max	Mean	Std Dev	Skew	Kurt	Factor loading	t-value
MCS extensiveness								
MCS extensiveness [b] (formative construct)								
(a) Open book accounting to create transparency in supplier's results.	1	5	2.66	1.25	0.12	−0.96	N.A.	
(b) Information systems designed to help monitoring the outputs delivered by the supplier.	1	5	3.10	1.15	−0.40	−0.61		
(c) Financial incentive system in the form of benefit sharing.	1	5	2.69	1.16	−0.03	−0.97		
(d) Establishment of target costs for the supplier.	1	5	3.11	1.09	−0.62	−0.46		
(e) Standard performance evaluation forms.	1	5	3.40	1.04	−0.60	0.01		
(f) Open book accounting to create transparency in supplier's processes.	1	5	2.61	1.14	−0.04	−1.06		
(g) Information systems designed to help monitoring behavior of the supplier.	1	5	3.00	1.05	−0.18	−0.54		
(h) Task groups including employees of both partners to carry out the activities and to facilitate and monitor the processes.	1	5	3.10	1.09	−0.33	−0.64		
(i) Periodic meetings to facilitate direct observation of the behavior of the supplier.	1	5	3.43	1.00	−0.58	0.08		
(j) Joint alliance board serving as an authority structure in which both partners have control over the activities performed.*	1	5	2.74	1.17	−0.06	−0.91		
(k) Interorganizational chart to clarify the roles and responsibilities of the partners in the relationship.	1	5	2.75	1.16	−0.02	−0.96		
(l) Open book agreement to enhance trust between the partners in the relationship.	1	5	2.77	1.20	−0.09	−1.09		
(m) Joint task groups or cross-functional teams including employees of both partners to enhance shared decision-making and goal setting.	1	5	2.90	1.12	−0.27	−0.84		
(n) Regular joint meetings to understand the relationship's goals, values and norms.	1	5	3.31	1.06	−0.39	−0.41		
(o) Joint alliance board serving as an authority structure in which both partners are involved to enhance shared decision-making and goal setting.	1	5	2.73	1.19	−0.17	−1.24		
(p) Face-to-face communication to help establish shared norms and beliefs.	1	5	3.64	1.00	−0.82	0.63		
(q) Workshops and training practices to stimulate shared understandings and common goals.	1	5	2.91	1.19	−0.25	−0.93		
Transaction context								
Uncertainty [a] ($\alpha = 0.82$; CR = 0.82; AVE = 0.54; HSV = 0.22)								
Availability of this product/service in the market is highly uncertain.	1	5	2.80	1.09	0.17	−0.86	0.77	9.11
It is difficult to monitor technological trends in the market.	1	5	2.88	1.02	0.39	−0.66	0.67	7.60
Supply of this product/service in the market is not stable.	1	5	2.75	0.98	0.36	−0.41	0.83	10.01
Volume forecasts of this product/service are quite inaccurate.	1	5	3.05	1.00	0.05	−0.86	0.66	7.40
Interdependence [a] ($\alpha = 0.67$; CR = 0.71; AVE = 0.56; HSV = 0.56)								
We are dependent on this firm as a supplier of the product/service.	1	5	3.73	0.96	−0.53	−0.36	0.89	5.84
The supplier is dependent on us as a customer of the product/service.	1	5	3.56	1.01	−0.56	−0.09	0.57	4.71
Duration								
Length of relationship with supplier: … years.	0	55	10.41	8.61	1.90	5.77	N.A.	
Relationship performance								
Relationship performance [c] (formative construct)								
(a) Product/service quality.	2	5	4.01	0.72	−0.43	0.18	N.A.	
(b) Delivery performance.	1	5	3.86	0.90	−0.94	1.32		
(c) Responsiveness to requests or changes.	1	5	3.83	0.96	−0.89	0.93		
(d) Sales, service and/or technical support.	1	5	3.82	0.84	−0.61	0.46		
(e) Overall cost performance.	1	5	3.76	0.81	−0.42	0.35		
Panel C. Similarities across dyads	Min	Max	Mean	Std Dev	Skew	Kurt	Factor loading	t-value
MCS similarity								
Outcome control similarity [a] ($\alpha = 0.82$; CR = 0.74; AVE = 0.58; HSV = 0.50)								
We established specific performance goals for the supplier that are very similar to those the customer used with us.	1	5	3.30	1.04	−0.31	−0.80	0.81	9.80
We monitored the extent to which the supplier realized the performance goals in a very similar way to which the customer monitored us.	1	5	3.39	0.98	−0.20	−0.87	0.71	8.42
Behavior control similarity [a] ($\alpha = 0.82$; CR = 0.83; AVE = 0.70; HSV = 0.50)								
We specified procedures to be followed by the supplier that are very similar to those the customer used with us.	1	5	3.32	1.07	−0.07	−0.89	0.76	9.23
We monitored the extent to which the supplier followed established procedures in a very similar way to which the customer monitored us.	1	5	3.31	1.07	−0.10	−1.07	0.91	11.73
Social control similarity [a] ($\alpha = 0.72$; CR = 0.74; AVE = 0.60; HSV = 0.29)								
We organized joint meetings, social events and team-building activities with the supplier just as the customer did with us.	1	5	3.08	1.14	−0.13	−0.92	0.89	9.99
The exchange of information in the relationship with the supplier takes place frequently and happens face-to-face just as in the relationship with the customer.	1	5	3.46	1.01	−0.63	−0.13	0.64	7.02
Transaction context similarity								
Uncertainty similarity [a]								
The level of uncertainty in the market is very similar in both relationships.	1	5	3.29	0.96	−0.27	−0.82	N.A.	
Interdependence similarity [a]								
The degree of interdependence between your firm and the partner firm is very similar in both relationships.	1	5	3.43	0.93	−0.44	−0.40	N.A.	
Duration similarity [a]								

(*continued on next page*)

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Table 1 (*continued*)

	Descriptive Statistics						Measurement Model Estimates	
Panel A. First-level dyad	Min	Max	Mean	Std Dev	Skew	Kurt	Factor loading	t-value
The number of years in which your firm has been working together with the partner firm is very similar in both relationships.	1	5	3.45	0.96	−0.54	−0.33	N.A.	
Imitation								
Imitation [a] ($\alpha = 0.84$; CR = 0.84; AVE = 0.64; HSV = 0.48)								
We tried to manage our supplier relationships exactly like the customer did with us.	1	5	3.10	1.02	−0.21	−0.61	0.85	10.94
We tried to implement practices from our customer exactly as they existed.	1	5	3.20	0.99	−0.36	−0.45	0.79	9.73
We tried to copy practices from the customer down to the smallest detail.	1	5	2.98	1.09	−0.05	−0.83	0.75	9.02

Notes: This table displays survey questions that support the variables used in this research. Panel A includes measures reported by the Buyer with regard to the first-level dyad. Panel B includes measures reported by the Buyer with regard to the second-level dyad. Panel C includes measures reported by the Buyer with regard to similarities across dyads. Factor loadings are estimated with confirmatory factor models in LISREL 8.8 using the maximum likelihood method. N.A. is not applicable; α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; HSV = highest shared variance.

*Item dropped due to multicollinearity issues.

[a] Items measured on a five-point Likert-type scale anchored by 1 = "strongly disagree" and 5 = "strongly agree."

[b] Items measured on a five-point Likert-type scale anchored by 1 = "to a very low extent" and 5 = "to a very high extent."

[c] Items measured on a five-point Likert-type scale anchored by 1 = "very poor" and 5 = "very good."

Table 2
Correlations and summary statistics.

Variable	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14
First-level dyad																
1. Buyer dependence	3.60	1.06														
Second-level dyad																
2. MCS extensiveness	3.01	0.79	0.31**													
3. Uncertainty	2.87	0.82	0.29**	0.42**												
4. Interdependence	3.68	0.83	0.75**	0.39**	0.29**											
5. Duration	0.88	0.38	0.11	−0.02	−0.01	0.15										
6. Relationship performance	3.86	0.63	0.21*	0.38**	0.05	0.13	−0.02									
Similarities across dyads																
7. MCS similarity	3.31	0.80	0.39**	0.62**	0.31**	0.38**	−0.01	0.36**								
8. Outcome control similarity	3.35	0.93	0.36**	0.52**	0.22*	0.32**	0.03	0.32**	0.88**							
9. Behavior control similarity	3.32	0.95	0.30**	0.42**	0.26**	0.24**	−0.04	0.30**	0.87**	0.71**						
10. Social control similarity	3.27	0.95	0.34**	0.65**	0.31**	0.40**	−0.02	0.30**	0.80**	0.54**	0.51**					
11. Uncertainty similarity	3.29	0.96	0.19*	0.40**	0.47**	0.21*	−0.05	0.22*	0.39**	0.35**	0.37**	0.29**				
12. Interdependence similarity	3.43	0.93	0.23*	0.30**	0.32**	0.21*	0.11	0.24**	0.44**	0.38**	0.37**	0.37**	0.32**			
13. Duration similarity	3.45	0.96	0.13	0.28**	0.10	0.14	0.02	0.38**	0.37**	0.42**	0.31**	0.21*	0.28**	0.36**		
14. Imitation	3.10	0.90	0.22*	0.55**	0.31**	0.25**	0.06	0.22*	0.69**	0.54**	0.65**	0.57**	0.32**	0.42**	0.31**	

Notes: $n = 119$; $^{**}p < 0.01$; $^{*}p < 0.05$ (two-tailed).

measure of the power-dependence relationship between customer and buyer to proxy for coercion. The single-item measure is adapted from Noordewier, John, and Nevin (1990), and indicates the buyer's dependence on the customer.

3.3. Measurement validation

Multi-item measures were subjected to a systematic assessment of unidimensionality, reliability, and validity.

Given that MCS extensiveness and relationship performance were operationalized as formative constructs using an index of indicators, conventional techniques are not appropriate for assessing their reliability and validity. Instead, we assessed their reliability and validity by following the guidelines of Diamantopoulos, Riefler, and Roth (2008) and Petter, Straub, and Rai (2007). Particularly, to verify for multicollinearity, we examined the variance inflation factors (VIFs). Regarding MCS extensiveness, we identified two items with VIFs above 3.3, which refer to the use of an alliance board serving as an authority structure to have control over activities, and to enhance shared decision-making and goal setting. Because the alliance board constitutes a control mechanism that may support multiple control types and the items are highly correlated ($r = 0.82$, $p < 0.01$), we dropped the first item and retained only the latter for analysis.[12] For the relationship performance construct, we found that all VIFs have values below 3.3, indicating that measurement indicators are not too highly correlated and multicollinearity is not a concern.[13]

For the other, reflective, measures, the item sets were subjected to confirmatory factor analysis using the maximum likelihood method in LISREL 8.8. Because of the large number of indicators and constructs and the limited sample size, different confirmatory factor models were estimated according to Bentler and Chou (1987). That is, we divided the multi-item constructs into theoretically plausible groups for which we ran separate models.[14] Model 1 included the transaction context variables (uncertainty,

[12] Alternatively, when the first item, referring to the purpose of the alliance board having control over activities performed, is retained instead of the latter item, relating to the alliance board for enhanced decision-making and goal setting, similar results are obtained.

[13] Further, validity can be assessed according to the significance of regression weights, which represent the indicator's contribution to the construct. In untabulated analyses, we found all indicators to be significant, confirming they are valid for the formative constructs.

[14] We followed the recommendation to maintain a parameter-to-sample ratio of at least 1:5. The covariance-based method used here might, however, still be sensitive to the relatively small sample size.

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interdependence), and Model 2 the measures related to control similarities across dyads (outcome, behavior and social control similarity, and imitation). To evaluate model fit, we used multiple criteria as recommended by Hu and Bentler (1999). The results show a good fit for Models 1 ($\chi^2(8) = 13.28$, SRMR = 0.05, CFI = 0.98, and IFI = 0.98) and 2 ($\chi^2(21) = 45.07$, SRMR = 0.05, CFI = 0.97, and IFI = 0.97).

We then assessed scale reliabilities based on Cronbach's alpha, composite construct reliability, and average variance extracted (AVE). The results meet the recommended criteria and demonstrate internal consistency of the constructs. To test convergent validity, we inspected parameter estimates and their t-values (Anderson & Gerbing, 1988). The results in Table 1 show all indicators are significantly related to their underlying theoretical constructs and, hence, exhibit convergent validity. Furthermore, for each construct, we compared the AVE to the highest shared variance (HSV) with other constructs (Fornell & Larcker, 1981). We found the AVE to be greater than the HSV for most constructs, in support for discriminant validity. Overall, these results demonstrate our measurement scales are reliable and valid.

4. Analysis and results

The empirical tests proceed in two main steps, as previously outlined. After providing evidence on the existence of control misalignment, we examine its potential sources.

4.1. Identifying misalignment between MCS and transaction context

We first examine the existence of misalignment between MCS extensiveness and transaction context in buyer-supplier relationships. Here, we confine our attention to one dyadic relationship, focusing on the buyer's use of MCS towards the supplier. Starting from the argument that firms may not always be on the efficient control frontier, significant differences in the associations between transaction context characteristics and MCS use may be expected. In H1, we particularly expect firms with high relationship performance to have better adapted their MCS to the transaction context, compared to firms with low relationship performance. Hence, to evaluate alignment, we model the effects of transaction context on MCS extensiveness and allow them to differ across firms as a function of relationship performance. Specifically, we interact each of the transaction context variables of interest with relationship performance, such that the coefficients of these interactions provide the test of our hypothesis. To ease interpretation, variables were mean-centered prior to the computation of interaction terms.

Table 3 presents the regression results.[15] For completeness, we first present the model with the three transaction context characteristics only.[16] Consistent with empirical literature, transactions involving greater environmental uncertainty and partner interdependence promote a more extensive use of controls. The association between relationship duration and MCS extensiveness is negative, as predicted, although not significant.[17] As we are interested in how firm responses to these transaction context characteristics differ with performance, the second model adds relationship performance and its interaction with the context variables. The results show the interaction term interdependence x performance is positively related to MCS extensiveness. The interaction terms uncertainty x performance and duration x performance did not turn out to be significant. Consequently, there is little evidence to support that performance would alter the relations between uncertainty or duration and the extent of MCS use. Rather, we derive that high- and low-performing relationships differ mainly in the way they deal with interdependence when it comes to MCS use. Relationship performance seems to positively affect the relationship between interdependence and MCS extensiveness. We interpret this as high-performing relationships having responded to higher interdependence with a more extensive use of MCS, living up to TCE prescriptions, whereas low-performing relationships likely failed to do so.[18] Thus, H1 is, at least partially, supported.

Overall, the variations across firms signify that not all firms always optimize in relation to the transaction context and that control misalignment occurs. This observation provides our primary rationale for studying why this is the case, turning our attention to the potential sources of misalignment. In fact, firms varying in their responses to the transaction context when deciding on MCS use may indicate that cross-organizational forces are causing these patterns.

Table 3
The relation between MCS extensiveness, transaction context and performance.

	MCS extensiveness	
	(1)	(2)
Uncertainty	0.33***	0.25***
	(3.90)	(3.02)
Interdependence	0.30***	0.20**
	(3.52)	(2.54)
Duration	−0.06	−0.05
	(−0.78)	(−0.63)
Relationship performance		0.36***
		(4.86)
Uncertainty x Relationship performance		0.05
		(0.64)
Interdependence x Relationship performance		0.21**
		(2.41)
Duration x Relationship performance		0.12
		(1.54)
R^2 (Adj. R^2)	*0.26 (0.24)*	*0.43 (0.40)*
F-statistic	*12.95****	*11.94****

Notes: $n = 117$; OLS regression analysis on the association between transaction context characteristics and the use of interfirm controls at the level of the buyer-supplier dyad. Standardized coefficients are reported; t-values are given in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$ (two-tailed).

[15] Due to missing values for the relationship duration variable, the number of cases in this analysis is 117.

[16] Because firm age and size have potentially significant consequences for management control (e.g., Bedford & Malmi, 2015), we also ran the model with these variables included. Buyer firm age was measured as the number of years since the foundation of the firm, and its size was modeled as a dummy variable with number of employees fewer than or equal to 500 or number of employees larger than 500. Both coefficients are insignificant, and the inclusion of these firm-level variables leaves our main results unchanged.

[17] While prior studies have typically examined direct effects of partner experience on governance and control choices (e.g., Gulati, 1995), more recent studies have considered moderating effects, with partner experience affecting the relationship between transaction characteristics and these choices (e.g., Dekker, 2008). Therefore, we also tested for the moderating effect of relationship duration, but no significant results were found.

[18] To support this line of reasoning, we plotted the interaction between interdependence and performance in relation to MCS extensiveness. The results reveal that, at high levels of performance (one standard deviation above the mean), there is a strong positive relationship between interdependence and the extent of MCS usage (p-value of simple slope < 0.01). However, at low levels (one standard deviation below the mean), this relationship is much less pronounced (p-value of simple slope > 0.10). This confirms that low-performing relationships failing to appropriately design MCS in response to interdependence, in contrast to high-performing relationships, is what drives the moderating effect of performance on the relation between interdependence and MCS extensiveness.

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4.2. Evidence on the determinants of MCS similarities in the supply chain

Focusing on supply chain triads, instead of the status quo of dyadic interactions between firms, enables us to examine the potential diffusion of MCS in the supply chain. We test whether MCS similarities stem not only from transaction context similarities, as would be expected based on traditional transaction cost theory, but also from interorganizational imitation in the supply chain, as suggested by imitation theory. We compare the two theories by analyzing variables from both perspectives simultaneously in the analysis.

When investigating the correlations among those variables, some of these appear relatively high. We therefore also calculated the VIFs for the regression and all are less than 3.3, suggesting that multicollinearity is not a severe issue. Yet, to the extent that managers account for similarities in the transaction context when deciding on MCS imitation, it is still possible that our results for imitation are capturing these similarities. The imitation literature indeed suggests that decision-makers may particularly look at others to see what they have done or are doing under similar circumstances (e.g., Baum et al., 2000; McFarland et al., 2008). According to this, the likelihood of imitation may increase with increased context similarity, as it makes more sense to do the same thing. Therefore, to assure that the reported imitation results are not confounded by transaction context similarity, we use a two-stage approach.

In the first stage, we control directly for the effects of transaction context similarity on imitation, by regressing MCS imitation on the analyzed set of transaction context similarities. The results of this first-stage model are displayed in Table 4, Column 1, and indicate that firms' propensity to imitate is positively influenced by transaction context similarity. This might signal some sort of reflective imitation, which is not the simple copying of MCS, but rather entails an evaluation of whether the imitated MCS would fit the context.[19] Our interest, however, lies in what happens when imitation takes place in the absence of context similarity. That is, when the buyer imitates, despite a potential mismatch with the specific transaction context. Accordingly, we use the residual value of the model estimation to denote "residual" imitation, representing the part of MCS imitation left after controlling for transaction context similarities. We then estimate a second-stage model with the residual imitation values to test the link between transaction context similarity, pure imitation, and MCS similarity.

Table 5 reports the results of the MCS similarity model explicitly testing our second hypothesis. We include only transaction context similarity variables in Column 1, and subsequently enter the residual value for imitation in the regression in Column 2. The findings indicate that MCS similarity is significantly and positively related to uncertainty, interdependence, and duration similarities. This represents the transaction cost or alignment view, consistent with H2a. The results further indicate a strong positive relationship between MCS similarity and imitation, as predicted by H2b. This provides support for the proposed imitation effects. Moreover, adding the residual value for imitation to the model results in a significant R^2 increase of 0.25 ($p < 0.01$). This confirms that imitation explains a substantial amount of variance in MCS similarity in our sample, over and above the effects of transaction context similarity.

Table 4
Estimation of MCS imitation – first-stage model.

	Dependent variable: MCS imitation	
	(1)	(2)
Uncertainty similarity	0.18**	0.17**
	(2.05)	(1.90)
Interdependence similarity	0.30***	0.29***
	(3.37)	(3.13)
Duration similarity	0.15*	0.15*
	(1.71)	(1.68)
Buyer dependence		0.10
		(1.17)
R^2 (Adj. R^2)	*0.23 (0.21)*	*0.24 (0.21)*
F-statistic	*11.57****	*9.05****

Notes: $n = 119$; OLS regression models to estimate MCS imitation across the first-level and second-level dyad. The residual value from Column (1) is used to capture MCS imitation that is unexplained by transaction context similarities. The residual value from Column (2) is used to capture MCS imitation that is unexplained by transaction context similarities *and* buyer dependence. Standardized coefficients are reported; t-values are given in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$ (two-tailed).

Additionally, to examine robustness, we further control for alternative forces in the supply chain. Specifically, we recognize that, in a supply chain context, communalities may also stem from coercive pressure, such as when a powerful firm requires other firms to adopt certain favorable structures or practices (e.g., Braunscheidel, Hamister, Suresh, & Star, 2011; Zsidisin, Melnyk, & Ragatz, 2005).[20] In our setting, if the customer forces the buyers to adopt specific controls in the supply chain, the buyers' responses to this pressure will likely be determined by its degree of dependence on the customer. The more dependent the buyer is, the more likely it is to comply. As such, to address the possibility of coercive pressure driving our results, we include the buyer's dependence on the customer in our model. Column 3 of Table 5 reports the results. Note that "residual" imitation in this case is the residual from the model in Table 4, Column 2, which regresses imitation on the set of transaction similarities and buyer dependence. Interestingly, the results reveal a significant positive association between MCS similarity and buyer's dependence on the customer. This indicates that similarities may also be responses to coercive pressure from the customer towards the buyer. However, including this control for coercion did not change our focal results. Model 3 compared with Model 2 in Table 5 shows little change in the coefficients of interest.[21]

Taken together, the above analyses show that firms design MCS in accordance with the derived TCE reasoning, but with substantial unexplained variance. While it is important to consider transaction cost economic explanations, other mechanisms, such as imitation,

[19] This corresponds with the decision-making perspective, where imitation functions as a decision simplification process, "particularly when the perceived costs of a more comprehensive search and selection strategy are viewed as disproportionate to the anticipated benefits of such a comprehensive strategy" (Ordanini et al., 2008, pp. 388–389). Adhering to transaction cost principles, this cost-benefit trade-off for MCS imitation is presumably made by considering relevant similarities in the transaction context and the associated risk of selecting misaligned controls, at least to some extent.

[20] For example, in the fashion industry, numerous big companies insist on their supply chains to be free from child labor. These powerful firms may require their suppliers to have controls in place to ensure that this is upheld and, in this way, may push regulating control mechanisms upstream the supply chain.

[21] Besides, the dataset includes transactions for which the products or services exchanged in the first-level dyad differ from those exchanged in the second-level dyad. As similar industries may lead also to preferences for similar MCS (e.g., Davila, 2005), we investigated industry similarity over the supply chain triad and specifically whether the buyers and suppliers share the two-digit level SIC code. A dummy variable was used for similar and non-similar industries. When adding this variable to the model, our inferences remain unchanged, and the MCS do not appear to be industry specific, with MCS similarity not relating significantly to industry similarity.

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Table 5
Determinants of MCS similarity – second-stage model.

	Dependent variable: MCS similarity		
	(1)	(2)	(3)
Uncertainty similarity	0.25***	0.25***	0.21***
	(2.96)	(3.63)	(3.24)
Interdependence similarity	0.29***	0.29***	0.24***
	(3.35)	(4.12)	(3.54)
Duration similarity	0.19**	0.19***	0.18***
	(2.22)	(2.72)	(2.74)
Residual imitation (derived from model 1, Table 4)		0.49***	
		(7.71)	
Residual imitation (derived from model 2, Table 4)			0.47***
			(7.64)
Buyer dependence			0.27***
			(4.33)
R^2 (Adj. R^2)	0.29 (0.28)	0.54 (0.52)	0.58 (0.56)
F-statistic	15.97***	32.90***	31.72***

Notes: $n = 119$; OLS regression results on the determinants of MCS similarity across the first-level and second-level dyad. The model in Column (1) only includes the transaction context similarity variables. The model in Column (2) adds imitation, measured as the residual from the model that regresses imitation on the set of transaction context similarities. The model in Column (3) additionally includes buyer dependence to control for coercion, and takes imitation as the residual value from the model that regresses imitation on the set of transaction context similarities *and* buyer dependence. Standardized coefficients are reported; t-values are given in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$ (two-tailed).

demonstrate incremental explanatory power towards explaining MCS choices in the supply chain. Hence, we conclude that inter-organizational imitation is a significant factor in MCS decisions, and that such imitation merits additional consideration in the study of interfirm control.

4.3. Testing the association between MCS imitation and control misalignment

Having established the importance of MCS imitation in the supply chain, we now examine it as a potential source of control misalignment. We argue that the previously outlined imitation processes may limit firms in recognizing hazards and making MCS choices consistent with the TCE alignment hypothesis.[22] Accordingly, we investigate whether misalignment between MCS and transaction context is associated with imitation, as postulated in H3.

Similar to prior studies (e.g., Anderson et al., 2017; Handley, 2017; Johansson & Siverbo, 2011; Mooi & Ghosh, 2010; Reuer & Ariño, 2002), we measure control misalignment as the residual from the regression that relates transaction context to MCS extensiveness (i.e., the residual value from Model 1 in Table 3). To test our hypothesis, we correlate the regression residual for control misalignment with our residual measure of imitation. Thus, we consider pure imitation, which is after controlling for transaction context similarities in firms' imitation decisions.[23] If buyer firms pursue mimetic actions, despite variations in the transaction context, it is particularly likely that misalignment will result.

The results in Table 6 indicate that the correlation between misalignment and imitation is positive and significant, which supports H3.[24] In other words, control misalignment, the part of MCS extensiveness that cannot be explained by transaction context characteristics, is significantly and positively associated with the degree to which firms imitate. Specifically, firms that imitate tend to have higher misalignment than those that do not. All in all, this finding suggests that interorganizational imitation may well be an important explanation for observed deviations from the predicted context-control alignment.[25]

5. Discussion and conclusions

This study sheds light on interorganizational imitation influencing MCS decisions in interfirm exchanges and supply chains in particular. The results suggest that governance studies need to consider not only how supply chain relationships can be managed using MCS, but also how these MCS are selected, with imitation evidently playing an important role.

This study contributes to previous accounting literature in several ways. Existing studies on MCS design in the supply chain are predominantly informed by TCE and explain how MCS are installed as a function of the specific transaction context. The focus on transaction attributes alone in explaining MCS decisions, however, may present an incomplete and potentially biased picture of interfirm control (Anderson & Dekker, 2015). Whereas TCE produces insights on the MCS an organization should adopt to achieve

[22] As previously specified, this hypothesis holds that, when transaction risk (as proxied by transaction context characteristics) increases, firms are expected to use controls to a greater extent. Deviating from this prescription represents control misalignment.

[23] To complete the analysis, we also test for imitation with model-based residuals that account for buyer dependence in addition to transaction context similarities (thus after controlling for transaction context similarity and buyer dependence). Note that this alternative specification does not alter our results.

[24] Although the correlation is significantly different from 0, it is also significantly different from 1. This is in line with the fact that the measure of misalignment, based on regression residuals, confounds misalignment with model misspecification (Anderson et al., 2017). In the absence of measurement error, the correlation between misalignment and MCS imitation indicates the portion of misalignment variability associated with imitation. The remaining variation in misalignment might result from alternative sources, or might be due to model misspecification. To mitigate concerns about potential model incompleteness, we ran post hoc models, adding several transaction characteristics in line with prior empirical TCE tests (i.e., asset specificity, transaction frequency). While including these variables improves model fit, regression residuals correlate with imitation in a similar way as reported above.

[25] Untabulated results with our initial three-item imitation measure are comparable in terms of statistical significance and directional signs of the reported correlations based on the residual values. Additionally, when we differentiate in this analysis between cases of low ($n = 63$) and high ($n = 54$) context similarity, we find the correlation between misalignment and imitation to be significant when the transaction context is considered dissimilar ($r = 0.50$, $p < 0.01$), but not when the transaction context is considered similar ($r = 0.15$, $p > 0.10$). This confirms our argument that imitation can be seen as a source of misalignment, especially when firms copy MCS that do not fully match the specific context.

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Table 6
Correlation between control misalignment and imitation.

	Control misalignment
Residual imitation (derived from model 1, Table 4)	0.35***
Residual imitation (derived from model 2, Table 4)	0.36***

Notes: $n = 117$; Pearson correlations between control misalignment and imitation; the latter is measured as the model-based residual accounting for transaction context similarities, and the model-based residual accounting for transaction context similarities *and* buyer dependence, respectively. ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$ (two-tailed).

fit, it does not seem to fully explain the actual observed patterns of MCS use in current business environments, such as supply chains.

Through examining imitation effects, this study advances the TCE literature by revealing novel nuances in the context-control relationship. The connection between interfirm control choices and transaction context has been a long-standing concern of accounting scholars. Context, in general, is "expected to play an important role by restricting managerial choice and working as an efficiency filter shaping the set of practices used by an organization" (Sousa & Voss, 2008, p. 710). However, our framework proposes that other factors or behavioral processes, such as imitation, may constrain the extent to which context determines MCS use.

Another notable implication of our study is the importance of placing dyadic encounters within a larger context. Although our approach departs from the transaction-level analysis common in the TCE literature, we expand our view beyond individual dyads. Consistent with McFarland et al. (2008, p. 74), we submit that dyadic interactions are still worth studying because factors within the dyad may still directly influence the governance and outcomes of the interaction, but examining effects beyond the dyad has revealed more complex phenomena than frequently assumed. Specifically, by considering a triadic network configuration, our study provides empirical support for spill-over effects in the form of MCS imitation in the supply chain.

We further contribute to the literature on interorganizational imitation. Although many studies have examined the processes through which imitation may unfold, there is limited evidence on its implications (see Ordanini et al., 2008). A general tenet in the imitation literature is that, by following others, decision-makers attempt to save costs associated with information searching. One important implication of imitation in the context of MCS design, however, is that it might result in control misalignment. Specifically, while replicating a set of practices with all essential elements presents a reasonable strategy, our results confirm the context-dependent nature of MCS. After all, by investing significant effort in copying a set of control practices exactly, MCS maintain their internal structure, but this does not exclude the possibility of misalignment with the transaction context. We show that, if firms imitate, they might not effectively select MCS that fit underlying transaction conditions, giving rise to control misalignment.

Our study also offers several practical implications. In line with previous studies, we emphasize the importance of alignment among MCS and transaction context for superior performance, and additionally illustrate that MCS imitation should not be a context-independent choice (cf. Csaszar & Siggelkow, 2010). Firms should be aware that every instance of cooperation can be different, and that things may go wrong when imitating practices from other firms without questioning their applicability to one's own context. A better understanding of these imitation effects would help managers use appropriate MCS that are adapted to specific relationship needs.

This study is a first step in developing insights concerning the role of MCS imitation in explaining control misalignment. Several limitations moderate the interpretation and application of the results and suggest directions for further research. In particular, while the unit of analysis is the vertical supply chain consisting of three members, we were constrained in collecting data from buyers only. This is in line with the study's focus on imitation on behalf of the buyer, but obtaining data from all involved parties would provide a more complete view of the transactional relationships. It must also be noted that imitation is a complex phenomenon that can occur for several reasons. To the extent that imitation reflects intentionality, we acknowledge we do not observe the precise motives that drive buyer firms to copy control practices. We therefore encourage future research into the underlying motivations for MCS imitation.

Some of our measures could also be refined. For example, we used single-item measures for the dependence and transaction context similarity variables, which have the potential to be improved. Our main analysis is further limited to three transaction context elements. We recognize that other factors may constitute the transaction context and influence MCS design. Furthermore, considering performance implications, future research could extend the present model with more objective measures of performance as to provide more insight into the costs of misaligned control.

Finally, while we propose imitation as a potential source of misalignment between interfirm controls and transaction context, misalignment may also have other origins. One alternative source advanced in the control literature is varying risk appetites among firms, such that MCS may be intentionally incomplete because of balancing control investments and residual risks (e.g., Anderson et al., 2017). Therefore, a potentially interesting line of research is to examine the extent to which misalignment is associated with imitative behavior and other considerations concerning investment in interfirm controls.

The aforementioned limitations notwithstanding, we believe this study contributes to a better understanding of control misalignment, and we hope it will stimulate further research in this area.

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