

# Does supplier opportunism lead to buyer opportunism? A social capital perspective

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## Abstract

**Purpose** – In light of increasingly tight buyer–supplier relationships, opportunism is a problem of increasing relevance. So far, opportunism has mainly been researched as a detrimental action by suppliers and interpreted with an institutional economics lens. Recent conceptual work, however, has argued more for a behavioral approach to operations management, suggesting benefits of taking a social capital perspective on opportunism. Based on a large empirical sample of buyer–supplier relations, this paper aims to provide an empirical study using social capital as theoretical lens. Further, it analyzes both supplier and buyer opportunism at the same time.

**Design/methodology/approach** – The paper, through following a quantitative approach, considers the interacting dyad of buyer and supplier opportunism, its antecedents as well as its performance implications.

**Findings** – Findings did not support the expectation that supplier opportunism will be countered by buyer opportunism in a single relationship. However, social capital in the form of cognitive and relational capital has been found as a good predictor of opportunism. This study proposes new measures for structural capital. Further the study confirms the detrimental effect of opportunism on performance of the buyer–supplier relationship, highlighting the mediating role of innovation as building block of relational competitive advantage.

**Research limitations/implications** – Previous studies on opportunism in buyer–supplier relations were mostly transaction cost-oriented, thus neglecting the behavioral aspects of exchange processes. Introducing social capital theory revealed to be a rewarding amplification of the perspective. Next, most research up till now was focused on explaining supplier opportunism only. This study contributes by analyzing both sides of the interacting dyad. Finally, this research closes a research gap by not only explaining the occurrence of opportunism but by also testing its performance outcomes. Accordingly, this study contributes to the opportunism literature, social capital theory development and to the management of buyer–supplier relations.

**Practical implications** – Building up cognitive and relational capital is likely to be a tool to reduce the danger of opportunism – both with the partner firm, as well as inside the own organization. As such, firms need to make sure that both forms of social capital are present to a higher extent. If this is not the case, opportunistic actions on both buying and supplying side might occur which have damaging impacts on the generation of innovation as well as the achievement of strategic advantages.

**Originality/value** – While previous studies have focused on explaining supplier opportunism, an analysis of both sides of the interacting dyad between buyer and supplier opportunism is missing. Not only does this research provides further insights with regard to the latter, but further considers the role of social capital as underlying factor explaining both buyer and supplier opportunism. Also, this research answers the call on more research about the relation between opportunism and performance, specifically focusing on innovation and strategic advantage generation.

**Keywords** Performance, Purchasing, Buyer–seller relationships, Opportunism, Social capital theory, Supply management

**Paper type** Research paper

## 1. Introduction: considering buyer and supplier opportunism and its behavioral antecedents

Opportunism, commonly defined as “self-interest seeking with guile” (Williamson, 1985, p. 47) is considered to be inherent to many business relations, because of its embeddedness in human nature, and a central concept in transaction cost economics. This, certainly, does not imply that all parties are opportunistic all the time; they do not necessarily have to be

regarded as opportunistic to the same degree, though even among parties acting less opportunistically, “most have their price” (Williamson, 1979, p. 234). Consequently, understanding and managing opportunism has increasingly gained in importance, following the trend of outsourcing business activities and moving from an integrated manufacturing unit toward a network of specialized actors. Two reasons, which have a substantial impact on opportunism, have played a prominent role fostering this trend: open innovation and the core competence movement.

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In terms of innovation generation, firms moved from closed, intra-firm ways to innovate to open, inter-firm forms of innovation (Chesbrough, 2003; Edquist, 1997). While in 1992 only one-fifth of the most technology-intensive companies were relying heavily on external sources of technology, a panel study revealed the number to have increased to 85 per cent by 2000 (Roberts, 2001). In effect, this means that the common form for firms to innovate nowadays is in the context of buyer–supplier relationships. However, joint buyer–supplier innovation tends to be contingent upon one condition: intensive interaction, embedded in close ties between the firms. These collaborations create dependencies and are thus potentially subject to opportunistic behavior, the “dark side of embedded ties in business-to-business innovation” (Noordhoff *et al.*, 2011, p. 34).

Likewise, the plea for firms to concentrate on their core competencies and outsource the remaining activities reduced firms’ depth of production (Prahalad and Hamel, 1990; Wernerfelt, 1995). As a consequence on the strategic level, firms, in pursuit of a competitive advantage, find it increasingly difficult to achieve advantages through command on superior internal resources and, instead, having to rely on privileged access to external resources, i.e. on suppliers (Hunt and Davis, 2012; Pulles *et al.*, 2014b). Recent supply chain management literature therefore emphasizes the concept of rivalry in supply markets (Ellegaard and Koch, 2012; Ellram *et al.*, 2013) and the need to become a preferred customer of leading suppliers (Schiele *et al.*, 2012).

While suppliers may make hollow promises to get a contract and subsequently act different than expected, the same can hold true for buyers. What is surprising, though, is that, with few exceptions, research on supply chain opportunism focuses on supplier opportunism only. However, depending on environmental surroundings and individual characteristics, sourcing professionals have been found to act opportunistically toward their suppliers (Hawkins *et al.*, 2013). Furthermore, a study with suppliers indicated their perception that depending on the supplier’s commitment, buyers may express more or less opportunistic behavior (Liu *et al.*, 2010). An interesting research question arises:

*RQ1.* Does the perception of supplier opportunism explain the observation of subsequent buyer opportunism (or vice-versa)?

Possibly, a business relationship as such can be characterized as “opportunistic.” Next to the interplay of buyer and supplier opportunism, also understanding the antecedents to opportunism is crucial. Identifying such factors could give an indication of the likelihood that a particular buyer–supplier relation will be affected by opportunistic behavior, either buyer or supplier induced. Identifying such antecedents would yield managerial implications in the form of criteria helping to identify and avoid potentially critical relationships. In an attempt to shed on the antecedents of opportunism, Wang and Yang (2013) conduct a meta-analysis identifying environmental, dyadic process and organization factors, while however not considering a distinction between buyer and supplier opportunism.

Thus, as most research still mainly puts emphasis on understanding the outcomes of opportunism, the causes of

opportunism remain understudied (Kang and Jindal, 2015). As opposed to most previous research, which usually focused on explaining supplier opportunism and in rare occasion’s buyer opportunism, this research analyzes both at the same time. Interestingly, such an analysis of “double moral hazard” has been asked for recently (Steinle *et al.*, 2014, p. 135). Here, through following the buyer perspective, we particularly focus on buyer and perceived supplier opportunism. Thus, a second research questions emerges:

*RQ2.* Are there common antecedents to buyer and supplier opportunism?

To answer this question, our study is taking up the suggestion to use social capital theory as explanatory antecedent to opportunism (Hartmann and Herb, 2014; Kim *et al.*, 2012; Wang *et al.*, 2013). As such, and to be more precise, our paper will test how the dimensions of social capital do affect (or not) opportunism, thus contributing to existing literature verifying first empirical results (Kim *et al.*, 2012; Wang *et al.*, 2013).

Next to this, our paper will further look into the consequences of opportunism within a buyer–supplier relationship. Previous studies have focused on e.g. increased transaction costs (Dahlstrom and Nygaard, 1999) or negative financial performances (Gassenheimer *et al.*, 1996; Nunlee, 2005) as outcomes of opportunistic actions. Also, the effect of opportunism of project performance (Um and Kim, 2018) and relationship performance (Luo *et al.*, 2015) has been examined. The relation between opportunism and firm performance including innovation and the achievement of strategic advantages, however, appears to be understudied. As such, this paper takes up the call for more research on the performance implications of opportunism (Hawkins *et al.*, 2008; Liu *et al.*, 2010), by testing buyer and supplier opportunism’s impact on innovation and strategic advantage generation in business-to-business (B2B) relationships. Hence, a third research question is formulated:

*RQ3.* Do buyer and supplier opportunism affect the firms performance in terms of innovation and strategic advantage generation and, if so, how?

Following these research questions, our paper intends to fill three research gaps:

- 1 While previous studies have mostly examined supplier opportunism and, to a smaller extent, buyer opportunism, they fail to consider both types at the same time. Also, interacting effects between buyer and supplier opportunism have been neglected until now. As such, literature lacks insights into how buyers react when perceiving that their suppliers are acting opportunistically. Thus, the study at hand intends to contribute through filling the research gap by analyzing dyadic relationships between buyer and supplier.
- 2 So far, buyer and supplier opportunism were mainly approached from transaction costs perspective. This is unfortunate, given that behavioral aspects of buyer–supplier relations are left out of the picture. Through taking into account the view point of social capital theory, we aim to acknowledge the exchange mechanisms underlying buyer–supplier relationships. Here, social

capital is examined as antecedent to both buyer and supplier opportunism.

- 3 Our study further intends to contribute through not only examining antecedents to buyer and supplier opportunism but also possible performance outcomes in terms of innovation and the generation of strategic advantages. As providing a deeper understanding about the opportunism-performance relationship been asked for in prior studies, we intend to fill this research gap. Additionally, we further look into the indirect effect that the social capital dimensions can have on the performance outcomes referred to above. As such, the study will further test whether buyer and supplier opportunism might assume a mediating role between social capital as well as innovation and strategic benefits.

The subsequent part of this paper is organized as follows: first, the relevant literature on opportunism and on social capital in the context of buyer–supplier relations is reviewed, so that testable hypotheses can be formulated. In the next section, sampling, measurement construction and analysis of the results of a survey yielding information on 168 business relationships is discussed, including satisfying relationships as well as relationships being considered insufficient from the buyer perspective. As such, to obtain answers to our research questions, we asked participants to distinguish between an excellent performing and disappointing supplier and fill out the survey twice. Finally, implications, conclusions and limitations are acknowledged.

## 2. Theory and hypotheses: opportunism and social capital

### 2.1 Opportunism as impediment to close buyer–supplier collaboration

When referring to opportunism, literature commonly discusses activities including breach of contract, cheating or stealing. Also, dishonesty and the miss-presentation or withholding of information fall under the terminology of opportunism (Anderson, 1988; Wathne and Heide, 2000; Williamson, 1979). Opportunism received great attention as a main attribute in transaction cost economics (Williamson, 1975), in which it was seen as embedded in human nature, leading to vast discussions among scholars. As not every relationship can clearly be characterized by opportunistic actions, the assumption of opportunism resulted in criticism (Conner and Prahalad, 1996; Kogut and Zander, 1996). In fact, for this reason Ghoshal and Moran (1996) even consider transaction cost economics as bad for practice. Yet, as scholars involved in the theory understand most individuals as being “engaged in business-as-usual, with little or no thought to opportunism, most of the time” (Williamson, 1993, p. 98), their position becomes difficult to challenge (Chen *et al.*, 2002). And, as already pointed out earlier, given the right incentive, opportunism cannot be excluded (Williamson, 1979).

Literature makes the distinction between manifold forms of opportunism in buyer–supplier relationships. While some distinguish between strong and weak opportunism (Luo, 2006; Masten, 1988) others refer to “active” and “passive” opportunism (Wathne and Heide, 2000). The difference between strong and weak opportunism lies in the form of its

physical nature. Whereas strong opportunism considers the violation of contractual agreements, weak opportunism includes the violation of relational, commonly understood, norms. Similarly, active opportunism is referred to as actively taking advantage of new circumstances and events, while passive opportunism implies opportunistic action resulting from the refusal to adapt to these new circumstances. Also, blatant and subtle opportunism are identified, with blatant opportunism being an obvious attempt and subtle opportunism an unapparent attempt of acting opportunistically (Muris, 1981). All have in common, though, the assumption that opportunism represents a purely selfish behavior, ignoring the consequences for others actors (Lai *et al.*, 2005).

Why does opportunism occur (or not)? An extensive review of the literature identified five main antecedents attributed to buyer–supplier relations causing opportunism, in order of effect size: goal congruence, communication, cultural sensitivity, norms and dependence (Wang and Yang, 2013). *Goal congruence* refers to the similarity in goals, objectives and targets, actors have concerning a particular project, which has been identified as a primordial success factor in collaborative projects preventing opportunism from developing (Wong *et al.*, 2005). A high level of *communication* has been found to reduce opportunism too, because it creates transparency and supports the formation of common goals (Crosno and Dahlstrom, 2008). In this context, not only direct communication between buyer and supplier plays a role, recent literature further discusses the communication with and through governmental institutions as cause as well as mitigation to opportunistic actions on both buyer and supplier side (Wang *et al.*, 2016; Zeng *et al.*, 2017). *Cultural sensitivity* refers to a globally acting firm’s awareness of and adaptation to host countries’ business culture. The accentuated occurrence of opportunism in global sourcing activities has been found to materialize, presumably because exporters may expect importers to be able to monitor them less intensively than domestic partners (Lee, 1998). Further, *relational norms*, being understood as commonly shared behavior expectations of decision-makers, influencing exchange relationships between firms, are considered having an impact on the degree of opportunism (Heide and John, 1992). As such, through using role integrity and solidarity, relational norms seem to negatively impact the occurrence of opportunism (Brown *et al.*, 2000; Gundlach *et al.*, 2005; Lai *et al.*, 2005). Also, *dependence* plays a role when it comes to the roots of opportunism. It considers situations in which rewards are only available within a buyer–supplier relationship and not outside (Lambe *et al.*, 2001; Thibaut and Kelley, 1959). The link between dependence and opportunism is quite straightforward: actors may feel tempted to explore the situation of dependence of their exchange partner, as the latter may not have the chance to counter-act, precisely for one partner being more dependent on the relationship’s results than the other. In this regard, also a certain asymmetry in terms of size between buying and supplying firm is considered (Villena and Craighead, 2017).

There are also other relevant antecedents, namely, contractual formalization and governance emphasis (corporate strategy) and environmental volatility (Wang and Yang, 2013). Especially the latter, when regarding market volatility, is understood of having an impact on opportunism

(Schilling and Steensma, 2002; Skarmeas *et al.*, 2002). More recently, Yan and Kull (2015) considered the impact of product complexity on opportunism, going beyond influences of the relational context. Yet, as characteristics such as uncertainty cannot fully be avoided in B2B relationships, as they refer to the overall market situation, influencable mechanisms are needed, mitigating the opportunism problem, which is inherent to buyer–supplier relations. Social capital theory might provide such mechanisms.

## 2.2 Classifying business relationships through cognitive, relational and structural social capital

Originating from the science of sociology, social capital is understood as “goodwill available to individuals or groups” (Adler and Kwon, 2002, p. 23). It connects different actors through social relations or social ties (Coleman, 1988; Portes, 1998), allowing them to draw and benefit from the relationship. In this way, social capital also functions as resource that members of the relationship can use for their advantage, while actors outside of it are left without access (Nahapiet and Ghoshal, 1998). Therefore, social capital also accounts for the contextual factors in which resource exchange takes place (Kankanhalli *et al.*, 2005). Conceptually, social capital differs from physical capital in that it is contained in the relations between actors which explains its value and potential for generating competitive advantages, as relations are difficult to imitate. Its character is of public good, but its dependence on close social ties means that its use is potentially exclusionary (Edelman *et al.*, 2004).

Given an increased focus on social capital theory in academia during the past decade (Krause *et al.*, 2007; Lawson *et al.*, 2008; Tsai and Ghoshal, 1998a), research has considered its appearance and function in the interplay of individuals and organizations (Ahuja, 2000; Tsai and Ghoshal, 1998a). Also, it has been applied in the context of supply chain management (Hartmann and Herb, 2014; Horn *et al.*, 2014; Koka and Prescott, 2002; Krause *et al.*, 2007; Lawson *et al.*, 2008). Although recent studies pay attention to the link between social capital and performance (Gelderman *et al.*, 2016; Graca *et al.*, 2015) or supplier satisfaction (Schiele *et al.*, 2015), the role it assumes in the value creation of firms still remains rather unclear (Hughes and Perrons, 2011).

Why would social capital matter for firms and how does it relate to opportunism? Still from a sociological perspective, Portes (1998) highlights three main benefits incurring in the presence of abundant social capital:

- 1 social control;
- 2 family support; and
- 3 benefits through network access.

In a B2B context firms strive for privileges through better access to a network, which is the economic rationale for expecting performance benefits through social capital. In the context of opportunism, however, the first benefit becomes prominent: social control. In the same way as private members do not want to risk the benefits of their relation and therefore accept its inherent rules, it can be assumed that also corporate actors respect rules of conduct to avoid challenging the relationship, in case social capital has developed. As such, the underlying assumption is that in the presence of social capital, actors will

act different and refrain from opportunism. Interesting at this point would then also be the question whether social control can be linked to firm performance through using opportunism as mediator. As examined by Zhu *et al.* (2017), opportunism might indeed mediate the relation between business ties and performance. Though, does this also hold when considering social capital between two firms? (Figure 1).

In the following, testable propositions will be derived, starting by elaborating in more detail on the dimensions of social capital and their assumed influence on opportunism. To build propositions, this research adopts the dimensions of social capital theory as described by Nahapiet and Ghoshal (1998), which have found wide application in a business context and may well develop toward being the standard (Hartmann and Herb, 2014). Nahapiet and Ghoshal suggested that the co-creation and exchange of resources between firms is facilitated when:

- there are structural links or social ties between firms (structural capital);
- firms have a shared vision and interpretations of the relationship (cognitive capital); and
- the firms have a strong relationship built on trust (relational capital) (Nahapiet and Ghoshal, 1998; Tsai and Ghoshal, 1998b; Wasko and Faraj, 2005).

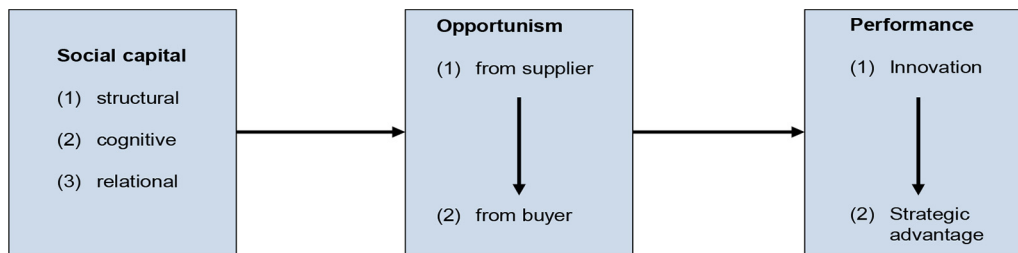
During the last decades, some studies suggested the emergence of relational capital out of cognitive and structural capital (Carey *et al.*, 2011; Lawson *et al.*, 2006). In this paper, we follow the stream of literature that is, also recently, still considering three dimensions of social capital to an equal extent (Schiele *et al.*, 2015; Whipple *et al.*, 2015). Consequently, this paper will test the effect of cognitive, structural and relational capital on opportunism.

## 2.3 Hypotheses: occurrence of opportunism, presence of social capital and its effect on exchange outcome

In principle, both sides of an exchange, buyer and seller, are free to commit opportunism. However, relations in a B2B environment are usually characterized by repeated and intensive interactions, in particular, if goods are bought for serial production. As such, business relationships tend to have a history, which means that participants have a chance to adjust their own behavior over time (Dwyer *et al.*, 1987; Klein *et al.*, 2007). For instance, they may react opportunistically too, in the presence of perceived moral hazard by the partner; though in a complex and nonlinear pattern (Nair *et al.*, 2009).

In line with this, Carter and Stevens conducted experiments on electronic auctions, concluding that supplier perceptions of opportunism by the buyer tended to increase over time, in case of a continuous application of auctions (Carter and Stevens, 2007). Also, based on the notion of the evolving nature of inter-firm relationships, Liu *et al.* (2010) surveyed suppliers on their perception of buyer’s opportunism. They found that depending on a calculative supplier attitude (acting on a strict cost-benefit analysis) or a loyalty-based supplier behavior (continuing a relationship because of allegiance and faithfulness because of similarity in values or familiarity) buyer’s opportunistic reaction varied. Their research indicated that a supplier’s loyalty commitment may help to decrease buyer opportunism. Differently formulated: supplier opportunism (or not) may lead

Figure 1 Basic research model



to buyer opportunism (or not, respectively). In a more recent setting, Trada and Goyal (2017) examine the role that the perception of being treated unfairly plays for firm opportunism. Here, they consider three distinctive forms of unfairness including:

- 1 distributive unfairness, the perception that rewards are distributed unequally;
- 2 procedural unfairness, the perception of unjust decision-making and resource allocation; as well as
- 3 interactional unfairness, the perception of being treated with respect and dignity.

Their findings show that while indeed all three forms significantly influence the rise of opportunism, distributive unfairness has the strongest impact, confirming earlier findings of Zaefarian *et al.* (2016) as well as Crosno and Dahlstrom (2011). Consequently, using these indications for our purpose, buying firms perceiving an unfair or even opportunistic treatment may respond in the same manner.

Thus, based on the notion of an evolutionary character of a business exchange, it can be postulated:

- H1.* If buyers perceive opportunistic behavior by the supplier they will react in a similarly opportunistic way, thus there is a coincidence of supplier and buyer opportunism in an exchange relationship.

Structural social capital refers to links between individuals or organizations, as well as the way and frequency of how they are used (Burt, 1997; Villena *et al.*, 2011). Nahapiet and Ghoshal (1998, p. 244) refer to the “overall pattern of connection between the actors – that is, who you reach and how you reach them.” If actors from diverse functions encounter multiple channels for interaction and frequently use them, high levels of structural capital are present in an exchange relation. Structural social capital facilitates the exchange of resources (Zaheer and Bell, 2005) and the exchange of reliable and diverse information (Koka and Prescott, 2002; Villena *et al.*, 2011). Empirical findings stress the effect of structural capital on “information volume” and “information diversity” (Koka and Prescott, 2002). Enabling access to diverse and non-redundant information, structural capital becomes beneficial for parties in a relationship, whereas its absence complicates the acquisition of important information (Villena *et al.*, 2011). Consequently, a structured flow of information, the reception of information at the right time, and the possibility to validate this information can be beneficial for partnering entities (Chen *et al.*, 2009; Villena *et al.*, 2011). According to Barney (1991), those structural configurations then allow for the usage of valuable

resources which can eventually result in competitive advantages.

Structural capital can have direct and indirect effects on opportunism. The indirect effect refers to structural capital being a condition that allows actors to interact. As such, repeated contacts may directly establish a minimum level of adherence to social norms, whose absence has been found to be an important antecedent of opportunism (Hawkins *et al.*, 2008). Further, direct effects result from the intensive exchange of information which is likely to reduce uncertainty and, importantly, to increase transparency. Transparency, in turn, makes it more difficult for partners to commit opportunism, once there is little hope of it not becoming known (Hartmann and Herb, 2014). In particular, in international relationships, structural capital was found to be an important antecedent to successful relations and might contribute to reducing opportunistic behavior induced by misinterpretations (Horn *et al.*, 2014). Hence, it can be proposed that:

- H2.1* With structural capital present in a buyer–supplier relationship, less opportunistic behavior displayed by buyer/supplier occurs.

Unlike structural capital, the cognitive dimension of social capital is more difficult to grasp as it includes shared interpretations between entities as well as a common understanding of goals, norms and values (Tsai and Ghoshal, 1998a; Uphoff and Wijayaratna, 2000). More precisely: “Common values and shared vision, [are] the major manifestation of the cognitive dimension of social capital” (Tsai and Ghoshal, 1998b, p. 466). Consequently, if in an exchange relationship those factors for all parties involved overlap, a high degree of cognitive capital is present. As an outcome, a consensus on strategic goals or processes will then be an advantage for actors within the relationship (Adler and Kwon, 2002; Atuahene-Gima and Murray, 2007). As postulated by Parkhe (1993), similarities in terms of corporate cultures can facilitate corporate success of buyer–supplier relationships. This might even be more the case when geographic factors come into play, with buyers and suppliers located in the same regional cluster (Pulles and Schiele, 2013).

Considering the antecedents of opportunism, the lack of norms has been promoted. Shared business values can be interpreted as a form of shared norms of conduct. The presence of cognitive capital is, therefore, likely to reduce opportunism. As such, through the possibility of suppressing opportunism, cognitive capital further comprises a means to decrease monitoring costs and enforce commitment (Ouchi, 1980). This goes along with the notion that in the absence of shared visions

and values, expectations toward the relationship may be different, requirements less aligned and room for misinterpretation large (Hartmann and Herb, 2014). All of this, again, has strong implications for opportunistic action. Finally, if actors have achieved goal congruence, which by definition is the case in the presence of cognitive capital, there is no reason left to commit opportunistic behavior (Wang *et al.*, 2013). In fact, goal congruence is further argued to improve the achievement of mutual benefits (Tsai and Ghoshal, 1998a) and thus: why would actors work against their own goals and the possibility of joint returns? Therefore, it seems fair to postulate:

**H2.2** With cognitive capital present in a buyer–supplier relationship, less opportunistic behavior displayed by buyer/supplier occurs.

Finally, the relational dimension of social capital, as already implied by its terminology, focuses on interaction-built relationships that entities have developed between each other (Nahapiet and Ghoshal, 1998). Based on Granovetter and Swedberg's (1992) concept of relational embeddedness, relational capital is expressed by trust, friendship and respect between the partners (Kale *et al.*, 2000), thus being a requirement for effective collaboration. Similar to structural capital, literature suggests a positive effect on resource allocation resulting from the presence of relational capital (Tsai and Ghoshal, 1998a, 1998b; Wasko and Faraj, 2005; Anderson *et al.*, 1987). This is the case as trusted actors are expected to comply with the trustee's wishes (Ridings *et al.*, 2002). Also commitment, being defined as the durable intention to develop and sustain a buyer–supplier relationship in the long term (Anderson and Weitz, 1992) is understood to play a role in forming relational capital (Wasko and Faraj, 2005). It is considered a parties predisposition to remain in the relationship because of positive effect, feeling of unity and emotional attachment (Blonska *et al.*, 2013; Palmatier *et al.*, 2007) and consequently underlined as important attribute of relational capital.

As found in literature, relational capital is argued to reduce the risk of opportunism (Kale *et al.*, 2000). In fact, through built-up trust in a transaction oriented relationship, concerns about opportunistic behavior are fewer and the willingness for behavioral transparency is given (Jarillo, 1988). The main reason for this may be that the presence of trust and respect can increase information flow, both in intensity and quality, thus reducing the risk for opportunism (Hartmann and Herb, 2014). Further, intensive and trusted information exchanges may reduce single-sided dependency, as the relationship deepens and creates more value for both parties with increased costs for a dissolution (Hartmann and Herb, 2014; Wang *et al.*, 2013). Hence, it can be proposed that:

**H2.3** With relational capital present in a buyer–supplier relationship, less opportunistic behavior displayed by buyer/supplier occurs.

The assumed problem of opportunism in a B2B relation, next to its ethic aspect (Hawkins *et al.*, 2013), results from its assumed detrimental effects on the performance of the exchange relation in question. As discussed in the introduction, the trend toward open innovation and the core competence

movement increases the relevance of the opportunism problem in business exchange. Therefore, this study tests opportunism's performance implication for joint innovation efforts and the generation of strategic advantages.

In literature, there have been ample advantages reported on the benefits of early supplier integration and joint innovation in buyer–supplier relations (Johnsen, 2009). Accordingly, buying firms may profit from supplier contribution through increased performance (Bernardes and Zsidisin, 2008; Hausman, 2001; Krause *et al.*, 2007; Nyaga *et al.*, 2010). As such, suppliers can provide resources including ideas and capabilities that might result in advantages for buying firms which would not have been achieved otherwise (Koufteros *et al.*, 2012; Rungsithong *et al.*, 2017). In this way, suppliers are also able to contribute to the generation of innovations. As, however, firms are competing for similar resources in the same supply base, the capability of obtaining better resources from suppliers than competing firms is advantageous (Hunt and Davis, 2008). Consequently, becoming preferred customer of innovative suppliers to gain prime access to these resources can be considered critical (Hüttinger *et al.*, 2012).

Contrasting to the positive effects of supplier involvement, supplier obstructionism has also been a phenomenon observed quite often (Freytag *et al.*, 2012; Primo and Amundson, 2002; Zsidisin and Smith, 2005). One of the assumed reasons for failure of suppliers to contribute to innovation is supplier opportunism. If suppliers perceive opportunistic conduct by the buyer, suppliers become less willing to invest in the relationship, which, however, is necessary in the case of innovation generation (Mooi and Frambach, 2012). Suppliers need to make a choice to which buyers they dedicate their scarce resources, such as laboratory time or project engineers (Ellis *et al.*, 2012; Schiele, 2012). Noticing opportunistic behavior by a particular buyer may induce its suppliers to show preference to their other customers. Considering the particular need for open and honest interaction in case of joint collaboration projects and the competition buyer's face for the commitment of competent suppliers, this paper positions:

**H3.1** Buyer/supplier opportunism reduces the innovation benefits for and with the buyer.

Eventually, firms strive for achieving a competitive advantage compared to their peers. However, the more they are dependent on partners to realize this, the more important it gets to gain privileged access to and full commitment of suppliers. In turn, such as discussed in the introduction, opportunism becomes a factor impeding the generation of a competitive advantage. Lavie (2006) was one of the first authors to understand this link between supplier opportunism and competitive advantages of the focal firm:

[...] the more opportunistic the firms participating in the alliance are, the smaller the potential relational rents *ex ante* will be, since firms that recognize potential opportunistic behavior of partners tend to limit the scope of collaboration and knowledge transfer, which are critical to the creation of relational rents [...]. (Lavie, 2006, p. 646).

If a business exchange is characterized by opportunism, thus, firms may not invest enough resources in this relationship, eventually preventing it from developing its full potential. Therefore, here it is hypothesized:

**H3.2** Buyer/supplier opportunism reduces the chance to generate strategic advantages out of this exchange relationship.

Firms that want to stand out must do or own something unique. This admittedly rough definition for the achievement of a competitive advantage was already captured in the basic resource-based view (Barney, 1991), arguing that firms must own specific resources as a condition for competitive superiority. Later on extended through a far more relational perspective (Dyer and Singh, 1998), not only the resources of the firm were considered but also resource endowment, having access to resources through alliances, was taken into account. In fact, as proposed by Lavie (2006), the value a firm can attain through using internal resources is dependent on complementarities shared with alliance partners. In other words, without networks, partnerships and transactional coordination, the achievement of a competitive advantage is difficult. Accordingly, through inter-firm knowledge sharing and information exchange, alliance partners have the potential to innovate more effectively (Dyer and Singh, 1998; Lavie, 2006). As such, innovative collaboration allows both partners to adapt to and learn about each other's processes (Dyer and Ouchi, 1993). Consequently, new technologies can be accessed or created and new capabilities can be developed (Wynstra et al., 2001). Yet, innovation with partners does not only entail new technologies, it is also of further strategic importance as it provides the chance to commonly map technological trends, allowing companies to match future product needs with technological opportunities (Handfield et al., 1999; Van Echtelt et al., 2008), and thus can lead to a competitive advantage. Therefore, we postulate:

**H3.3** Innovation benefits support the formation of strategic competitive advantages.

### 3. Data collection and analysis

#### 3.1 Sampling: buyer–supplier relationship assessment from the buyer's perspective

To test the postulated hypotheses, a quantitative approach was chosen. Using a survey is considered most appropriate for a study investigating opportunism as it creates a greater social distance between respondent and interviewer, allowing for a higher tendency of receiving honest answers (Loosveldt and Sonck, 2008). In fact, the presence of interviewers may reduce people's perception of privacy and anonymity (de Leeuw, 1992). As respondents might provide inaccurate information out of fear of being judged negatively by the researcher and in case they feel their privacy is being invaded (Knapp and Kirk, 2003), applying survey research is inevitable. Certainly, on the other hand, not even full anonymity might prevent the occurrence of social desirability biases in all cases (Williams et al., 2010). This study is no exception, thus social desirability needs to be considered when evaluating results.

Before sending the survey to the participants, pre-testing with selected purchasers (Forza, 2009) was conducted with the purpose of ensuring that questions are easily understandable and items are measuring what they are supposed to measure. The pre-test resulted in minor adjustments of the final

questions. Invitations to participate in the survey were then distributed among firms exceeding €200m of turnover and belonging to the German manufacturing industry. To ensure generalizability, firms from all sectors were included. Eventually, a sample containing 1,000 different firms was used. Respondents were invited to participate in the survey through an e-mail that contained a link to a homepage with the questionnaire, and eventually 84 usable (complete) questionnaires were received. Considering 401 clicks to the homepage, a response rate of 20.9 per cent is comparable to other studies using online survey instruments (Briggs et al., 2010). The number of clicks can be seen appropriate for calculating the response rate as it clearly indicates the amount of people who actually received the survey information and started filling it through following the link. Compared to using the firms' e-mail addresses as calculation basis, which might include errors, for e.g. reasons of outdated contact information or a lack of participation agreements (Kortmann, 2015), the number of clicks is more accurate. As such, it is often applied in Web survey research (Sauermaun and Roach, 2013). Following the suggestion made by Ulaga and Eggert (2006), who propose to make a distinction between two fundamental dimensions, the respondents assessed an *excellent performing supplier* and a *disappointing supplier*, both of which they had dealt with recently and knew well, and thus filled in the questionnaire twice. Further, they were asked to write down the names of these two suppliers on separate sheets of paper and then answer the questionnaire for both the suppliers. Therefore, the questionnaires from 84 respondents represented data for 168 buyer–supplier relations. To minimize the social desirability bias, in particular concerning the questions on own opportunistic behavior, we maintained the full anonymity of all informants throughout the survey process. To test for non-response bias, we compared the data from early respondents to late respondents, which did not reveal any significant differences (Armstrong and Overton, 1977). Among the respondents, 59.5 per cent were purchasing managers, 34.5 per cent were purchasers and 6 per cent served in other roles, such as supply chain managers with constant contact to suppliers. Comparative *t*-tests showed no significant differences between respondents from purchasing functions and other functions with respect to this study's key variables. The average tenure of the respondents was 8.9 years, indicating a highly knowledgeable set of respondents. Concerning the assessed suppliers on average, the buying firm was purchasing an estimated 2 per cent (1.2 per cent) of the total turnover of this firm, with which a business relation existed for an average of 14 (10.2) years in the case of excellent (disappointing) suppliers.

#### 3.2 Measures: extending existing measures to capture the strategic dimension of a relationship

Multi-item scales were used to operationalize the variables. A five-point Likert scale with end points of "strongly disagree" and "strongly agree" was set up to measure the items. New items had to be developed for the innovation-dependent variable only, assessing not the power of innovation of a supplier *per se*, but in particular the supplier's willingness to offer innovations to this particular buyer. These items concerned whether the buyer was considered preferred customer or innovation partner, whether the supplier

voluntarily shared new ideas with the buyer and whether suggestions for improvements were instantaneously implemented on the supplier side. The basis for the measures was the preferred customer theory (Hüttinger *et al.*, 2014) implying that achieving a preferred customer status of suppliers can grant buying firms preferential access to supplier technology and innovations, as well as the measures of supplier contribution to buyer–supplier innovation that have been used by Pulles *et al.* (2014a).

The measures for structural social capital were taken from Villena *et al.* (2011), using items such as the frequency of interaction as well as multiple connections on diverse hierarchical levels to quantify the variable. As such, the measures refer to communication practices between buyer and supplier, how they are established and how deep they reach. Here it was assumed that e.g. the higher the interaction frequency, the greater is the degree of structural capital that exists. As the measures were developed based on further acknowledged studies in the field, e.g. Tsai and Ghoshal (1998a), the measures use a broad foundation and are considered most feasible for the study at hand.

In terms of cognitive capital, the measures used by Villena *et al.* (2011) as well as Krause *et al.* (2007) were applied, referring to shared cultures, goals and vision between the buying and supplying party. The authors use very specific questions to capture the level of cognitive capital, which are thus considered a means to increase the accuracy and deepness in the current study. To formulate it differently, to answer this question, the purchasers had to assess whether they and their suppliers are on the same line, whether they share common targets to a greater extent or whether the two firms function according to the same business values.

Lastly in terms of social capital measurement, the measures for relational capital were modeled according to Villena *et al.* (2011) as well as Lawson *et al.* (2008). They included the closeness of personal interaction and the existence of mutual respect and trust. Putting it simple, the more trustworthy the purchasers consider their supplier the closer their personal relations are assumed to be and thus the greater the degree of relational capital is.

To measure perceived supplier opportunism we relied on a set of measures for ex-post opportunism which have already been applied by several studies, but originally go back to Jap and Anderson (2003), dealing with the suppliers' reaction to occurring problems such as the effort to introduce improvements or the willingness to accept responsibility. Also, providing false information as well as false accusations is part of the measures. Understandably, the perception of e.g. receiving false information implies a degree of opportunism. Further, the fact that these measures have been used on a greater basis makes it feasible for the study at hand, improving its comparability. When filling in the survey, the purchasers had to refer to past events with suppliers they know well.

The origin of the instrument for the dependent variable “competitive advantage” was again provided by Jap and Anderson (2003). Here we were especially interested to know whether the purchasers consider the relationships with their suppliers as fruitful, whether the relationship could have even resulted in a competitive advantage for both parties. A high value on the measures applied here refers to a high degree of

strategic benefits. The measure for buyer opportunism is based on items used by Blonska *et al.* (2013), which we reformulated to fit not the supplier but the buyer perspective. In particular the purchasers were asked if the supplier's interests are taken into account when making decisions and whether they were treated with honesty.

Further, several control variables were included in the study. The length of the buyer–supplier relationship (in years) was included, following the suggestion of Coulter and Coulter (2002), who argue that with an increasing relationship length, additional information about the supplier can be accumulated, and the asymmetries can be reduced, which may have an influence on opportunism. Finally the cultural distance of the supplier from the buyer, respectively the awareness of cultural sensitivity in terms of business practices, was included, to take into consideration the argument from opportunism research that in particular in cross-cultural settings opportunism may occur (Wang and Yang, 2013). Here it was assumed that culture plays a role for social capital as well as opportunism. The cultural phenomenon of guanxi for example plays a role in the social context when it comes to buyer–supplier collaboration (Luk *et al.*, 2008) as well as when it comes to opportunism and parties, their social ties to hide information and benefit themselves (Leung and Wong, 2001). Except for the single item measures for the control, the entire measurement model consisted of reflective latent variables.

To evaluate the suitability of our measurement model for a subsequent partial least squares (PLS) analysis, here the protocol of analysis proposed by Hair *et al.* (2014) was followed. Thus, several efforts were made to check the reliability and validity of all constructs used for this study. Average variance extracted (AVE), composite reliability (CR) (Fornell and Larcker, 1981; Wetzels *et al.*, 2009b) as well as factor loading (Edwards and Bagozzi, 2000; Hair *et al.*, 2006) were used to evaluate internal consistency and reliability of our constructs, given their reflective nature (Edwards and Bagozzi, 2000).

All values clearly exceeded the required thresholds for CR of 0.7 and an average value extracted of 0.5 (Bagozzi and Yi, 1988; Henseler *et al.*, 2009). Concerning factor loadings, except for one item, all loadings exceeded the threshold value of 0.708. In line with Hulland (1999) and Hair *et al.* (2014), however, the item “buyop\_1” was kept.

Next, the discriminant validity was checked. An indicator's outer loading on a construct should be higher than all its cross loadings with other constructs, which was the case with all items used in this study. A more demanding test for discriminant validity is the Fornell–Larcker criterion (Fornell and Larcker, 1981). Accordingly, latent variables more successfully explain their own indicators' variance, if the AVE of a latent variable is higher than squared correlations between this variable and other latent variables. Table I shows that the square roots of the AVE scores (in italics on the diagonal) are all larger than the cross-correlation scores. The results collectively provide strong evidence of discriminant validity. Further, we applied Harman's one factor test (Podsakoff and Organ, 1986) for assessing common method variance (CMV). As the data used in this research was collected with the help of a questionnaire, CMV could possibly affect the relationships modeled. To complete this test, a component factor analysis



Table I Fornell–Larcker criterion

Latent variables	SC str	SC cog	SC rel	Buyer opp	P. supplier opp	Inno Bf	Strat Bf.	Con culture	Con length
SC structural	0.887								
SC cognitive	0.451	0.900							
SC relational	0.421	0.676	0.867						
Buyer opp	0.198	0.421	0.407	0.765					
P. supplier opp	−0.252	−0.643	−0.674	−0.289	0.838				
Innovation Bf	0.508	0.699	0.635	0.339	−0.513	0.873			
Strategic Bf	0.374	0.688	0.679	0.364	−0.563	0.700	0.833		
Con culture	0.113	0.071	0.065	0.060	−0.045	0.067	0.035	1.000	
Con length	−0.252	−0.283	−0.218	−0.163	0.164	−0.222	−0.224	−0.246	1.000

was performed in which all items were included. Here, the underlying assumption is that CMV would pose a threat, if most of the variance was because of one general factor (Podsakoff and Organ, 1986). In the research at hand, 23.79 per cent was explained by the first factor. PLS itself being also used later for analyzing the data, offers another approach to assess a possible common method bias through introducing the collinearity statistics, or VIF. As examined by Kock (2015), the “occurrence of a VIF greater than 3.3 is proposed as an indication of pathological collinearity, and also an indication that the model may be contaminated by common method bias” (p. 7). Consequently, the model can be considered free of common method bias, if every factor-level VIF, as a result of a full collinearity test, is equal to or lower than 3.3. In our case, all factors were found well below this threshold of 3.3, with the highest VIF having a value of 2.462 (Appendix, Table AIX). Therefore, common method would not pose a threat.

Further, the unmeasured latent methods factor test as described by Podsakoff (2003) was conducted, based on the approach discussed by Liang *et al.* (2007). A CMV factor, or common latent factor (CLF), including all principal constructs indicators was introduced. Subsequently, the degree to which the variance of each indicator was explained by the principal construct, also understood as substantive variance, as well as by the CMV factor was calculated. As shown in Table AIX, the substantive variance averaged around 0.731 while the average method based variance was 0.018, resulting in a ratio of substantive to method based variance of 40:1. Following this result, CMV may not be regarded a concern. Finally, we also followed the CLF approach (Liang *et al.*, 2007) and compared the regression weights of the model including the common factor with the regression weights of the model without common factor (Appendix, Table AXI), using the standardized PLS values. As the difference between both weights did not exceed the threshold of 0.2, a common method bias can be considered unlikely. On the basis of good results for the measurement model following all different methods applied, further analysis testing the hypotheses can be performed.

### 3.3 Analysis: testing the hypotheses with the help of a partial least squares model

To test the hypotheses, partial least squares structural equation modeling (PLS-SEM) was used (Fornell and Cha, 1994). More specifically, we used SmartPLS3 software (Ringle *et al.*, 2005), which is a well-known software package in this field. Its application in marketing as well as operations and supply

literature has become quite widespread and promising for the assessment of success drivers of certain target constructs in recent years (Hair *et al.*, 2011; Peng and Lai, 2012). Yet, arguably, PLS has not been entirely free of criticism; Rönkkö and Evermann (2013) for example, among others, point out that PLS is often used for wrong analytical purposes, does not have the capabilities to estimate smaller sample sizes and incorporates a publication bias for positive results. Though, in an attempt to investigate the critics, Henseler *et al.* (2014) manage to successfully reject them and eventually consider PLS a useful addition to the “statistical toolbox” (p. 202). As such, we proceed with this method. Though, to validate the results, we will apply a multiple regression analysis based on ordinary least squares (OLS) next to it.

Compared to covariance-based structural equation modeling (SEM) techniques, model complexity, as used in our study, does not pose a severe restriction to PLS, as PLS modeling at any moment only estimates a subset of parameters (Wetzels *et al.*, 2009a). Also, through estimating the parameters in the model, PLS is well equipped to prevent constraints of covariance based structural equation models (Bagozzi and Yi, 1989; McDonald *et al.*, 2002). Working through a series of regressions, the sample size requirement for PLS does not differ from regression analysis. For this reason, it is fair to argue that results offered by PLS are robust, even if smaller sample sizes are given. PLS researchers often determine the minimum sample size to be ten times the largest number of structural paths that lead to any endogenous variable (Henseler *et al.*, 2014). Our sample size of 168 well exceeds this minimum requirement. Further, Monte Carlo simulations have revealed PLS to offer more accurate estimates for samples smaller than 250 cases, which fits to our case (Reinartz *et al.*, 2009). As PLS-SEM is generally more favorable with smaller sample sizes and more complex models, we opted for its application in the present analysis. A limitation of PLS is the so-called “PLS-bias,” which refers to this method’s slight overestimation of the measurement model and underestimation of the relationships in the structural model, which has to be taken into account when discussing results (Hair *et al.*, 2014).

The primary evaluation criteria for the structural model in PLS-SEM are the  $R^2$  measures. With all  $R^2$  exceeding 0.20 the predictive validity within the model is high. Hair *et al.* (2011) underline in this context that the judgment of what  $R^2$  level is high depends on the specific research discipline. For instance,  $R^2$  results of 0.20 are considered high in disciplines such as consumer behavior. In that regard, significance is one

aspect of analysis, and the effect size is another often neglected, but highly relevant, issue in what has been termed “customer centric science” (Aguinis *et al.*, 2010). To assess the effect size, we used Cohen’s effect size test, and we report the resulting  $f^2$  below (Cohen, 1988). Bootstrap re-sampling (Nevitt and Hancock, 2001) with replacement using 5,000 rounds was used to assign measures of accuracy to our sample (Figure 2).

H1 referred to the link between buyer and supplier opportunism. Contrary to the expectations, no significant relation was found ( $\beta = 0,08$ ;  $p = n.s.$ ). Apparently, the perception of supplier opportunism did not lead to the same behavior by the buyers. To verify this result and shed more light on the link between buyer and supplier opportunism we further conducted a multi-group analysis (Sarstedt *et al.*, 2011). As such, we split our sample into two groups of which the first one included respondents reporting on a high level of perceived supplier opportunism, while group number two only contained those respondents that did not, or only to a small extent, perceive opportunistic actions from their supplier. Subsequently, the two data groups were loaded into the PLS algorithm to examine whether there is a statistically significant difference between Group 1 and 2. Following our hypothesis, the group experiencing a high degree of supplier opportunism should also respond with a higher degree of buyer opportunism. After re-running the algorithm, results, however, indicate a non-significant difference between both groups; in other words, the degree of reported buyer opportunism was not significantly higher for Group 1 than for Group 2. Ergo, supplier opportunism *per se* does not seem to possess enough explanatory power to give rise to buyer opportunism.

In terms of social capital and its relation to opportunism, most hypotheses find support, one exception being the path from structural capital to buyer opportunism ( $\beta = 0,030$ ;  $p = n.s.$ ). Further, structural social capital was found to be weakly, but significantly related to supplier opportunism ( $\beta = 0,122$ ;  $p < 0.05$ ;  $f^2 = 0.023$ ), however with a different than expected sign. H2.1, thus, does not find support in this sample.

Concerning the interaction effects cognitive social capital was found to have a negative effect on buyer opportunism ( $\beta = -0,306$ ;  $p < 0.01$ ;  $f^2 = 0.056$ ) and likewise on supplier opportunism ( $\beta = -0,369$ ;  $p < 0.01$ ;  $f^2 = 0.152$ ). Both paths are highly significant, lending support for H2.2. H2.3 on the negative effect of relational capital on buyer ( $\beta = -0,266$ ;  $p < 0.05$ ;  $f^2 = 0.033$ ) and on supplier opportunism ( $\beta = -0,478$ ;  $p < 0.001$ ;  $f^2 = 0.244$ ) found support. In particular, the presence of relational capital quite strongly explains the absence of supplier opportunism (and vice-versa).

The expected performance effects of opportunism on innovation found some support, both for their link from the buyer’s perspective ( $\beta = -0.210$ ;  $p < 0.01$ ;  $f^2 = 0.06$ ) as well as from the supplier’s opportunism ( $\beta = -0.452$ ;  $p < 0.001$ ;  $f^2 = 0.270$ ), lending support to H3.1. Results indicate that opportunism has a medium strong effect on innovation performance of the supplier. The expected performance effects of opportunism on strategic advantages (H3.2) found partial support only: while the path from supplier opportunism to strategic benefits is quite significant ( $\beta = -0.251$ ;  $p < 0.001$ ;  $f^2 = 0.096$ ), the direct influence of buyer opportunism on strategic benefits was found to be weak ( $\beta = -0.104$ ;  $p < 0.1$ ;  $f^2 = 0.020$ ). H3.3, finally, was strongly supported ( $\beta = 0.526$ ;  $p < 0.0001$ ;  $f^2 = 0.420$ ). Innovation benefits strongly explain the achievement of strategic benefits, the path not only being highly significant, but also showing a large effect according to Cohen (1992).

To verify the PLS results introduced above we used an additional regression analysis based on OLS using IBM SPSS 23. Not surprisingly, the output did not differ in terms of path significance. The detailed correlations can be found in Table II.

Next to verifying our hypotheses, we also tested for mediation. As such, we checked whether buyer and supplier opportunism might potentially mediate the effect of structural, cognitive and relational capital on innovation benefits and strategic benefits. To do so we performed another bootstrapping analysis using again SmartPLS and examined

Figure 2 Research model – results

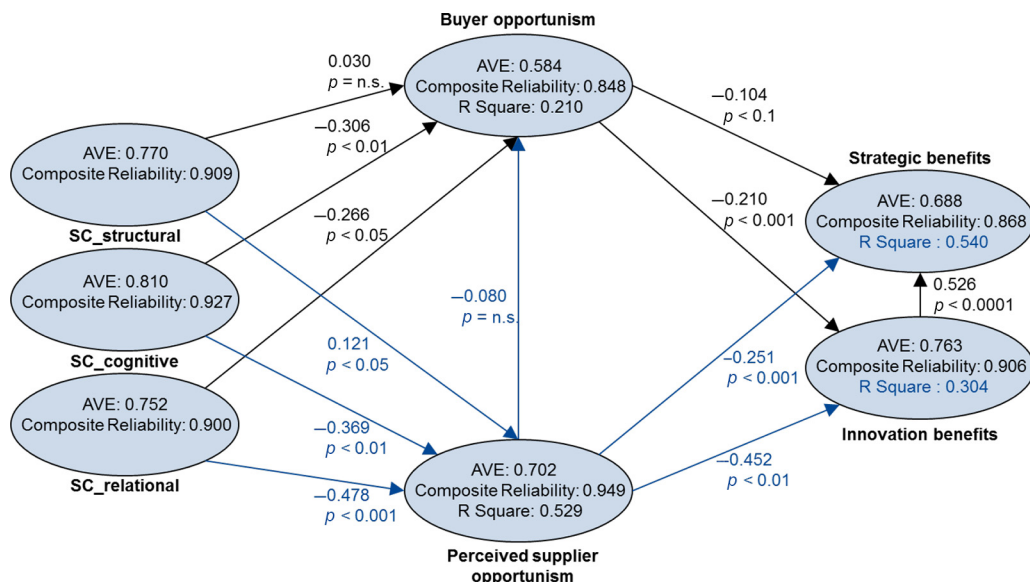


Table II PLS vs SPSS correlations

Paths	PLS calculation		SPSS calculation	
	Beta coefficients	p-value	Beta coefficients	p-value
Structural capital → buyer opportunism	0.030	> 0.1 – n.s.	0.036	> 0.1 – n.s.
Structural capital → p. supplier opportunism	0.121	< 0.05	0.113	< 0.001
Cognitive capital → buyer opportunism	–0.306	< 0.01	–0.315	< 0.005
Cognitive capital → p. supplier opportunism	–0.369	< 0.1	–0.387	< 0.1
Relational capital → buyer opportunism	–0.266	< 0.05	–0.238	< 0.05
Relational capital → p. supplier opportunism	–0.478	< 0.001	–0.451	< 0.001
P. supplier opportunism → buyer opportunism	–0.080	> 0.1 – n.s.	–0.065	> 0.1 – n.s.
Buyer opportunism → strategic benefits	–0.104	< 0.1	–0.107	< 0.05
P. supplier opportunism → strategic benefits	–0.251	< 0.001	–0.237	< 0.001
Buyer opportunism → innovation	–0.210	< 0.001	–0.206	< 0.005
P. supplier opportunism → innovation	–0.452	< 0.01	–0.446	< 0.001
Innovation → strategic benefits	–0.526	< 0.0001	–0.573	< 0.005

the indirect effects within our model. While buyer opportunism did not prove to mediate the relationship between the three social capital dimensions and innovation respectively strategic benefits (with all  $p$ -values > 0.1), the indirect effects through supplier opportunism were all significant (Appendix, Table AXIV). Consequently it is fair to postulate that perceived supplier opportunism is indeed taking a mediating role.

#### 4. Discussion, contribution and limitations: the mediating role of perceived opportunism

This paper departed from three research questions: Is supplier opportunism countered by buyer opportunism? Are there be common antecedents to both, buyer and supplier opportunism? And: Would there be an effect of buyer and supplier opportunism on the generation of innovation and a strategic advantage? To answer these questions, a survey with a sample of buyers was conducted using social capital measures.

Concerning the first question on the coincidence of buyer and supplier opportunism, the data of this survey did not lend support. Apparently, in our sample many cases exist in which only one party acted opportunistically. Still, the fact that in some cases buyers reported to have acted opportunistically themselves is intriguing and has not been found in prior research. With regard to the second research question, with the help of social capital theory a common set of antecedents could be identified, explaining both buyer and supplier opportunism. While structural capital appeared to be less important, the existence (or not) of cognitive and relational capital could be a good predictor of opportunism. As such, while the answer to the question of why buyers act opportunistically cannot be directly linked to the perception of supplier opportunism, underlying factors described by the presence (or absence) of cognitive and relational capital well play a role. Finally, considering the third research question, this study confirmed the detrimental effect opportunism has on the performance of the buyer–supplier relationship in question, highlighting the mediating role suppliers' contribution to joint innovation plays.

This study contributes to research and practice in a variety of ways. Previous studies on opportunism in buyer–supplier relations were mostly transaction cost oriented, thus neglecting

the behavioral aspects of exchange processes. Introducing social capital theory revealed to be a rewarding amplification of the perspective. Next, most research up till now was focused on explaining supplier opportunism only. This study contributes by analyzing both sides of the interacting dyad. Finally, this research closes a research gap by not only explaining the occurrence of opportunism but by also testing its performance outcomes. Accordingly, this study contributes to the opportunism literature, social capital theory development and to the management of buyer–supplier relations particularly in a number of ways:

- 1 A first remarkable result of this study is the non-significance of the relation between supplier and buyer opportunism. Both variables are normally distributed, i.e. the analyzed sample does contain cases of self-reported buyer opportunism, the first finding of its kind. As such, it is rather surprising that also the conduction of a multi-group analysis, distinguishing between two groups reporting on high and low degrees of perceived supplier opportunism, did not provide different insights. Apparently, perceiving opportunistic behavior from their suppliers does not immediately trigger an opportunistic action from the buyer side as response. Thus, the question arises, as to why buyers sometimes (have to) accept apparent opportunism by their suppliers. Effective supplier monopolies could be an answer (Steinle *et al.*, 2014). Another aspect, already mentioned by Williamson comes to mind: sometimes tolerating opportunism may be cheaper than sacrificing the benefits the relation is still generating. Certainly though, this might also be dependent on the actors themselves; being not fully rational, the question arises whether they are able to foresee opportunistic actions and prepared to react upon them? Also, simply perceiving opportunism might not be sufficient to, if anything, justify opportunistic counteractions; buyers might not possess complete and reliable facts strengthening their perception. By itself, this finding adds to a realistic description of the reality of buyer–supplier interaction, which in academic research sometimes appears to be rather collaboration oriented.
- 2 Social capital theory has shown to contribute to understanding opportunism, such as conceptually

suggested by Hartmann and Herb (2014). This has implications for opportunism research asking to extend this line of reasoning, therewith paving a path to close the “behavioral gap” in operations research in general and in opportunism research in particular. This study’s findings support and extend the first empirical results on social capital theory’s contribution to opportunism research (Kim *et al.*, 2012; Wang *et al.*, 2013). Thus, why does a buyer act opportunistically? Based on our findings, not as a reaction to perceived supplier behavior, but because of underlying factors in the relationship with its supplier, which can be described by social capital theory in the form of cognitive and relational social capital. Next to this, our study also contributes through outlining a mediating role that opportunism can play on the relation between social capital and innovation and strategic benefits. Interestingly, however, this mediation effect only holds true for perceived supplier opportunism, whereas the mediating role of buyer opportunism was found to be non-significant.

Apparently buying firms regard their own opportunistic actions as less severe for achieving innovative and strategically important output through the relation with their suppliers. The perception of supplier opportunism on the other hand is considered by buying firms to inhibit or reduce the positive impact of a relationship based on accumulated social capital that has been described by for example Krause *et al.* (2007). This finding can also be set in relation to the results of Zhu *et al.* (2017), arguing that supplier opportunism is taking a mediating role between business ties and firm performance. An explanation for this might be that buyers are more outside focused and put more emphasis on managing their suppliers than assessing the impact of their own actions; as such, once perceiving supplier opportunism throughout the relationship with the supplier, buying firms feel the need to act and observe more carefully, hence limiting possible benefits (Mooi and Frambach, 2012). All in all, and as outlined before, whereas the emergence of opportunistic actions can be described through social capital, opportunism (or in our case perceived supplier opportunism) mediates the relation between social capital and innovation and strategic benefits, thus potentially outlining two sides of the same coin. As such, our findings nicely complement the research of Zhu *et al.* (2017).

- 3 As opposed to Wang *et al.* (2013), in the present sample, structural capital did not reveal to be a good explanatory antecedent to opportunism. A reason for these contradictory findings could be found through taking a closer look at the operationalization of that variable; while Wang *et al.* (2013) focused on the positive aspects of interaction, the measure used in this research more neutrally asked respondents to describe frequency and anatomy of the interaction on different levels and among different functions. On the one hand, there may be cultural issues involved here: while in China (the locus of Wang *et al.*’s study), gifts are still allowed, Europe and, prominently, the USA saw a sharp decline in the acceptance of such business practices. On the other hand, the difference in results may lead to a suggestion, which

extends beyond this particular study and refers to the application of social capital theory in general. In future research, it might be beneficial to split the assessment of structural capital into three variables. Here, an idea that could be tested is to first assess the (1) infrastructure available for actor exchange (institutional chances for interactions, such as regular review gatherings, steering committees as well as physical proximity and the availability of electronic exchange mechanisms). Subsequently, research could proceed through capturing the (2) quantity and intensity of the interaction (similar to the measure used here), and finally advance through evaluating the (3) nature of communication (such as socializing and friendship fostering, such as the Wang *et al.* measures, or, possibly, trouble-fighting or even spiteful communication). Extending the idea of a further differentiation in measuring social capital, it might also be worthwhile to split the assessment of cognitive capital into two variables: shared values/adherence to same norms in general and overlap of common objectives for this particular project/exchange. Such a split could make conceptually sense [for instance, in regional clusters common norms may be more easy to find, which still does not mean that all inter-cluster exchange projects have the same targets (Pulles and Schiele, 2013; Rutten *et al.*, 2010)]. From the perspective of opportunism research, which was shown to be fruitfully linked to social capital theory, a split would then pay tribute to the clear distinction between norms and goal congruence found in opportunism studies (Wang and Yang, 2013). Finally, relational capital could be assessed by measuring trust and commitment separately. This would make particular sense if competitive advantages resulting out of the buyer–supplier relation are to be assessed, which present findings encourage to do. Future research could therefore profit from a refinement of the social capital measures and might consider our suggestions as useful input.

- 4 From a managerial perspective, findings of this study do have a couple of implications. Building up cognitive and relational capital is likely to be a tool to reduce the danger of opportunism – both with the partner firm, as in the own organization. Practically, the importance of cognitive capital, i.e. shared norms, may ask to re-evaluate global sourcing activities. In fact, also from a marketers’ perspective, this would imply that in terms of preventing opportunistic behavior, local sourcing activities might be favored. Marketers would thus have to balance global and local sourcing practices and consider whether e.g. cost advantages, that can come along with global sourcing, are preferred over local sourcing, which might bear fewer risks relating to buyer–supplier opportunism. The importance of shared goals, then, could be addressed by investing substantial time to jointly develop goals, targets and objectives specific to the particular relation, such as exercised during the partnering movement in the 1990s (Macbeth, 1994).
- 5 This study is the first to measure opportunism’s performance impact on strategic benefits and on supplier’s innovation contribution. The newly developed innovation measure proved to be strongly mediating between opportunism and

achievement of competitive advantages. Introducing innovation benefits as variable increased the  $R^2$  of the competitive advantage measure by 0.2 to reach a very high value of 0.54. This has at least three implications: for innovation research, the encouraging relevance of the new measure asks to explore the strategic content of collaborative innovation decisions more thoroughly. For strategic management, these findings indicate that a stronger link to innovation as determinant of competitive advantage may be worth the effort. And for opportunism research, this finding shows the fundamental impact opportunism has on innovation generation, which in the present study, exceeds the direct impact on competitive advantage generation.

Of course the limitations of this study have to be acknowledged as well. For instance, data have been collected just from the buying side and not from the supplying side with a relatively small sample of 84 participants. With regard to the accuracy and objectivity of the result, a dyadic and more extensive research design would have allowed coupling and comparing the answers from two sides. Thus, as the latter was not possible, opportunistic behavior by the supplier is measured here as a perception of the buyer. However, the behavior the supplier displayed might have other causes than selfish intention, for instance incompetence. Also, other reasons for opportunistic behavior could have played a role, such as strong cost pressures or simply a change in persons involved. Findings should therefore be considered as preliminary. Also, the construct of innovation benefits has to be handled with caution; even though we used items which have already been applied by prior studies, the construct itself, partly because of its underlying nature, may not be easily addressed. The items used in this study might therefore not sufficiently cover the scope of the construct, while lacking coherence and face validity. In this regard, future research may either use further items to describe innovation benefits or exchange it with a different concept.

Furthermore, as discussed above, it could be that the traditional measurement of social capital used here is culturally sensitive. Instead of assuming a global transferability of our findings – in countries with distinctively different non-Western cultures – findings should be validated taking cultural differences into account. Based on Wang *et al.*'s (2013) study, China would be a typical candidate for being looked upon carefully. Finally, the existence of a social desirability bias cannot be completely excluded. Even though a maximum degree of anonymity was guaranteed through the usage of an online survey tool, the risk of answering questions in a socially desirable way might still be present to a certain extent. This then could explain the lack of evidence for  $H2$  and could be worth a further analysis to be conducted in the future.

## References

- Adler, P.S. and Kwon, S.-W. (2002), "Social capital: prospects for a new concept", *Academy of Management Review*, Vol. 27 No. 1, pp. 17-40.
- Aguinis, H., Werner, S., Abbott, J., Angert, C., Park, J. and Kohlhausen, D. (2010), "Customer-centric science: reporting significant research results with rigor, relevance, and practical impact in mind", *Organizational Research Methods*, Vol. 13 No. 3, pp. 515-539.
- Ahuja, G. (2000), "Collaboration networks, structural holes, and innovation: a longitudinal study", *Administrative Science Quarterly*, Vol. 45 No. 3, pp. 425-455.
- Anderson, E. (1988), "Transaction costs as determinants of opportunism in integrated and independent sales forces", *Journal of Economic Behavior & Organization*, Vol. 9 No. 3, pp. 247-264.
- Anderson, E. and Weitz, B. (1992), "The use of pledges to build and sustain commitment in distribution channels", *Journal of Marketing Research*, Vol. 29 No. 1, pp. 18-34.
- Anderson, E., Lodish, L.M. and Weitz, B.A. (1987), "Resource allocation behavior in conventional channels", *Journal of Marketing Research*, Vol. 24 No. 1, pp. 85-97.
- Armstrong, J.S. and Overton, T.S. (1977), "Estimating nonresponse bias in mail surveys", *Journal of Marketing Research*, Vol. 14 No. 3, pp. 396-402.
- Atuahene-Gima, K. and Murray, J.Y. (2007), "Exploratory and exploitative learning in new product development: a social capital perspective on new technology ventures in China", *Journal of International Marketing*, Vol. 15 No. 2, pp. 1-29.
- Bagozzi, R.P. and Yi, Y. (1988), "On the evaluation of structural equation models", *Journal of the Academy of Marketing Science*, Vol. 16 No. 1, pp. 74-94.
- Bagozzi, R.P. and Yi, Y. (1989), "On the use of structural equation models in experimental designs", *Journal of Marketing Research*, Vol. 26 No. 3, pp. 271-284.
- Barney, J.B. (1991), "Firm resources and sustained competitive advantage", *Journal of Management*, Vol. 17 No. 1, pp. 99-120.
- Bernardes, E.S. and Zsidisin, G.A. (2008), "An examination of strategic supply management benefits and performance implications", *Journal of Purchasing and Supply Management*, Vol. 14 No. 4, pp. 209-219.
- Blonska, A., Storey, C., Rozemeijer, F., Wetzels, M. and de Ruyter, K. (2013), "Decomposing the effect of supplier development on relationship benefits: the role of relational capital", *Industrial Marketing Management*, Vol. 42 No. 8, pp. 1295-1306.
- Briggs, E., Landry, T.D. and Daugherty, P.J. (2010), "Investigating the influence of velocity performance on satisfaction with third party logistics service", *Industrial Marketing Management*, Vol. 39 No. 4, pp. 640-649.
- Brown, J.R., Dev, C.S. and Lee, D.J. (2000), "Managing marketing channel opportunism: the efficacy of alternative governance mechanisms", *Journal of Marketing*, Vol. 62 No. 2, pp. 51-65.
- Burt, R.S. (1997), "The contingent value of social capital", *Administrative Science Quarterly*, Vol. 42 No. 2, pp. 339-365.
- Carey, S., Lawson, B. and Krause, D.R. (2011), "Social capital configuration, legal bonds and performance in buyer-supplier relationships", *Journal of Operations Management*, Vol. 29 No. 4, pp. 277-288.
- Carter, C.R. and Stevens, C.K. (2007), "Electronic reverse auction configuration and its impact on buyer price and supplier perceptions of opportunism: a laboratory experiment", *Journal of Operations Management*, Vol. 25 No. 5, pp. 1035-1054.

- Chen, Y.S., Lin, M.J.J. and Chang, C.H. (2009), "The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial markets", *Industrial Marketing Management*, Vol. 38 No. 2, pp. 152-158.
- Chen, C.C., Peng, M.W. and Saporito, P.A. (2002), "Individualism, collectivism, and opportunism: a cultural perspective on transaction cost economics", *Journal of Management*, Vol. 28 No. 4, pp. 567-583.
- Chesbrough, H. (2003), *Open Innovation: The New Imperative for Creating and Profiting from Technology*, Harvard Business Press, Boston.
- Cohen, J. (1988), *Statistical Power Analysis for the Behavioral Sciences*, Lawrence Erlbaum, Hillsday, NJ.
- Cohen, J. (1992), "A power primer", *Psychological Bulletin*, Vol. 112 No. 1, pp. 155-159.
- Coleman, J.S. (1988), "Social capital in the creation of human capital", *American Journal of Sociology*, Vol. 94, pp. 95-120.
- Conner, K.R. and Prahalad, C.K. (1996), "A resource-based theory of the firm: knowledge versus opportunism", *Organization Science*, Vol. 7 No. 5, pp. 477-501.
- Coulter, K.S. and Coulter, R.A. (2002), "Determinants of trust in a service provider: the moderating role of length of relationship", *Journal of Services Marketing*, Vol. 16 No. 1, pp. 35-50.
- Crosno, J.L. and Dahlstrom, R. (2008), "A meta-analytic review of opportunism in exchange relationships", *Journal of the Academy of Marketing Science*, Vol. 36 No. 2, pp. 191-201.
- Crosno, J.L. and Dahlstrom, R. (2011), "Fairness heuristics and the fundamental transformation in interorganizational relationships", *Journal of Business-to-Business Marketing*, Vol. 18 No. 4, pp. 313-334.
- Dahlstrom, R. and Nygaard, A. (1999), "An empirical investigation of ex post transaction costs in franchised distribution channels", *Journal of Marketing Research*, Vol. 36 No. 2, pp. 160-170.
- de Leeuw, E.D. (1992), *Data Quality in Mail, Telephone and Face to Face Surveys*, TT-Publicaties, Amsterdam.
- Dwyer, F.R., Schurr, P.H. and Oh, S. (1987), "Developing buyer-seller relationships", *Journal of Marketing*, Vol. 51 No. 2, pp. 11-27.
- Dyer, J.H. and Ouchi, W.G. (1993), "Japanese-Style partnerships: giving companies a competitive edge", *Sloan Management Review*, Vol. 35 No. 1, pp. 51-63.
- Dyer, J.H. and Singh, H. (1998), "The relational view: cooperative strategy and sources of interorganizational competitive advantage", *Academy of Management Review*, Vol. 23 No. 4, pp. 660-679.
- Edelman, L.F., Bresnen, M., Newell, S., Scarbrough, H. and Swan, J. (2004), "The benefits and pitfalls of social capital: empirical evidence from two organizations in the United Kingdom", *British Journal of Management*, Vol. 15 No. S1, pp. S59-S69.
- Edquist, C. (1997), *Systems of Innovation Approaches – Their Emergence and Characteristics*, in Edquist, C. (Ed.), Pinter, London, Washington, DC, pp. 1-35.
- Edwards, J.R. and Bagozzi, R.P. (2000), "On the nature and direction of relationships between constructs and measures", *Psychological Methods*, Vol. 5 No. 2, pp. 155-174.
- Ellegaard, C. and Koch, C. (2012), "The effects of low internal integration between purchasing and operations on suppliers' resource mobilization", *Journal of Purchasing and Supply Management*, Vol. 18 No. 3, pp. 148-158.
- Ellis, S.C., Henke, J.W., Jr. and Kull, T.J. (2012), "The effect of buyer behaviors on preferred customer status and access to supplier technological innovation: an empirical study of supplier perceptions", *Industrial Marketing Management*, Vol. 41 No. 8, pp. 1259-1269.
- Ellram, L.M., Tate, W.L. and Feitzinger, E.G. (2013), "Factor-market rivalry and competition for supply chain resources", *Journal of Supply Chain Management*, Vol. 49 No. 1, pp. 29-46.
- Fornell, C. and Cha, J. (1994), "Partial least squares", *Advanced Methods of Marketing Research*, Vol. 407, pp. 52-78.
- Fornell, C. and Larcker, D.F. (1981), "Evaluating structural equation models with unobservable variables and measurement error", *Journal of Marketing Research*, Vol. 18 No. 1, pp. 39-50.
- Forza, C. (2009), "Surveys", in Karlsson, C. (Ed.), *Researching Operations Management*, Routledge, New York, NY and London, pp. 85-161.
- Freytag, P.V., Clarke, A.H. and Evald, M.R. (2012), "Reconsidering outsourcing solutions", *European Management Journal*, Vol. 30 No. 2, pp. 99-110.
- Ganesan, S. (1994), "Determinants of long-term orientation in buyer-seller relationships", *Journal of Marketing*, Vol. 58 No. 2, pp. 1-19.
- Gassenheimer, J.B., Baucus, D.B. and Baucus, M.S. (1996), "Cooperative arrangements among entrepreneurs: an analysis of opportunism and communication in franchise structures", *Journal of Business Research*, Vol. 36 No. 1, pp. 67-79.
- Gelderman, C.J., Semeijn, J. and Mertschuweit, P.P. (2016), "The impact of social capital and technological uncertainty on strategic performance: the supplier perspective", *Journal of Purchasing and Supply Management*, Vol. 22 No. 3, pp. 225-234.
- Ghoshal, S. and Moran, P. (1996), "Bad for practice: a critique of the transaction cost theory", *Academy of Management Review*, Vol. 21 No. 1, pp. 13-47.
- Graca, S.S., Barry, J.M. and Doney, P.M. (2015), "Performance outcomes of behavioral attributes in buyer-supplier relationships", *Journal of Business & Industrial Marketing*, Vol. 30 No. 7, pp. 805-816.
- Granovetter, M.S. and Swedberg, R. (1992), *The Sociology of Economic Life*, Westview press, Boulder, CO.
- Gundlach, G.T., Achrol, R.S. and Mentzer, J.T. (2005), "The structure of commitment in exchange", *Journal of Marketing*, Vol. 59 No. 1, pp. 78-92.
- Hair, J.F., Ringle, C.M. and Sarstedt, M. (2011), "PLS-SEM: indeed a silver bullet", *Journal of Marketing Theory and Practice*, Vol. 19 No. 2, pp. 139-151.
- Hair, J.F., Anderson, R.E., Tatham, R.L. and Black, W.C. (2006), *Multivariate Data Analysis*, 6th ed., Upper Saddle River, Pearson.
- Hair, J.F., Jr, Hult, G.T.M., Ringle, C. and Sarstedt, M. (2014), *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*, SAGE Publications, Los Angeles.

- Handfield, R.B., Ragatz, G.L., Peterson, K. and Monczka, R.M. (1999), "Involving suppliers in new product development?", *California Management Review*, Vol. 42 No. 1, pp. 59-82.
- Hartmann, E. and Herb, S. (2014), "Opportunism risk in service triads – a social capital perspective", *International Journal of Physical Distribution & Logistics Management*, Vol. 44 No. 3, pp. 242-256.
- Hausman, A. (2001), "Variations in relationship strength and its impact on performance and satisfaction in business relationships", *Journal of Business & Industrial Marketing*, Vol. 16 No. 7, pp. 600-616.
- Hawkins, T.G., Pohlen, T.L. and Prybutok, V.R. (2013), "Buyer opportunism in business-to-business exchange", *Industrial Marketing Management*, Vol. 42 No. 8, pp. 1266-1278.
- Hawkins, T.G., Wittmann, C.M. and Beyerlein, M.M. (2008), "Antecedents and consequences of opportunism in buyer-supplier relations: research synthesis and new frontiers", *Industrial Marketing Management*, Vol. 37 No. 8, pp. 895-909.
- Heide, J.B. and John, G. (1992), "Do norms matter in marketing relationships?", *Journal of Marketing*, Vol. 56 No. 2, pp. 32-44.
- Henseler, J., Ringle, C. and Sinkovics, R. (2009), "The use of partial least squares path modeling in international marketing", *Advances in International Marketing*, Vol. 20, pp. 277-319.
- Henseler, J., Dijkstra, T.K., Sarstedt, M., Ringle, C.M., Diamantopoulos, A., Straub, D.W., Ketchen, D.J., Hair, J.F., Hult, G.T.M. and Calantone, R.J. (2014), "Common beliefs and reality about PLS comments on rönkkö and evermann (2013)", *Organizational Research Methods*, Vol. 17 No. 2, pp. 182-209.
- Horn, P., Scheffler, P. and Schiele, H. (2014), "Internal integration as a pre-condition for external integration in global sourcing: a social capital perspective", *International Journal of Production Economics*, Vol. 153, pp. 54-65.
- Hughes, M. and Perrons, R.K. (2011), "Shaping and re-shaping social capital in buyer-supplier relationships", *Journal of Business Research*, Vol. 64 No. 2, pp. 164-171.
- Hulland, J. (1999), "Use of partial least squares (PLS) in strategic management research: a review of four recent studies", *Strategic Management Journal*, Vol. 20 No. 2, pp. 195-204.
- Hunt, S.D. and Davis, D.F. (2008), "Grounding supply chain management in resource-advantage theory", *The Journal of Supply Chain Management*, Vol. 44 No. 1, pp. 10-21.
- Hunt, S.D. and Davis, D.F. (2012), "Grounding supply chain management in resource-advantage theory: in defense of a resource-based view of the firm", *Journal of Supply Chain Management*, Vol. 48 No. 2, pp. 14-20.
- Hüttinger, L., Schiele, H. and Schröder, D. (2014), "Exploring the antecedents of preferential customer treatment by suppliers: a mixed methods approach", *Supply Chain Management: An International Journal*, Vol. 19 Nos 5/6, pp. 697-721.
- Hüttinger, L., Schiele, H. and Veldman, J. (2012), "The drivers of customer attractiveness, supplier satisfaction and preferred customer status: a literature review", *Industrial Marketing Management*, Vol. 41 No. 8, pp. 1194-1205.
- Jap, S.D. and Anderson, E. (2003), "Safeguarding interorganizational performance and continuity under ex post opportunism", *Management Science*, Vol. 49 No. 12, pp. 1684-1701.
- Jarillo, J.C. (1988), "On strategic networks", *Strategic Management Journal*, Vol. 9 No. 1, pp. 31-41.
- Johnsen, T.E. (2009), "Supplier involvement in new product development and innovation: taking stock and looking to the future", *Journal of Purchasing and Supply Management*, Vol. 15 No. 3, pp. 187-197.
- Kale, P., Singh, H. and Perlmutter, H. (2000), "Learning and protection of proprietary assets in strategic alliances: building relational capital", *Strategic Management Journal*, Vol. 21 No. 3, pp. 217-137.
- Kang, B. and Jindal, R.P. (2015), "Opportunism in buyer-seller relationships: some unexplored antecedents", *Journal of Business Research*, Vol. 68 No. 3, pp. 735-742.
- Kankanhalli, A., Tan, B.C.Y. and Wei, K.-K. (2005), "Contributing knowledge to electronic knowledge repositories: an empirical investigation", *MIS Quarterly*, Vol. 29 No. 1, pp. 113-143.
- Kim, K.K., Umanath, N.S., Kim, J.Y., Ahrens, F. and Kim, B. (2012), "Knowledge complementarity and knowledge exchange in supply channel relationships", *International Journal of Information Management*, Vol. 32 No. 1, pp. 35-49.
- Klein, R., Rai, A. and Straub, D.W. (2007), "Competitive and cooperative positioning in supply chain logistics relationships", *Decision Sciences*, Vol. 38 No. 4, pp. 611-646.
- Knapp, H. and Kirk, S.A. (2003), "Using pencil and paper, internet and touch-tone phones for self-administered surveys: does methodology matter?", *Computers in Human Behavior*, Vol. 19 No. 1, pp. 117-134.
- Kock, N. (2015), "Common method bias in PLS-SEM: a full collinearity assessment approach", *International Journal of e-Collaboration (e-Collaboration)*, Vol. 11 No. 4, pp. 1-10.
- Kogut, B. and Zander, U. (1996), "What firms do? Coordination, identity, and learning", *Organization Science*, Vol. 7 No. 5, pp. 502-518.
- Koka, B.R. and Prescott, J.E. (2002), "Strategic alliances as social capital: a multidimensional view", *Strategic Management Journal*, Vol. 23 No. 9, pp. 795-816.
- Kortmann, S. (2015), "The mediating role of strategic orientations on the relationship between ambidexterity-oriented decisions and innovative ambidexterity", *Journal of Product Innovation Management*, Vol. 32 No. 5, pp. 666-684.
- Koufteros, X., Vickery, S.K. and Dröge, C. (2012), "The effects of strategic supplier selection on buyer competitive performance in matched domains: does supplier integration mediate the relationships?", *Journal of Supply Chain Management*, Vol. 48 No. 2, pp. 93-115.
- Krause, D.R., Handfield, R.B. and Tyler, B.B. (2007), "The relationships between supplier development, commitment, social capital accumulation and performance improvement", *Journal of Operations Management*, Vol. 25 No. 2, pp. 528-545.
- Lai, C.S., Liu, S.S., Yang, C.F., Lin, H.W. and Tsai, H.W. (2005), "Governance mechanisms of opportunism:

- integrating from transaction cost analysis and relational exchange theory”, *Taiwan Academy of Management Journal*, Vol. 5 No. 1, pp. 1-23.
- Lambe, C.J., Wittmann, C.M. and Spekman, R.E. (2001), “Social exchange theory and research on business-to-business relational exchange”, *Journal of Business-to-Business Marketing*, Vol. 8 No. 3, pp. 1-36.
- Lavie, D. (2006), “The competitive advantage of interconnected firms: an extension of the resource-based view”, *Academy of Management Review*, Vol. 31 No. 3, pp. 638-658.
- Lawson, B., Tyler, B.B. and Cousins, P.D. (2006), “Social capital effects on relational performance improvement: an information processing perspective”, *Academy of Management Proceedings*, 10510, Academy of Management, Briarcliff Manor, NY, Vol. 2006 No. 1, pp. E1-E6.
- Lawson, B., Tyler, B.B. and Cousins, P.D. (2008), “Antecedents and consequences of social capital on buyer performance improvement”, *Journal of Operations Management*, Vol. 26 No. 3, pp. 446-460.
- Lee, D.-J. (1998), “Developing international strategic alliances between exporters and importers: the case of Australian exporters”, *International Journal of Research in Marketing*, Vol. 15 No. 4, pp. 335-348.
- Leung, T.K. and Wong, Y.H. (2001), “The ethics and positioning of Guanxi in China”, *Marketing Intelligence & Planning*, Vol. 19 No. 1, pp. 55-64.
- Liang, H., Saraf, N., Hu, Q. and Xue, Y. (2007), “Assimilation of enterprise systems: the effect of institutional pressures and the mediating role of top management”, *MIS Quarterly*, pp. 59-87.
- Liu, Y., Su, C., Li, Y. and Liu, T. (2010), “Managing opportunism in a developing interfirm relationship: the interrelationship of calculative and loyalty commitment”, *Industrial Marketing Management*, Vol. 39 No. 5, pp. 844-852.
- Loosveldt, G. and Sonck, N. (2008), “An evaluation of the weighting procedures for an online access panel survey”, *Survey Research Methods*, Vol. 2 No. 2, pp. 93-105.
- Luk, C.L., Yau, O.H., Sin, L.Y., Alan, C.B., Chow, R.P. and Lee, J.S. (2008), “The effects of social capital and organizational innovativeness in different institutional contexts”, *Journal of International Business Studies*, Vol. 39 No. 4, pp. 589-612.
- Luo, Y. (2006), “Opportunism in inter-firm exchanges in emerging markets [1]”, *Management and Organization Review*, Vol. 2 No. 1, pp. 121-147.
- Luo, Y., Liu, Y., Yang, Q., Maksimov, V. and Hou, J. (2015), “Improving performance and reducing cost in buyer-supplier relationships: the role of justice in curtailing opportunism”, *Journal of Business Research*, Vol. 68 No. 3, pp. 607-615.
- Mcdonald, R.A., Seifert, C.F., Lorenzet, S.J., Givens, S. and Jaccard, J. (2002), “The effectiveness of methods for analyzing multivariate factorial data”, *Organizational Research Methods*, Vol. 5 No. 3, pp. 255-274.
- Macbeth, D.K. (1994), “The role of purchasing in a partnering relationship”, *European Journal of Purchasing & Supply Management*, Vol. 1 No. 1, pp. 19-25.
- Masten, S.E. (1988), “Equity, opportunism, and the design of contractual relations”, *Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift Für Die Gesamte Staatswissenschaft*, Vol. 144 No. 1, pp. 180-195.
- Mooi, E.A. and Frambach, R.T. (2012), “Encouraging innovation in business relationships—a research note”, *Journal of Business Research*, Vol. 65 No. 7, pp. 1025-1030.
- Muris, T. (1981), “Opportunistic behavior and the law of contract”, *Minnesota Law Review*, Vol. 65, p. 521.
- Nahapiet, J. and Ghoshal, S. (1998), “Social capital, intellectual capital, and the organizational advantage”, *Academy of Management Review*, Vol. 23 No. 2, pp. 242-266.
- Nair, A., Narasimhan, R. and Choi, T.Y. (2009), “Supply networks as a complex adaptive system: toward simulation-based theory building on evolutionary decision making”, *Decision Sciences*, Vol. 40 No. 4, pp. 783-815.
- Nevitt, J. and Hancock, G.R. (2001), “Performance of bootstrapping approaches to model test statistics and parameter standard error estimation in structural equation modeling”, *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 8 No. 3, pp. 353-377.
- Noordhoff, C.S., Kyriakopoulos, K., Moorman, C., Pauwels, P. and Dellaert, B.G. (2011), “The bright side and dark side of embedded ties in business-to-business innovation”, *Journal of Marketing*, Vol. 75 No. 5, pp. 34-52.
- Nunlee, M.P. (2005), “The control of intra-channel opportunism through the use of inter-channel communication”, *Industrial Marketing Management*, Vol. 34 No. 5, pp. 515-525.
- Nyaga, G.N., Whipple, J.M. and Lynch, D.F. (2010), “Examining supply chain relationships: do buyer and supplier perspectives on collaborative relationships differ?”, *Journal of Operations Management*, Vol. 28 No. 2, pp. 101-114.
- Ouchi, W.G. (1980), “Markets, bureaucracies, and clans”, *Administrative Science Quarterly*, Vol. 25 No. 1, pp. 129-141.
- Palmatier, R.W., Dant, R.P. and Grewal, D. (2007), “A comparative longitudinal analysis of theoretical perspectives of interorganizational relationship performance”, *Journal of Marketing*, Vol. 71 No. 4, pp. 172-194.
- Parkhe, A. (1993), “Strategic alliance structuring: a game theoretic and transaction cost examination of interfirm cooperation”, *Academy of Management Journal*, Vol. 36 No. 4, pp. 794-829.
- Peng, D.X. and Lai, F. (2012), “Using partial least squares in operations management research: a practical guideline and summary of past research”, *Journal of Operations Management*, Vol. 30 No. 6, pp. 467-480.
- Podsakoff, N. (2003), “Common method biases in behavioral research: a critical review of the literature and recommended remedies”, *Journal of Applied Psychology*, Vol. 88 No. 5, pp. 879-903.
- Podsakoff, P.M. and Organ, D.W. (1986), “Self-reports in organizational research: problems and prospects”, *Journal of Management*, Vol. 12 No. 4, pp. 531.
- Portes, A. (1998), “Social capital: its origins and applications in modern sociology”, *Annual Review of Sociology*, Vol. 24 No. 1, pp. 1-24.
- Prahalad, C.K. and Hamel, G. (1990), “The core competence of the corporation”, *Harvard Business Review*, Vol. 68 No. 3, pp. 79-91.



- Primo, M.A.M. and Amundson, S.D. (2002), “An exploratory study of the effects of supplier relationships on new product development outcomes”, *Journal of Operations Management*, Vol. 20 No. 1, pp. 33-52.
- Pulles, N.J. and Schiele, H. (2013), “Social capital determinants of preferential resource allocation in regional clusters”, *Management Revu*, Vol. 24 No. 2, pp. 96-113.
- Pulles, N.J., Veldman, J. and Schiele, H. (2014a), “Identifying innovative suppliers in business networks: an empirical study”, *Industrial Marketing Management*, Vol. 43 No. 3, pp. 409-418.
- Pulles, N., Veldman, J., Schiele, H. and Sierksma, H. (2014b), “Pressure or pamper? The effects of power and trust dimensions on supplier resource allocation”, *Journal of Supply Chain Management*, Vol. 50 No. 3, pp. 16-36.
- Reinartz, W., Haenlein, M. and Henseler, J. (2009), “An empirical comparison of the efficacy of covariance-based and variance-based SEM”, *International Journal of Research in Marketing*, Vol. 26 No. 4, pp. 332-344.
- Ridings, C.M., Gefen, D. and Arinze, B. (2002), “Some antecedents and effects of trust in virtual communities”, *The Journal of Strategic Information Systems*, Vol. 11 Nos 3/4, pp. 271-295.
- Ringle, C.M. Wende, S. and Will, A. (2005), SmartPLS 2.0 (beta).
- Roberts, E.B. (2001), “Benchmarking global strategic management of technology. Survey of the world’s largest R&D performers reveals, among other trends, a greater reliance upon external sources of technology”, *Research-Technology Management*, Vol. 44 No. 2, pp. 25-36.
- Rönkkö, M. and Evermann, J. (2013), “A critical examination of common beliefs about partial least squares path modeling”, *Organizational Research Methods*, Vol. 16 No. 3, pp. 425-448.
- Rungsithong, R., Meyer, K.E. and Roath, A.S. (2017), “Relational capabilities in Thai buyer-supplier relationships”, *Journal of Business & Industrial Marketing*, Vol. 32 No. 8, pp. 1228-1244.
- Rutten, R., Westlund, H. and Boekema, F. (2010), “The spatial dimension of social capital”, *European Planning Studies*, Vol. 18 No. 6, pp. 863-871.
- Sarstedt, M., Henseler, J. and Ringle, C.M. (2011), “Multigroup analysis in partial least squares (PLS) path modeling: alternative methods and empirical results”, *Measurement and Research Methods in International Marketing*, Emerald Group Publishing, pp. 195-218.
- Saueremann, H. and Roach, M. (2013), “Increasing web survey response rates in innovation research: an experimental study of static and dynamic contact design features”, *Research Policy*, Vol. 42 No. 1, pp. 273-286.
- Schiele, H. (2012), “Assessing supplier innovation by being their preferred customer”, *Research-Technology Management*, Vol. 55 No. 1, pp. 44-50.
- Schiele, H., Calvi, R. and Gibbert, M. (2012), “Customer attractiveness, supplier satisfaction and preferred customer status: introduction, definitions and an overarching framework”, *Industrial Marketing Management*, Vol. 41 No. 8, pp. 1178-1185.
- Schiele, H., Ellis, S.C., Eßig, M., Henke, J.W. and Kull, T.J. (2015), “Managing supplier satisfaction: social capital and resource dependence frameworks”, *Australasian Marketing Journal (AMJ)*, Vol. 23 No. 2, pp. 132-138.
- Schilling, M.A. and Steensma, H.K. (2002), “Disentangling the theories of firm boundaries: a path model and empirical test”, *Organization Science*, Vol. 13 No. 4, pp. 387-401.
- Skarmeas, D., Katsikeas, C.S. and Schlegelmilch, B.B. (2002), “Drivers of commitment and its impact on performance in cross-cultural buyer-seller relationships: the importer’s perspective”, *Journal of International Business Studies*, Vol. 33 No. 4, pp. 757-783.
- Steinle, C., Schiele, H. and Ernst, T. (2014), “Information asymmetries as antecedents of opportunism in buyer-supplier relationships: testing principal-agent theory”, *Journal of Business-to-Business Marketing*, Vol. 21 No. 2, pp. 123-140.
- Thibaut, J.W. and Kelley, H.H. (1959), *The Social Psychology of Groups*, John Wiley, Oxford.
- Trada, S. and Goyal, V. (2017), “The dual effects of perceived unfairness on opportunism in channel relationships”, *Industrial Marketing Management*, Vol. 64, pp. 135-146.
- Tsai, W. and Ghoshal, S. (1998a), “Social capital and value creation: the role of intrafirm networks”, *Academy of Management Journal*, Vol. 41 No. 4, pp. 464-476.
- Tsai, W. and Ghoshal, S. (1998b), “Social capital and value creation: the role of intrafirm networks”, *Academy of Management Journal*, Vol. 41 No. 4, pp. 464-476.
- Uлага, W. and Eggert, A. (2006), “Value-based differentiation in business relationships: gaining and sustaining key supplier status”, *Journal of Marketing*, Vol. 70 No. 1, pp. 119-136.
- Um, K.-H. and Kim, S.-M. (2018), “Collaboration and opportunism as mediators of the relationship between NPD project uncertainty and NPD project performance”, *International Journal of Project Management*, Vol. 36 No. 4, pp. 659-672.
- Uphoff, N. and Wijayarathna, C. (2000), “Demonstrated benefits from social capital: the productivity of farmer organizations in gal oya, Sri Lanka”, *World Development*, Vol. 28 No. 11, pp. 1875-1890.
- Van Echtelt, F.E., Wynstra, F., Van Weele, A.J. and Duysters, G. (2008), “Managing supplier involvement in new product development: a multiple-case study”, *Journal of Product Innovation Management*, Vol. 25 No. 2, pp. 180-201.
- Villena, V.H. and Craighead, C.W. (2017), “On the same page? How asymmetric buyer-supplier relationships affect opportunism and performance”, *Production and Operations Management*, Vol. 26 No. 3, pp. 491-508.
- Villena, V.H., Revilla, E. and Choi, T.Y. (2011), “The dark side of buyer-supplier relationships: a social capital perspective”, *Journal of Operations Management*, Vol. 29 No. 6, pp. 561-576.
- Wang, X. and Yang, Z. (2013), “Inter-firm opportunism: a meta-analytic review and assessment of its antecedents and effect on performance”, *Journal of Business & Industrial Marketing*, Vol. 28 No. 2, pp. 137-146.
- Wang, Q., Li, J.J., Ross, W.T. Jr and Craighead, C.W. (2013), “The interplay of drivers and deterrents of opportunism in buyer-supplier relationships”, *Journal of the Academy of Marketing Science*, Vol. 41 No. 1, pp. 111-131.

- Wang, M., Zhang, Q., Wang, Y. and Sheng, S. (2016), "Governing local supplier opportunism in China: moderating role of institutional forces", *Journal of Operations Management*, Vol. 46, pp. 84-94.
- Wasko, M.M. and Faraj, S. (2005), "Why should I share? Examining social capital and knowledge contribution in electronic networks of practice", *MIS Quarterly*, Vol. 29 No. 1, pp. 35-57.
- Wathne, K.H. and Heide, J.B. (2000), "Opportunism in inter-firm relationships: forms, outcomes, and solutions", *Journal of Marketing Research*, Vol. 33 No. 4, pp. 431-441.
- Wernerfelt, B. (1995), "The resource-based view of the firm: ten years after", *Strategic Management Journal*, Vol. 16 No. 3, pp. 171-174.
- Wetzels, M., Odekerken-Schroder, G. and van Oppen, C. (2009a), "Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration", *MIS Quarterly*, Vol. 33 No. 2, pp. 177-195.
- Wetzels, M., Odekerken-Schroder, G. and Van Oppen, C. (2009b), "Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration", *MIS Quarterly*, Vol. 33 No. 1, pp. 177-195.
- Whipple, J.M., Wiedmer, R. and K. Boyer, K. (2015), "A dyadic investigation of collaborative competence, social capital, and performance in buyer-supplier relationships", *Journal of Supply Chain Management*, Vol. 51 No. 2, pp. 3-21.
- Williams, L.J., Hartman, N. and Cavazotte, F. (2010), "Method variance and marker variables: a review and comprehensive CFA marker technique", *Organizational Research Methods*, Vol. 13 No. 3, pp. 477-514.
- Williamson, O.E. (1975), *Markets and Hierarchies*, Free Press, New York, NY.
- Williamson, O.E. (1979), "Transaction-cost economics: the governance of contractual relations", *The Journal of Law and Economics*, Vol. 22 No. 2, pp. 233-261.
- Williamson, O. (1985), *The Economic Institutions of Capitalism: firms, Markets, Relational Contracting*, The Free Press, New York, NY.
- Williamson, O.E. (1993), "Opportunism and its critics", *Managerial and Decision Economics*, Vol. 14 No. 2, pp. 97-107.
- Wong, A., Tjosvold, D. and Zhang, P. (2005), "Developing relationships in strategic alliances: commitment to quality and cooperative interdependence", *Industrial Marketing Management*, Vol. 34 No. 7, pp. 722-731.
- Wynstra, F., Van Weele, A. and Weggemann, M. (2001), "Managing supplier involvement in product development: three critical issues", *European Management Journal*, Vol. 19 No. 2, pp. 157-167.
- Yan, T. and Kull, T. (2015), "Supplier opportunism in buyer-supplier new product development: a China-US study of antecedents, consequences and cultural/institutional contexts", *Decision Sciences*, Vol. 46 No. 2, pp. 403-445.
- Zaefarian, G., Najafi-Tavani, Z., Henneberg, S.C. and Naudé, P. (2016), "Do supplier perceptions of buyer fairness lead to supplier sales growth?", *Industrial Marketing Management*, Vol. 53, pp. 160-171.
- Zaheer, A. and Bell, G.G. (2005), "Benefiting from network position: firm capabilities, structural holes, and performance", *Strategic Management Journal*, Vol. 26 No. 9, pp. 809-825.
- Zeng, F., Chi, Y., Dong, M.C. and Huang, J. (2017), "The dyadic structure of exchange partners' governing-agency social capital and opportunism in buyer-supplier relationships", *Journal of Business Research*, Vol. 78, pp. 294-302.
- Zhu, W., Su, S. and Shou, Z. (2017), "Social ties and firm performance: the mediating effect of adaptive capability and supplier opportunism", *Journal of Business Research*, Vol. 78, pp. 226-232.
- Zsidisin, G.A. and Smith, M.E. (2005), "Managing supply risk with early supplier involvement: a case study and research propositions", *The Journal of Supply Chain Management*, Vol. 41 No. 4, pp. 44-57.

**Appendix. Measurements**

**Table AI** Measures of cognitive capital

This supplier and my firm share the same business values	Adapted from Krause <i>et al.</i> (2007), AVE = 0.810, CR = 0.927, $\alpha = 0.84$
We often agree on what is in the best interest of the relationship	
We shares our goals for this business	

**Table AII** Measures of relational capital

The relationship with this supplier is characterized by close, personal interaction at multiple levels	Adapted from Lawson <i>et al.</i> (2008), AVE = 0.752, CR = 0.900
The relationship with this supplier is characterized by mutual respect at multiple levels	
The relationship with this supplier is characterized by mutual trust at multiple levels	

**Table AIII** Measures of structural capital

My firm promotes frequent and intensive interaction with personnel of this supplier	Adapted from Villena <i>et al.</i> (2011), AVE = 0.770, CR = 0.909
My firm promotes interaction with this supplier’s personnel across different levels (e.g. managers and engineers)	
My firm promotes interaction with this supplier’s personnel across different functions (e.g. logistics and marketing)	

**Table AIV** Measures of perceived supplier opportunism

When a problem occurs, how often will the supplier do the following? (1 = Hardly ever, 7 = very often)	Adapted from Jap and Anderson (2003), p. 1697, AVE = 0.702, CR = 0.949, $\alpha = 0.90$
The supplier makes hollow promises	
The supplier is aloof toward us	
The supplier “window dresses” his efforts to improve	
The supplier expects us to pay for more than our fair share of the costs to correct the problem	
The supplier is unwilling to accept responsibility	
The supplier makes false accusations	
The supplier provides false information	
The supplier fails to provide proper notification	

**Table AV** Measures of buyer opportunism

The supplier can always count on us following through on our promises	Adapted and adjusted from Blonska <i>et al.</i> (2013), AVE = 0.584, CR = 0.848
When making decisions, we consider the supplier’s interest as well as our own	
The supplier can trust that we keep his best interest in mind	
We are honest with this supplier	

**Table AVI** Measures of strategic benefits

The two parties in the relationship have both gained strategic advantages over their competitors	Adapted from Jap and Anderson (2003), AVE = 0.688, CR = 0.868
The relationship has not resulted in strategic advantages for the two parties (R)	
The two parties in the relationship have gained benefits that enable them to compete more effectively in the market place	
The relationship has not resulted in strategically important outcomes (R)	

Table AVII Measures of innovation benefits

We are preferred innovation partner of the supplier

Based on Pulles *et al.* (2014a, 2014b) and Ganesan (1994) AVE = 0.763, CR = 0.906

The supplier voluntarily approaches us with new ideas and suggestions

Our suggestions for improvements are instantaneously implemented on the supplier side

Table AVIII Item loadings

Items	SC str	SC cog	SC rel	Buyer opp	P supplier opp	Inno benefits	Strat benefits	Con culture	Con length
SC_str_1	0.880								
SC_str_2	0.827								
SC_str_3	0.922								
SC_cog_1		0.851							
SC_cog_2		0.935							
SC_cog_3		0.911							
SC_rel_1			0.737						
SC_rel_2			0.917						
SC_rel_3			0.935						
Buyop_1				0.666					
Buyop_2				0.846					
Buyop_3				0.791					
Buyop_4				0.747					
Supop_1					0.885				
Supop_2					0.861				
Supop_3					0.859				
Supop_4					0.754				
Supop_5					0.849				
Supop_6					0.810				
Supop_7					0.876				
Supop_8					0.800				
Cinno_1						0.882			
Cinno_2						0.879			
Cinno_3						0.859			
Ccomp_1							0.898		
Ccomp_2							0.840		
Ccomp_3							0.834		
Ccomp_4							0.755		
Con_length								1.000	
Con_Culture									1.000

Table AIX Collinearity statistics (VIF)

Latent variables	Buyer opportunism	P. supplier opportunism	Innovation benefits	Strategic benefits
Structural capital	1.330	1.299		
Cognitive capital	2.206	1.917		
Relational capital	2.462	1.976		
Buyer opportunism			1.091	1.154
Supplier opportunism	2.123		1.091	1.385

Table AX Common method variance analysis

Loadings	Construct loading (CL)	CL <sup>2</sup>	Method factor loading (MFL)	MFL <sup>2</sup>
SC_str_1	0.859	0.738	0.038	0.001
SC_str_2	0.857	0.734	-0.029	0.001
SC_str_3	0.917	0.841	-0.011	0.0001
SC_cog_1	1.058	1.119	-0.237	0.056
SC_cog_2	0.834	0.696	0.115	0.013
SC_cog_3	0.822	0.676	0.103	0.011
SC_rel_1	1.019	1.038	-0.297	0.088
SC_rel_2	0.854	0.729	0.060	0.004
SC_rel_3	0.775	0.601	0.179	0.032
Buyop_1	0.788	0.621	-0.110	0.012
Buyop_2	0.757	0.573	0.091	0.008
Buyop_3	0.694	0.482	0.089	0.008
Buyop_4	0.838	0.702	-0.079	0.006
Supop_1	0.766	0.587	-0.135	0.018
Supop_2	0.74	0.548	-0.136	0.018
Supop_3	0.894	0.799	0.041	0.002
Supop_4	0.915	0.837	0.178	0.032
Supop_5	0.731	0.534	-0.135	0.018
Supop_6	1.037	1.075	0.225	0.065
Supop_7	0.939	0.882	0.071	0.005
Supop_8	0.711	0.506	-0.097	0.009
Cinno_1	0.909	0.826	-0.034	0.001
Cinno_2	1.009	1.018	-0.151	0.023
Cinno_3	0.702	0.493	0.186	0.035
Ccomp_1	0.839	0.704	0.066	0.004
Ccomp_2	0.986	0.972	-0.164	0.027
Ccomp_3	0.761	0.579	0.078	0.006
Ccomp_4	0.744	0.554	0.017	0.0001
Average	0.848	0.731	-0.002	0.018

Table AXI Common latent factor approach

Loadings	Construct loading with common factor	Construct loading without common factor	Difference
SC_str_1	0.859	0.878	0.019
SC_str_2	0.857	0.842	0.015
SC_str_3	0.917	0.912	0.005
SC_cog_1	1.058	0.875	0.183
SC_cog_2	0.834	0.933	0.099
SC_cog_3	0.822	0.910	0.088
SC_rel_1	1.019	0.846	0.173
SC_rel_2	0.854	0.933	0.079
SC_rel_3	0.775	0.925	0.15
Buyop_1	0.788	0.735	0.053
Buyop_2	0.757	0.801	0.044
Buyop_3	0.694	0.736	0.042
Buyop_4	0.838	0.800	0.038
Supop_1	0.766	0.881	0.115
Supop_2	0.74	0.855	0.115
Supop_3	0.894	0.859	0.035
Supop_4	0.915	0.764	0.151
Supop_5	0.731	0.846	0.115
Supop_6	1.037	0.849	0.188
Supop_7	0.939	0.879	0.06
Supop_8	0.711	0.794	0.083
Cinno_1	0.909	0.881	0.028
Cinno_2	1.009	0.889	0.12
Cinno_3	0.702	0.850	0.148
Ccomp_1	0.839	0.894	0.055
Ccomp_2	0.986	0.851	0.135
Ccomp_3	0.761	0.824	0.063
Ccomp_4	0.744	0.758	0.014

Table AXII Construct reliability and validity

Latent variable	Cronbach's alpha	rho_A	CR	AVE
SC structural	0.850	0.881	0.909	0.770
SC cognitive	0.882	0.884	0.927	0.810
SC relational	0.834	0.882	0.900	0.752
Buyer opp	0.769	0.793	0.848	0.584
P. supplier opp	0.939	0.945	0.949	0.702
Innovation Bf	0.845	0.847	0.906	0.763
Strategic Bf	0.852	0.863	0.868	0.688
Con culture	1.000	1.000	1.000	1.000
Con length	1.000	1.000	1.000	1.000

Table AXIII Descriptives

Latent variable	Mean	SD	Maximum	Minimum
SC structural	2.821	1.036	5	1
SC cognitive	2.651	0.900	5	1
SC relational	2.536	0.927	5	1
Buyer opp	2.260	0.701	4	1
P. supplier opp	3.845	0.914	5	2
Innovation Bf	2.946	0.973	5	1
Strategic Bf	2.936	0.371	4	2
Con culture	3.434	1.056	5	1
Con length	12.101	8.178	40	1

Table AXIV Mediation effect p. supplier opportunism

Relationship with p. supplier opportunism as mediator	t-value	p-value
Structural capital → p. supplier opportunism → innovation benefits	2.060	0.040 (significant, <0.05)
Cognitive capital → p. supplier opportunism → innovation benefits	4.285	0.000 (significant, <0.001)
Relational capital → p. supplier opportunism → innovation benefits	5.281	0.000 (significant, <0.001)
Structural capital → p. supplier opportunism → strategic benefits	2.074	0.039 (significant, <0.05)
Cognitive capital → p. supplier opportunism → strategic benefits	4.486	0.000 (significant, <0.001)
Relational capital → p. supplier opportunism → strategic benefits	6.070	0.000 (significant, <0.001)

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