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In search for the ideal coopetition partner: an experimental study

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Abstract

Coopetition (collaboration between competitors) has the potential to provide major benefits or losses to participating firms. Entering a partnership with a competitor is a strategic decision with potential long-term consequences rendering the choice of partner of key importance. Existing research has investigated partner's strategic attributes, but not how the inter-organizational factors between coopetiting firms affect partner selection and on which layers those effects occur. We use a vignette study for reducing this gap, representing the first experimental study on the field of coopetition research. The results from our study from 874 evaluations of potential coopetition partnerships by key informants from Austria, Germany, Liechtenstein and Switzerland offer insights into how the possible partner's role, resource alignment and the planned activity affect partner selection. The findings suggest that the partner's role in the markets – i.e. whether it is a direct or an indirect competitor – is critical in partner selection. The planned activity and resource configuration is also found to influence the evaluation of possible coopetition partners. Overall, the results of this first experimental study in coopetition research provide important implications to both theory and practice.

1   Introduction

Research in both management and industrial marketing fields has paid increasing interest to how collaborative ties of firms transcend competitive relationships (Bengtsson & Kock, 2000; Luo, 2004; Luo, 2005; Bouncken et al., 2014; Chiambaretto & Fernandez, 2016; Ritala et al., 2016). In fact, it has been reported that even a half of inter-firm partnerships occur between competitors (Harbison & Pekar, 1998). "Coopetition", the simultaneous competition and collaboration between rival firms operating in the same markets (Bengtsson & Kock, 2000; Gnyawali & Park, 2011), has emerged as a research stream that studies such coopetition. Coopetition integrates competitive and collaborative logics, thus differentiating it from other types of inter-firm collaboration (Levy et al., 2003). In coopetition, competing market players align activities for common goals while they compete with other players and each other (Zineldin, 2004). Despite the increasing number of studies, the field is still regarded to be in its infancy (Bengtsson & Kock, 2014; Bouncken et al., 2015).

One of the visible gaps in knowledge in the area of coopetition is that of partner selection for coopetitions. This is surprising as partner selection is commonly accepted as one of the most influential success factors of inter-firm alliances (Geringer, 1991; Mariani, 2007; Shah & Swaminathan, 2008; Solesvik & Westhead, 2010). Cummings and Holmberg, 2012 attribute partner criteria as a critical success factor, arguing that an unfit initial partner selection can lead to detrimental alliance outcomes, even if alliance management capabilities would be sufficient. Given the rivalry between alliance partners, the partner selection certainly a challenge in coopetition. For instance, Dussauge & Garrette (1997) discuss how the strategic alliance between automotive rival firms Honda and Rover ended up by the acquisition of the latter. Furthermore, Ritala & Tidström (2014) describe a case of alliance network between four manufacturing firms where the some of the initial aims set for coopetition ended up in failure due to lack of partner commitment.

Only four empirical papers have examined the criteria and process of coopetition investigating the effect of personal relationships (Alves & Meneses, 2015), the competitors size, scope and market position (Cygler & Dębkowska, 2015; Zakrzewska-Bielawska, 2015), and coopetitive tendencies (Akdoğan et al., 2015) on partner selection. It remains unclear how relational issues between the firms (trust, interaction intensity, joint experiences etc.), their resource similarity and coopetition activity influence partner selection.

Bengtsson et al. (2003) place the actors, resources and activities as three layers of a coopetition relationship (the scholars' argumentation is based on previous work by Håkansson & Snehota, 1995). We adopt this framing of three layers of key relational factors, and put forward the following research question: *"How do structural features of coopetition relationship levels influence trust, complementary perception and attractiveness at the coopetition partner selection stage?"*

In this very first experimental study in coopetition research, we apply a so-called *vignette experiment*, enabling the investigation of causal relationships and overcoming limitations of previous research endeavors on this topic. Introducing a new type of methodology in the field of coopetition – challenging relational context due to its sensitivity – this study contributes to both theory and practice in providing evidence of how coopetition partners are selected. Coopetition researchers have frequently made use of case studies, interviews and more recently also quantitative methodologies (e.g., Gast et al., 2015). However, surveys and interviews often involve post hoc data collection requiring respondents to remember and articulate past evaluations and decisions, which may result in recall bias and revisionism (Golden, 1992). Due to the emerging maturity of the research stream, we believe that experimental methods increase understanding and the body of knowledge in terms of causal relationships, particularly to understand the relational partner selection criteria in coopetition.

2 Literature Review

2.1 Coopetition

In the competitive paradigm, firms aim at outperforming other players in the market to maximize their interest at the expense of others (Bengtsson & Kock, 2000; for the competitive paradigm, see Porter, 1990; 1990). The cooperative paradigm, on the other hand, is based on the common targets that exist among firms, with companies collaborating in their actions instead of pursuing them by themselves (Padula & Dagnino, 2007). Even though both concepts have power in describing relationships between firms, they cannot fully explain all inter-firm relationships (Bengtsson et al., 2010; Padula & Dagnino, 2007). Therefore, a third paradigm of coopetition has emerged, where firms not only collaborate or compete with certain stakeholders, but engage into these activities simultaneously (Ritala, 2012). This type of multi-paradigm approach – at best – allows to combine the virtues of both competition and collaboration, while avoiding the downsides (Lado et al., 1997; Clarke-Hill et al., 2003). However, coopetition paradigm also creates a persistent paradox between competitive and collaborative tensions that persist over time and require management attention (Gnyawali et al., 2016).

Coopetition is based on the expectations of the involved players. Over time, the relationship among coopetiting frequently changes due to the change in expectations and behavior. The experience of the involved firms change, since either the firms learn or the external environment changes (Dahl, 2014). The contractual or relationship dimensions of coopetition governance can and maybe shall not control for this (Bouncken et al., 2016). Partners might reduce their input into the relationships due to decreasing

interest or even a change from a cooperative to a competitive attitude (Bouncken et al., 2017, Ritala & Tidström, 2014). It is necessary to pay attention to each firm's coopetition intentions. This is especially relevant in the partner selection phase, when relational investments have not been made yet, and each partner has a larger range of strategic options.

2.2   Criteria for Partner Selection in Coopetition

A firm's selection of an appropriate strategic alliance partner is a critical decision (e.g., Geringer, 1991; Hitt et al., 1995; Shah & Swaminathan, 2008; Solesvik & Westhead, 2010) or even the most important step in creating successful partnerships (Chen & Tseng, 2005; Elmuti & Kathawala, 2001). Partner selection in alliances is based on a specific set of criteria, from which many can be derived from the firms' needs (Dacin et al., 1997; Hitt et al., 2000). Geringer (1991) classified the task-related and the partner-related criteria for alliance formation. Later, Cummings and Holmberg, 2012 suggested two more categories: learning-related and risk-related criteria.

The *task-related criteria* refer to the operational resources and skills that are prerequisites for the success of a partnership. These include products or skills, technology capabilities, reputation and market access (Alves & Meneses, 2015). Both homogeneous (similar) and heterogeneous (complementary) resources are considered among the most important criterions in coopetition partner selection. Similarity in technological and market resource endowments among firms in coopetition provide them the necessary pre-understanding for joint value creation (e.g., Gnyawali & Park, 2009; Ritala & Hurmelinna-Laukkanen, 2013). On the other hand, coopetition strategy is often based on leveraging complementary resources (Garraffo & Rocco, 2009; Bengtsson et al., 2003; Dorn et al., 2016; Tomski, 2011). In fact, task-related factors such as complementary products, are further found to influence partner selection (Alves & Meneses, 2015), as well as the type of activities the coopetition is aiming to contribute to (Cygler & Dębkowska, 2015).

The *partner-related criteria* play a role in the cooperation's efficiency, and effectiveness. They include compatible goals, trust, commitment and appropriate risk (Alves & Meneses, 2015) and are linked to the difference between a partnership with a direct or indirect competitor. The decision-makers' personal relationships and attitude toward other companies is important. The most important criterion in coopetition partner selection is trust (Akdoğan et al., 2015), which is an important basis to establish a partnership between competitors (e.g., Baruch & Lin, 2012; Gnyawali et al., 2006). For instance, trust can improve the social interaction between the partners (Brolos, 2009), substitute formal agreements (Bouncken & Fredrich, 2012; Bouncken et al., 2016) and reduce possible opportunism. In terms of the location of the partner, firms which operate in the domestic market search for coopetition with firms located in the same home market, more globalized companies tend to favor coopetition with foreign firms (Zakrzewska-Bielawska, 2015). Also, the organization's growth stage influences the partner selection, as more advanced firms tend to have more collaborations with competitors and the larger a firm is, the less it participates in dyadic coopetition (Zakrzewska-Bielawska, 2015).

The *learning-related criteria* consist of those characteristics that enable learning and knowledge transfer. Due to the coopetition partners' similarities in resources and markets, coopetition offers valuable opportunities to transfer knowledge (Bouncken & Fredrich, 2016). This process of transferring knowledge and building explicit knowledge, has been coined as "inlearning" in coopetition literature (Bouncken & Kraus, 2013), and this type of knowledge acquisition in coopetition has been linked to focal firm innovativeness (Ritala & Hurmelinna-Laukkanen, 2013). Indeed, acquired knowledge from

coopetition can increase a firms bargaining power (Gnyawali & Park, 2009) and positively influence innovativeness (see, Gast et al., 2015). The learning-related criteria in coopetition partner selection have so far only been studied by Alves and Meneses (2015), who found that the partners' technology and the complementary dimension have a rather minor role in partner selection.

The *risk-related criteria* arise from the actors' interdependence and describe the risks associated with the performance, relationship and the environment (Cummings & Holmberg, 2012). They include coordination, communication, alliance-value measurement, customer relationships or possible competition and for coopetition, specifically opportunism and knowledge leakage. Trust between partners is frequently used as a mechanism to minimize uncertainty in the coopetition process (Solesvik & Westhead, 2010). Risks are reduced by trust gained through prior and personal relationships. Prior successful associations, personal ties and communication convenience reduce perceived risks in coopetition partner selection (Alves & Meneses, 2015). Furthermore, firms prefer larger partners in coopetition, associating them with lower risk (Zakrzewska-Bielawska, 2015).

3   Hypotheses development

3.1   Research Model

Bengtsson and Kock (2000) as well as Bengtsson et al. (2003) describe inter-firm relationships along three layers: the actor, the activity and the resources. The actor layer describes the firm's roles in the interaction with others, such as the role of a competitor, cooperative partner, buyer, supplier or complementor. The activity layer describes the processes and exchanges, which can vary with the partner. The resource layer explains the resource possession of the partners and their similarity or dissimilarity. This three layer framing allows for an understanding of coopetition in more depth and also for the multifaceted firms' relations and patterns (Bengtsson & Kock, 2014). The three-layer framing enables the inclusion of the parallel logics of cooperation and competition, and accounts for the various roles and facets of the effects among them and the specific aspects of each layer, such as differentiation between vertical (actors from different value chain stages) and horizontal coopetition (actors on the same value chain stage). Therefore, given their applicability to our research aim, we adopt these three layers (actor, activity, resource) as the framework for developing the hypotheses for partner selection in coopetition.

3.2   Actors in Coopetition

Brandenburger and Nalebuff, 1996 propose roles of actors in the value network as being the competitors, complementors, customers, and suppliers (Rusko, 2011). From this perspective, coopetition might entail relationships between both *direct* and *indirect* competitors. Direct competitors offer the same products or services for the same market, which forces the companies into strong competition. Indirect competitors offer different products or services that satisfy the same needs (e.g., airlines and railway companies offer different services, but both meet the need for transportation). Direct and indirect coopetition have been documented in the literature (see e.g. Gnyawali & Park, 2011 for a case of coopetition between the direct rivals Sony and Samsung, between vertical and horizontal coopetitiors pursuing innovation, Bouncken & Fredrich, 2016; or Ritala et al., 2014 for coopetition between Amazon.com and other consumer industry firms).

In the mainstream alliance literature, it has been suggested that alliances with direct competitors are not promising (Gimeno, 2004), and that a higher rate of geographical overlap was found to decrease alliance success rate (Bleeke & Ernst, 1990), and that alliances of direct competitors more likely fail (Park & Russo, 1996). Rivalry between competitors also increases alliance dissolution (Kogut, 1989). Some of the logic behind this are the classical risks in coopetition, such as a lack of goal alignment, the incentives for opportunistic behavior (Baumard, 2009; Bouncken & Kraus, 2013; Levy et al., 2003) and uncontrolled information and knowledge leakage (e.g., Walley, 2007). In particular, opportunistic behavior might be more likely and more detrimental in the case of a direct competitor than for an indirect competitor (Ritala, 2009). Thus, indirect competitors are (at least perceived as) more attractive and more trustworthy than direct competitors. Furthermore, indirect competitors might sometimes take over the role of a complementor, adding value to a firm's products/services (Brandenburger & Nalebuff, 1996) and are therefore perceived to be more complementary. Direct competitors, on the other hand, are perceived as being less complementary and rather as substitutes. Therefore, the following hypotheses are constructed:

> *Hypothesis 1a: In the coopetition alliance formation, indirect competitors are more attractive than direct competitors.*

Direct competitors, especially in horizontal coopetition are likely to have similar market understanding and similar targets (Bouncken & Fredrich, 2016). Thus the risk of opportunism and appropriating a relatively large share of the value are high. Instead indirect competitors will target different markets and have dissimilar areas from which they appropriate value. Opportunism risk are lesser among indirect competitors and trust more likely.

> *Hypothesis 1b: In the coopetition alliance formation, indirect competitors are more trusted than direct competitors.*

The direct competitors of horizontal coopetition target the same market, often with similar product concepts and with similar structures (Bouncken et al., 2017). The greater overlap eases understanding and comes with similar resources. Resources can easily be combined, often in economy by scale advantages. Yet, the similarity provides less diversity which firms might leverage. Thus the greater overlap allows easy combinations of resources but provides less potentials for complementarity.

> *Hypothesis 1c: In the coopetition alliance formation, indirect competitors are perceived as more complementary than direct competitors.*

3.3 Resources in Coopetition

Resources and their integration is a key motivation behind any alliance, and the same holds for coopetition relationships. For instance, Bonel and Rocco, 2007 define coopetition as a relationship where two or more parties are able to add value by complementing their resources and activities. As a task-related criteria, resources also explain why and how competitors perform an activity either towards cooperation or competition (Bengtsson et al., 2003; Dorn et al., 2016). Coopetitive relationships among firms with similar resources enable the achievement of economies of scale (Dussauge et al., 2000), but a more common motivation is to access heterogeneous, complementary resources (Bengtsson et al., 2003; Tomski, 2011; Zakrzewska-Bielawska, 2013), which enables more potential "inlearning" for all involved parties (Bouncken & Kraus, 2013). Complementary resources allow for a shared and widened pool of resources, with which coopetitors have the ability to create a competitive advantage over third party competitors (Dyer & Singh, 1998; Ganguli, 2007; Luo, 2007; Rusko, 2011; Walley, 2007). If the

heterogeneous resources are perceived as complementary to an actor aspiring to engage in coopetition, these resources are likely to be a driver of trust, as both partners benefit from the others' resources and share interest in the coopetition relationship. Based on these arguments, the following hypotheses are formed:

Hypothesis 2a: In the coopetition alliance formation, partners with dissimilar/heterogeneous resources are more attractive than those with similar/homogeneous resources.

As stated before, similar resource endowments, market understanding, and similar targets between firms eases the fruitful absorption of assets and proprietary knowledge (Bouncken & Fredrich, 2016). Thus the risk of opportunism are great and firms will feel that trust can easily be exploited and damaged.

Hypothesis 2b: In the coopetition alliance formation, partners with dissimilar/heterogeneous resources are more trusted than those with similar/homogeneous resources.

As stated before similarity among manufacturers in horizontal coopetition, provides less diversity in resources, market knowledge, and products because of their overlapping structures, processes, and knowledge. Firms find more similarity but less diversity which firms might leverage. Thus the greater overlap allows easy combinations of resources but provides less potentials for complementarity.

Hypothesis 2c: In the coopetition alliance formation, partners with dissimilar/heterogeneous resources are perceived as more complementary than those with similar/homogeneous resources.

3.4   Activities in Coopetition

Coopetition has several different patterns of interaction (or activities) among the involved firms and can be understood as task-related criteria (see chapter 2.2). Firms can cooperate in one activity while competing in another (e.g., Bengtsson & Kock, 2000; Gast et al., 2015). For example, a coopetitive relationship can be formed to develop a new product, while firms later compete for the market shares of the same product (Bagshaw & Bagshaw, 2001; Laine, 2002; Nalebuff & Brandenburger, 1997; Wilkinson & Young, 2002). Competition is suggested as more suitable and typical for downstream and cooperation for the upstream activities (e.g., Bengtsson & Kock, 2000; Rusko, 2011; Walley, 2007). Downstream activities (or output activities, e.g. sales and marketing) are activities close to the customer, upstream activities (or input activities, e.g. procurement, production, R&D) are far from the customer. Supporting the larger benefits of upstream activities, a recent study found that the outcome in coopetition relationships was perceived to be more positive in activities far from the customer than with activities close to the customer (Lindström & Polsa, 2016). This might be related to risk perceptions in that downstream activities have more exposure to the customer and are therefore exposed to rivalrous tensions. Additionally, in the case of coopetition activity that is the far from customer, the efficiency can be increased, for example, due to the shared risks and costs of R&D and manufacturing (e.g., Gnyawali & Park, 2009; 2011; Luo, 2007; Osarenkhoe, 2010; Walley, 2007) and the increased bargaining power towards suppliers (e.g., Ritala et al., 2014). Thus, these types of activities in particular could be perceived as more complementary. Based on these arguments, the following hypotheses are constructed:

Hypothesis 3a: In the coopetition alliance formation, collaboration on activities far from the customer are perceived more attractive than collaboration on activities close to the customer.

As stated before, direct competitors as in horizontal coopetition are likely to have similar market understanding and similar targets which also allows an easy and fruitful absorption of knowledge that can be integrated into new products (Bouncken & Fredrich, 2016). Thus the risk of opportunism associated with appropriating the value generated and appropriating values from knowledge absorption are high among firms that are coopetiting near the customer. Instead indirect competitors will target different markets and have dissimilar areas from which they appropriate value. Opportunism risk are lesser among indirect competitors and trust more likely.

> *Hypothesis 3b: In the coopetition alliance formation, collaboration on activities far from the customer are more strongly associated with trust than those having a greater association with the customer.*

The similarity among manufacturers in horizontal coopetition, provides less diversity because of their overlapping structures, processes, and knowledge. Firms find more similarity but less diversity which firms might leverage. Thus the greater overlap allows easy combinations of resources but provides less potentials for complementarity.

> *Hypothesis 3c: In the coopetition alliance formation, collaboration on activities far from the customer is perceived as more complementary than collaboration on activities close to the customer.*

4   Methods

4.1   Experimental Vignette Study

In order to provide new insights, we used a vignette experiment, also known as the "factorial survey approach" to test the forwarded hypotheses (Rossi & Anderson, 1982). The vignette experiment uses the vignette as a short description of a person or a situation that contains relevant information. It is presented to respondents to make explicit decisions, judgments and choices or to express behavioral preferences by rating a specified outcome variable. Statistical techniques retrieve the equation implicitly used by each respondent in assigning the level of the outcome variable to each vignette. This type of experimental vignette methodology (EVM) is commonly used in fields such as business ethics (e.g., e.g., Alexander & Becker, 1978; Hyman & Steiner, 1996) and recommended for an increased application in the research of strategic management, organizational behavior and entrepreneurship (Aguinis & Bradley, 2014; Kraus et al., 2016), among other areas.

It has several advantages: (1) it presents more lifelike scenarios to respondents, which can help to increase the generalizability of results, (2) it enables controlled studies of mental processes that would be difficult or impossible to study through observation or classical experiments, (3) it allows for the study of complex issues, (4) it reveals hidden problems of meanings that respondents and interviewers may be unaware of, and (5) it discloses participants' less-than-complete reporting of sensitive facts (Aguinis & Bradley, 2014; Finch, 1987; Martin, 2004).

4.2   Scenario

Scenario Development

The airline industry was chosen as the ideal industry for the scenario, as it includes alliances, intensive competition, and coopetition. The airline industry has strong networks and the actors are relatively easy

distinguishable into the Brandenburger and Nalebuff, 1996 value net. An example for such an airline coopetition would be KLM Royal Dutch Airlines, which purchased 20% of the American airline Northwest in 1989. By obtaining anti-trust immunity and their large and international alliance, both carriers gained unrestricted access to their respective countries. In 1994, the companies introduced the World Business Class initiative together and a series of joint marketing programs. Additionally, code-sharing enabled the airlines to increase efficiency and grow rapidly. Another example is the European Quality Alliance, which was formed in 1989 by Air France, Scandinavian Airlines System (SAS) and Swissair. The airlines coordinated their flights, aircraft acquisitions as well as fleet maintenance. Through flight coordination and the relocation of their gates to the same terminal, the airlines facilitated passenger connections within the network. The joint purchasing of aircrafts and parts increased bargaining power and thus created a competitive advantage over competitors. As a result, passenger numbers increased and operating costs decreased (for an overview and further examples of coopetition in the airline industry, see Czakon & Dana, 2013).

We developed hypothetical scenarios and vignettes avoiding unrealistic scenarios due to the orthogonal design of the variables (Atzmüller & Steiner, 2010). Eight scenarios are required in the 2×2×2 full factorial design, and only the vignettes were altered between the scenarios. All scenarios were checked for unrealistic vignette combinations. The basic text sets the participant in the chair of an executive board member of the German airline Lufthansa, while the airline is approached by a competitor to form a coopetition relationship. The vignettes for the actor that showed interest in a coopetition relationship consist of the two states of direct competitor (the French airline AirFrance) and the indirect competitor (the French railway company SCNF). The vignette for the resources took the state of homogeneous resources (the other firm possesses resources similar to Lufthansa's) or heterogeneous resources (the other firm possesses resources dissimilar to Lufthansa's). The activity was stimulated between close to customer activities (marketing, sales, distribution, and service activities) or states deemed far from customer activities (R&D and sourcing activities). To control for the effects of prior personal ties (e.g., Alves & Meneses, 2015), the possible partners size (e.g, Cygler & Dębkowska, 2015; Zakrzewska-Bielawska, 2015), and regional differences (e.g, Madhavan et al., 2004), which are known to influence the partner selection, those factors were fixed by stating that no personal ties exist, that the possible partner has the same company size, and by choosing the possible alliance partners from the same country.

Pretest

After developing and critically reviewing the scenarios written in German, we conducted a pretest for understanding and a manipulation check. A set of two scenarios was created, one with a direct and one with an indirect competitor (within-subject factor), while the factors of resource and activity were randomized. These cases, together with questions regarding the plausibility and manipulation, were distributed to business administration graduate students from one western European university. The items were measured using 7-point semantic single-item scales. A total of 28 German-speaking students (Germany, Switzerland, Austria) with an average age of 25.5 years ($SD = 2.58$), of which 11 were female (39.3 %) completed the survey. The results show that the scenario is understandable ($M = 5.55$, $SD = 1.24$, 1 = not understandable, 7 = very easy to understand) and realistic ($M = 4.66$, $SD = 1.48$, 1 = unrealistic, 7 = very realistic). In order to analyze the pretest, independent-samples t test was performed to compare the scores of direct/indirect competitor, homogeneous/heterogeneous resources and close to customer/far from customer activity. There was a significant difference in the intended direction of the

responses that were presented with the indirect competitor ($M = 2.07$, $SD = 1.17$, 1 = very indirect competition, 7 = very direct competition) and direct competitor ($M = 6.28$, $SD = 1.12$) conditions; $t(54) = 13.10$, $p = < .000$. In terms of the resources, a significant difference in the intended direction was found in the answers of the homogeneous ($M = 4.52$, $SD = 1.88$, 1 = very homogeneous resources, 7 = very heterogeneous resources) and heterogeneous ($M = 3.37$, $SD = 1.80$) treatments; $t(54)$, p = .024. Also with the resources, the contrasts were found as planned with a higher mean value for homogeneous resources compared to heterogeneous. There was a significant difference in the intended direction between the responses that were presented with the close to customer activity ($M = 4.72$, $SD = 1.49$, 1 = very far from customer, 7 = very close to customer) and far from customer activity ($M = 3.44$, $SD = 1.53$) conditions; $t(54) = 3.18$, $p = .002$. To summarize the findings of this pretest, it can be said that the scenarios are understandable and realistic, while the participants are stimulated in the intended direction by the vignettes.

4.3   Experimental Design and Procedure

The experimental vignette study was conducted online and in German. The scenario and measures were carefully translated and back-translated, while checked multiple times for correct and identical content. After an introduction to the research topic, followed by a statement that the following scenarios are hypothetical and not connected to the respondents' position or company, the respondents were introduced to the scenarios and measures. Respondents were assigned to two out of the eight possible scenarios each. While a 2 (actor: indirect and direct competitor) ×2 (resource: homogeneous and heterogeneous) ×2 (activity: close to customer and far from customer) full factorial design was employed, a mix of between-subject and within-subject designs for the variables was applied. The actor variable was a within-subject measure: each respondent was presented with one scenario of a direct competitor and one of an indirect competitor in random order. The randomization of the order ensured that the order of presentation to the actor variable had no influence on the ratings. As between-subject variables, the variables of resources (homogeneous and heterogeneous) and activity (close to customer and far from customer) were randomly varied between the cases, even between each subject's two cases. The randomization was implemented in order to create different cases for the respondents and decrease familiarization effects (see Appendix for a sample scenario).

After each scenario, the respondents were asked to indicate their assessment of the partner and their perceptions of the dependent variables. Between each scenario, the participant was asked to view the second case without consideration for the first case. Finally, participants were asked to provide personal information (e.g., age, sex) and information of their employment situation (e.g., hierarchy level, company size). Furthermore, they had the choice of providing their e-mail address, so they could receive a report of the results of this study, which aimed to provide an incentive to participate.

4.4   Sampling and Data Collection

The study focuses on the German-speaking countries, i.e. Austria, Germany, Liechtenstein and Switzerland. Consistent with previous research from other management areas (e.g. Rigtering et al., 2014; Kraus et al., 2015; Covin et al., 2016), and building upon the same line of argumentation that those four countries are largely comparable with regards to jurisdiction, economy, culture, and business activities, the respondents were gathered from a transnational basic population, being treated as one.

Since the research focuses on the decisions made in the corporate strategy context, the decision-makers within the companies will be addressed to participate in the study. Top management in particular, is entrusted with making strategy decisions (Nielsen & Nielsen, 2011) and can be seen as a major force in initiating, developing, maintaining and controlling corporate strategy, as well as alliance decisions (Das & Teng, 2001). To guarantee the reliability of information provided and increase generalizability, key informants should have strategic responsibility or have influence on strategic alliance decisions. Particular attention had to be paid to the identification and selection of the participants in the study. The most appropriate persons within each firm were company owners, members of the management board, or employees in the department of alliance management. To obtain a wide spread over different firms and to assure that all companies are equally represented, the search referred to one contact only per company.

To meet the criteria of sample selection, alliance decision-makers of companies in random industries were identified. A random sample of 10,000 individuals which meet the criteria were identified and their contact details were gathered. In summer 2016, a personally addressed e-mail invitation was sent out to each individual with a letter explaining the purpose of this research, some background information on the researchers and a link to the online experiment. The personal invitation aimed at ensuring that the participants of this study comply with the criteria and no other individuals participate in the experiment. The participants were incentivized by having the opportunity to receive a report via email on the final results of the study after completion.

A total of 509 responses were gathered in the three weeks the experiment was open. The data was rigorously checked for the quality of each response. This revealed that 62 responses were incomplete and another 10 were identified as "click throughs" (short time to finish the experiment and no variance in the scale responses). These improper responses were removed from the sample (drop-out rate of 14.1 %), ultimately leaving a sample of 437 responses for analysis. Accordingly, the final response rate lies at 4.4 %, which is not unusual, as surveys on top management level historically suffered from very low response rates (Fowler, 1993; Heckman, 1979).

A high rate of the sample is either from the owner of the company (26.5 %) or the management board (59.0 %). The rest of the sample represents senior managers (11.7 %) and regular employees (2.7 %). A large share (82.8 %) of the participants is from Germany, while Austrian (8.7 %) and Swiss and Liechtenstein (8.5 %) account for a much smaller share of the sample. Germany has roughly ten times the population of Switzerland and Austria, which are about the same size. Accordingly, the country representation in the final sample embodies the population size of the included countries.

For the industry sector, roughly half the participants are employed in the primary sector (50.6 %), a quarter in the secondary sector (25.9 %), and another quarter in the tertiary sector (23.6 %). In terms of the company size, the sample represents managers from the whole company size spectrum. While the largest share is employed in medium sized firms (50 to 249 employees; 37.8 %), the rest is rather equally distributed among the company sizes (19.2 % micro and small with 1 to 49 employees; 24.0 % large with 250 to 999 employees; 19.0 % large with 1000 or more employees). It could be concluded, that the sample accounts for all different sectors and sizes, and represents the economies of Austria, Germany, Liechtenstein and Switzerland. Participants were randomly assigned to two of the two-times-four possible scenarios and equally distributed across all treatments (n for each treatment between 100 and 113). Due to the randomized assignment to the cases, no systematic group differences can be assumed (Fisher, 1935).

4.5　Measures

Dependent Variables

After the respondents are exposed to the scenario, they were asked to indicate their agreement on a 7-point Likert scale to items of the following constructs. The anchors for the scale was 1 = for strongly disagree, 4 = neither agree or disagree, to 7 = strongly agree. These constructs are based on the following constructs that were developed from previous research attempts in strategic alliances and coopetition research (an overview of the scales, items and results of the factorial and reliability analysis can be found in the Appendix).

Partner attractiveness measures how attractive and valuable a partner is for their own firm (Lufthansa), given a specific alliance project. For this study, the measurement scale for partner attractiveness as developed by Shah and Swaminathan, 2008 was applied. In their study, two different measures were used, but as the modified measures of their study 2 showed a higher Cronbach's alpha (standardized), these items were included in term of this study. The items included the appeal, attractiveness and the personal value of the possible partner. The standardized Cronbach's alpha of this three-item scale was .94.

Trust is an enabler of hypothesis building about someone's behavior, without having knowledge or lacking awareness of a person or organization (Czernek & Czakon, 2016). The measurement of trust based on the scale of Zaheer et al., 1998 who differentiated trust in inter-organizational and interpersonal trust, which was applied in the field of coopetition before by Bouncken and Fredrich, 2012. It is based on the three items: impartiality in negotiations, trustworthiness, and keeping of promises. These items of inter-organizational trust were slightly adapted to correspond to the scenario. However, the scale's first item of impartiality in negotiations was dismissed, as the factor loading of .45 was on the lower end of this study's quality guidelines. Additionally, through excluding this item, the scale's Cronbach's standardized alpha increased from .71 to .82.

Complementary in alliance research refers to the level that one partner's operations complement the other partner's operations (Bucklin & Sengupta, 1993). The complementary perception measure operationalized the scale of Shah and Swaminathan, 2008, which is based on the three items of the customers' perception (image similarity, complementary and target customer similarity) of the two companies' products/services. Due to the factorial analysis with a low factor loading of .35 and the increase in the standardized Cronbach's alpha from .64 to .73 when the second item of perceived complementarity was removed.

Control Variables

Control variables were involved in the online experiment. These were: education, entrepreneur, hierarchy level and the country. These are all pertaining to the participants' experience and current situation and therefore were surveyed at the end of the experiment. As all those control variables, except the dummy variable of entrepreneur, are nominal categories, and were added to the analysis as contrast variables.

The *familiarity* of each respondent towards the companies in the scenario (Air France and SCNF) was added as a control variable. Due to the differences in the familiarity perceptions of the respondents, they might decide differently regarding the output variables of attractiveness, trust and complementary perception. In order to measure this item, the respondents were asked to indicate how familiar they are with the case companies on a 7-point Likert scale ranging (1 = not at all; 7 = very much/strongly).

Higher education was found to positively influence the likelihood of coopetition due to skillsets and the stock of knowledge of the employees (Schmiele & Sofka, 2007). Education refers to the level of education the participant has reached and was operationalized into six states: (a) vocational education, (b) vocational school, (c) qualification for university entrance, (d) degree from a university of applied sciences, (e) university degree, (f) doctoral degree, and (g) other degree. The dummy variable of entrepreneur identifies whether the participant has ever founded a company (0 = non founder; 1 = founder). The hierarchy level refers to the position a respondent belongs to, which influences the perception of the environment (Golden, 1992). A total of four levels were included: the (a) employee, (b) manager, (c) board of directors or top management, and (d) company owner. The country variable refers to the participants' current place of residence, which could influence the coopetition decisions due to cultural differences (however, cultural differences between the sampled countries are relatively small). Accordingly, the country variable could take one of the three states: (a) Germany, (b) Austria, or (c) Switzerland and Liechtenstein.

5   Results

5.1   Inferential Statistics

Considering the influence of the vignette (all treatment variables and levels) and the respondent variables in multilevel analysis models is vital (Hox et al., 1991). To test hypotheses on the characteristics on the initial coopetition partner perceptions, data was analyzed via linear mixed models (LME, sometimes referred to as random coefficient models). LMEs include both, fixed and random effect coefficients. Fixed effect coefficients are comparable to linear predictors in ordinary least squares (OLS), while the random effect coefficients allow studies to incorporate a probability distribution (Kreft & de Leeuw, 1998). The random effects were used to account for the variance introduced in the repeated measures factor (actor variable): that is, individual level differences in the dependent variable due to consistency tendencies, fatigue and other biases that should be separated from the theoretically derived content effects of that factor. Thus, the present LMEs used a random respondent ID effect and fixed effects for actor, activity, resources, and all control variables. As all operationalized treatment variables in the vignette design are fixed effects, fixed effect tests were applied to confirm or reject the hypotheses. Based on recommendations by Pinheiro and Bates, 2000 and applying the NLME package in R, likelihood-ratio tests (LRT) with maximum likelihood estimation compare a base model (e.g., no other effect than the random effect, with control variables) with the appropriate hypothetical model (e.g., main effect of activity, without and with control variables). To avoid model oversaturation and thus less conservative testing, the treatment fixed effects were tested iteratively. To account for control variable effects, subsequent tests incorporated the fixed effects of familiarity (Model 2) as well as of familiarity and demographic variables (Model 3) in the base model. Thus, an LRT-significant difference between a theoretical model and a base model implied that a vignette design factor explained the variation in the dependent variable against the disturbance introduced by repeated measurement and relevant control variables.

Partner Attractiveness

Table 1. *LME estimation results for partner attractiveness*

	Model 1		Model 2		Model 3	
Criteria	Value	(*SE*)	Value	(*SE*)	Value	(*SE*)
Actor (indirect)	.15**	(.05)	.12*	(.05)	.12*	(.05)
Resources (heter.)	.03	(.06)	.023	(.06)	.02	(.06)
Activity (far)	.03	(.06)	.019	(.06)	.02	(.06)
Actor × resources	.14*	(.07)	.11	(.07)	.10	(.07)
Actor × activity	.20**	(.00)	.17*	(.07)	.16*	(.07)
Resources x activity	.09	(.07)	.08	(.07)	.07	(.07)
Actor × resources × activity	.23**	(.09)	.19*	(.09)	.18*	(.09)
Familiarity			.06**	(.02)	.07**	(.02)
Education					n. s. at any level	
Entrepreneur					n. s. at any level	
Hierarchy level					n. s. at any level	
Country					n. s. at any level	
Conditional R²	36.17%		37.06%		36.86%	
AIC	2389.45		2387.29		2392.29	
BIC	2437.18		2439.79		2473.44	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. p values are assessed via LRT. Conditional R-squared as outlined by Nakagawa and Schielzeth, 2013.

The main results on partner attractiveness are reported in Table 1. Hypothesis 1a, 2a, and 3a expect significant positive effects owing to the indirect competitor (actor), heterogeneous resources and far from customer activities on the partner attractiveness. The results provide significant positive effects on partner attractiveness only for the indirect competitor (Model 3: value = .12, $p < .001$), while the effects of resources (Model 3: value = .02, $p > .05$) and activity (Model 3: value = .02, $p > .05$) and show no significant influence on the attractiveness in any model. Accordingly, hypothesis 1a is supported from these test results, while hypotheses 2a and 3a are rejected.

Results show significant levels in interaction effects. The interaction of the actor and the activity (Model 3: value = .16, $p < .05$) and the interaction between the actor, activity and resources (Model 3: value = .18, $p < .05$), have significant positive values in all three models. The results confirm that the indirect competitor, together with far from customer activities, is more attractive than a partnership close to customer activities with a direct competitor (Figure 1). The significance in the interaction effect of resources and activity (Model 3: value = .10, $p > .05$) disappears as the control variables are added to the model. Controlling for familiarity with the other company, we find a significant positive (Model 3: value = .07, $p < .01$). The other control variables that are added in model 3 have no significant influence on the partner attractiveness.

Table 2. *LME estimation results for trust towards potential partner*

Effect on trust

Criteria	Model 1		Model 2		Model 3	
	Value	(*SE*)	Value	(*SE*)	Value	(*SE*)
Actor (indirect)	.08	(.05)	.06	(.50)	.06	(.05)
Resources (heter.)	.10	(.06)	.09	(.06)	.09	(.06)
Activity (far)	.01	(.06)	.01	(.06)	.01	(.06)
Actor × resources	.19**	(.06)	.17**	(.07)	.17**	(.07)
Actor × activity	.07	(.06)	.04	(.06)	.04	(.06)
Activity × resources	.12	(.07)	.12	(.07)	.12	(.07)
Actor × resources × activity	.24**	(.08)	.22**	(.08)	.21*	(.08)
Familiarity			.05*	(.02)	.05*	(.02)
Education					n. s. at any level	
Entrepreneur					n. s. at any level	
Hierarchy level					n. s. at any level	
Country					n. s. at any level	
Conditional R^2	44.70%		44.96%		44.38%	
AIC	2326.64		2325.15		2327.42	
BIC	2374.37		2377.66		2408.56	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. p values are assessed via LRT. Conditional R-squared as outlined by Nakagawa and Schielzeth, 2013.

Hypotheses 1b, 2b, and 3b propose a positive influence of the actor, resource and activity variables on the trust towards the potential partner. The results of this study reveal no significant effects for the variables of actor (Model 3: value = .06, $p > .05$), resources (Model 3: value = .09, $p > .05$) and activity (Model 3: value = .01, $p > .05$) influence on trust. Therefore, hypotheses 1b, 2b, and 3b are rejected.

The interaction of the actor and resource variable trust is significant and positive across all three models (Model 3: value = .17, $p < .01$). An indirect competitor with heterogeneous resources receives more trust than the direct competitor with homogeneous resources (Figure 1). Furthermore, the interaction of the actor, resources and activity also shows a significant positive influence on trust (Model 3: value = .21, $p < .01$). Accordingly, an indirect competitor with dissimilar resources that opts for cooperation on far from customer activities is more trusted than a competitor with similar resources for a close to customer activity (Figure 1). The interaction of actor and activity (Model 3: value = .04, $p > .05$) and the resources and activity (Model 3: value = .12, $p > .05$) show no significant effect.

The control variable of familiarity with the possible partner significantly and positively influences trust (Model 3: value = .05, $p < .05$). All other control variables that were added into model 3 have no significant ($p > .05$) influence on the trust towards a possible partner.

Table 3. *LME estimation results for complementary perception of potential partner*

Criteria	Model 1 Value	(*SE*)	Model 2 Value	(*SE*)	Model 3 Value	(*SE*)
	Effect on complementarity perception					
Actor (indirect)	.72***	(.05)	.73***	(.05)	.72***	(.05)
Resources (heter.)	-.06	(.06)	-.06	(.06)	-.07	(.06)
Activity (far)	.01	(.06)	.01	(.06)	.01	(.06)
Actor × resources	.45***	(.06)	.44***	(.07)	.43***	(.07)
Actor × activity	.57***	(.06)	.56***	(.06)	.56***	(.06)
Activity × resources	.04	(.07)	.03	(.07)	.02	(.07)
Actor × resources × activity	.48***	(.08)	.47***	(.08)	.46***	(.08)
Familiarity			.04*	(.02)	.05*	(.02)
Education					n. s. at any level	
Entrepreneur					n. s. at any level	
Hierarchy level					n. s. at any level	
Country 1 (contrast)					.21***	(.05)
Country					all other country contrasts are n. s.	
Conditional R^2	40.74%		40.73%		14.08%	
AIC	2010.17		2012.02		2173.22	
BIC	2056.90		2064.52		2254.36	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. p values are assessed via LRT. Conditional R-squared as outlined by Nakagawa and Schielzeth, 2013.

Hypotheses 1c, 2c, and 3c proposed a positive influence of the actor, the resources and the activity on the complementary perception. The results show a highly significant positive influence of the actor (or indirect competitor, respectively) on the complementary perception in all three models (Model 3: value = .72, $p < .001$), which strongly supports hypothesis 1c. However, in terms of the resources (Model 3: value = -.07, $p > .05$) and activity (Model 3: value = .01, $p > .05$), no significant influence on the complementary perception was found in any model. Therefore, the hypotheses 2c and 3c are rejected.

Interaction effects show some high significances. The interaction of the actor and resources variable (Model 3: value = .43, $p < .001$) on the complementary perception is highly significant. Also the interaction effect of the actor and activity (Model 3: value = .56, $p < .001$), as well as the actor, resources and activity interaction term (Model 3: value = .46, $p < .001$), show highly significant positive effects on complementary perception.

A partnership with an indirect competitor that plans an activity far from the customer is perceived as more complementary than a partnership with a direct competitor on close to customer activities. Similarly, a partnership with an indirect competitor that possesses dissimilar resources is perceived as more complementary than one with a direct competitor with similar resources (Figure 1). Additionally, an indirect competitor with heterogeneous resources aiming at a partnership activity far from the customer is perceived as more complementary than the partnership with a direct competitor with homogeneous resources and a close to customer activity.

The control variable of company familiarity (Model 3: value = .05, $p < .05$) has a positive, significant effect on complementary perception. Interestingly, for the contrast of country1, a positive, highly

significant (value = .21, *p* = .0001) effect on complementary perception was found. This means, that Austrian participants expressed a higher complementary perception than the Germans.

Figure 1. *Interaction effects for attractiveness, trust and complementary perception*
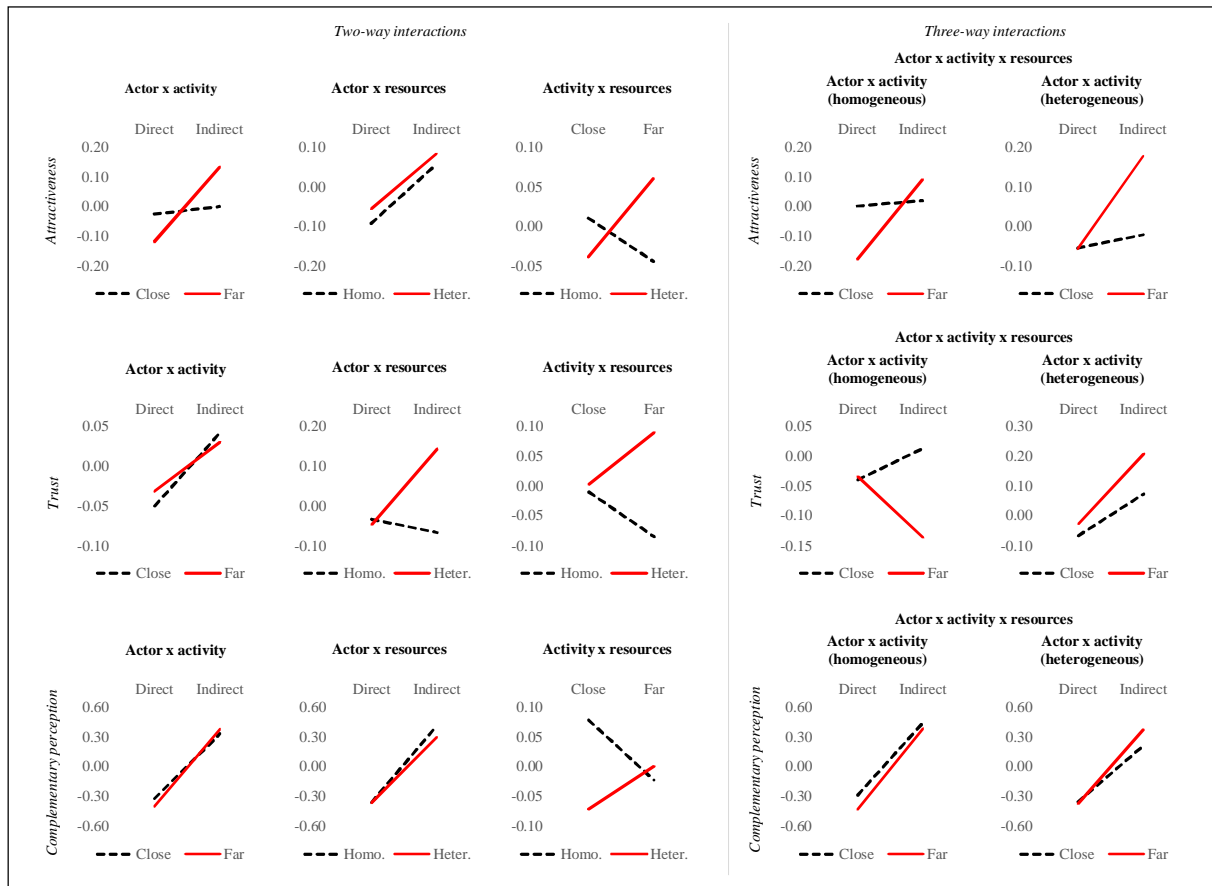
5.2 Exploratory Statistics

Relative importance of the variables

From the results, the odds ratios which were computed offer deeper insight into the strength of the criteria's effects. The odds ratios of the main variables and the interactions with significant effects (in the LME estimations, see Chapter 4.2 Inferential Statistics) were ranked and interpreted (Table 4 provides an overview of the odds ratios and their ranking) three times for each dependent variable; attractiveness, trust and complementary perception. It describes the relative change in the dependent variable's evaluation and direction of this effect. The variables effects (represented by the odds ratios) are the difference in the evaluation compared to the base model (the base model describes the scenario of a direct competitor with homogeneous resources that wants to cooperate in an activity close to the customer).

Table 4. *Ranking of odds ratios for each dependent variable*

Rank	Actor	Resource	Activity	OR [a]	CI [b] of OR (2.5% / 97.5%)
Effect on attractiveness					
1	Indirect competitor	Heterogeneous	Far from customer	1.20	(1.01 / 1.43)
2	Indirect competitor	Homogeneous	Far from customer	1.18	(1.04 / 1.34)
3	Indirect competitor	Homogeneous	Close to customer	1.12	(1.01 / 1.25)
Effect on trust					
1	Indirect competitor	Heterogeneous	Far from customer	1.23	(1.05 / 1.45)
2	Indirect competitor	Heterogeneous	Close to customer	1.19	(1.05 / 1.35)
Effect on complementary perception					
1	Indirect competitor	Homogeneous	Close to customer	2.06	(1.88 / 2.25)
2	Indirect competitor	Homogeneous	Far from customer	1.74	(1.55 / 1.96)
3	Indirect competitor	Heterogeneous	Far from customer	1.58	(1.35 / 1.86)
4	Indirect competitor	Heterogeneous	Close to customer	1.54	(1.36 / 1.75)

Note. Only the significant ($p < .05$) independent variables are considered. The ranking based on the odds ratio represents the strength of the effect on the dependent variable.
[a] Odds ratios are calculated for Model 3. [b] Exact confidence intervals.

For *attractiveness* the largest odds ratio has the intercept of actor, activity and resources (Model 3: *OR* = 1.20), followed by the intercept of actor and activity (Model 3: *OR* = 1.18) and the main effect of the actor (Model 3: *OR* = 1.12). The effect of indirect competitor on the attractiveness is significantly positive, however, the odds ratio shows an even stronger effect if this indirect competitor wants to enter a coopetition on far from customer activity. In terms of the effect of attractiveness, this is only exacerbated by the combination of an indirect competitor with heterogeneous resources that aims at a far from customer activity collaboration.

For *trust*, the intercept of actor, resources and activity (Model 3: *OR* = 1.23) has a higher effect on trust than the intercept of actor and resources (Model 3: *OR* = 1.19). Trust towards an indirect competitor with heterogeneous resources increases *ceteris paribus*, if a coopetition relationship aims at far from customer activities.

For *complementary perception*, ranking of the odds ratios offers additional insight into the relative effects on the complementary perception. The main effect of the actor (Model 3: *OR* = 2.06) shows the largest odds ratio, followed by the interaction of actor and activity (Model 3: *OR* = 1.74), the interaction of the actor, activity and resources (Model 3: *OR* = 1.58) and the interaction of actor and resources (Model 3: *OR* = 1.54). The combination of an indirect competitor with homogeneous resources that wants to collaborate in close to customer activities has the strongest effect. This is followed by an indirect competitor that wants to engage in collaboration activities far from the customer. Lower scores in complementary perception are perceived for an indirect competitor with heterogeneous resources and an activity far from the customer and the indirect competitor that has dissimilar resources but plans cooperation in close to customer activities.

Interdependence of attractiveness, trust and complementary perception

An exploratory analysis in the form of a correlation matrix of the dependent variables brings further understanding. Knowing that causal relationships are not equal to correlations, it deepens insights on the interplay of the dependent variables.

Table 5. *Means, standard deviations, and correlations matrix for dependent variables*

Variable	M	SD	1	2	3
1. Attractiveness	4.72	1.23	1		
2. Trust	4.43	1.03	.59**	1	
3. Complementary	4.17	1.45	.46**	.24**	1

Note. * $p < .05$, ** $p < .01$. p values for correlations significance.

As illustrated in Table 5, significant correlations ($p < 0.01$) between the three dependent variables exist. In particular, trust and attractiveness are strongly significantly related, $r(872) = .59$, $p < .01$. Complementary perception and the partners' attractiveness are also significantly related, $r(872) = .46$, $p < .01$., as are the complementary perception and trust $r(872) = .24$, $p < .01$. All these factors correlate, so the attractiveness, trust and the complementary perception appear to go hand in hand.

6   Discussion

Our experimental study investigated coopetition formation from the focal firm perspective, using the three layers of actor, resource and activity for understanding the attractiveness, trust and complementary perception of the coopetition partner. A strong key finding of the decision criteria reveals the important role of the actor role. In particular, whether the approaching firm is a direct competitor or an indirect competitor affects the attractiveness of the partner and the perception of whether this partner complements the firm or not. Indirect competitors are more attractive and perceived as more complementary than the direct competitor. The increased attractiveness of indirect competitors might be due to the reduced risks associated with coopetition, such as the risk of opportunistic behavior (e.g., Ritala, 2009; Bouncken & Kraus, 2013; Levy et al., 2003).

We found no significant effects of the resources and activity of the possible partner. Whether the other firm has the same or differing resources does not appear to influence the decision-maker's attitude towards the possible partner in the initial stage of coopetition formation. Similarly, the closeness of the coopetition activities to the customer also has no direct influence on the main partner selection criteria. This is interesting, as these two dimensions of resource alignment (e.g., Bengtsson et al., 2003; Tomski, 2011) and customer-closeness (or upstream activities; e.g., Bengtsson & Kock, 2000; Rusko, 2011) were previously understood to be important drivers of coopetition. Our finding that the resources of a possible coopetition partner plays a minor role is consistent with Akdoğan et al.'s (2015) findings, and contrary to the qualitative findings and suggestions of other studies that find heterogeneous and supplementary resources as a central part of coopetition (e.g., Bengtsson et al., 2003; Tomski, 2011). A possible explanation for this discrepancy would be the timing in the coopetition formation, as the resources and the activity as criteria are not of such importance in the initial familiarization with each other, but may gain importance in later stages.

No influence on or of any on layer was found to drive trust. Apparently, other factors build trust. Coopetition researchers likewise found that prior personal relationships and the trust thereof are developed beforehand (Alves & Meneses, 2015). However, while the activities and resources alone do not show any significant direct effects on attractiveness, trust and complementary perception, they do when examined combined with each other as well as in competition relationship with the possible partner. For example, the attractiveness increases when a partner is an indirect competitor and brings heterogeneous resources to the partnership.

Further data analysis revealed insights into the preferences of different relationships compared to each other. The findings suggest that multiple relationship criteria regarding the actor, resource and activity levels influence a possible coopetition partnership's initial attractiveness, trust and the complementary perception. This shows that decisions on the choice of the partner are complex by nature and occur on different layers that cannot simply be explained by one criterion. Even though there might be different perceptions that determine the overall attractiveness of a relationship, we believe that the factors examined in the current study can be considered as the main criteria in the decision to choose whether to enter a coopetition partnership or not.

Limitations of this study arise from the external validity and the methodological limitations, typical for experimental studies. This study has limitations of external validity because of geography of the sample (companies located exclusively in the countries of Austria, Germany, Liechtenstein and Switzerland), the fictional case of the airline industry and the reduced relationship vignette universe in the scenarios. Due to the possible influence of cultural and environmental differences, the airline industry specifics, and the limited scope on possible decision influencing factors, the results of this study should be generalized with the necessary caution. Regarding the experimental conditions, the case might succumb to a lack of realism, as the scenario can only provide a certain amount of information that does not exhaust all aspects that a decision-maker encounters in coopetition reality. This includes personal contact, the variety of additional information and the shared opinions and discussions with other decision-makers.

7   Conclusion

The study offers insights into coopetition relationships and their formation that enable better decisions and strategies in coopetition practice. Overall, our findings suggest that the coopetition partnership selection is more about the "with whom", rather than "what". Decision-makers prefer indirect competitors over coopetition with a direct competitor, as indirect competitors are more attractive, more trusted and perceived as more complementary than an indirect competitor. A possible explanation is that the barriers to the new coopetition paradigm can hinder top managers and company owners from entering a coopetition relationship with a direct competitor. Given that evidence of successful direct competitor alliances is available (e.g. Gnyawali & Park, 2011), the potential advantages of dyadic coopetition could also be spread into managerial practice. This includes the communication of coopetition risks, success factors, and feasible management strategies. In doing this, firms could first follow the track of coopetition with an indirect competitor. In this relationships they gain experience and confidence, so they could also later consider a coopetition alliances with direct competitors (see, Czernek & Czakon, 2016; Dahl, 2014).

The results of this study further not only help firms that are taking an active part in approaching a competitor to form a coopetition alliance, but also the firms that are seeking a decision on whether or not to enter a coopetition proposal in the first place. Knowing the coopetition partner selection criteria and having them at hand can increase speed and reduce the costs in the search and decision process. For the firms that are in a situation where they are deciding whether to join a coopetition relationship or not, they can reflect on their opinion and decide more objectively. A firm that has identified a possible coopetition partner could critically evaluate the issues identified as important in this study: the direct competitive overlap in the end product markets, the distance from the customers, and the complementarity of the resources.

Our findings contribute to the nascent literature on the coopetition partner selection and the overall understanding of how coopetition relationships emerge. The study adds to the perspectives of previous studies (Akdoğan et al., 2015; Alves & Meneses, 2015; Cygler & Dębkowska, 2015; Zakrzewska-Bielawska, 2015) by providing a new understanding of the relational level factors of partner selection in coopetition. It adds to the understanding of how the competitive relationship, resources and the activity influence the partner selection and initial attitude in terms of trust. Overall, the findings point towards that the idea that coopetition partners with dissimilar features are perceived better than a similar actors, showing the reluctance of encountering too direct competitors with high market overlap and resource commonality (Chen, 1996). A worthy consideration is whether this is a valuable partner selection criteria, or whether it reflects the risk-avoiding behavior of decision-makers. The awareness of such potential biases is important when pursuing the best strategic decisions in alliance formation.

The limitations and findings of the present study call for future research. To increase the generalizability of the results, it is necessary to test the results by conducting the experiment in other regions as this sample is somewhat limited in its representativeness (e.g., high primary sector share). Similarly, as the scenario of the experiment took the perspective of a company in the airline industry, investigating the same topics on different industries would enhance generalizability. Additionally, the case was set to a very early stage of the relationship building process, and as the decision criteria might change during this process, additional research might examine the different stages in the partner selection process.

This study also exemplifies the possibilities and advantages of a large scale experiment. This might encourage other researchers using the variety of experimental methodologies on the paradoxical strategy of coopetition. Other experimental methodologies would be applicable to different topics of coopetition as well. Examples might be a public goods game with collaborative aspects (as an example for a laboratory experiment), discrete choice experiments on the behavior under the tensions of coopetition (as an example for a framed field experiment), or experiments that investigate how classes on coopetition strategies influence the openness towards this strategic opportunity (as an example for a natural field experiment; see Croson et al., 2007).

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Appendix

Table. *Measurement constructs, factor and reliability measures*

Construct		Measures	Factor loading	Standardized Cronbach's alpha	Kaiser-Meyer-Olkin measure of sampling adequacy
Partner attractive-ness (ATTR)	a)	AirFrance/SCNF is an appealing partner.	.90	α = .94	.74
	b)	AirFrance/SCNF is an attractive partner.	.92		
	c)	AirFrance/SCNF will be a valuable partner for Lufthansa.	.84		
Trust (TRUST)	a)	AirFrance/SCNF will always be evenhanded in its negotiations with Lufthansa. (item was dismissed)	/	α = .84	.50
	b)	AirFrance/SCNF is trustworthy as a cooperation partner.	.85		
	c)	AirFrance/SCNF always keeps up with his promises.	.85		
Complementary perception (COMPL)	a)	Consumers will perceive Lufthansa's products/services and AirFrance/SCNF's to be similar in terms of their overall image.	.79	α = .73	.50
	b)	Consumers will perceive Lufthansa's products and AirFrance/SCNF's to be complementary. (item was dismissed)	/		
	c)	Consumers will perceive Lufthansa's products and AirFrance/SCNF's to have the same target customers.	.79		
Company familiarity (familiar)	a)	How familiar are you with the company AirFrance/SCNF?			

Sample Scenario.

The following sample scenario shows the case introduction, followed by an illustration of the sample scenario for the indirect competitor ("SCNF is the French railway company") that wants to cooperate in far from customer activities ("research & development and logistics") with homogeneous resources ("similar"). The vignettes that are alternated between the eight different scenarios are here highlighted by italic letters, but were not highlighted in the actual presentation to the participants. It should be noted that due to the German-speaking focus area of this study, the case as well as the questions were provided in German.

Introduction to the Case:

Once considered exotic and rare, alliances in the airline industry have become a necessary part of business. Airlines want to take advantage of the growing international market, but want to avoid making huge investments in new markets. Airlines have found that a way to gain advantages over competitors is to collaborate with other companies.

Scenario:

Imagine that you are a member of the executive board with strategy responsibility at the in the German airline Lufthansa.

SCNF is the French railway company of the same size as Lufthansa, which competes for customers with Lufthansa on several routes.

SCNF recently approached Lufthansa, showing interest to form a new alliance with each other and collaborate in *research & development and logistics* activities. Lufthansa's information shows, that *SCNF* possesses *research & development and logistics* resources *similar* those of Lufthansa.

You do not know anybody from *SCNF*.