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When does alliance proactiveness matter to market performance? A comparative case analysis

Alexander Leischnig[a,*], Anja Geigenmüller[b]

[a] Queen Mary University of London, School of Business and Management, London E1 4NS, United Kingdom
[b] Ilmenau University of Technology, Department of Marketing, Langewiesener Strasse 22, 98693 Ilmenau, Germany

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ABSTRACT

Relationships with external partners can provide several benefits for firms. To obtain such benefits, firms must develop competencies and capabilities that enhance their ability to create and capture value in inter-organizational collaborations. In this article, we focus on one of these capabilities: alliance proactiveness. Drawing on configuration theory, we examine the performance effects of alliance proactiveness within the broader context of the firm and its market environment. Using a sample of 68 firms involved in technology transfer, we examine the interplay between alliance proactiveness and two major sets of factors—organizational factors and environmental factors—to identify configurations sufficient for market performance. The findings of a fuzzy-set Qualitative Comparative Analysis indicate the co-existence of alternative configurations for market performance that differ in their particular composition but are consistently sufficient pathways to market performance. Knowledge of these configurations yields novel insights into the complex pattern of causal factors and helps develop factor constellations in which alliance proactiveness is indeed effective and enhances market performance.

1. Introduction

Many firms form intricate webs of relationships (Möller & Halinen, 1999), involving multiple and diverse alliances with different partners (Wassmer, 2010), to improve their resource base and cope with increasingly demanding environments. For example, in the information technology industry, IBM and Twitter recently formed an alliance to mutually share access to technological platforms for collecting customer data, cloud technologies, and knowledge about data analysis (IBM, 2014). A possible reason for these activities is that "[n]ow more than ever, many of the skills and resources essential to a company's future prosperity lie outside the firm's boundaries, and outside management's direct control" (Doz & Hamel, 1998, p. 9).

External networks can provide several benefits for firms, including legitimacy attributions, access to information, sources for organizational learning, and the provision of resources and capabilities necessary to compete effectively in increasingly dynamic and competitive markets (Hitt, Ireland, Camp, & Sexton, 2001). To realize such benefits from relationships, network literature (e.g., Forkmann, Henneberg, Naudé, & Mitrega, 2016; Mitrega, Forkmann, Ramos, & Henneberg, 2012; Ritter & Gemünden, 2003, 2004) and alliance management literature (e.g., Anand & Khanna, 2000; Kale, Dyer, & Singh, 2002; Lambe, Spekman, & Hunt, 2002; Schilke & Goerzen, 2010) underscore the need to develop firm-level competencies or capabilities that enhance firms' ability to generate and capture value in inter-organizational relationships.

In this research, we focus on one of these capabilities—namely, alliance proactiveness. Alliance proactiveness refers to firms' efforts "to identify potentially valuable partnering opportunities, and to initiate preemptive actions in response to identified opportunities" (Sarkar, Echambadi, & Harrison, 2001, p. 702). The ability of firms to identify alliance opportunities and form access relationships into relevant resources and know-how is one of the key factors of alliance success (Lambe & Spekman, 1997; Park, Chen, & Gallagher, 2002). When firms are unable to develop needed resources internally, external partners may provide such inputs and add to or complement the internal resource basis to fill resource gaps (Teng, 2007). The selection of partners influences the mix of available skills and resources and affects firms' abilities to achieve strategic objectives (Geringer, 1991). Firms that are proactive in forming alliances enjoy first-mover advantages in the strategic factor market of alliance partners—that is, "the set of potential collaborator firms that are compatible and possess required strategic resources" (Sarkar, Aulakh, & Madhok, 2009, p. 587), which can lead to higher market performance (Sarkar et al., 2001).

* Corresponding author.
E-mail addresses: a.leischnig@qmul.ac.uk (A. Leischnig), anja.geigenmueller@tu-ilmenau.de (A. Geigenmüller).

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Within this context, an important but under-researched issue pertains to the conditions under which alliance proactiveness transforms into performance gains. This issue is critical because the development and use of capabilities, such as alliance proactiveness, are costly (Schilke, 2014), and investments in one type of capability can reduce a firm's capacity to devise and/or reconfigure resources into other capabilities (Wang & Rajagopalan, 2015; Winter, 2003). Examination of conditions of the effect of alliance proactiveness on market performance deepens the understanding of the contexts in which investments into proactive alliance activity can pay off.

Prior studies indicate that organizational and environmental factors affect the ability of firms to capitalize on alliance capabilities in terms of performance gains. These studies, however, either focus on the interaction between a firm's overall alliance management capability and contingency factors (e.g., Schilke, 2014), which hinders more fine-grained insights into boundary conditions of specific capabilities, or focus on the interaction between specific alliance capabilities and contingency factors (e.g., Sarkar et al., 2001, 2009), which is often restricted to two-way interactions and thus inhibits insights into more complex boundary conditions typically present in business environments. To date, only one study has examined the complex patterns of factors to explain performance in an alliance context. Leischnig, Geigenmüller, and Lohmann (2014) show patterns of organizational factors (i.e., alliance management capabilities and organizational compatibility) and factors of the interaction between exchange partners (i.e., interaction quality) to explain the success of the inter-organizational transfer of technology.

Building on these insights, the purpose of this article is to further illuminate situations in which alliance proactiveness contributes to market performance by examining its interplay with both organizational factors (i.e., a firm's level of specialization, alliance experience, and size) and environmental factors (i.e., market dynamism and competitive intensity). We employ a configurational approach (Fiss, 2007, 2011) and conduct an exploratory comparative case analysis (Misangyi & Acharya, 2014) to describe complex patterns of factors and show how these work together in bringing about market performance. We use fuzzy-set Qualitative Comparative Analysis (fsQCA; Ragin, 2008), that is, a set-theoretic method proficient for analyzing and describing combinations of antecedent conditions for an outcome. FsQCA has received increased interest in the management and marketing literature in recent years (e.g., Schneider & Eggert, 2014). FsQCA builds on the premises that an outcome of interest rarely depends on a single causal antecedent, that antecedents hardly ever operate in isolation, and that a specific antecedent can have positive and negative effects on an outcome, contingent on context (Greckhamer, Misangyi, Elms, & Lacey, 2008).

The findings of our research contribute to the alliance management and capability literature by describing configurations (i.e., “nonlinear synergistic effects and high-order interactions”; Delery & Doty, 1996, p. 808) sufficient for market performance. Knowledge of these configurations provides insights into configurational effects of alliance proactiveness and organizational and environmental factors on market performance. The results of this study indicate the co-existence of multiple configurations that differ in their particular composition but are consistently sufficient for high market performance. This finding supports the assumption of equifinality—that is, the perseverance of multiple realities for an outcome (Fiss, 2011; Woodside, 2014)—and elucidates alternative conditions under which alliance proactiveness contributes to market performance. Managerially, this research addresses the questions of whether and when alliance proactiveness is effective and enhances market performance.

We organize the remainder of this article as follows: in the next section, we briefly summarize existing work on alliance proactiveness. We then present the research framework, followed by a discussion of the research approach and the findings of this study. The article concludes with a discussion of theoretical contributions, managerial implications, and directions for further research.

2. Perspectives on proactiveness

The concept of proactiveness has received attention in two major streams of business research. In the entrepreneurship literature, researchers have most commonly focused on proactiveness as a dimension of a firm's entrepreneurial orientation (Dess & Lumpkin, 2005; Lumpkin & Dess, 1996). Proactiveness refers to a firm's propensity to anticipate and act on future trends by sensing new opportunities, acting ahead of competitors, and eliminating operations that are at the end of their life cycle (Venkatraman, 1989). Proactiveness involves a forward-looking perspective and is the conceptual opposite of passiveness (Lumpkin & Dess, 1996). Proactive firms are characterized as market leaders that monitor market changes and seize opportunities to shape the environment and meet demands (Dess & Lumpkin, 2005).

With an increasing interest in strategic partnerships and inter-organizational collaboration, proactiveness has attracted additional attention in the alliance management and network literature. This literature stream focuses on how firms form and manage cooperative arrangements with one or more external partners to improve performance and generate competitive advantages by sharing resources and know-how (Ireland, Hitt, & Vaidyanath, 2002). Studies in this field indicate that proactiveness, specifically alliance proactiveness, has an important role in various forms of strategic partnerships, ranging from dyadic alliances to more comprehensive alliance portfolios (Wang & Rajagopalan, 2015). Research has treated proactiveness as a dimension of firms' collaborative know-how (Simonin, 1997) and as a facet of firms' alliance management capability (e.g., Leischnig et al., 2014; Schilke, 2014; Schilke & Goerzen, 2010).

The ability of firms to sense and seize partnering opportunities ahead of competitors enhances opportunities for superior value creation and value capturing. In the imperfect strategic factor market, proactive firms can generate first-mover advantages by outperforming follower firms in safeguarding access to valuable resources (Sarkar et al., 2001) and by building resource configurations that are difficult to imitate (Dyer & Singh, 1998). Studies show that the abilities of firms to initiate and develop relationships with partners increase firm performance outcomes (Mitrega et al., 2012). To capitalize on such capabilities, firms employ different strategies that are contingent on environmental characteristics. In a recent study, Forkmann et al. (2016) perform a latent-class analysis and show two groups of firms that employ alternative strategies, following exploration or exploitation approaches when managing relationships with external partners. In addition, prior work shows that alliance proactiveness has a significant, positive direct effect on firms' market performance (Sarkar et al., 2001). This effect, however, differs contingent on several factors. Sarkar et al. (2001) demonstrate that firm size and market dynamism influence the effect of alliance proactiveness on market performance in such a way that the effect becomes weaker as firms grow in size and stronger as market dynamism increases. In addition, Sarkar et al. (2009) find that an alliance function within the firm strengthens the effect of alliance proactiveness on alliance portfolio capital, which in turn affects firm performance. Schilke (2014) demonstrates that environmental dynamism influences the relationship between firms' overall alliance management capability (conceptualized as a multi-dimensional, higher-order construct including alliance proactiveness, among other dimensions) and competitive advantage in such a way that the effect of alliance management capability is strongest under moderate levels of dynamism but comparatively weaker when dynamism is low or high.

In summary, the cumulative findings of prior research suggest that the relationship between proactive alliance activity and market performance is complex and depends on characteristics of the external environment as well as internal organizational characteristics. In addition, the results of prior work suggest that firms employ alternative strategies and, thus, no universal modus operandi exists. To capture and further illuminate this causal complexity, we adopt a configurational approach (Fiss, 2007, 2011), which accounts for the idea that an

outcome can follow from different combinations of conditions (i.e., "causal recipes"; Ragin, 2008). As such, this approach provides a useful means to deepen the understanding of how alliance proactiveness in combination with further organizational factors and in consideration of distinct environmental characteristics can contribute to market performance. Furthermore, it helps discover equifinal pathways or alternative routes to market performance.

3. Theoretical underpinnings and research framework

3.1. Theoretical background

The aim of this study is to further illuminate the performance effects of alliance proactiveness within the broader context of the firm and its market environment. The primary theoretical perspective adopted herein is that of configuration theory, which builds on a holistic synthesis as the dominant mode of inquiry (Doty & Glick, 1994; Meyer, Tsui, & Hinings, 1993), and which has been emphasized as a useful theoretical perspective to study alliance management capabilities (e.g., Geigenmüller & Leischnig, 2017).

Configuration theory strives to improve the understanding of how order emerges from the interplay of factors, considering reciprocal and nonlinear relationships among the factors and the occurrence of multiple, equifinal routes to an outcome (Meyer et al., 1993). According to configuration theory, an organization is a system of various inter-dependent factors that need to be coordinated to increase performance (Miller, 1996). Elements of strategy, structure, processes, and environment tend to combine to produce configurations—that is, constellations of factors that commonly occur together and are orchestrated and connected within a unifying theme (Meyer et al., 1993; Miller, 1996).

Configuration theory holds that for multiple factors, there is a limited set of constellations that enables organizations to achieve their strategic goals and thereby gain superior performance (e.g., Ketchen, Thomas, & Snow, 1993). Thus, configuration theory incorporates the notion of equifinality, which posits that alternative configurations of the relevant factors for an outcome can exist (Doty & Glick, 1994; Gresov & Drazin, 1997).

In addition, configuration theory holds that the factors in a configuration can be classified as core or peripheral, depending on their causal essentiality for the outcome in question (Fiss, 2011). Core factors are those for which evidence shows a strong causal link with the outcome of interest; peripheral factors are those for which evidence indicates a weaker causal relationship to the outcome in question (Fiss, 2011). Peripheral factors in a configuration typically surround core conditions and underscore their central features (Fiss, 2011; Grandori & Furnari, 2008).

3.2. Research framework

The central position of this article is that an enhanced understanding of the performance effects of proactive alliance behavior requires investigation of multiple conjunctural causalities among a firm's alliance proactiveness, organizational and environmental factors, and market performance to provide insights into the patterning of factors. Fig. 1 provides an overview of the constructs examined in this study and uses a 6-Venn diagram (Mamakani, Myrvold, & Ruskey, 2011) to symbolize the configurational perspective. In addition to alliance proactiveness, the organizational factors examined herein include a firm's level of specialization, alliance experience, and firm size. The environmental factors encompass market dynamism and competitive intensity. The selection of these sets of factors was guided by theoretical arguments and prior research (Madhok, Keyhani, & Bossink, 2015; Sarkar et al., 2009, 2001; Schilke, 2014).

Firm specialization refers to the extent to which a firm has similar products or service offerings and more focused operations (Luo & Homburg, 2008). Specialized firms typically compete within specific market segments and serve individual customer segments by capitalizing on specialized resources endowments. From a resource-based perspective, valuable and rare resources provide the basis for value creation and can lead to sustainable competitive advantages when such resources are inimitable and non-substitutable (Barney, 1991; Sirmon, Hitt, & Ireland, 2007). However, specialization can result in a competency trap (Levitt & March, 1988) and may make firms less responsible and inflexible in the face of environmental changes (Barney, 1991). Regarding alliances, studies indicate that "firm specialization tends to go hand-in-hand with interfirm collaboration" (Madhok et al., 2015, p. 101), even though specialization may pose several constraints that make inter-firm collaboration more challenging. For specialized firms, the number of partnering opportunities that possess compatible resources and know-how may be low and difficult to identify. In addition, the scarcity of potential partnering opportunities may increase rivalry with competitors in the strategic factor market. Specialized firms may also have higher costs for transforming resources from external partners and integrating them into the existing resource base (Madhok et al., 2015). Thus, specialized firms with strong alliance proactiveness likely have a better position in strategic factor markets due to their ability to sense and seize partnering opportunities that possess matching resources more quickly.

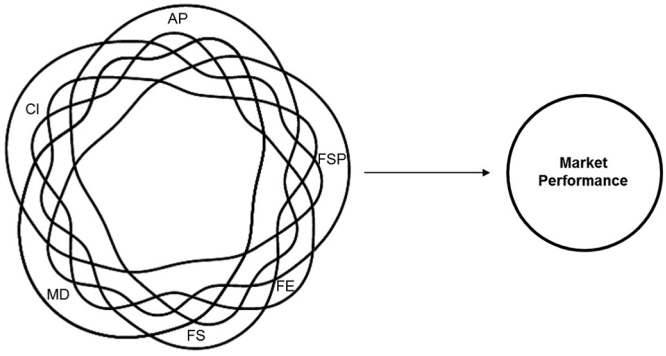

Fig. 1. Research framework.
Notes: AP = alliance proactiveness, FSP = firm specialization, FE = firm (alliance) experience, FS = firm size, MD = market dynamism, CI = competitive intensity.

Firm's alliance experience refers to the cumulative number of prior alliance projects. Studies show that such experiences form the basis for organizational routines and the development of firm-level capabilities (Simonin, 1997), which in turn increase alliance performance. From a learning theory perspective, a high number of previous alliance projects represent a repository of experience that influences decisions to enter new alliances (Gulati, 1999). Repeated engagements in alliance projects help firms create codified routines, validated procedures, and tacit knowledge with respect to the entire spectrum of alliance management issues (Rothaermel & Deeds, 2006). Gaining experience enables firms to become more effective at managing particular processes (Das & Teng, 2002). Thus, a high level of alliance experience should strengthen the effect of specific capabilities, such as alliance proactiveness, on performance because of a more elaborated knowledge of how to perform relevant practices, procedures, and activities and with whom. Such knowledge may be especially useful when markets experience frequent and rapid changes. In such situations, the cumulative knowledge from previous experiences helps firms identify and select valuable partnering opportunities more readily and enables them to take preemptive actions ahead of competitors.

In addition to firms' alliance experience, *firm size* has been repeatedly highlighted as a critical factor in the alliance management literature. Extant research indicates mixed results and offers alternative arguments for the effects of firm size in alliances. One the one hand, research suggests that small firms are in a better position to create

abnormal returns from alliances than large firms, thus implying that alliance proactive behavior leads to disproportionately greater value for smaller firms (e.g., Anand & Khanna, 2000; Sarkar et al., 2001). For small firms, the benefits of entering an alliance may include social legitimacy (Human & Provan, 2000), the ability to offset scale and scope disadvantages (Sarkar et al., 2001), and access to organizational resources and capabilities to commercialize a product, service, or technology (Teece, 1996). On the other hand, research indicates that these benefits may be offset by unfair exploitation and disadvantages in negotiations that are attributable to the weak bargaining power of small firms. For example, Alvarez and Barney (2001, p. 141) note that "[a]lthough it is usually easy for a large firm to learn about an entrepreneurial firm's technology, it is often very difficult for the entrepreneurial firm to learn about and imitate the large firm's organizational resources and capabilities". The specificity of resources together with environmental forces, such as market dynamism and competitive intensity, may affect a firm's negotiation position and thus provide additional insights into the interplay among alliance proactiveness, firm size, and market performance.

According to Porter (1991, p. 110), "[t]he environment shapes how activities are configured, which resources can be assembled, and what commitments can be made successfully". Thus, environmental factors set boundary conditions for creating and capturing value in alliances and subsequent outcomes. In this research, we focus on two environmental factors: market dynamism and competitive intensity. *Market dynamism* refers to the rate of environmental changes a firm faces (Achrol, 1991). Environmental changes can involve structural changes in competition as well as in customer preferences and technologies. A high level of market dynamism reduces a firm's ability to make accurate predictions and increases uncertainty (Duncan, 1972). Research shows that alliance proactive firms can benefit from dynamic markets in terms of higher market performance (Sarkar et al., 2001). In dynamic markets, existing configurations of resources and capabilities used to establish competitive advantage may become obsolete and require modification or re-configuration. Thus, in dynamic markets, firms are likely to need to update and modify their resource base to respond to changing environmental circumstances. Alliance proactive firms have an advantage in sensing partners with needed resources ahead of competitors and seizing these partnering opportunities by forming exclusive arrangements.

Competitive intensity refers to the degree of rivalry that a firm faces in a market (Grewal & Tansuhaj, 2001). Under conditions of high competition, many competitors exist in a market, and therefore customers have alternative options to satisfy their needs (Jaworski & Kohli, 1993). Firms operating in highly competitive environments may use innovative technologies to either reduce production costs or enhance their offerings. Access to such valuable technologies thus gains relevance and enhances alliance proactiveness as a means for generating first-mover advantages. In addition, under conditions of high competition, firms' alertness to competitor actions increases, implying intensified market screening and tracking of potential market opportunities.

4. Research approach

4.1. Data collection and sample

To examine the interplay among alliance proactiveness, organizational and environmental factors, and market performance, we analyzed data from a survey with key informants from multiple firms who had previously participated in inter-organizational technology transfer (ITT) projects (Leischnig et al., 2014). ITT encompasses purposeful, goal-oriented interactions between two or more organizations to exchange technological knowledge and/or artifacts and rights (Amesse & Cohendet, 2001) and is the basis of various forms of inter-organizational collaboration, such as outward technology commercialization or inward technology acquisition activities (e.g., Lichtenthaler & Lichtenthaler, 2010).

Table 1
Sample composition.

Respondent and firm characteristics	%
Industry	
Metal industry	45
Chemical industry	34
Industrial services	12
Consumer goods	9
Firm size (number of employees)	
Fewer than 100	13
100 to 500	41
500 to 1000	6
1000 to 5000	17
More than 5000	23
Position of respondents	
CEO/COO	25
Head of R&D	56
R&D project leader	10
Other (e.g., technical officer)	9

The sampling frame consisted of 1100 firms identified through the Hoppenstedt database, a large commercial database containing contact information for a comprehensive list of firms located in Germany. The firms represented one of the following industries: metalworking, chemicals, industrial services, or consumer goods. Of the firms, 543 indicated they previously participated in ITT. Data were collected in an online survey. Respondents received a cover letter inviting their participation in the online questionnaire. In total, 68 respondents participated in the study (12.5% response rate). Table 1 shows the sample composition.

4.2. Construct measures and measurement validation

We used a standardized questionnaire as the main data collection instrument. We employed single items to capture alliance experience and firm size. For alliance experience, we asked respondents to indicate the number of previously completed ITT projects (Schilke & Goerzen, 2010). For firm size, we asked respondents about the number of employees with the firm, using a five-point Likert-type scale ranging from 1 ("fewer than 100 employees") to 5 ("more than 5000 employees"). For all other constructs, we employed multiple-item measures presented on five-point Likert-type scales. To measure alliance proactiveness, we used three items based on Schilke and Goerzen (2010). For the measurement of firm specialization, we used four items following the definition of firm specialization as suggested by Luo and Homburg (2008) plus an item from Vorhies and Morgan (2003). We assessed market dynamism with three items inspired by Baker and Sinkula (1999). In addition, we employed three items to measure competitive intensity (Gatignon & Xuereb, 1997). Finally, to capture market performance, we used three items adapted from Vorhies and Morgan (2005). Table 2 provides information on the construct measures.

We established the measurement models using confirmatory factor analysis and by assessing global fit indices and evaluating the internal structure of the model (e.g., Bagozzi & Yi, 1988, 2012; Bagozzi, Yi, & Phillips, 1991). For the overall model fit, we used multiple indices, including the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root mean square error of approximation (RMSEA). The results showed that the measurement model has an acceptable overall model fit (χ^2 = 159.38, df = 116; χ^2/df = 1.37; CFI = 0.93; TLI = 0.90; RMSEA = 0.07). To assess the internal structure of the measurement model and to confirm reliability and validity of the construct measures, we calculated additional parameters. The results showed that Cronbach's alphas ranged between 0.78 and 0.89, thus exceeding the commonly used threshold of 0.7 (Nunnally, 1978). Composite reliability

Table 2
Information on construct measures.

Construct measures and measurement properties
Alliance proactiveness (CA = 0.78; CR = 0.79; AVE = 0.56)
To what extent do you agree with the following statements?
Scale: 1 = "completely disagree"; 5 = "completely agree"
We often take the initiative in approaching firms with ITT proposals.
We are proactive and responsive in finding and "going after" ITT partnerships.
We actively monitor our environment to identify R&D partnership opportunities.
Firm specialization (CA = 0.81; CR = 0.82; AVE = 0.55)
To what extent do you agree with the following statements?
Scale: 1 = "completely disagree"; 5 = "completely agree"
Our company is very specialized.
Our company is a specialist in its market.
For the most part, we offer special solutions to our customers.
Most of our employees have jobs that require special skills.
Firm experience (CA = −; CR = −; AVE = −)
Number of ITT projects
Please indicate the number of ITT projects your company has completed. (open-ended)
Firm size (CA = −; CR = −; AVE = −)
Number of employees
Scale: 1 = "fewer than 100 employees"; 5 = "more than 5000 employees"
Market dynamism (CA = 0.88; CR = 0.88; AVE = 0.71)
To what extent do you agree with the following statements?
Scale: 1 = "completely disagree"; 5 = "completely agree"
Dynamism is extreme in our industry.
The rate of change in our industry is high.
The structures of our industry change rapidly.
Competitive intensity (CA = 0.89; CR = 0.89; AVE = 0.74)
To what extent do you agree with the following statements?
Scale: 1 = "completely disagree"; 5 = "completely agree"
Competition in our industry is cut-throat.
Compared to other industries, the intensity of competition in our industry is high.
The level of competitive intensity in our industry is high.
Market performance (CA = 0.88; CR = 0.88; AVE = 0.71)
Please evaluate the performance of your company over the last years relative to your major competitors.
Scale: 1 = "much worse than competitors"; 5 = "much better than competitors"
Market share growth
Growth in sales revenue
Increasing sales to existing customers

Notes: CA = Cronbach's alpha, CR = composite reliability; AVE = average variance extracted.

values ranged from 0.79 to 0.89, and average variances extracted ranged from 0.55 to 0.74, thus exceeding the thresholds of 0.6 and 0.5, respectively (Bagozzi & Yi, 1988). Analysis of discriminant validity based on Fornell and Larcker's (1981) suggested procedure revealed that the average variance extracted for each construct was greater than the squared inter-construct correlations (see Table 3). In summary, the results revealed that the model fits the empirical data well.

4.3. Data analysis

4.3.1. Analytic approach

We used fsQCA to examine the complex causal patterns among alliance proactiveness, organizational factors, and environmental factors to explain market performance. FsQCA is based on the perspective that relationships between antecedent conditions and an outcome condition of interest are best understood in terms of set membership and set relations (Fiss, 2011; Ragin, 2008). It examines how the membership of cases in the sets of antecedent conditions or combinations thereof is linked to membership in the outcome set (Fiss, 2011; Ragin, 2008).

FsQCA examines connections between antecedent conditions and the outcome condition in terms of necessity and sufficiency. Necessity implies that an antecedent condition must be present for an outcome (Ragin, 2008). From a set-theoretic standpoint, necessity means that the instances of the antecedent condition are a superset of the instances of the outcome (Ragin, 2006). Sufficiency implies that an antecedent condition (or a combination of antecedent conditions) can bring about an outcome (Ragin, 2008). Thus, sufficiency means that instances of the (combinations of) antecedent conditions are a subset of the instances of the outcome (Ragin, 2006).

In line with recommendations in the literature (Fiss, 2011; Ragin, 2008; Schneider & Wagemann, 2010), we performed the fsQCA in three steps. First, we calibrated the construct measures to obtain each case's membership scores in the sets of antecedent conditions and the outcome set. The fsQCA encompassed six antecedent conditions: alliance proactiveness, three organizational factors (i.e., firm specialization, firm experience, and firm size), and two environmental factors (i.e., market dynamism and competitive intensity). The outcome of interest was market performance. Second, we performed an analysis of necessity to examine whether any of the antecedent conditions is necessary for the outcome. Third, we examined sufficient (combinations of) antecedent conditions for the outcome.

4.3.2. Calibration

FsQCA requires the calibration of fuzzy sets, which entails transforming construct measures into fuzzy-set membership scores. Following Ragin (2008), we specified thresholds for full membership in the fuzzy sets, thresholds for full non-membership in the fuzzy sets, and crossover points to structure the calibration. We first combined the multiple-item construct measures into average scores and then converted all measures into fuzzy-set membership scores, using the direct method of calibration and the fs/QCA software program (Ragin, Drass, & Davey, 2006).

For alliance proactiveness, we calibrated membership in the set of alliance proactive firms using the threshold 5 (on a five-point scale) for full membership, the threshold 1 for full non-membership, and the value 3 (i.e., the scale midpoint) as the crossover point. This approach ties set membership to the level of agreement that respondents indicate for the particular items reflecting alliance proactiveness. Firms are fully in the set of alliance proactive firms if respondents indicate complete agreement with all items of the measurement instrument, and they are fully out of the set of proactive firms if respondents report complete

Table 3
Discriminant validity.

	Scale	M	SD	1	2	3	4	5	6	7
Market performance	1–5	3.4	0.61	0.72						
Alliance proactiveness	1–5	3.9	0.72	0.06	0.56					
Firm specialization	1–5	3.8	0.81	0.13	0.01	0.55				
Firm alliance experience	Ratio	34.5	132.21	0.01	0.05	0.00	–			
Firm size	1–5	3.2	1.81	0.04	0.00	0.01	0.01	–		
Market dynamism	1–5	3.4	0.87	0.03	0.15	0.01	0.03	0.00	0.71	
Competitive intensity	1–5	3.7	0.93	0.14	0.02	0.00	0.07	0.02	0.38	0.74

Notes: Average variance extracted is on the diagonal, and squared correlations are below the diagonal.

disagreement with the respective items. In addition, firms with a score between 3 and 5 are more in than out of the set, and firms with a score between 1 and 3 are more out than in the set of alliance proactive firms. We used the same rules for the calibration of membership in the sets of firm specialization, market dynamism, and competitive intensity. For the calibration of firm size, we draw on external standards provided by the European Commission (2005). We set the threshold for membership in the set of large firms at value 3, which means that all firms with more than 500 employees are fully in the set of large firms. We set the threshold for full non-membership at value 1. Thus, all firms with fewer than 100 employees are fully out of the set of large firms. We set the crossover point at value 2, that is, firms with more than 100 employees but fewer than 500 employees. For alliance experience, we set the threshold for full membership in the set at value 10, implying that firms with more than 10 previous alliance projects (here technology transfer projects) were fully in the set of experienced firms. This value corresponds to descriptive statistics as reported in prior empirical studies on R&D alliances (e.g., Schilke & Goerzen, 2010). In addition, we set the threshold for full non-membership in this set at value 1. Thus, firms that entered one prior technology transfer project, lack repeated alliance behavior, and therefore cannot compare across prior alliances were fully out of the set of alliance experienced firms. For alliance experience, we set the crossover point at value 5 (i.e., the halfway mark). For market performance, we asked respondents to evaluate the performance of their firm during the past years relative to major competitors, using a five-point scale ranging from 1 (“much worse”) to 5 (“much better”). To calibrate membership in the set of high market performance, we set the threshold for full membership at value 4, implying that all firms that perform at least “better” than competitors are fully in the set, and the threshold for full non-membership at value 2, implying that firms that perform “worse” and “much worse” than competitors are fully out of the set of firms with high market performance. We set the crossover point at value 3, which reflects that firms have a market performance similar to that of their competitors.

Calibration of construct measures can produce fuzzy-set membership scores of 0.5 that exactly meet the crossover point and thus lead to problems when determining whether a case is in or out of a particular set (Ragin, 2008). To address this issue, we added a constant of 0.001 to the fuzzy-set membership scores for all conditions below full membership (Fiss, 2011).

4.3.3. Analysis of set relations

To examine whether the antecedent conditions are necessary conditions for market performance, we performed an analysis of necessity. Necessity means that for each empirical case, the fuzzy-set membership score of the outcome of interest is smaller than the fuzzy-set membership score of the antecedent condition (and the antecedent condition set is thus a superset of the outcome set). This rule typically does not hold for all empirical cases. Therefore, prior work suggests the use of consistency scores. In an analysis of necessity, consistency indicates the degree to which the empirical data are in line with a superset relation (Ragin, 2006). A condition is considered necessary or ‘almost always necessary’ if the consistency score exceeds the threshold of 0.9 (e.g., Leischnig, Ivens, & Henneberg, 2015; Schneider, Schulze-Bentrop, & Paunescu, 2010). Table 4 summarizes the results of the analysis of necessity and reports consistency scores as well as additional coverage scores. In an analysis of necessity, coverage scores offer insights into the relevance and trivialness of a necessary condition (Ragin, 2006). The results of the analysis (Table 4) indicate that the consistency scores for all antecedent conditions (and their negations) were lower than the threshold value of 0.9. With this finding, none of the antecedent conditions can be considered necessary for market performance.

We then proceeded with an analysis of sufficiency to disentangle combinations of alliance proactiveness, the three organizational factors, and the two environmental factors sufficient for market performance. We created a truth table that represents all logically possible combinations of the six antecedent conditions. Next, we simplified this truth table using frequency and consistency thresholds (Fiss, 2011; Ragin, 2008).

Table 4
Necessary conditions.

	Market performance	
Antecedent conditions	Consistency	Coverage
Alliance proactiveness	0.88	0.79
Firm specialization	0.87	0.82
Firm alliance experience	0.57	0.72
Firm size	0.81	0.78
Market dynamism	0.73	0.81
Competitive intensity	0.82	0.82
~Alliance proactiveness	0.34	0.90
~Firm specialization	0.35	0.81
~Firm alliance experience	0.53	0.76
~Firm size	0.39	0.85
~Market dynamism	0.50	0.84
~Competitive intensity	0.41	0.83

Notes: ~ = negation (i.e., logical *not*); necessity threshold = 0.9.

Frequency refers to the number of empirical cases covering a particular combination of antecedent conditions. The definition of a frequency cutoff implies that the analysis occurs only for those combinations of antecedent conditions that achieve a minimum level of empirical representation. Combinations with less or no empirical representation are treated as logical remainders in the analysis. For frequency, we set the cutoff at value 2. This threshold ensured that 82% of all the empirical cases were part of the analysis and that combinations having less empirical representation (i.e., less than two cases) were treated as logical remainders (Greckhamer, Misangyi, & Fiss, 2013).

To distinguish configurations that consistently lead to high market performance from those that do not, we set the minimum acceptable level of consistency at 0.95, which exceeds the commonly used threshold of 0.8 (Ragin, 2008). We obtained this value from an inspection of the ordered consistency scores and a dip in the scores at value 0.95 (Schneider & Wagemann, 2010). In addition, for these configurations, we inspected proportional reduction in inconsistency (PRI) scores and set the minimum acceptable level at 0.75 (Misangyi & Acharya, 2014). PRI scores are sensitive to conditions being a subset of the presence and negation of an outcome (Schneider & Wagemann, 2012).

Finally, we analyzed the refined truth table (see Appendix A) using the truth table algorithm as implemented in the fs/QCA software program (Ragin et al., 2006). For a sufficiency analysis, fsQCA reports three types of solutions: the parsimonious, the intermediate, and the complex solution. These solutions differ in the extent in which logical remainders have been considered in the analysis. According to Fiss (2011), a comparison of the parsimonious and intermediate solutions helps identify core and peripheral conditions for an outcome. While core conditions appear in both the parsimonious and the intermediate solution and can be interpreted as causally essential for an outcome, peripheral conditions are only part of the intermediate solution and thus can be interpreted as less causally essential for the outcome. Table 5 shows the parsimonious and the intermediate solutions of the sufficiency analysis and reports the frequency, raw consistency, and PRI values used for the analysis. We employ the notation developed by Ragin and Fiss (2008) to illustrate the results. The configurations are grouped by their core conditions.

The analysis indicates the existence of four configurations sufficient for market performance, with one configuration (i.e., configuration 1) having two neutral permutations (i.e., configurations 1a and 1b; Fiss, 2011). In addition to these configurations, Table 5 shows consistency and coverage scores for the overall solution as well as for each of the configurations. In an analysis of sufficiency, consistency highlights the

Table 5
Configurations for market performance.

	Market performance				
Antecedent conditions	1a	1b	2	3	4
Alliance proactiveness	●	●	●	●	●
Firm specialization	●		●	●	●
Firm alliance experience		●	⊗	⊗	●
Firm size	●	●		●	●
Market dynamism		●	●	●	⊗
Competitive intensity	●	●	●		
Consistency	0.95	0.94	0.94	0.95	0.98
Raw coverage	0.62	0.39	0.37	0.32	0.29
Unique coverage	0.05	0.01	0.05	0.01	0.02
Overall solution consistency	0.93				
Overall solution coverage	0.71				

Notes: ● = presence of a causal condition, ⊗ = negation of a causal condition, big circles = core conditions, small circles = peripheral conditions, blank space = subordinate causal condition; Analysis thresholds: frequency = 2 (82% of the cases); raw consistency = 0.95; PRI = 0.88.

significance of a subset relation, and coverage indicates the proportion of cases that involve a particular configuration in bringing about the outcome in question (Ragin, 2006). The overall solution consistency score is 0.93, and the consistency scores for the particular configurations are 0.94 or above. Furthermore, the combined model has an overall coverage score of 0.71, which indicates that the configurations account for more than 70% of membership in the outcome, and the raw coverage scores for the particular configurations range between 0.29 and 0.62.

Configuration 1a combines alliance proactiveness with firm specialization, firm size, and competitive intensity. In this configuration, size and competitive intensity are core conditions, and alliance proactiveness and specialization are peripheral conditions. Firms' alliance experience and the level of market dynamism have a subordinate role in configuration 1a. Configuration 1b combines alliance proactiveness with alliance experience, firm size, market dynamism, and competitive intensity. Again, firm size and competitive intensity are core conditions, and the remaining conditions are peripheral factors. Firm specialization has a subordinate role in configuration 1b. Configuration 2 shows a combination of factors, including alliance proactiveness, firm specialization, the negation of alliance experience (i.e., low alliance experience), market dynamism, and competitive intensity. Low alliance experience and competitive intensity are core conditions, and alliance proactiveness, firm specialization, and market dynamism are peripheral factors. In configuration 2, firm size has a minor role, as indicated by the blank space. Configuration 3 combines alliance proactiveness with firm specialization, low alliance experience, firm size, and market dynamism. In this solution, low experience and firm size are core factors, and alliance proactiveness, firm specialization, and market dynamism are peripheral factors. Competitive intensity has a subordinate role in configuration 3. Finally, configuration 4 shows that alliance proactiveness in combination with firm specialization, alliance experience, and firm size can contribute to high market performance in stable markets. In this configuration, firm size is a core factor, and the remaining conditions are peripheral factors. Similar to configuration 3, competitive intensity has a minor role in achieving high market performance in configuration 4.

4.3.4. Follow-up analyses

We also performed a series of follow-up analyses to obtain additional insights into the complex causal patterns of the conditions under investigation. These analyses included three sufficiency analyses based on alternative calibrations of the fuzzy sets and one sufficiency analysis for the negation of the outcome (i.e., low market performance).

First, we changed the calibration of alliance proactiveness, using the threshold values of 4, 3, and 2 for full set membership, the crossover point, and full set non-membership, respectively (leaving all other sets as specified in our main analysis). Thus, we relaxed the thresholds for cases to become members and non-members of the set of alliance proactive firms. In a second analysis, we changed the calibration of market performance using the thresholds of 5, 3, and 1 for full set membership, the crossover point, and full set non-membership, respectively (leaving all other sets as specified in our main analysis). Thus, we were more restrictive in defining high and low performers. In a third analysis, we changed the calibration of alliance proactiveness, firm specialization, market dynamism, competitive intensity, and market performance (i.e., all constructs captured on multiple-item scales) using the same calibration rules (i.e., 4.67, 3, and 1.33 for full set membership, the crossover point, and full set non-membership, respectively, leaving the sets of firm alliance experience and firm size as defined in the main analysis). The results of these analyses indicated that the compositions of the configurations remained the same. However, we observed minor changes in the consistency and the coverage scores of the overall solutions and the particular configurations. Finally, we conducted a sufficiency analysis for the negation of high market performance. In this analysis, an inspection of the ordered consistency values as part of the refinement of the truth table for subsequent analysis revealed scores below the standard threshold of 0.8 (Fiss, 2011; Ragin, 2008). Thus, the results did not indicate consistently sufficient pathways for the negation of high market performance.

5. Discussion

5.1. Theoretical contributions

External networks and inter-organizational alliances can provide several benefits for firms. To obtain such benefits, firms need to develop competencies and capabilities that enhance their ability for value creation and capturing. In this article, we focused on one of these capabilities—namely, alliance proactiveness—in an attempt to improve the understanding of its performance effects. Specifically, adopting a configuration theoretical perspective (Fiss, 2011; Meyer et al., 1993), we aimed to further illuminate the situations in which alliance proactiveness contributes to market performance by examining its interplay with additional organizational and environmental factors.

The findings of our analysis indicate that alliance proactiveness contributes to market performance in a broad range of settings. We identify four configurations that represent equifinal pathways for high market performance. These configurations differ in their particular composition, but they are all consistently sufficient routes to high market performance. While the existence of multiple pathways for market performance highlights across-type equifinality, the presence of neutral permutations within configuration 1 indicates within-type equifinality (Fiss, 2011). Consistent with previous studies (Sarkar et al., 2001), we find that firms can achieve high market performance if they undertake proactive alliance activities in dynamic markets (configurations 1b, 2, and 3). However, the results also show that alliance proactiveness can contribute to market performance in stable, less dynamic markets (configuration 4). A closer inspection of configuration 4 indicates that this effect occurs for large and specialized firms with rich alliance experience. The results of this study thus provide more fine-grained and nuanced findings by disentangling complex patterns of causal factors that lead to high market performance. An important finding of the analysis is that alliance proactiveness constitutes an integral element of each of the four configurations. In light of this promising finding, it might be concluded that alliance proactiveness represents a crucial condition for market performance. This view, however, would be misleading. The results of the analysis of necessity show that alliance proactiveness is not a necessary condition for market

performance; rather, it represents an element of alternative factor combinations that unfolds its performance-enhancing effect in the presence and absence of additional organizational and environmental factors. With a focus on the distinction between core and peripheral conditions, the analyses show that alliance proactiveness is a peripheral condition in each of the particular configurations. Thus, while important for achieving market performance in diverse constellations of organizational and environmental factors, proactive alliance behavior is a factor that surrounds core conditions and underscores their central features. Regarding the relative empirical importance of the particular configurations as expressed in the coverage scores, the findings show that configuration 1a has the highest raw coverage score (i.e., value 0.62). Thus, for large and specialized firms that operate in competitive markets, proactive alliance behavior seems a vital approach to achieve high market performance.

5.2. Managerial implications

The findings have important implications for management practice. A major challenge for firms is the alignment of firm-internal strategies, structures, and processes with the characteristics of the business environment to outperform competitors (Ketchen et al., 1993). The findings of our analysis describe alternative combinations of organizational and environmental factors in which alliance proactiveness contributes to market performance. Knowledge of these configurations provides guidance for managers by offering design choices. Specifically, the configurations help them evaluate business environments and reach informed decision about how to react in these environments in terms of proactive alliance activity. The configurations might also serve as a basis for the evaluation of firm attributes and the development of alignment strategies. The majority of the configurations include the presence of alliance proactiveness and firm specialization. Thus, alliance proactiveness can pay off for firms that compete in specific market segments and that capitalize on specialized resources endowments. As prior research reveals, specialization can result in a competency trap (Levitt & March, 1988). However, developing the ability to sense and seize valuable external partnering opportunities and take preemptive action in response to them may help address this issue and can contribute to high market performance in diverse environmental conditions. Thus, firms should carefully evaluate their organizational characteristics and market environments to reach informed decisions about how to react in terms of proactive alliance activity. In a similar vein, firms should regularly monitor and further develop their ability to sense and seize valuable external partnering opportunities and take preemptive action in response to them. To this end, procedures and structures that support a firm's alliance proactiveness should be established.

In terms of procedures, firms should monitor their alliance activities in general and their alliance proactiveness in particular, to uncover gaps and initiate appropriate measures to adjust their level of alliance proactiveness to existing organizational and environmental requirements. Codification of prior alliance experiences and dissemination of this knowledge within the firm can be decisive for advancing a firm's alliance proactiveness. Firms can strongly benefit from documenting experiences with alliance partners; the process of alliance formation, obstacles, and solutions; and their impact on alliance success. These documents can be valuable for designing checklists or manuals that help managers initiate and develop inter-organizational partnerships effectively. To share this knowledge, specific learning tools, such as seminars, trainings, or workshops, can aid in the dissemination of knowledge within the firm (Lambe et al., 2002).

In terms of structures, the creation of an alliance manager position or, depending on the size of a firm, an alliance department and the allocation of resources to such entities can assist a firm in proactively managing inter-firm ties (Sluyts, Matthyssens, Martens, & Streukens, 2011). A dedicated alliance unit could be in charge of sensing and seizing activities and determining the appropriate measures to advance and improve this capability as well as related alliance capabilities. As the identification of alliance opportunities and the formation of access relationships into relevant resources and know-how build on an understanding of a firm's existing resource portfolio, alliance units should collaborate with other units of a firm, which implies cross-functional information flows and effective interface management. To strengthen their alertness to potentially relevant partnering opportunities, firms should consider investing in information technology, digital resources, and database systems. Such technologies could support firms in scanning market environments, identifying and evaluating potentially relevant partners, and storing critical information on partnering opportunities.

5.3. Avenues for further research

The findings may also serve as a starting point for future studies on alliance capabilities and networking. First, our study certainly does not cover an exhaustible list of relevant organizational and environmental factors. Therefore, further research should consider additional firm and environmental characteristics and examine their interplay with alliance capabilities to predict performance outcomes. For example, studies could consider firms' strategic orientations (e.g., technology orientation, relationship orientation, market orientation) and examine the complex causal patterns among strategic orientations, alliance capabilities, and environmental factors to predict market performance.

Second, future studies could further illuminate the implications of alliance capabilities, especially alliance proactiveness, for network management and network configurations (Corsaro, Ramos, Henneberg, & Naudé, 2012). High alliance proactiveness involves modification of a firm's strategic net through the formation of direct relationships with external partners. High alliance proactiveness thus shapes the structure of a focal firm's immediate network and likely influences the position of a firm in a network as well as the intensity and quality of relationships with network partners. Within this context, future studies could examine how alliance proactiveness and network characteristics work together to affect the ability of firms to create and capture value in business networks from both a short- and a long-term perspective.

Third, in this research we focused on ITT, which involves the transfer of technological knowledge and know-how. Future studies could consider other types of inter-firm collaboration such as new product development alliances or marketing alliances. For example, it would be useful to know whether dominant configurations of organizational and environmental factors exist across these different forms of inter-organizational exchanges.

Finally, from a methodological vantage point, a further avenue for future studies involves tests of robustness for the findings obtained in this research. Recent studies indicate that fsQCA, though providing insights into the necessity and sufficiency of antecedent conditions for an outcome, is restricted to an analysis of so-called in-kind necessity and suggests a new way to address this limitation through analysis of in-degree necessity (Dul, 2016a, 2016b). Analysis of in-degree necessity, such as through Necessary Condition Analysis (NCA) would shed light on what level of an antecedent condition (e.g., alliance proactiveness) is necessary for what level of an outcome (e.g., market performance) and thus provide more fine-grained insights.

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Appendix A. Truth table

AP	FSP	FE	FS	MD	CI	Frequency (% of cases)	MP
1	1	1	1	0	0	2 (3)	1
1	1	1	1	0	1	5 (7)	1
1	1	0	1	1	0	2 (3)	1
1	1	0	0	1	1	3 (4)	1
1	0	1	1	1	1	4 (6)	1
1	1	1	1	1	1	19 (28)	1
1	1	0	1	0	1	2 (3)	1
1	1	0	1	1	1	16 (24)	1
1	1	1	0	1	0	3(4)	0

Notes: AP = alliance proactiveness, FSP = firm specialization, FE = firm (alliance) experience, FS = firm size, MD = market dynamism, CI = competitive intensity, MP = market performance; logical remainders are excluded.

References

Achrol, R. S. (1991). Evolution of the marketing organization: New forms for turbulent environments. *Journal of Marketing, 55*(4), 77–93.

Alvarez, S. A., & Barney, J. B. (2001). How entrepreneurial firms can benefit from alliances with large partners. *Academy of Management Executive, 15*(1), 139–148.

Amesse, F., & Cohendet, P. (2001). Technology transfer revisited from the perspective of the knowledge-based economy. *Research Policy, 30*(9), 1459–1478.

Anand, B. N., & Khanna, T. (2000). Do firms learn to create value? The case of alliances. *Strategic Management Journal, 21*(3), 295–315.

Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science, 16*(1), 74–94.

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science, 40*(1), 8–34.

Bagozzi, R. P., Yi, Y., & Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly, 36*(3), 421–458.

Baker, W. E., & Sinkula, J. M. (1999). The synergistic effect of market orientation and learning orientation on organizational performance. *Journal of the Academy of Marketing Science, 27*(4), 411–427.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Corsaro, D., Ramos, C., Henneberg, S. C., & Naudé, P. (2012). The impact of network configurations on value constellations in business markets—The case of an innovation network. *Industrial Marketing Management, 41*(1), 54–67.

Das, T. K., & Teng, B. S. (2002). The dynamics of alliance conditions in the alliance development process. *Journal of Management Studies, 39*(5), 725–746.

Delery, J. E., & Doty, D. H. (1996). Modes of theorizing in strategic human resource management: Tests of universalistic, contingency, and configurational performance predictions. *Academy of Management Journal, 39*(4), 802–835.

Dess, G. G., & Lumpkin, G. T. (2005). The role of entrepreneurial orientation in stimulating effective corporate entrepreneurship. *Academy of Management Executive, 19*(1), 147–156.

Doty, D. H., & Glick, W. H. (1994). Typologies as a unique form of theory building: Toward improved understanding and modeling. *Academy of Management Review, 19*(2), 230–251.

Doz, Y. L., & Hamel, G. (1998). *Alliance advantage: The art of creating value through partnering.* Boston: Harvard Business Press.

Dul, J. (2016a). Identifying single necessary conditions with NCA and fsQCA. *Journal of Business Research, 69*(4), 1516–1523.

Dul, J. (2016b). Necessary condition analysis (NCA) logic and methodology of "necessary but not sufficient" causality. *Organizational Research Methods, 19*(1), 10–52.

Duncan, R. B. (1972). Characteristics of organizational environments and perceived environmental uncertainty. *Administrative Science Quarterly, 17*(3), 313–327.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*(4), 660–679.

European Commission (2005). The new SME definition. *Catalog number NB-60-04-773-EN-C*.

Fiss, P. C. (2007). A set-theoretic approach to organizational configurations. *Academy of Management Review, 32*(4), 1180–1198.

Fiss, P. C. (2011). Building better causal theories: A fuzzy set approach to typologies in organization research. *Academy of Management Journal, 54*(2), 393–420.

Forkmann, S., Henneberg, S., Naudé, P., & Mitrega, M. (2016). Supplier relationship management capability: A qualification and extension. *Industrial Marketing Management, 57*, 185–200.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39–50.

Gatignon, H., & Xuereb, J. M. (1997). Strategic orientation of the firm and new product performance. *Journal of Marketing Research, 34*(1), 77–90.

Geigenmüller, A., & Leischnig, A. (2017). A configurational perspective on alliance management capabilities. In T. K. Das (Ed.). *Managing alliance portfolios and networks. Research in strategic alliances* (pp. 71–90). Charlotte, NC: Information Age Publishing.

Geringer, J. M. (1991). Strategic determinants of partner selection criteria in international joint ventures. *Journal of International Business Studies, 22*(1), 41–62.

Grandori, A., & Furnari, S. (2008). A chemistry of organization: Combinatory analysis and design. *Organization Studies, 29*(3), 459–485.

Greckhamer, T., Misangyi, V. F., Elms, H., & Lacey, R. (2008). Using QCA in strategic management research: An examination of combinations of industry, corporate, and business unit effects. *Organizational Research Methods, 11*(4), 695–726.

Greckhamer, T., Misangyi, V. F., & Fiss, P. C. (2013). The two QCAs: From a small-N to a large-N set theoretic approach. In P. C. Fiss, B. Cambré, & A. Marx (Eds.). *Configurational theory and methods in organizational research. Research in the sociology of organizations* (pp. 49–75). Bingley, UK: Emerald.

Gresov, C., & Drazin, R. (1997). Equifinality: Functional equivalence in organization design. *Academy of Management Review, 22*(2), 403–428.

Grewal, R., & Tansuhaj, P. (2001). Building organizational capabilities for managing economic crisis: The role of market orientation and strategic flexibility. *Journal of Marketing, 65*(2), 67–80.

Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal, 20*(5), 397–420.

Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. (2001). Strategic entrepreneurship: Entrepreneurial strategies for wealth creation. *Strategic Management Journal, 22*(6/7), 479–491.

Human, S. E., & Provan, K. G. (2000). Legitimacy building in the evolution of small-firm multilateral networks: A comparative study of success and demise. *Administrative Science Quarterly, 45*(2), 327–365.

IBM (2014). Twitter and IBM form global partnership to transform enterprise decisions. Retrieved April 5, 2015, from http://www-03.ibm.com/press/us/en/pressrelease/45265.wss.

Ireland, R. D., Hitt, M. A., & Vaidyanath, D. (2002). Alliance management as a source of competitive advantage. *Journal of Management, 28*(3), 413–446.

Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: Antecedents and consequences. *Journal of Marketing, 57*(3), 53–70.

Kale, P., Dyer, J. H., & Singh, H. (2002). Alliance capability, stock market response, and long-term alliance success: The role of the alliance function. *Strategic Management Journal, 23*(8), 747–767.

Ketchen, D. J., Thomas, J. B., & Snow, C. C. (1993). Organizational configurations and performance: A comparison of theoretical approaches. *Academy of Management Journal, 36*(6), 1278–1313.

Lambe, C. J., & Spekman, R. E. (1997). Alliances, external technology acquisition, and discontinuous technological change. *Journal of Product Innovation Management, 14*(2), 102–116.

Lambe, C. J., Spekman, R. E., & Hunt, S. D. (2002). Alliance competence, resources, and alliance success: Conceptualization, measurement, and initial test. *Journal of the Academy of Marketing Science, 30*(2), 141–158.

Leischnig, A., Geigenmüller, A., & Lohmann, S. (2014). On the role of alliance management capability, organizational compatibility, and interaction quality in interorganizational technology transfer. *Journal of Business Research, 67*(6), 1049–1057.

Leischnig, A., Ivens, B. S., & Henneberg, S. C. (2015). When stress frustrates and when it does not: Configural models of frustrated versus mellow salespeople. *Psychology and Marketing, 32*(11), 1098–1114.

Levitt, B., & March, J. G. (1988). Organizational learning. *Annual Review of Sociology, 14*, 319–340.

Lichtenthaler, U., & Lichtenthaler, E. (2010). Technology transfer across organizational boundaries: Absorptive capacity and desorptive capacity. *California Management Review, 53*(1), 154–170.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review, 21*(1), 135–172.

Luo, X., & Homburg, C. (2008). Satisfaction, complaint, and the stock value gap. *Journal of Marketing, 72*(4), 29–43.

Madhok, A., Keyhani, M., & Bossink, B. (2015). Understanding alliance evolution and termination: Adjustment costs and the economics of resource value. *Strategic*

Organization, 13(2), 91–116.
Mamakani, K., Myrvold, W., & Ruskey, F. (2011). Generating all simple convexly drawable polar symmetric 6-venn diagrams. In C. S. Iliopoulos, & W. F. Smyth (Eds.). *Combinatorial algorithms (Vol. 7056 of lecture notes in computer science)* (pp. 275–286). Berlin: Springer.
Meyer, A. D., Tsui, A. S., & Hinings, C. R. (1993). Configurational approaches to organizational analysis. *Academy of Management Journal, 36*(6), 1175–1195.
Miller, D. (1996). Configurations revisited. *Strategic Management Journal, 17*(7), 505–512.
Misangyi, V. F., & Acharya, A. G. (2014). Substitutes or complements? A configurational examination of corporate governance mechanisms. *Academy of Management Journal, 57*(6), 1681–1705.
Mitrega, M., Forkmann, S., Ramos, C., & Henneberg, S. C. (2012). Networking capability in business relationships—Concept and scale development. *Industrial Marketing Management, 41*(5), 739–751.
Möller, K. K., & Halinen, A. (1999). Business relationships and networks: Managerial challenge of network era. *Industrial Marketing Management, 28*(5), 413–427.
Nunnally, J. C. (1978). *Psychometric theory*. New York: McGraw-Hill.
Park, S. H., Chen, R. R., & Gallagher, S. (2002). Firm resources as moderators of the relationship between market growth and strategic alliances in semiconductor start-ups. *Academy of Management Journal, 45*(3), 527–545.
Porter, M. E. (1991). Towards a dynamic theory of strategy. *Strategic Management Journal, 12*(S2), 95–117.
Ragin, C. C. (2006). Set relations in social research: Evaluating their consistency and coverage. *Political Analysis, 14*(3), 291–310.
Ragin, C. C. (2008). *Redesigning social inquiry: Fuzzy sets and beyond.* Chicago: University of Chicago Press.
Ragin, C. C., Drass, K. A., & Davey, S. (2006). *Fuzzy-set/qualitative comparative analysis.* Tucson, AZ: Department of Sociology, University of Arizona.
Ragin, C. C., & Fiss, P. C. (2008). Net effects analysis versus configurational analysis: An empirical demonstration. In C. C. Ragin (Ed.). *Redesigning social inquiry: Fuzzy sets and beyond* (pp. 190–212). Chicago: University of Chicago Press.
Ritter, T., & Gemünden, H. G. (2003). Network competence: Its impact on innovation success and its antecedents. *Journal of Business Research, 56*(9), 745–755.
Ritter, T., & Gemünden, H. G. (2004). The impact of a company's business strategy on its technological competence, network competence and innovation success. *Journal of Business Research, 57*(5), 548–556.
Rothaermel, F. T., & Deeds, D. L. (2006). Alliance type, alliance experience and alliance management capability in high-technology ventures. *Journal of Business Venturing, 21*(4), 429–460.
Sarkar, M. B., Aulakh, P. S., & Madhok, A. (2009). Process capabilities and value generation in alliance portfolios. *Organization Science, 20*(3), 583–600.
Sarkar, M. B., Echambadi, R., & Harrison, J. S. (2001). Alliance entrepreneurship and firm market performance. *Strategic Management Journal, 22*(6/7), 701–711.
Schilke, O. (2014). On the contingent value of dynamic capabilities for competitive advantage: The nonlinear moderating effect of environmental dynamism. *Strategic Management Journal, 35*(2), 179–203.
Schilke, O., & Goerzen, A. (2010). Alliance management capability: An investigation of the construct and its measurement. *Journal of Management, 36*(5), 1192–1219.
Schneider, C. Q., & Wagemann, C. (2010). Standards of good practice in qualitative comparative analysis (QCA) and fuzzy-sets. *Comparative Sociology, 9*(3), 397–418.
Schneider, C. Q., & Wagemann, C. (2012). *Set-theoretic methods for the social sciences: A guide to qualitative comparative analysis.* New York: Cambridge University Press.
Schneider, M. R., & Eggert, A. (2014). Embracing complex causality with the QCA method: An invitation. *Journal of Business Market Management, 7*(1), 312–328.
Schneider, M. R., Schulze-Bentrop, C., & Paunescu, M. (2010). Mapping the institutional capital of high-tech firms: A fuzzy-set analysis of capitalist variety and export performance. *Journal of International Business Studies, 41*(2), 246–266.
Simonin, B. L. (1997). The importance of collaborative know-how: An empirical test of the learning organization. *Academy of Management Journal, 40*(5), 1150–1174.
Sirmon, D. G., Hitt, M. A., & Ireland, R. D. (2007). Managing firm resources in dynamic environments to create value: Looking inside the black box. *Academy of Management Review, 32*(1), 273–292.
Sluyts, K., Matthyssens, P., Martens, R., & Streukens, S. (2011). Building capabilities to manage strategic alliances. *Industrial Marketing Management, 40*(6), 875–886.
Teece, D. J. (1996). Firm organization, industrial structure, and technological innovation. *Journal of Economic Behavior & Organization, 31*(2), 193–224.
Teng, B. S. (2007). Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management Studies, 44*(1), 119–142.
Venkatraman, N. (1989). The concept of fit in strategy research: Toward verbal and statistical correspondence. *Academy of Management Review, 14*(3), 423–444.
Vorhies, D. W., & Morgan, N. A. (2003). A configuration theory assessment of marketing organization fit with business strategy and its relationship with marketing performance. *Journal of Marketing, 67*(1), 100–115.
Vorhies, D. W., & Morgan, N. A. (2005). Benchmarking marketing capabilities for sustainable competitive advantage. *Journal of Marketing, 69*(1), 80–94.
Wang, Y., & Rajagopalan, N. (2015). Alliance capabilities review and research agenda. *Journal of Management, 41*(1), 236–260.
Wassmer, U. (2010). Alliance portfolios: A review and research agenda. *Journal of Management, 36*(1), 141–171.
Winter, S. G. (2003). Understanding dynamic capabilities. *Strategic Management Journal, 24*(10), 991–995.
Woodside, A. G. (2014). Embrace perform model: Complexity theory, contrarian case analysis, and multiple realities. *Journal of Business Research, 67*(12), 2495–2503.