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Antecedents and constituents of alliance management capability: the role of valuable alliance experience and governance mechanisms for learning

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Abstract We study the process of *alliance management capability building*, examining what type of alliance experience matters most for its development and the impact of suitable governance mechanisms. Having identified the constituent skills of alliance management capability, we argue that (1) only certain types of alliances can be considered valuable for generating and developing such firm-level capability, enabling firms to successfully manage interorganizational collaborations, and (2) specific governance mechanisms may help to leverage alliance management knowledge from previous partnerships. In our theoretical framework, only experience accruing from firm's embedded alliances can generate the necessary constituent skills. Moreover, in order to affect the capability building process, such experience needs to be heterogeneous in terms of alliance contents, governance

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forms and partners. Finally, we assume a stronger effect of alliance experience when leveraged through the use of specific governance mechanisms. We conducted a single-case study analysis in order to test the theory in encounters with concrete experience.

Keywords Alliance management capability · Alliance experience · Governance mechanisms · Embedded alliances

1 Introduction

In today's complex economic scenario firms are unable to produce internally all the knowledge necessary not only to achieve sustainable competitive advantage but also for survival. At the same time, they cannot rely on mere market transactions to sustain the continuous process of knowledge creation. Therefore, firms often opt for greater specialization and cognitive work division by engaging in strategic alliances.

However, collaborations are complex phenomena which need to be appropriately managed: despite their importance, interorganizational collaborations often fail because of managerial difficulties (Simonin 1997; Anand and Khanna 2000; Ireland et al. 2002). As highlighted by Anand and Khanna (2000: 295), alliances create value, but "there is widespread recognition of the difficulty inherent in this process of value creation, as evidenced by the large fraction of firms that fail to do so, by the numerous academic publications highlighting the failure of alliances, and by the wisdom among practitioners". In this context, a firm's ability to manage interorganizational alliances—termed *alliance management capability*[1] (Schreiner et al. 2009)—appears to be of paramount importance.

In the last decade, several scholars have addressed the question of how firms can develop such capability by mainly looking at its antecedents. Building on organizational learning and evolutionary economics, most of these studies assume that a relevant antecedent of a firm's ability at managing collaboration, hence of alliance success, is previous alliance experience (Anand and Khanna 2000; Kale et al. 2002; Zollo et al. 2002; Sampson 2005; Heimeriks and Duysters 2007).

However, empirical studies on the effect of previous experience on alliance performance have led to mixed results. Some scholars (Anand and Khanna 2000) found a strong positive effect just for a specific type of collaboration (R&D joint ventures). Other studies, which distinguish between general collaborative experience and partner-specific collaborative experience, have provided different findings about their association with performance (Zollo et al. 2002; Hoang and Rothaermel 2005).

Overall, as regards the management of interorganizational collaboration, learning from experience is likely to be more complex as compared to other processes, such as manufacturing, and other administrative tasks where the effect of experience on performance has been widely recognized (Zollo et al. 2002: 702). Therefore, the

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[1] Others refer to this capability as *collaborative know*-how (Simonin 1997) or *alliance capability* (Anand and Khanna 2000).

association between previous alliance experience and alliance performance based on capability development seems to merit further investigation.

Indeed, although previous studies have highlighted the importance of experience in managing collaborations and have stressed the need to take account of differences in the types of alliance experience, the linkage between the characteristics of previous experience—antecedents—and the alliance management skills—constituents—which are fostered by such experience is yet to be fully understood.

This paper aims to provide an insight into what kind of alliance experience matters most for the development of alliance management capability and how governance mechanisms for learning affect such a process. We first identify the constituents of alliance management capability following Schreiner et al. (2009) who conceptualize the capability as a multidimensional construct made of *coordination*, *communication* and *bonding* skills. We then delimit the type of experience which is most likely to stimulate the development of the above skills and refer to it as *valuable alliance experience*. Indeed, we believe that previous alliance experience matters only to the extent that it provides the firm with those specific skills required to manage collaboration, i.e. with the elements that constitute alliance management capability.

We therefore develop a theoretical framework proposing that only experience accruing from firm's embedded alliances can generate alliance management capability skills. We assume that, in order to affect the capability building process, such experience needs to be heterogeneous in terms of alliance contents, governance forms and partners. Moreover, we posit a stronger effect of valuable alliance experience when leveraged through the use of specific governance mechanisms for learning such as formal debriefings of alliance managers, alliance training systems, problem-tracking and problem-solving procedures, alliance committees and task forces, and dedicated alliance functions. Finally, we conducted a single-case study analysis on a firm with a clear reputation and successful record managing alliances, in order to test the theory in encounters with concrete experience.

The paper is organized as follows. Section 2 presents a literature review on alliance management capability, Sect. 3 describes the theoretical framework, analyzing the dimensions thought to affect the development of such capability, and Sect. 4 presents the case study analysis. This is followed in Sect. 5 by conclusion and discussion of some major implications.

2 Literature review: antecedents and constituents of alliance management capability

Two main streams of research have emerged on the topic of alliance management capability (Schreiner et al. 2009; Heimeriks and Schreiner 2010). The first and main one focuses on the antecedents of the capability in question, i.e., on how it develops. This body of literature mainly investigates the role played by the accumulation of experience in the capability building process, suggesting that previous experience in managing alliances might be a critical antecedent of alliance or firm success (Powell et al. 1996; Lorenzoni and Lipparini 1999; Anand and Khanna 2000; Kale et al.

2000; Hoang and Rothaermel 2005; Sampson 2005; Heimeriks and Duysters 2007). Such studies are built on the assumption that a firm's accumulation of experience in a focal activity makes it possible to repeat the action in a similar way. This assumption derives from the experience curve literature, which suggests that repeated engagements in an activity produce benefits through learning by doing: such benefits seem to derive from drawing inferences, encoding, storing and saving experience (Levitt and March 1988). As individuals remember skills by practising them, in the same way organizations remember activities by doing them. That is to say, the skills of an organization lie in their routines and in the operational knowledge which derives from the routinization of an activity (Nelson and Winter 1982: 99).

More specifically, previous alliance experience might help firms to store and develop a repertory of practices which facilitates interpretation, anticipation and response to unforeseeable contingencies and to the unpredictable nature of the interaction between alliance partners (Anand and Khanna 2000: 298). Apart from facilitating decision-making, alliance experience might also help firms to further develop their internal capabilities in terms of strategic and network assets (Powell et al. 1996: 119). The model of learning proposed by Powell et al. (1996) assumes that more extensive experience at managing R&D alliances leads to a more diverse portfolio of alliances and thus increases the firm's ability to become more centrally connected, hence to gain information and reputation benefits. From another standpoint, Lorenzoni and Lipparini (1999) interpret experience at collaborating as a way of lowering the costs of exchange. Specifically, thanks to experience a firm learns how to choose the appropriate governance structure and how to internalize knowledge across the interorganizational network.

However, empirical studies focused on the role of experience on alliance performance show mixed results. Anand and Khanna (2000) found a positive association between collaborative experience and alliance performance on measuring the value created for each firm in the alliance in terms of stock market returns. However, they found a substantial effect of experience for R&D joint ventures, a lower effect for production joint ventures, while no learning effect as regards marketing joint ventures and licensing agreements. Sampson (2005), in his study on a sample of 464 R&D alliances in the telecommunications equipment industry, found that although previous alliance experience has a positive effect on alliance outcomes, such an effect decreases as the extent of alliance experience increases. Merchant and Schendel (2000) found no support for a hypothesized effect of a partner's previous JV experience on firms' JV-based returns.

Mixed findings emerge from other studies which distinguish between general alliance experience gained from any previous alliance and partner-specific alliance experience accumulated through recurrent alliances with the same partner (Zollo et al. 2002; Hoang and Rothaermel 2005). For instance, in studies on the same industry (biotechnology), Zollo et al. (2002) found that partner-specific experience has a positive effect on collaboration performance and that the effect is particularly strong for non-equity alliances while Hoang and Rothaermel (2005) found that only biotech firms' general alliance experience is positively associated with joint project performance.

Hoang and Rothaermel (2010), in their study on R&D alliances in the biotechnology industry, distinguish between exploitation and exploration alliance experience and find support for the hypothesis that the former has a positive effect on R&D project performance while the latter negatively affects R&D project performance.

This first stream of research also includes several studies which, although recognizing the importance of previous alliances, assume that alliance experience alone is not enough, as it is a necessary but not sufficient condition for developing alliance management capability (Simonin 1997; Kale et al. 2001; Heimeriks and Duysters 2007; Kale and Singh 2007). Simonin (1997: 1167) suggests that the lessons of experience have to be internalized by the firm and drawn into specific know-how in order to achieve benefits from future partnerships. Sampson's (2005) findings about the decreasing marginal returns of alliance experience on a firm's innovative performance suggest that the value of experience may depreciate over time, and consequently highlight the need to institutionalize and diffuse best practices within the organization (Sampson 2005: 1027).

Building on organizational learning, evolutionary economics and dynamic capability studies, many scholars have therefore proposed that firms need to invest in *deliberate learning mechanisms* (Zollo and Winter 2002) in order to leverage previous alliance experience and improve alliance performance (Kale and Singh 1999; Kale et al. 2002; Draulans et al. 2003; Heimeriks and Duysters 2007; Kale and Singh 2007). These studies assume that the use of intra-firm governance mechanisms, such as formal debriefings of alliance managers, alliance training systems, rotation across different partnerships of experienced alliance managers, alliance committees and task forces, dedicated alliance functions, etc., helps the firm to draw lessons from previous collaborative experience and diffuse alliance management knowledge within the organization. In other words, by purposefully designing the organization for accumulation, storing, integration and diffusion of organizational knowledge acquired through experience, firms make capability building more effective (Kale et al. 2002: 749).

Although the above studies offer considerable insight into the alliance management capability building process, they do not directly conceptualize alliance capability (Schreiner et al. 2009; Schilke and Goerzen 2010). A second and more recent stream of research investigates *what* exactly constitutes alliance management capability (Schreiner et al. 2009; Heimeriks and Schreiner 2010: 147).

In their attempt to extend this second stream of research, Schreiner et al. (2009) identify alliance management capability as a multidimensional construct based on three skills—*coordination*, *communication* and *bonding*—required to manage the post-formation phase of alliances. *Coordination* refers to the ability to manage and coordinate interdependence among partners; *communication* entails the ability to share accurate knowledge with partners; *bonding* refers to the firm's ability to enhance strong personal relationships among individuals involved in the collaboration. Similarly, Schilke and Goerzen (2010), building on Teece et al.'s (1997) analysis of dynamic capabilities, conceptualize alliance management capability as a higher order construct based on *coordination*, *learning*, *sensing* and *transformation* routines. More specifically, *coordination* refers to those routines required both to

coordinate resources within an individual alliance—interorganizational coordination—and to coordinate the firm's entire alliance portfolio—alliance portfolio coordination—, *learning* refers to routines sustaining interorganizational knowledge transfer, *sensing* entails routines for the identification of opportunities to enter into strategic alliances, and *transformation* refers to routines necessary for adapting and reorganizing alliances during the alliance process.

Believing that the two research streams on alliance management capability—looking respectively at its antecedents and its constituent elements—are strictly related, in this study we aim to combine them. Starting from Schreiner et al.'s (2009) conceptualization of alliance management capability as consisting of coordination, communication and bonding skills, we attempt to shed light on the kind of experience that can actually foster the development of the above skills within the firm and on the role played by intra-firm governance mechanisms in the same process.

3 Theoretical framework

3.1 The framework

Our framework construction results from three main activities:

1. definition of the constituent elements of alliance management capability;
2. identification of the type of experience that can stimulate the development process of such capability, i.e., valuable alliance experience;
3. analysis of the leveraging effects of governance mechanisms.

In the proposed model, after breaking the alliance capability down into its constituent skills, we identify the part of experience contributing to foster them, thus affecting such capability. Finally, since experience is deemed to be a necessary but not sufficient condition in the capability building process, we recognize the role played by adopting specific governance mechanisms in the process.

As shown in Fig. 1, we propose a multidimensional framework for the investigation of the relationship between the part of experience identified as valuable alliance experience and alliance management capability. Moreover, we suggest that the adoption of governance mechanisms for learning is likely to affect such a relationship. Below we provide explanations for each of the assumed relationships.

3.2 Identification of valuable alliance experience

A large volume of alliances does not necessarily mean that learning to manage alliances is actually taking place. Indeed, the argument that a firm's alliance management capability is positively related to a firm's overall experience overlooks the fact that the effect of experience may differ according to the type and quality of previous alliances.
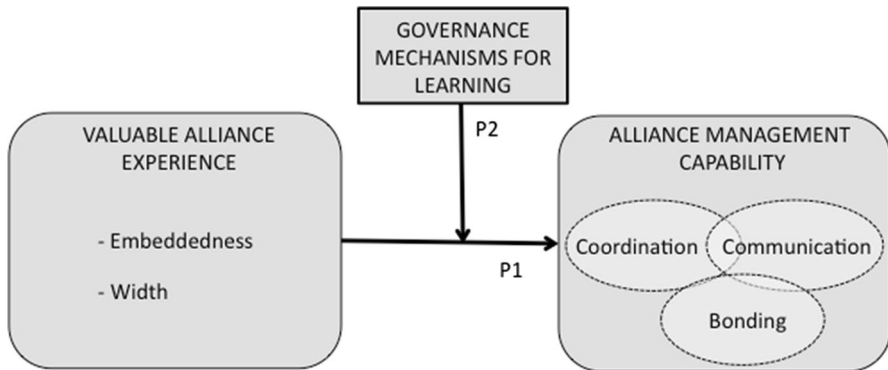
Fig. 1 A theoretical model of alliance management capability building. *Source* Authors' own elaboration

Some studies discriminate between different types of alliance experience (general vs. partner-specific alliance experience, research vs. marketing joint ventures, alliance exploitation vs. alliance exploration, etc.) and look at their impact on performance (Anand and Khanna 2000; Zollo et al. 2002; Hoang and Rothaermel 2010) but do not focus on the relationship between the specific characteristics of experience and the elements which constitute alliance management capability. Thus our aim is to shed more light on this linkage.

Following the perspective that experience produces benefits thank to routines being developed from repeated engagements in the same activity, the starting point in understanding what type of alliance experience might be valuable is clear identification of the exact skills constituting alliance management capability. As defined above, we use Schreiner et al.'s (2009) conceptualization of collaborative capability as comprising *coordination, communication* and *bonding* skills.[2] Coordination refers to the ability to understand and match the interdependence among partners; communication entails the ability to share relevant and accurate knowledge with partners, including the ability to choose adequate communication modes according to the context; bonding refers to the firm's ability to strengthen interpersonal relationships among individuals involved in the collaboration (Schreiner et al. 2009: 1401–1402). Viewed from this angle, alliance management capability appears to be self-enforcing: bonding skills allow a firm to enter partnerships based on relational mechanisms, stimulate a firm's ability to create common communication codes with partners and thus enhance its coordination skills.

The focus on what actually constitutes alliance management capability helps us to identify the experience which matters most, recognizing which kind of experience has features that can provide firms with communication, coordination and bonding skills.

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[2] Following Schreiner et al. (2009), we focus on the skills required to manage and coordinate an individual alliance during the post-formation phase favorably and successfully.

We advance the hypothesis that alliance management learning is more likely generated by previous relationships which resemble the nature of *embedded alliances*. Therefore, even though all experience is valuable for learning in general, we do not consider all types of strategic alliances to be relevant experience for developing alliance management capability as previously defined, but only those characterized by embeddedness.

We borrow from Uzzi (1997) the notion of embeddedness in interfirm networks, characterized by a unique combination of personal, social and economic factors and defined by three main components: *trust, fine-grained information transfer* and *joint problem-solving arrangements*. Embeddedness generates economic opportunities that are difficult to replicate by means of markets, contracts or vertical integration (Uzzi 1997: 37).

Trust—understood as the mutual confidence that no parties involved in the relation will exploit another's vulnerability—is a unique governance mechanism based on voluntary, non-obligating exchanges of assets and resources by norms of generalized reciprocity. Trust seems to operate on the basis of a heuristic process characterized by subtle control of interdependence and self-regulation, instead of a calculative risk-based decision focused on monitoring devices (Uzzi 1997: 43). It draws on expectations and obligations referring to different aspects of behavior which strengthens the interpersonal linkage among partners (Larson 1992: 96).

Such a process speeds up decision making and economizes cognitive resources such as time and attention, leaving information quality undamaged. In this way, it provides alliances with an *open architecture* to transfer and exchange *fine-grained information* (Uzzi 1996: 678), which is proprietary, sticky, strategic and tacit knowledge, hard to codify and acquired through learning by doing. Knowledge sharing develops through the establishing of shared norms, codes, languages and representations which provide the normative background for communication. By generating "a common conceptual apparatus", this alignment offers the opportunity to create a common basis which avoids the misunderstanding that arises from speaking different languages (Nahapiet and Ghoshal 1998: 253).

By taking for granted the integrity of partners, embedded alliances help partners to develop *joint problem-solving arrangements*. In this way partners can coordinate their interdependence, work through problems, learn from them and accelerate problem correction.

In synthesis, the features of embedded alliances allow for greater transparency between partners, thus facilitating the formation of strong social bonds. Moreover, they foster the activation of a communication-intensive process of relationship management and support the joint resolution of problems and mutual coordination (Kale et al. 2000: 223).

The three components of embedded ties are self-enforcing, joined in a virtuous cycle starting from trust, extending to fine-grained information transfer, leading to joint problem solving among partners, and then again to trust. Representing an isolating mechanism, generating common communication codes and often deriving from shared backgrounds, trust makes fine-grained information transfer less risky (as it reduces opportunism and therefore appropriability hazards) (Uzzi 1999), easier (as based on shared coding schemes), ampler (as also extended to tacit cognitive resources), and more effective (as comprehensive and based on partners' compatible

orientations, i.e., values, attitudes, and motivations) (Boisot 1998: 52–55). Fine-grained information sharing, sustaining knowledge transfer, then fosters joint problem solving and hence generates synergies (Uzzi 1999: 483; Heimeriks and Schreiner 2010: 154). This, in turn, stimulates the repetition of collaboration, thus strengthening trust between partners.

We believe that the experience gained from embedded alliances, in terms of trust, fine-grained information transfer and joint problem-solving arrangements, counts the most in providing firms *respectively* with bonding, communication and coordination experience, thus stimulating the formation of the above skills constituting alliance management capability.

Indeed, trust experience stimulates the development of bonding skills. It fosters fine-grained information transfer among trusted partners and, through the accumulation of this experience, the buildup of communication skills. Fine-grained information sharing, in turn, stimulates joint problem solving and, consequently, the development of coordination skills. Therefore we suppose that it is not all previous alliance experience which matters but only the set of embedded alliances a firm has experienced over time.

However, we must recognize the existence of two main experiential risks in alliances which resemble embedded ties:

1. the tendency to choose similar partnerships in terms of alliance contents and governance forms;
2. excessive repetition of the alliance with the same partner.

This may lock firms into a specific experience which sets up idiosyncratic routines inapplicable to different types of alliances. Paradoxically, the same embedded alliances which can stimulate managerial learning might turn into a liability by restricting a firm's experience to a specific relationship.

A homogeneous set of embedded alliances may thus lock firms into their current skills levels and make them cognitively rigid (Sampson 2005: 1013; Hoang and Rothaermel 2005: 334). On the contrary, a wide repertory of embedded alliances—in terms of contents, governance forms and partners—makes firms able to experience different alliance management practices. A diverse, broader range of collaborative experience provides greater opportunity to refine interaction routines and cooperation procedures, making them more versatile and generally applicable. Thus, the diversity of ties might result in a more general managerial capability.

Therefore, in our framework, the accumulation of embedded alliance experience is a necessary but not sufficient condition for learning from experience. Alongside the necessity of embedded alliances, it should be stated that the broader the accumulated experience, the less the risk that it is transformed into rigidity.

We refer to the experience provided by a broad set of embedded alliances as *valuable alliance experience*. Using this argument, we elaborate the following proposition (Fig. 1):

Proposition 1 *Prior alliance experience will have a greater positive effect on the development of alliance management capability when comprising a wide set (in terms of contents, governance forms and partners) of embedded alliances.*

3.3 Leveraging effects of governance mechanisms for learning

Our analysis thus far has assumed that firms with a wide experience of embedded alliances are more likely to develop alliance management capability. However, in line with previous studies, we believe that those intra-firm governance dynamics which foster the capability building process should also be examined.

Since there are limitations that constrain learning by doing, the process leading from valuable alliance experience to alliance management capability cannot be taken for granted. As noted by Levinthal and March (1993: 96–97), experience is often a *poor teacher* as organizational learning entails several constraints. In order to learn from experience, firms have to accomplish the hard task of drawing lessons from a relatively small number of cases (Levitt and March 1988: 323). Moreover, organizational limitations, such as problems of memory, conflict and turnover, accentuate the cognitive limitations of individuals, thus making learning from experience extremely difficult. In particular, firms have to foster knowledge-sharing within the organization. Otherwise critical knowledge would reside only with those who have learned the lessons (Heimeriks and Duysters 2007: 42). As stated by Huber (1991: 90), more organizational learning occurs when more of the organization's components obtain knowledge and recognize it as potentially useful.

Hence the importance of adopting organizational learning systems, i.e., systems which attempt to objectify the subjective personal knowledge of individual members into an organizational knowledge base through the acquisition, communication and interpretation of organizationally relevant *knowledge for use* in decision-making (Shrivastava 1983: 17–18).

As a result, alliance experience, albeit important, is widely assumed to be a necessary but not sufficient condition for improving alliance performance (Simonin 1997; Kale and Singh 1999; Kale et al. 2002; Heimeriks and Duysters 2007). As Heimeriks and Duysters (2007: 28) point out, "merely referring to experience as the explanatory variable for sustained heterogeneity in firms' alliance performance seems to be an overly simplistic representation of reality".

In line with these scholars, we believe that what really matters is the way alliance management knowledge accumulating in previous partnerships translates into capability. According to Zollo and Winter (2002), the ability of a firm to draw lessons from previous alliance experience and develop a process to manage partnerships in a systematic and relatively predictable fashion is an example of a dynamic capability whose development requires deliberate learning processes of explicit *knowledge articulation* and *knowledge codification*. Such processes go well beyond semi-automatic stimulus response and tacit accumulation of experience. Similarly, Kale and Singh (2007) highlight the importance of enhancing an *alliance learning process* so that firms can learn, accumulate and leverage alliance management knowledge gathered in previous partnerships. They argue that experience is a *crude approximation* of the mechanisms that lie at the foundation of alliance capability which, instead, would appear to develop from proactive efforts to accumulate and leverage alliance know-how associated with prior experience. In particular, apart from the above-mentioned processes of knowledge articulation and

knowledge codification, they address the role of *knowledge sharing* and *knowledge internalization* mechanisms as a way to diffuse best practices within the firm.

Heimeriks and Duysters (2007) found that a firm's alliance capability resulting from learning mechanisms for capturing, disseminating and applying alliance management knowledge, mediates between a firm's alliance experience and alliance performance. Similarly, Draulans et al. (2003: 160) argue that companies need to develop processes designed to achieve learning from alliances and disseminate alliance management knowledge within the company. They found that organizations that institutionalize and structure learning from experience are able to achieve superior alliance performance.

Following these studies we suggest that firms need to adopt suitable *governance mechanisms for learning*, identified here as those mechanisms, such as rules and hierarchical structures, by which firms foster knowledge-sharing among individuals and groups within the organization, thus enhancing organizational learning (Creplét and Dupouët 2007; Bogenrieder and Nooteboom 2004). The adoption of such mechanisms appears to be particularly useful in order to leverage what we have termed *valuable alliance experience*.

Indeed, as highlighted by Zollo and Winter (2002), the effectiveness of deliberate learning mechanisms, as compared with tacit accumulation of experience, will depend on the variance in the characteristics of the task to be mastered. More specifically, making inferences that can guide future behavior becomes more difficult as the heterogeneity of experience increases. Therefore, a deliberate effort is required in order to reveal the action-performance relationship and reduce the risk of inappropriate generalization (Zollo and Winter 2002).

In our framework, valuable alliance experience is made of embedded alliances that are heterogeneous in terms of contents, governance forms and partners. Such a width of experience is likely to increase the effectiveness of the adoption of governance mechanisms aimed at leveraging alliance management knowledge. In other words, while the heterogeneity of contents, governance forms and partners may make firms able to experience different alliance management practices and therefore result in a more general managerial capability, such heterogeneity requires a greater investment in governance mechanisms aimed at ensuring that learning from such a diverse set of experiences will actually take place within the organization.

The literature on alliance management capability has identified several mechanisms which can actually be used to foster such a learning process: formal debriefings of alliance managers, alliance training systems, problem-tracking and problem-solving procedures, rotation across different partnerships of experienced alliance managers, alliance committees and task forces, and dedicated alliance functions (Kale et al. 2001, 2002; Draulans et al. 2003; Heimeriks and Duysters 2007; Kale and Singh 2007). These governance mechanisms may provide an overall framework to support knowledge sharing, creation and learning within the organization, thus preventing firms from the risk of knowledge closure of individuals and groups. Even though rules are often general in scope and remote from concrete practice, they may enhance learning within the organization by fostering coordination and communication (Creplét and Dupouët 2007).

In particular, a major contribution to the process of alliance management capability building can be made by creating a dedicated alliance function which consists of a team responsible for coordinating and managing alliance activity within the firm (Kale et al. 2001). Such a function can become a repository of the firm's alliance management knowledge, thus enhancing learning from prior and ongoing alliances.

More specifically, we assume that adoption of intra-firm governance mechanisms to enhance organizational learning is likely to confer three major benefits. First, such mechanisms foster the *interpretation of experience*. One of the main problems in drawing lessons from experience is due to difficulties in interpretation. This is based on individual inference and judgment which are usually far from perfect and may lead to systematic bias (Levitt and March 1988: 323). The width of the set of embedded alliances that we identified as an antecedent of alliance management capability is likely to make such a process even more challenging. In this context, the use of some of the above-mentioned mechanisms, such as formal de-briefings of alliance management, alliance committees and task forces, may foster discussions on previous alliance experience, thereby facilitating the interpretation of history. Second, governance mechanisms for learning enhance the *sharing of experience*. Mechanisms that foster the transfer of alliance management knowledge to people who did not take part into previous alliances, allow experience to be shared within the organization and lessen the risk that knowledge gets lost due to staff turnover. Third, suitable governance mechanisms lead to useful *exploitation of experience*: the organization may draw lessons that can be applied to subsequent alliances and an increase in the organization's intelligence based on past experience can thus be fostered.

In light of the previous arguments, we offer the following proposition (Fig. 1):

Proposition 2 *The more a firm adopts governance mechanisms for learning, the stronger the positive relationship between valuable alliance experience and alliance management capability.*

4 Eli Lilly Italia case study

4.1 Case-study methodology

In order to understand the dynamics of alliance management capability building we carried out a case study, a research strategy designed to gain insights into individual settings through a combination of data collection methods such as archives, interviews, questionnaires and observations (Eisenhardt 1989: 534). The use of case studies can be defined as an intensive approach allowing an "in depth" focus on specific instances of a phenomenon to be studied. It has the potential to provide a more detailed analysis than under an extensive approach where large-scale surveys provide aggregate, "in width" information (Swanborn 2010: 1–5).

The aim of the case study analysis was to fine-tune the theory behind encounters with concrete experience and significant empirical reality. Obviously, the goal is

analytical theory building and not statistical *generalization* (Yin 2009: 15), focusing on a single example of the broader process of alliance management capability building in order to facilitate causal analysis. Generalization of the results obtained needs to be proven by other complementary case studies and an extensive approach.

Different types of case studies have been proposed. For instance, Yin (2009) distinguishes between *explanatory* case studies used to analyze causal links, *exploratory* used to explore phenomena not already clearly specified and *descriptive* used to describe phenomena in their real-life context. Stake (1995) discriminates between *intrinsic* case studies, used to better understand a specific case, and *instrumental*, used to provide insight into an issue and refine theory. Mixing these two types, our case study may be said to have both an *explanatory* and *instrumental* nature.

It is an *explanatory* case study, as it aims to analyze and explain the presumed causal links in real-life interventions and investigate potential rival propositions (Yin 1981, 2009: 19–20). In other words, it is used to verify the causal relationships between alliance experience and governance mechanisms as previously defined on the one hand and alliance management capability on the other, thereby obtaining feedback on our theoretical propositions.

It is *instrumental* since the aim is to enhance knowledge and refine our theoretical assumptions. Theoretical propositions were therefore reflected in the explanations of a phenomenon built in a case study.

Indeed, opportunities for making a theoretical contribution are enabled by determining the extent to which theoretical constructs are likely to hold true in practice: by transferring a merely theoretical approach into an empirical context, case study analysis can contribute to theory (Ridder et al. 2009: 162). The theoretical propositions previously defined guided data collection, acting as an anchor for the analysis and helping to steer the work and to delimit the variables under study. This allowed us to overcome one of the common pitfalls attributed to case study research, that is the excessive broadness of objectives, by providing fixed conceptual boundaries, limiting the breadth and depth of the study and making it reasonable in scope.

Consequently, the case was not randomly selected but chosen to fill our theoretical categories and provide theoretical insight. The model was challenged in a single-case study and at a meso-level of analysis (firm level), investigating the characteristics of alliance experience and the governance mechanisms employed to leverage alliance management knowledge from previous partnerships of a firm with a clear reputation and successful record managing alliances. As argued by Ridder et al. (2009: 141), single-case studies "can be very vivid and illuminating if they are chosen to be critical, extreme or unique, or revelatory".

Case study data are likely to come from multiple sources of evidence in a triangulation fashion which provides a way of attaining a more complete result and of ensuring research validity.

In our work we looked simultaneously at different aspects: firm collaborative history and characteristics of alliance experience, alliance management capability development, governance mechanisms adopted for learning from experience, and alliance performance. We used the following research methods which combine

qualitative and quantitative approaches and primary and secondary data collected from both public and internal sources of information:

1. a structured questionnaire;
2. probing by asking interviewees for explanations and interpretation of some data through individual interviews, e-mail correspondence and telephone conversations;
3. analysis of written documents and reports such as international academic journals and web site information.

A draft of the script was sent to the respondent for him to comment upon and make sure that the data were interpreted correctly, which ensures validity. In order to design the standardized questionnaire, we addressed two methodological challenges. The first was related to the translation of the concepts of embedded alliances and alliance management capability into operational measurements. These concepts are not directly measurable and need to be substituted for other concepts which can be directly assessed (indicators). Thus, for measuring embeddedness, we used the managerial assessment of alliance in terms of trust, knowledge sharing and joint problem solving procedures. For measuring alliance management capability we used both Schreiner et al.'s (2009) items and the managerial assessment of alliance performance. In this case, we asked interviewees to assess alliance success in terms of achievement of alliance objectives. The width of experience was measured by asking for each alliance the type of content, governance structure and partners. Governance mechanisms for learning were made operational through an assessment of the type of mechanisms used.

The second empirical challenge was to set a time frame likely to allow experience and learning mechanisms to display their effect on the capability. This means that alliance experience, the adoption of governance mechanisms for learning and alliance management capability needed to be measured over non-overlapping time frames. Below we provide the operational translation adopted (Table 1).

4.2 Sampling strategy

We selected the case to find clear manifestations of the investigated phenomenon. It was a purposeful case selection as the chosen case immediately appeared to be linked with the goal of the study, flowing from the research question and phenomenon of interest. It was also what Eisenhardt and Graebner (2007: 27) refer to as theoretical sampling, consisting in selecting cases pivotal to the theory, that illuminate and extend relationships and logic among constructs. As the sampling strategy was aimed at choosing a case which allowed the phenomenon of interest, alliance management capability, to be observed in its entirety, we sampled the Italian affiliate of Eli Lilly and Company, a firm with a clear reputation and successful record managing alliances, which is considered a "premier partner" in the pharmaceutical industry, displaying rich information and deep insight into the phenomenon of interest.

Eli Lilly and Company is headquartered in Indianapolis, Indiana (USA). The company has been in business more than 135 years and is now the 10th largest

Table 1 The operational definition

Dimension		Variable definition	Time frame
Alliance experience	Embeddedness of alliance experience	Number of alliances characterized by trust, fine-grained information transfer and joint problem-solving arrangements	T1 (10-year period)
	Width of embedded alliance experience	Content	T1 (10-year period)
		Structure	
		Partner	
Governance mechanisms for learning		Number and type of mechanisms used	T1 (10-year period)
Alliance management capability		Schreiner et al.'s (2009) items	T2 (at the time of the interview)
		Alliance performance (managerial assessment of alliance success)	

Source Authors' own elaboration

pharmaceutical company in the world. It has approximately 38,000 employees worldwide, of whom more than 7,700 are engaged in R&D. Activity is divided into five main global business areas, namely bio-medicines, diabetes, animal health, emerging markets and oncology.

The choice of the case study was based on the international literature, which cites Eli Lilly and Company as being highly successful at managing alliances and having developed, through an effective and continuous learning process, dedicated organizational structures (including an alliance function) and a clearly established process for the management of strategic alliances (Kale and Singh 2007; Rothaermel and Deeds 2006; Schilke and Goerzen 2010; Stach 2006). For instance, Kale and Singh (2007) identify Eli Lilly as a firm which is successful at managing alliances and extracting value from its partnerships, and stress the role played by the creation of a dedicated alliance function within the company and by the development of codified tools aimed at improving alliance managerial skills. Similarly, Rothaermel and Deeds (2006: 435) cite Eli Lilly for its Office of Alliance Management and its "clearly established alliance management process".

As stated above, we sampled the Italian affiliate of Eli Lilly and Company. We interviewed Stefano Guarnieri, Chief Financial Officer till January 2013, and in charge of Eli Lilly Italia's alliance management activities during the last 10 years.

The choice was supported by the observation that the company is currently involved in important international partnerships with big players in the pharmaceutical/health care industry—such as Quintiles, Boeringer Ingelheim and Baxter—for joint product development and commercialization. Moreover, as confirmed through the interview, it has acquired from Eli Lilly and Company the adopted governance mechanisms for learning from alliance experience.

We specifically chose a company operating in the biotech industry which is characterized by high-collaborative density. Indeed, in the last 10 years, the activity of Eli Lilly Italia in its manufacturing plant in Sesto Fiorentino (Florence, Italy) has

focused on the production of insulin and similar biotech products derived from recombinant DNA (almost entirely for the export market).

4.3 Findings

In this section we present the findings of the analysis regarding each dimension of our framework: (1) alliance experience, (2) governance mechanisms for learning, (3) alliance management capability. Discussion of the case study analysis with relation to the two advanced propositions follows in Sect. 4.4.

4.3.1 Alliance experience

We analyzed the characteristics of alliances entered into by the company in the last 10 years (alliance experience). The company identified five partnerships, with five different partners, as the only agreements resembling our definition of alliance, i.e., any voluntary arrangements between two or more firms involving exchange, sharing, or codevelopment of products, technologies, or services (Gulati 1998: 293). Other relationships in which the firm has been involved were considered supply contracts and were therefore excluded from our analysis.

We focused on the characteristics of the five identified alliances in terms of embeddedness and width. For reasons of confidentiality, we present the analysis of the characteristics of the company's alliances anonymously.

In our framework we identified embedded alliances as those alliances characterized by trust, fine-grained information sharing and joint problem-solving arrangements. Analysis of the partnerships entered into by the company therefore aimed to identify which of the five alliances were characterized by all three features.

As regards the level of trust and joint-problem solving arrangements of the partnerships, we directly asked the respondent to value the level of such components in each of the identified alliances. However, we thought it would be more difficult for him to assess the level of fine-grained information sharing actually occurring within the relationship, which is why we used the frequency of meetings between the allied companies' members as a proxy for inter-firm fine-grained information sharing, assuming that a low frequency would be unlikely to allow the sharing of fine-grained information that characterizes embedded alliances. Such a method is also in line with Capaldo's (2007) identification of the "frequency of collaboration" as one of the variables that can be used to express the strength of an interorganizational relationship.[3] The analytical results of the embeddedness level of the company's alliance experience are presented in Table 2.

As shown in Table 2, four of the investigated partnerships can be identified as "embedded alliances", since they are simultaneously characterized by the three elements that resemble our definition of embeddedness. The fifth alliance, being

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[3] Capaldo (2007) measures the *frequency of collaboration* as the number of individual years in which the partnering firms had actually collaborated on joint activities during the relationship's overall duration and stresses the role it plays in strengthening interpersonal relations, thus enhancing the social dimension of the tie. In our analysis, frequency refers to the number of meetings between allied partners' members and is mainly considered for its role in enhancing information-sharing between the allied companies.

characterized by just one of the three above-mentioned components, that is joint problem-solving arrangements, is the only "non-embedded" partnership of the company's alliance experience.

As the interviewed manager commented:

Alliances 1, 2, 3 and 4 are characterized by a high level of trust, frequent meetings for the sharing of knowledge and joint problem-solving arrangements. As regards the fifth, although the management of the relationship requires joint problem-solving arrangements, I cannot say it presents the same level of interpersonal trust and the same frequency of meetings as compared to the other four partnerships. However, it must be noted that this is also due to the specific characteristics of the deal which requires a different level of commitment.

As regards width of alliance experience, apart from the number of partners, we investigated the heterogeneity in terms of contents and governance forms of alliances entered into by the company in the last 10 years. Moreover, we thought it was interesting to analyze the role played by the parent company in the management of collaborations. We therefore asked the respondent to specify whether the alliance is managed by the Italian affiliate on its own or together with the parent company. Table 3 presents the results.

Though involving different partners, the alliances analyzed are quite homogeneous in terms of both main contents and governance forms. "Distribution" and "marketing" are identified as their main contents. In particular, all five alliances are aimed at joint distribution and three of them also target the execution of joint marketing activities. Moreover, the five partnerships are characterized by two types of governance forms: three of them are bilateral and the other two are unilateral contracts.

As regards the management of the alliances, three alliances are managed together by the parent company and the Italian affiliate. We deem this to be an important point, since, as we will specify later, the influence of the parent company in the management of alliances can play a major role in the alliance management capability building process.

4.3.2 Governance mechanisms for learning

Building on the literature, we identified governance mechanisms for learning as important antecedents of a firm's alliance management capability. As we stated above, the use of these mechanisms is aimed at leveraging and sharing within the firm relevant alliance management knowledge accumulated in previous partnerships. Eli Lilly and Company being widely cited for having developed dedicated structures for the management of strategic alliances and for fostering the sharing of best practices throughout the firm, we expected to find some governance mechanisms in use also in the Italian affiliate. Therefore, we analyzed whether the company had made use of some of the main mechanisms identified in the literature as important antecedents of alliance management capability. Moreover, in

Table 2 Embeddedness of the company's alliance experience

Alliances	Trust	Fine-grained information sharing	Joint problem-solving arrangements
Alliance 1	✔	✔	✔
Alliance 2	✔	✔	✔
Alliance 3	✔	✔	✔
Alliance 4	✔	✔	✔
Alliance 5			✔

Source Authors' own elaboration

Table 3 Width of the company's alliance experience and role of the parent company

Characteristics of the company's alliances		Number of alliances
Content of the alliance	Marketing and distribution	3
	Distribution	2
Governance form	Bilateral contract	3
	Unilateral contract	2
Management of the alliance	Eli Lilly Italia	2
	Eli Lilly Italia and Eli Lilly & Co.	3

Source Authors' own elaboration

terms of alliance experience, we specifically investigated the role played by the parent company in the use of these mechanisms. Table 4 presents the main results.

The results of our study confirm that Eli Lilly Italia makes use of some of the identified governance mechanisms for learning, such as periodic meetings for the exchange of alliance management knowledge, checklists and manuals for the management of the different phases of the collaborative process, and standardized contractual forms.

The use of these mechanisms fosters substantial knowledge management processes that are likely to improve the firm's capability in managing collaborations. On the one hand, by promoting formal meetings for the exchange of alliance management knowledge, individual knowledge is *articulated* and *shared* within the organization; on the other, the creation of checklists and manuals for the management of the different collaboration phases, as well as the creation of standardized contractual forms, allows *codification* of alliance management knowledge accumulating in previous partnerships. As highlighted in the literature, these processes are likely to foster a better comprehension of what are *best practices* in the management of alliances and to enable extraction of valuable lessons from alliance experience, thus facilitating effective decision-making in future alliances and improving alliance know-how within the firm (Kale and Singh 2007).

It is worth noting that the parent company seems to play a critical role in such a process. As emerged from the interview, Eli Lilly and Company organized/ transferred the identified governance mechanisms for learning, thus fostering the

sharing of its culture in the management of alliances and allowing Eli Lilly Italia to take advantage of the parent company's widely acknowledged alliance management experience.

As stated above, Eli Lilly and Company is often cited for its deliberate investment in the management of alliances, as proved also by the establishment of an alliance management department within the company (Rothaermel and Deeds 2006; Schilke and Goerzen 2010). We found no similar office in the Italian affiliate.

As the CFO commented:

> I am the person who has been directly in charge of the management of alliances in the last 10 years, but it is an activity that I have carried on concurrently with my main role of Chief Financial Officer. There is neither a specific "alliance manager" role nor a "dedicated alliance department" within the company.

4.3.3 Alliance management capability

Following Schreiner et al. (2009), we identified alliance management capability as a multidimensional construct made of *coordination*, *communication* and *bonding* skills. In order to assess the presence of such a capability within the company, we investigated whether it had developed specific routines and processes in the management of alliances aimed at coordinating activities with the partner, exchanging relevant knowledge and building social bonds. Moreover, although not specifically included in our framework, we investigated the company's alliance performance as a further indicator of its alliance management capability.

The results of the interview seem to confirm that the company has developed substantial know-how in the management of alliances. More specifically, the interviewed manager confirmed that previous alliances had led to the development of routines and processes aimed at coordinating activities with the partner, exchanging relevant knowledge and building social bonds. Moreover, we directly investigated the role played in such a process by the embeddedness of alliances entered into by the firm in the last 10 years. Our results show the relevance of embeddedness of the company's alliance experience, since it is primarily the four embedded alliances which have led to substantial learning in the process of managing collaborations and that such learning generated structured coordination, communication and bonding routines and processes to be used in other partnerships.

As the CFO commented:

> All the alliances entered into by the company have supported intraorganizational learning. However, the four partnerships characterized by trust, frequent meetings and joint problem-solving arrangements are those that have really improved the company's alliance management know-how. Thanks to the experience accumulated in the management of these partnerships we have developed structured routines and processes that can be applied in other alliances.

Table 4 Governance mechanisms for learning at Eli Lilly Italia

Governance mechanism	In use within the company	Organized/transferred by the parent company
Periodic meetings for the exchange of relevant alliance management knowledge	Yes	✔
Lessons and seminars from managers who have been involved in the company's partnerships	No	
Rotation of experienced managers across different partnerships	No	
Alliance training systems	No	
Databases containing information on previous alliances	No	
Checklists and/or manuals for the management of the different phases of the collaboration	Yes	✔
Standardized contractual forms	Yes	✔
Alliance manager	No	
Dedicated alliance function	No	

Source Authors' own elaboration

We also analyzed the firm's alliance performance as a further indicator of the company's alliance management capability. Despite its limitations, the use of managerial assessment to measure alliance performance has been recognized as a useful way to evaluate alliance success (Kale and Singh 2007). Therefore, we asked the manager to value, on a four-point scale (1 = minimum degree, 4 = maximum degree), to what extent each of the identified alliances had achieved or was achieving its objective. Overall, our results show that the firm's alliance activity is perceived to be successful. More specifically, the respondent classified four of the five identified alliances as above average (score between 3 and 4) and only one alliance was deemed to be of little success (score 2).

4.4 Discussion

The aim of the case study was theory testing and refinement with a post hoc case study design. The analysis provides interesting insights for each of the investigated relations of the alliance management capability building process. In the following part, we provide a discussion of the findings in relation to our two propositions.

4.4.1 Proposition 1

In proposition 1 we assumed that prior alliance experience has a greater positive effect on the development of alliance management capability when comprising a wide set in terms of partners, governance forms and contents of embedded alliances.

We investigated these characteristics in the alliances entered into by Eli Lilly Italia in the last 10 years. Findings of the case study on the one hand show the relevance of embeddedness to building alliance management capability and, on the

other, call into question the role of width of alliance experience in terms of governance forms and contents.

First of all, we found that the company's alliance experience is made up almost exclusively of embedded alliances. Four of the five strategic alliances entered into by the firm in the last decade are characterized by the three features of trust, fine-grained information sharing, and joint problem-solving arrangements between the partners. More important, interview results show that embedded alliances have actually contributed to the development of the firm's alliance management capability. Indeed, the respondent explicitly identified embedded alliances as those partnerships which actually enhanced the company's alliance management know how, by fostering the development of relevant coordination, communication and bonding routines and processes for the management of the firm's partnerships. This result supports our main argument on the importance of embedded alliances in building an alliance management capability.

However, it must be noted that, though the high level of embeddedness of the company's alliance experience allows the effect of such types of ties on the alliance capability building process to be analyzed, due to the lack of an adequate number of "non-embedded" alliances, it was not possible to make a clear comparison between the effects of both types of relationships on the alliance capability building process.

As regards the width of Eli Lilly Italia's alliance experience, we found that the firm's set of previous alliances, though involving different partners, does not appear to be heterogeneous in terms of contents and governance forms. As reported in the findings, distribution and marketing are the only two identified contents of the partnerships entered into by the company in the last 10 years, and unilateral and bilateral contracts are the only adopted governance forms.

Such an aspect seems to question the importance of width of experience advanced in the theoretical proposition. The company has improved its alliance managerial skills on the basis of experience resulting from a fairly homogeneous set of alliances in terms of both content and governance form. However, due to the relative homogeneity of the company's alliances, we cannot rule out the risk of rigidity that we advanced in our theoretical framework. In other words, we do not know if the acquired skills are easily applicable in partnerships with different contents or governance forms or whether the narrow range of collaborative experience of the firm has actually translated into rigid capability. Moreover, it is worth mentioning that the parent company seems to play an important role in the analyzed process. The parent company has been directly involved in the management of three of the five alliances formed by Eli Lilly Italia in the last 10 years and, moreover, has organized/transferred the governance mechanisms for learning in use within the Italian affiliate. Therefore, it is likely that Eli Lilly Italia has benefited from the wider alliance experience of the parent company. As to this aspect, the case study was useful in suggesting an issue that would require further investigation.

As regards alliance management capability it is worth noting that the case study allowed us to measure the capability directly. Indeed, most empirical studies focusing on the alliance management capability building process do not directly conceptualize such capability and use alliance performance as a proxy for it. In our

analysis we measured alliance management capability both directly and indirectly. Following Schreiner et al. (2009), we directly investigated whether the company had developed the specific skills required to manage collaborations. Moreover, as a further indicator, we asked the respondent to value the performance of the alliances entered into by the company. Our results confirmed that the investigated firm had developed an alliance management capability in line with the acknowledged reputation of its parent company as a high performer in the management of alliances.

4.4.2 Proposition 2

In proposition 2 we assumed that the positive relationship between valuable alliance experience and alliance management capability would be enhanced by the adoption of governance mechanisms for learning, such as formal debriefings of alliance managers, alliance training systems, manuals and checklists for the management of alliances, etc.

Results of the case study analysis show that Eli Lilly Italia adopts some of the identified mechanisms. The respondent confirmed that the company promotes periodic meetings for the exchange of alliance management knowledge and that checklists, manuals and standardized contractual forms are used for the management of the collaborative process. However, we found that the company does not make use of other mechanisms that are usually identified as important antecedents of an alliance management capability. Of course, we also need to take into consideration the way alliances of the company are managed. Since the CFO is the only person who has been in charge of the management of alliances in the last 10 years, a mechanism such as the rotation of alliance managers across different partnerships cannot be found in use in the company.

That said, what arouses more interest is the lack of an appointed "alliance manager" or of a "dedicated alliance function". The literature on alliance management capability has often stressed the importance of these mechanisms for fostering an effective alliance learning process and, moreover, the case of Eli Lilly and Company is widely cited for the commitment the company devotes to the management of alliances and to the creation of ad hoc organizational structures (Gueth et al. 2001; Rothaermel and Deeds 2006). Though we did not explicitly investigate the reason why the company lacks such governance mechanisms, we can advance two possible explanations. First, Eli Lilly Italia has been involved in a fairly small number of partnerships in the last 10 years. Therefore, investment in ad hoc alliance offices may be deemed to be not worthwhile for the specific alliance activity of the company. Second, as stated above, we found that the parent company participated both in the management of alliances and in the organization/transfer of the identified governance mechanisms for learning. Such direct involvement, by allowing the leverage of the parent company's alliance management knowledge, probably reduces the ratio between benefits and costs associated to the creation of dedicated managers or structures within the Italian affiliate.

In conclusion, the case study provided major insights into the alliance management capability building process. Although a single-case study cannot

claim to be representative, it reveals that many of the knowledge concerns discussed in the previous theoretical part of the paper are reasonable and concrete. On the one hand, it shows that embeddedness of a firm's alliance experience seems to play a critical role in the analyzed capability building process. On the other, it raises interesting issues both on the importance of heterogeneity of alliance experience and on the role played by governance mechanisms for learning that merit further investigation.

5 Conclusion and implications

In this study, building on Schreiner et al.'s (2009) conceptualization of alliance management capability as comprising coordination, communication and bonding skills, we introduced the concept of *valuable alliance experience*, that is the type of experience which is most likely to contribute to the development of such capability. Contrary to other studies which highlight the role of the firm's global collaborative experience, we proposed that only alliances resembling the features of embedded ties might represent an antecedent of alliance management capability as previously defined. Displaying features such as trust, fine-grained information transfer and joint problem-solving arrangements, such ties provide firms with experience of the specific skills required to manage interorganizational relationships. Moreover, we suggested that the more heterogeneous such an experience is in terms of alliance contents, governance forms and partners, the more likely it will transform into generally applicable alliance management capability. In addition, we focused on the need to design the internal organization in order to foster the development of alliance management capability. We emphasized the key importance of adopting organizational mechanisms, managerial practices and routines—*governance mechanisms for learning*—suited to knowledge transfer processes.

5.1 Theoretical implications

In theoretical terms our framework contributes to the existing literature in several ways. First, it extends alliance management capability studies by bridging two research streams that address different but equally important issues related to this subject: *what* alliance management capability is and *how* it develops (Schreiner et al. 2009: 1396). Previous studies have focused either on the process leading to alliance management capability, highlighting the role of alliance experience and deliberate learning mechanisms (Kale et al. 2001, 2002; Draulans et al. 2003; Heimeriks and Duysters 2007; Kale and Singh 2007), or on the elements which constitute such capability (Schreiner et al. 2009). In this paper we showed how enhanced understanding of the issue of alliance management capability can be achieved by bridging these two streams of research. By focusing on the constituents of alliance management capability, we questioned the assumption that all previous alliances lead to an improvement in such a firm's capability, and postulated that only some of them can actually contribute to this process. Although others have distinguished different types of alliance experience and empirically tested their

effect on performance (Zollo et al. 2002; Hoang and Rothaermel 2005), the characteristics of such experience were not explicitly linked to the specific skills required to manage collaboration. Second, our model contributes to the theory by stressing the need to focus on different levels of analysis when dealing with the issue of alliance management capability. Specifically, our framework explores the role played in the capability building process by interorganizational elements—both at the alliance level (embeddedness of ties) and at the level of the entire set of previous ties (width of embedded alliance experiences)—as well as intraorganizational elements (governance mechanisms for learning). Thus, alliances are likely to enhance managerial learning when firms, at an interorganizational level of analysis, have been involved in several diverse embedded relationships and, at the firm level, adopt suitable internal organizational mechanisms, managerial practices and routines to leverage such experience.

The findings of the case study analysis sustain the importance of integrating the aforementioned bodies of research, different though complementary, thereby refining the current debate within the alliance management capability approach. In particular, they demonstrate the importance of embedded alliances and governance mechanisms for learning when looking at the development of alliance management capability.

In addition, our framework might be useful for the analysis of other organizational capabilities such as the capability of managing mergers and acquisitions. Generally, our argument suggests that breaking capabilities down into their constituent skills might be central to identifying which previous experience is potentially valuable.

5.2 Managerial implications

From a managerial perspective, the framework suggests some points of intervention for alliance management. First, by highlighting the role of embedded ties in the alliance capability building process, it stresses the importance of managing relationships through personal involvement and close bonds. Second, it recognizes the role of a differentiated set of alliances as a means of preventing inertia. Although we admit that the heterogeneity of the collection of embedded alliances a firm accumulates over time is often contingent on concrete opportunities and environmental factors, we think that to some extent it can be strategically designed. Third, it stresses the role of the adoption of organizational mechanisms to turn experience into capability. In this case, the role of management becomes more crucial. Indeed, some of the governance mechanisms for learning (for instance a dedicated alliance function) may lead to an excess of bureaucracy and others (e.g., codified tools such as guidelines and manuals) may limit the dynamic evolution and revision of a firm's routines and procedures. Therefore, the mere adoption of these mechanisms is not enough since the leverage of previous alliance experience through such mechanisms is a process that needs to be dynamically managed in order to avoid organizational inertia and the generation of core rigidities.

Though we argued that valuable alliance experience is likely to be an antecedent of alliance management capability, such a process might actually develop

cyclically. If, according to our framework, a wide set of embedded alliances may provide the firm with specific communication, coordination and bonding skills, these skills are actually likely to lead the firm to experience further embedded relationships, which will in turn lead to an additional improvement in the firm's alliance management capability and so on. In other words, we need to consider the likelihood of a virtuous cycle being triggered by the capability building process.

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