

CHAPTER 21. COOPETITIVE PORTFOLIOS: A REVIEW AND RESEARCH AGENDA

Paul Chiambaretto

Montpellier Business School and Ecole Polytechnique (France)

Anne-Sophie Fernandez

University of Montpellier (France)

Abstract: While most contributions on coopetition have examined these strategies at the dyadic level, a limited number of recent articles has analysed the phenomenon from a portfolio perspective. In this chapter, we provide a review and research agenda of coopetitive portfolios that can be defined as alliance portfolios including alliances with competitors. We first underline the relevance of addressing coopetition strategies at the portfolio level. We then reveal the main contributions in the investigation of coopetitive portfolios. Finally, we present a detailed research agenda to study further coopetitive portfolios.

Introduction

Over the past decade, a significant amount of research has been published on alliance portfolios, i.e., a firm's collection of direct alliances with partners (Lavie, 2007). Alliance portfolios have been investigated through different theoretical lenses and have shed new light on various concepts (Gomes et al., 2016; Wang and Rajagopalan, 2015; Wassmer, 2010). Nevertheless, alliance portfolios remain clearly under-investigated in the coopetition the literature. In this chapter, we focus our attention on coopetitive portfolios that we define as alliance portfolios that include alliances with competitors. To do so, we first detail the specificities of alliance portfolios and explain why it is important to investigate coopetition at the portfolio level. Second, we provide a review of the rare contributions in the coopetition the literature that have adopted a portfolio perspective. Third, we provide a set of directions for future research to examine coopetition at the portfolio level.

The importance of reasoning at the portfolio level

Adopting an intermediate position between the dyad and the network, contributions on alliance portfolios investigate how a focal firm establishes and manages its network of direct alliances (Greve et al., 2014).

As Wassmer (2010) explains, the traditional approach to understanding alliance portfolios is additive logic (also called cumulative logic). Because it is increasingly difficult for firms to conduct purely individual strategies to be innovative, they must cooperate with partners to access specific resources or knowledge they do not own internally (Dyer & Singh, 1998). In fact, as they attempt to access additional resources, firms multiply their alliances and find themselves at the centre of a real alliance portfolio (Wassmer, 2010) or innovation network (Chesbrough, 2006). Following this approach, alliance portfolios are studied as the outcome of an additive process, in which the portfolio of alliances is the result of a series of individual alliance decisions (Bae & Gargiulo, 2004; Lavie & Miller, 2008). However, managing alliance portfolios in this way raises several concerns because the focal firm cannot have a coherent overview of its partnerships and tends to consider each new alliance as an independent event.

This lack of hindsight leads some authors to characterize this behaviour as a "myopic" one (Wassmer et al., 2010).

Conversely, the voluntary approach requires a shift in the level of analysis from the alliance level to the portfolio level. This change implies considering the synergies and conflicts that may exist between the different alliances in a firm's alliance portfolios. Concerning synergies, several studies have shown the relevance of simultaneously managing several alliances. Developing multiple alliances provides access to more resources (George et al., 2001) that can help develop unique resource combinations (Wassmer & Dussauge, 2011, 2012) or generate economies of scale (Lavie & Miller, 2008). Similarly, complementarities in terms of technologies or products can be developed if the focal firm adopts a strategy at the portfolio level (Asgari et al., in press). If there were only synergies, firms would continue to increase their alliance portfolios. However, the reality is more complex. In the late 1990s, Gulati (1998) observed that the addition of a new partner or alliance creates redundancies with already existing alliances and thus generates conflicts in the alliance portfolio (even if he did not use this word). Potentially, each new alliance could create negative repercussions on the other alliances in the portfolio. The greater the redundancy is with pre-existing alliances, the more significant the destruction of value is for the focal firm (Vassolo et al., 2004; Wassmer & Dussauge, 2012). However, certain partners present higher degrees of redundancy and therefore deserve careful consideration before being integrated into a portfolio. Park et al. (2015) emphasized that the addition of a new partner that would compete with a pre-existing partner or with the focal firm might be a source of instability and thus destroy value at the level of the entire portfolio.

For the focal firm, the challenge lies in the firm's ability to determine the best composition or configuration of its alliance portfolio to maximize synergies while limiting conflicts and redundancies (Parise & Casher, 2003; Wassmer, 2010).

Alliance portfolios and coopetition: an under-investigated topic

A strong emphasis of coopetition at the dyadic and network levels

In recent years, several reviews of the coopetition literature have been conducted (Bengtsson & Kock, 2014; Bengtsson et al., 2016; Czakon et al., 2014; Dorn et al., 2016). Among the topics and themes investigated by these reviews, the level of analysis of coopetition relationships is presented as a critical issue. All of these reviews note that the vast majority (more than 50%) of contributions analyse coopetition at the dyadic or alliance level. This result is not surprising and seems consistent with the first definitions of coopetition, which considered it as a "dyadic and paradoxical relationship" (Bengtsson & Kock, 2000). Furthermore, in these first contributions, the emphasis was placed on describing and understanding the phenomenon of coopetition. Researchers consequently began with the simplest cases of coopetition (dyadic agreement) before increasing their degree of complexity (Chiambaretto & Dumez, 2016).

Nevertheless, from the early stages of the development of a coopetition theory, some contributions have highlighted the existence of coopetition at the network level (Dagnino & Padula, 2002). These scholars underline the possibility of cooperative settings with multiple partners or within ecosystems (Czakon & Czernek, 2016; Gueguen, 2009; Ritala et al., 2013; Sanou et al., 2016; Yami & Nemeh, 2014). These network-level contributions represent approximately 25% of the coopetition-related publications.

Consequently, we can clearly state that the majority of coopetition studies have focused either on dyadic relationships or on multiple/network relationships. Interactions between

coopetition and other types of alliances entered into by the focal firms remain neglected. It is critical to simultaneously consider different types of alliances - cooperative and coopetitive - to understand how they interact with each other in alliance portfolios. An emerging set of contributions have begun to address these issues.

Existing contributions studying coopetition at the portfolio level

The first articles combining coopetition and alliance portfolios did not really mention the concept of coopetition. They mainly took into account the existence of competitors in the alliance portfolio of the firm. In this respect, Belderbos and colleagues (2006) studied the potential complementarity or substitutability of competitors with other partners in an alliance portfolio and their respective impact on the productivity growth. Their analysis reveals that competitors and customers can be complementary such that firms should combine these two types of partners in their alliance portfolios to create synergies and foster productivity growth. Conversely, competitors and universities are substitutes, and therefore combining them in an alliance portfolio could actually do more harm than good.

In the same vein, Wassmer and Dussauge (2011, 2012) suggested that when a focal firm selects a new partner, it must avoid choosing a partner whose resources generate too much overlap with its own resources or with the resources of its pre-existing partners. Otherwise, the addition of this partner will negatively affect the focal firm's market value. Without mentioning coopetition, these authors clearly show that the degree of competition of the new partner with the focal firm or with the pre-existing partners is crucial when selecting a new partner.

In parallel, a limited group of scholars has initiated a deliberate analysis of coopetition at the portfolio level. Various complementary perspectives have been adopted.

Wu and colleagues (2010) used the literature on triads to understand how a focal firm can drive two competitors to collaborate together. Because the alliance portfolio literature is deeply grounded in the literature on triad dynamics (Gulati & Gargiulo, 1999; Madhavan et al., 2004), the researchers highlight how focal firms can become a sponsor and invite partners (that are in competition) to work together to create a unique value proposition.

A second set of contributions has examined the impact of coopetition on innovation. Because the relationship between coopetition and innovation is not clearly supported by empirical studies, two contributions changed the perspective adopted and switched to the portfolio level. More precisely, they encourage consideration of the share of coopetition in the alliance portfolio (i.e., the percentage of alliances signed with a competitor) to investigate its impact on the innovation performance of the focal firm. Ritala (2012) showed that there is no direct relationship between the degree of coopetition in an alliance portfolio and innovation and highlights the existence of various moderating variables. Park and colleagues (2014) extended the thread even further, indicating that the relationship between the percentage of coopetitive alliances in a portfolio and innovation has an inverted-U shape. In other words, they highlighted the existence of an optimal level of coopetition in a portfolio that maximizes innovation performance. This relationship is complex and positively moderated by the level of coopetition experienced by the focal firm. The key conclusions of Park and colleagues' (2014) model are presented in Figure 21.1.

Their contribution is particularly interesting because it raises the question of a pro-active management and structuring of the alliance portfolio (Castro & Roldan, 2015; Hoffmann, 2007; Lavie & Singh, 2012). This issue is also true in coopetitive portfolios. Bengtsson and Kock (2014) noted that “*firms interact with many other firms, and these interactions affect the cooperative relationship over time. Furthermore, firms move in and out of relationships, and reconfigure their portfolio of relationships or alliances*”. However, the drivers of these reconfigurations remain unclear.

Insert figure 21.1.

The contribution of Chiambaretto and Fernandez (2016) aims precisely to answer this call by investigating the different configurations of coopetitive portfolios and the drivers of the share of coopetitive agreements in alliance portfolios. Focusing on the air transport industry and providing a longitudinal analysis of Air France’s alliance portfolio over a 12-year period, they analyse the role of the environmental conditions on the configuration of the alliance portfolio. Building on the resource dependence theory (RDT), they show that when the environment is characterized by a high level of market uncertainty, firms tend to rely more on coopetition than on traditional alliances. Furthermore, when market uncertainty is high, firms tend to rely more on horizontal agreements than vertical ones. However, as soon as market uncertainty decreases, firms replace their coopetitive agreements with collaborative alliances and rely more on vertical agreements. Figure 21.2. illustrates their main conclusions.

Insert figure 21.2.

To sum up, as shown in Table 21.1, only a limited amount of research has combined the competition and alliance portfolio literatures. We believe that there is significant potential for crossing these two concepts, so we provide directions for future research in the following section.

Insert table 21.1.

Directions for future research on coopetitive portfolios

In this section, we propose a research agenda for scholars interested in examining coopetitive portfolios. Three main research avenues require further investigation: the drivers and configurations of coopetitive portfolios; the management of coopetitive portfolios; and the performance outcomes of coopetitive portfolios.

Drivers and configurations of coopetitive portfolios

A rich body of literature has investigated the drivers of coopetition strategies. This literature has not only identified why firms adopt coopetition but also determined under which circumstances coopetition displays a higher performance than other relational modes. However, if theoretical models (Bengtsson & Kock, 2000; Brandenburger & Nalebuff, 1996; Lado et al., 1997) predict that coopetition should generate added value and superior performance than other relational models (cooperative or competitive), empirical studies suggest that this is true only in specific circumstances. Ritala (2012) found that market uncertainty and network externalities strengthen the positive impact of coopetition on innovation and performance. Ritala and Hurmelinna-Laukkanen (2013) also showed how absorptive capacity and appropriability strengthen or moderate the impact of coopetition on innovation. Wu (2014) proposed the existence of a bell-shaped curve between the level of coopetition and product innovation. More recently, Sanou and colleagues (2016) showed that centrality in a coopetitive network positively affects market performance. Finally, Le Roy and colleagues (2016) revealed that coopetition has a positive impact on product innovation when the parties are geographically distant.

Because most firms have an entire line of products that must be addressed (Teece, 1982) and because each product is associated with specific market conditions, it makes sense for firms to rely on different relational modes (individual, collaborative or coopetitive). The combination of these different relational modes characterizes the configuration of a firm's alliance portfolio. It is thus important to understand the drivers of a low, moderate or strong share of coopetition in an alliance portfolio. Are the drivers related to the focal firm's characteristics, such as its alliance and/or coopetition experience? Are the drivers related to the industry (or industries) in which the focal firm is present?

Furthermore, as in many contributions dedicated to alliance portfolios, it is important to analyse the configuration and structure of coopetitive portfolios. This implies investigating various dimensions such as the size of the coopetitive portfolio or its diversity. There are indeed different types of coopetition (Chiambaretto & Dumez, 2016; Chiambaretto & Fernandez, 2016; Dorn et al., 2016), and applying the concept of alliance portfolio diversity (Bruyaka & Durand, 2012; Duysters et al., 2012) to coopetitive portfolios could yield interesting results. In addition, it demands understanding of the mechanisms through which the synergies or conflicts between agreements in a coopetitive portfolio actually work.

Finally, a vast number of contributions focus on the evolution of alliance portfolios, but very few studies examine the evolution of coopetitive portfolios. In line with Chiambaretto and Fernandez (2016), we invite future scholars to investigate the evolution of coopetitive portfolios over time. From an initial perspective, a firm's alliance portfolio co-evolves with its strategy to reduce the effects of environmental uncertainty and change (Dittrich et al., 2007; Hoffmann, 2007; Ozcan & Eisenhardt, 2009; Lavie & Singh, 2012). While Chiambaretto and Fernandez's (2016) contribution aligns with this co-evolutionary approach, another set of contributions has linked alliance portfolio evolution to firm growth, highlighting how the changing needs of a firm affect the evolution of its alliances during the firm's life cycle (Hite & Hesterly, 2001; Maurer & Ebers, 2006; Rindova et al., 2012). Following these two approaches, additional research is needed to understand how coopetitive portfolios evolve over time. Is the share of coopetition in alliance portfolios defined by the focal firm's life cycle or by its environment? Do different types of uncertainty (market, technological, financial) lead to different configurations of coopetitive portfolios? What main reconfiguration and structuring actions can be implemented in a coopetitive portfolio? Because this research avenue requires the

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identification of new mechanisms or drivers, we expect case studies (especially longitudinal ones) to be particularly relevant.

The management of coopetitive portfolios

Along with the first articles on alliance portfolios, questions regarding their management have arisen. A stream of literature dedicated to "alliance capabilities", that is, the ability of firms to create and capture value through alliances (Anand & Khanna, 2000; Wang & Rajagopalan, 2015), already existed. However, this literature focused its attention on the dyadic level and neglected the interactions between the alliances highlighted by the literature on alliance portfolios. Few studies explored the management of alliance portfolios. Following the first contribution from Hoffmann (2005), Heimericks and Duysters (2007) were the first to deploy the concept of alliance capacity across the entire portfolio, although they did not really define the concept. The first definition of "alliance portfolio management capability" was provided by Sarkar and colleagues (2009), who characterized it as "*organizational processes to proactively pursue alliance formation opportunities, engage in relational governance, and coordinate knowledge and strategies across the portfolio*" (Sarkar et al., 2009, p.583). It is essentially the third task (coordinating at the portfolio level) that characterizes the specificity of this capability. In a recent contribution, Castro and Roldan (2015, p. 64) insist on this dimension and define this capacity as "*the competence to develop alliance portfolio strategies, to establish a management system and coordinate the portfolio as a whole, facilitating the transfer and combination of resources between the actors*".

In parallel to these contributions, several studies emerged on the management of coopetition (Bengtsson et al., 2016; Fernandez & Chiambaretto, 2016; Fernandez et al., 2014; Fernandez et al., forthcoming; Le Roy & Fernandez, 2015; Tidström, 2014). These contributions aimed at understanding how firms can manage the tensions generated by coopetition strategies. In this vein, two key contributions began to address the question of a "coopetition capability". First, Gnyawali and Park (2011) identified three main capabilities that are critical to manage coopetition. Whereas the first two capabilities, coopetition experience and executive mindset, enable firms to handle conflicts and tensions, the third, superior and complementary resources, helps firms to develop their relationship in a more balanced way. The second contribution, by Bengtsson et al. (2016, p. 22) clearly defines the coopetition capability as "*the ability to think paradoxically and to initiate processes that help firms attain and maintain a moderate level of tension, irrespective of the strength of the paradox*".

However, no research has attempted to combine the management of coopetition and alliance portfolios. In their review and research agenda on coopetition, Dorn et al. (2016) invite researchers to "*look at coopetitive alliance-portfolio management capabilities*". Working on alliance-portfolio management capabilities requires drawing lessons from both the alliance portfolio and coopetition management literatures. Several questions can be raised: To what extent is it similar to the management of traditional alliance portfolios? Is the management of coopetitive portfolios a sub-case of the management of alliance portfolios or does it require specific tools? Are these tools the same as those that are used to manage coopetition at the dyadic level? In-depth case studies and analyses of larger databases could provide insights regarding these questions.

Performance implications of coopetitive portfolios

Over the past decade, a significant amount of research has been dedicated to the link between alliance portfolio configurations and performance (Castro & Roldan, 2015; Lee et al., 2014; Wassmer et al., 2017). These contributions have shown that it is not the size of the portfolio that matters, but rather its configuration and management (Neyens & Faems, 2013; Wassmer, 2010). However, despite the seminal contributions provided by Ritala (2012) and Park and colleagues (2014), to the best of our knowledge, no other contributions have examined the performance of coopetitive portfolios.

To address the performance of coopetitive portfolios, several directions can be followed. A first path would be to investigate the existence of an optimal size or optimal composition of the portfolio that maximizes the focal firm's performance. Additional studies investigating coopetitive portfolio diversity could also bring interesting insights (Lee et al., 2014). Because the focal firm's performance can be measured in different ways, it would be highly relevant to diversify the types of performance examined. Previous contributions regarding the performance of coopetition have measured innovation performance (Bouncken & Kraus, 2013), financial performance (Luo et al., 2007), stock market reaction (Wu et al., 2015) and market performance (Ritala, 2012). Extensions of these contributions at the portfolio level would enrich the debate regarding the performance of coopetitive strategies.

Nevertheless, because the link between coopetition and performance is not a direct one, it is very unlikely that it will be different for coopetitive portfolios. Thus, it is essential to integrate moderating variables in the analyses. In the two contributions that have investigated coopetitive portfolios and performance, two types of moderating variables have been used: variables regarding the characteristics of the industry (Ritala, 2012) and the coopetition experience (Park et al., 2014). However, many other firm-specific, partner-specific and industry-specific variables could be studied. Furthermore, in the rich literature regarding the performance of alliance portfolios, the majority of recent contributions have noted the key role of alliance portfolio management in performance (Castro & Roldan, 2015; Cui & O'Connor, 2012; Neyens & Faems, 2013; Schilke & Goerzen, 2010). Because several contributions have highlighted this management role in the performance of coopetition strategies (Le Roy & Czakon, 2016), we expect that coopetitive alliance-portfolio management capabilities may also be important in explaining the performance of coopetitive portfolios.

We encourage further research to develop these future contributions on the performance of coopetitive portfolios. Future studies could address the questions regarding the diversity or the optimal configuration of a coopetitive portfolio. To do so, we would expect the creation of specific databases that integrate the type of partner (competitor or not) and the type of agreement (structure, objective, etc.).

In a nutshell, with the joint development of two complementary streams of literature regarding coopetition and alliance portfolios, it is surprising that only a limited amount of research has combined these two concepts to study coopetitive portfolios. As coopetitive portfolios are a very promising research topic, we have provided various directions for researchers from both fields to pursue on this topic.

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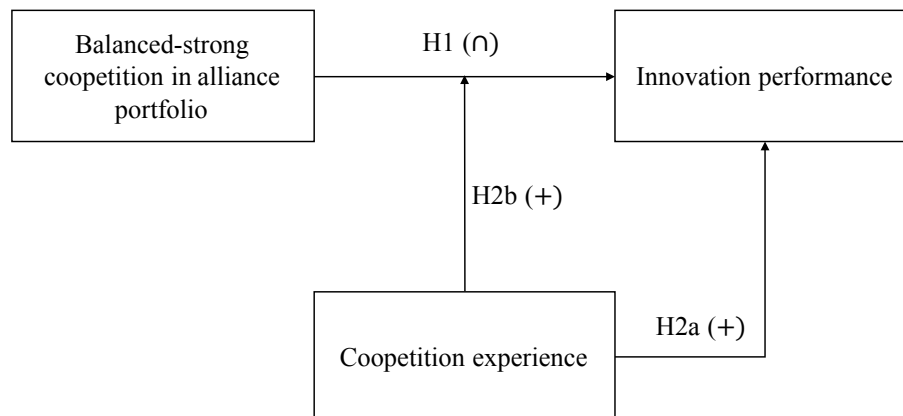
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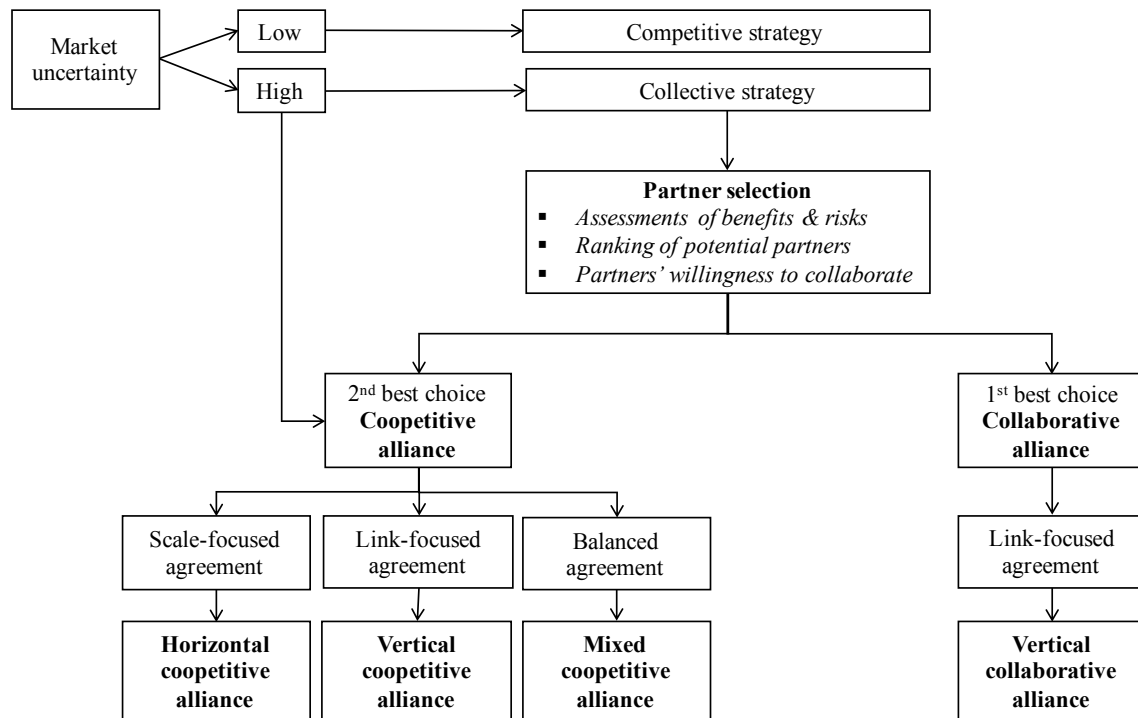
Figure 21.1. The link between alliance portfolio composition and innovation performance



Source : Adapted from Park et al. (2014)

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Figure 21.2. The role of market uncertainty in the configuration of coopetitive portfolios



Source: Adapted from Chiambaretto and Fernandez (2016)

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Table 21.1. Summary of the existing literature on coopetitive portfolios

| Research article | Key idea of the study | Use the term coopetition |
|-----------------------------------|---|--------------------------|
| Belderbos et al. (2006) | Studies the potential complementarity or substitutability of competitors with other partners in an alliance portfolio and their respective impact on the productivity growth | No |
| Wassmer and Dussauge (2011, 2012) | Shows that adding a firm presenting a high degree of competition with the focal firm or with the existing firms in the alliance portfolio can negatively affect the focal firm’s market value | No |
| Wu et al. (2010) | Uses the literature on triads to understand how a focal firm can drive two competitors to collaborate together and create a unique value proposition | Yes |
| Ritala (2012) | Shows that there is no direct relationship between the degree of coopetition in an alliance portfolio and innovation | Yes |
| Park et al. (2014) | Reveals that the relationship between the percentage of coopetitive alliances in a portfolio and innovation has an inverted-U shape | Yes |
| Chiambaretto and Fernandez (2016) | Investigates different configurations of coopetitive portfolios and highlights uncertainty as a driver of the share of coopetitive agreements in alliance portfolios | Yes |