



Coopetition and product innovation performance: The role of internal knowledge sharing mechanisms and formal knowledge protection mechanisms



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ABSTRACT

Coopetition is an important new product development strategy; yet, studies addressing the impact of collaboration with competitors on product innovation performance provide mixed evidence. Conducting Tobit analyses on a sample of 627 manufacturing firms that responded to the fifth wave of the Flemish Community Innovation Survey, we find that the innovation performance implications of competitor collaboration depend on fine-grained intra-organizational design characteristics. In particular, our results show that competitor collaboration has a significant positive impact on product innovation performance only when internal knowledge sharing mechanisms and formal knowledge protection mechanisms are present. These findings contribute to the emerging contingency perspective on coopetition and provide specific recommendations to managers that are involved in cooperative endeavors.

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1. Introduction

The ability to create new products can be a source of sustainable competitive advantage for firms in almost any industry (Verona & Ravasi, 2003). Many scholars have pointed to coopetition or collaboration between two directly competing firms as a viable strategy to stimulate the development of new products and launch them into the market (e.g. Brandenburger & Nalebuff, 1996; Gnyawali & Park, 2009, 2011; Ritala & Hurmelinna-Laukkanen, 2009; Yami, Castaldo, Dagnino, & Le Roy, 2010). At the same time, coopetition is described as a paradoxical phenomenon that triggers a strong tension between value creation and value appropriation (Bengtsson & Kock, 2014; Raza-Ullah, Bengtsson, & Kock, 2014). Relying on capability-based view arguments, coopetition scholars suggest that collaboration with competitors stimulates value creation through fostering the recombination of complementary knowledge, which is a necessary condition to successfully develop new products (e.g. Dussauge, Garrette, & Mitchell, 2000; Ritala & Hurmelinna-Laukkanen, 2013). Adopting insights from transaction cost theory, they also emphasize that collaboration with competitors represents a transactional setting where unintended knowledge spillovers are likely to occur, triggering significant value appropriation liabilities (Hamel, 1991; Walter, Walter, & Müller, 2014). In line with these different theoretical arguments, existing studies on innovation

performance of coopetition provide mixed results. Whereas some studies (e.g. Belderbos, Carree, & Lokshin, 2004; Neyens, Faems, & Sels, 2010) have found a positive relationship between coopetition and product innovation performance, other studies (e.g. Nieto & Santamaria, 2007) report a negative relationship.

Given these mixed findings, several scholars have stressed the need for more research into how the tension between value creation and value appropriation can be managed within coopetition settings (Bengtsson & Kock, 2014). Some studies have started to address this call, exploring how specific inter-organizational mechanisms can help to alleviate the tension between value creation and value appropriation inherent to coopetition settings (e.g. Cassiman, Di Guardo, & Valentini, 2009; Faems, Janssens & Van Looy, 2010). They identified particular relational and contractual strategies that might help partners to successfully govern cooperative relationships. In this paper, we aim to complement these findings, shifting the focus from inter-organizational mechanisms toward intra-organizational mechanisms that might impact firms' ability to deal with coopetition tensions.

In the broader collaboration literature, it is increasingly emphasized that firms' internal organizational design might substantially influence firms' ability to benefit from inter-organizational collaboration efforts (Foss, Lyngsie, & Zahra, 2013; Lahiri & Narayanan, 2013). Moreover, some studies have started acknowledging the importance of internal design mechanisms in coopetition settings (e.g. Ritala & Hurmelinna-Laukkanen, 2013). Yet, a comprehensive understanding of whether and how different internal mechanisms might jointly help firms to balance the benefits and risks of coopetition strategies remains absent. In this paper, we therefore study whether the presence of (i) internal

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knowledge sharing mechanisms and (ii) formal knowledge protection mechanisms influences the relationship between competitor collaboration and firms' product innovation performance. Relying on insights from the knowledge management literature (Argote, McEvily, & Reagans, 2003; Zhou & Li, 2012) and knowledge spillover literature (Arrow, 1962; Jaffe, Trajtenberg, & Henderson, 1993), we expect that these particular mechanisms influence the core processes (i.e. complementary knowledge recombination and unintended knowledge spillovers) that are likely to emerge in the context of cooperation.

To test the impact of internal knowledge sharing and formal knowledge protection mechanisms on the relationship between competitor collaboration and firms' product innovation performance, we conduct Tobit analyses on a sample of 627 manufacturing firms that responded to the fifth wave of the Flemish Community Innovation Survey (CIS). Our results indicate that cooperation positively influences firms' product innovation performance only if both internal knowledge sharing mechanisms and formal knowledge protection mechanisms are present. These findings contribute to the emerging contingency perspective on cooperation, which emphasizes that the performance implications of cooperation relationships are contingent on the context in which such relationships are embedded (e.g. Cassiman et al., 2009; Luo, 2004; Ritala, 2012). In particular, our study shows that, to better understand the innovation performance implications of cooperation, it is not only relevant to look at the governance mechanisms that are applied within cooperation relationships, but also to study the internal organizational design of the involved firms.

The paper is structured in four sections. First, we theoretically discuss the value creation benefits and value appropriation challenges of competitor collaboration. Subsequently, we develop hypotheses on how different combinations of internal knowledge sharing mechanisms and formal knowledge protection mechanisms might influence the relationship between competitor collaboration and firms' product innovation performance. We then present our methodological approach and discuss the results of our analysis. In the final section, we discuss the theoretical and managerial implications of our findings, point to the main limitations of our study, and elaborate on avenues for future research.

2. Theory and hypotheses

In this section, we first rely on capability-based view and transaction cost theory to describe the fundamental cooperation tension between value creation and value appropriation. Subsequently, we rely on insights from knowledge management and knowledge spillover literature to ground our hypotheses.

2.1. Cooperation and innovation performance: value creation and value appropriation

During the past decades, collaboration between competitors has become increasingly popular (Hamel, Doz, & Prahalad, 1989; Ritala & Hurmelinna-Laukkanen, 2009). Browning, Beyer, and Shetler (1995), for instance, described the case of SEMATECH, a consortium created by 14 competing firms in the US semiconductor industry to jointly realize breakthrough innovations and win back market share from Japanese companies. More recently, several studies have empirically demonstrated that firms increasingly engage in collaboration with competitors for innovation purposes (e.g. Poot, Faems, & Vanhaverbeke, 2009; Tether, 2002; Yami & Neme, 2014).

Despite its popularity, cooperation implies a fundamental tension between value creation and value appropriation (Bengtsson & Kock, 2014; Brandenburger & Nalebuff, 1996; Fernandez, Le Roy, & Gnyawali, 2014; Raza-Ullah et al., 2014). In particular, cooperation strategies simultaneously entail value creation opportunities and value appropriation liabilities (Das & Teng, 2003; Dussauge et al., 2000; Gnyawali & Park, 2011; Wu, 2014). In order to realize joint value creation opportunities, the competitors have to engage in close interaction that allows for synergistic

recombination of knowledge (Dussauge et al., 2000; Gnyawali & Park, 2011). In doing so, however, they face value appropriation concerns (Das & Teng, 2003), since competitors have both incentives and ability to absorb valuable knowledge from each other (Hamel, 1991; Lane & Lubatkin, 1998), triggering risks of knowledge spillovers.

In the cooperation literature, different theoretical frameworks have been used to illuminate the different core aspects of this tension. Relying on the capability-based view, it has been emphasized that cooperation brings along substantial opportunities for synergistic knowledge recombination. At the same time, applying insights from transaction cost theory, scholars also emphasize the probability of knowledge spillovers when firms collaborate with competitors. Below, we describe each of these theoretical explanations, which are summarized in Table 1.

2.1.1. Knowledge recombination benefits in cooperation

The capability-based view has traditionally focused on explaining how single firms can outperform other firms, underlining the role of organizational capabilities and, specifically, dynamic capabilities – i.e. the firm's ability to alter its resource base (Eisenhardt & Martin, 2000). According to the capability-based view, recombination is a key organizational process underlying the firm's dynamic capabilities (Eisenhardt & Martin, 2000; Helfat & Peteraf, 2003). In particular, recombination concerns how existing knowledge is “untangled, altered and integrated with other knowledge bases to create novel business concepts and/or competences” (Galunic & Rodan, 1998: 1195). Therefore, the capability-based view emphasizes the role of recombination as a key determinant of the firm's new product development capabilities (Helfat & Peteraf, 2003; Verona & Ravasi, 2003). Scholars in this tradition also stress that innovation typically emerges out of the recombination of complementary knowledge (Kogut & Zander, 1992; Leiponen & Helfat, 2010), which often implies knowledge exchange between different sources (Galunic & Rodan, 1998). In this regard, it is important to note that competing firms share interests and positions in strategic, market, technology, and business domains (Kim & Parkhe, 2009; Luo et al., 2007). Therefore, collaboration between competitors facilitates bringing together complementary resources that are needed to turn product innovation projects into a success (e.g. Tether, 2002; Wassmer & Dussauge, 2011). Furthermore, competitors are likely to have complementary resources but also relatively similar knowledge bases (Dussauge et al., 2000; Park, Srivastava, & Gnyawali, 2014). Such knowledge similarity reduces ambiguity and enhances potential absorptive capacity (Lane & Lubatkin, 1998), facilitating the access to and acquisition of competitors' valuable knowledge (Ritala & Hurmelinna-Laukkanen, 2013). Competitors are thus able to exchange both codified and tacit knowledge, a necessary step in the recombination process (Galunic & Rodan, 1998), triggering substantial advantages in terms of realizing new-to-the-market innovations (Faems, Janssens,

Table 1

Cooperation and innovation performance: two theoretical perspectives.

	'Knowledge recombination'	'Knowledge spillovers'
Focus of analysis	Value creation opportunities	Value appropriation concerns
Theoretical framework	Capability-based view	Transaction cost economics
Basic premise	Cooperators are likely to possess complementary resources	Cooperators are likely to behave in an opportunistic manner
Predicted impact of cooperation on innovation performance	Positive	Negative
Relevant studies	Afuah (2000) Tether (2002) Belderbos et al. (2004) Luo, Rindfleisch, and Tse (2007) Neyens et al. (2010) Mention (2011)	Hamel (1991) Park and Russo (1996) Nieto and Santamaria (2007) Kim and Parkhe (2009) Lhuillery and Pfister (2009) Walter et al. (2014)

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