

Coopetition - collaboration between competitors

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The scientific & societal impact

Introduction

Fisher (1992) uses the title “*Preaching Love Thy Competitor*” in his New York Times article to describe Novell CEO Ray Noorda’s business philosophy. Noorda recognized the added value of collaborating rather than purely competing with other industry players, and coined the term cooptation – simultaneous collaboration and competition – in the early 1990s (Bengtsson & Kock, 2000; Fisher, 1992). In fact, cooptation is often used as a strategy to improve firm performance (Belderbos, Carree, & Lokshin, 2004; Ritala, 2012). Companies collaborate with rivals to share costs and risks, and to exchange resources that can enhance innovation processes (Estrada et al., 2016; Raza-Ullah & Kostis, 2020; Tether, 2002). This results in benefits for society, e.g. through the faster introduction of new products.⁶⁹

Nevertheless, engaging in cooptation can also harm a firm’s performance, since cooptation partners remain competitors attempting to outperform each other (Lhuillery & Pfister, 2009; Nieto & Santamaría, 2007). Existing research indicates that cooptation therefore entails a paradox between joint value creation and individual value capture (Gnyawali & Park, 2011; Gnyawali & Ryan Charleton, 2018). Some researchers particularly highlight the delicate role of intellectual property (IP) in cooptative relationships (Estrada, 2018; Estrada et al., 2016; Fernandez & Chiambaretto, 2016, 2018; Holgersson, 2018). Cooptation partners are likely to behave opportunistically, seeking to exploit each other’s resources such as knowledge (Cygler et al., 2018; Fernandez, Le Roy, et al., 2018; Ritala & Hurmelinna-Laukkanen, 2013; Tidström, 2014; Zaheer et al., 1998). Firms can use formal or informal IP mechanisms⁷⁰ to shield their

⁶⁹ An example for this is the joint vaccine development by Pfizer and BioNTech (Bildstein & Zanardi, 2021; Pfizer Inc., 2020).

⁷⁰ Formal mechanisms are patents, design rights, copyrights and trademarks, while informal mechanisms are comprised of secrecy, complexity and short lead-times (Hall et al., 2014).

knowledge and appropriate the value created in the partnership (Estrada et al., 2016).

While it is important to understand the specifics of coopetition itself, the tensions of coopting are also likely to affect a firm's other alliances (Chiambaretto & Fernandez, 2018; Cui & O'Connor, 2012; Subramanian & Soh, 2017). Nevertheless, little is known about the specifics of including competitors in alliance portfolios⁷¹, and how this in turn might affect innovation performance. While Park et al. (2014) find an inverted-U-shaped effect of cooperative portfolios on innovation performance, it is particularly Belderbos et al. (2006) who highlight that there tend to be complementary but also subadditive effects between certain partner types in combination with competitors. Yet, to date, only few studies have specifically investigated how combining different partners with coopetition affects performance (Belderbos et al., 2006; Park et al., 2014; Wu, 2014).

Overall, the first main objective of this dissertation is to investigate the role of formal and informal IP appropriation mechanisms in cooperative partnerships. The second main aim of this thesis is to explore the role of competition in alliance portfolios with regards to a firm's innovation performance. The remainder of the impact paragraph elaborates on the findings of this dissertation and outlines why and to whom they are relevant.

Findings

Chapter 2 investigates whether relying on formal and informal appropriation mechanisms increases a firm's likelihood to engage in coopetition, and specifically, whether this differs in dynamic or competitive industries. The results suggest that formal mechanisms increase a firm's propensity to cooperate, also in dynamic markets. Using informal mechanisms, however, decreases a firm's likelihood to collaborate with competitors in dynamic and in competitive industries. I argue that firms that rely on formal mechanisms signal a lower level of innovativeness and therefore need to collaborate. In contrast to that, firms using informal mechanisms seek to protect tacit knowledge, which is linked to a higher degree of innovativeness. Such firms do not need to cooperate in dynamic

⁷¹ As defined earlier, this particular type of alliance portfolio can also be referred to as cooperative portfolio.

or competitive industries because they are able to outperform rivals on their own.

Chapter 3 focuses on the role of informal IP mechanisms with regards to knowledge spillovers in coepetition, and the effect of coepetition on product innovation performance. While the findings suggest that competitor collaboration is beneficial for both product innovation and incoming knowledge spillovers, they also illustrate that using informal IP protection weakens those relationships. This can be explained by informal IP mechanisms preventing firms from sharing knowledge. This in turn also keeps the partner from committing any knowledge to the relationship (Nielsen & Nielsen, 2009), which diminishes the benefits of coepeting. Additionally, the findings show that some of the positive effect of coepetition on product innovation is explained by incoming knowledge spillovers. Interestingly, the direct effect of coepetition on product innovation is not moderated by informal IP protection once the mechanism of knowledge spillovers is disentangled. This suggests that there are other underlying mechanisms relevant to coepetition for innovation that are unrelated to a firm's IP.

Chapter 4 underlines the importance of also considering a firm's other collaboration partners. It assesses different configurations of coepetitive portfolios and shows that various combinations of partners can result in product innovation. Additionally, it emphasizes the relevance of distinguishing between small and large firms, as well as low and high levels of industry dynamism. The findings reveal that the presence of customers in coepetitive portfolios is beneficial for product innovation, regardless of firm size or dynamism. Moreover, including universities is only advantageous if suppliers are also part of the portfolio. However, large firms benefit from complex coepetitive portfolio configurations more than small firms, which can probably be explained by small firms' lack of managerial capabilities. Additionally, firms in more dynamic markets benefit from portfolios that contain only competitors and customers, while less dynamic industries allow for more complex partner combinations. This can be explained by the fact that handling the risks and uncertainties related to increasing levels of industry dynamism ties up managerial capabilities, while firms in less dynamic markets are able to handle more diverse portfolios.

Scientific impact

Despite the steady increase in cooptation literature throughout the past 25 years, the importance of cooptation for firm performance remains unclear (Fernandez, Chiambaretto, et al., 2018). With this dissertation, I seek to broaden the understanding of the benefits and risks related to cooptation. Especially the relevance of knowledge in cooptation is often emphasized (Estrada, 2018; Estrada et al., 2016; Fernandez & Chiambaretto, 2018). Yet, a limited amount of cooptation research has studied the role of knowledge management in this context up until now (Estrada et al., 2016). Therefore, this dissertation investigates formal and informal IP appropriation mechanisms in more detail. In doing so, it responds to calls from cooptation scholars who invite more research to look into value capture and knowledge management in cooptative relationships (see e.g. Estrada et al., 2016). By specifically zooming in on informal instruments, this thesis further extends cooptation research, as those mechanisms are difficult to observe and assess (Estrada et al., 2016; Hall et al., 2014; Laursen & Salter, 2014). The findings highlight the relevance of distinguishing between different types of IP mechanisms. Moreover, the different chapters underline the necessity for research to consider different industry circumstances, as the effectiveness of a firm's strategic choices like relying on IP mechanisms or engaging in cooptation may vary depending on the operating environment. Furthermore, this thesis points out that the tensions and complexities related to knowledge and resource management in cooptation are also likely to affect a firm's other collaborative agreements and vice versa. By evaluating which different cooptative portfolio configurations enable firms to introduce product innovation, Chapter 4 follows up on cooptation scholars' calls for more research in this area (see e.g. Chiambaretto & Fernandez, 2018). It underlines that multiple configurations of cooptative portfolios can result in innovation. In doing so, a baseline of propositions is provided that can be used in future research to gain a better understanding of the cooptation in alliance portfolios. The insights are relevant for cooptation research as they stress the need to focus on firm-internal and -external factors, which may counter the ambiguity of prior results.

The tensions between benefits and risks underline the importance of drawing on various theoretical notions. While the resource-based view (RBV) points at ways for joint value creation in cooptation, transaction cost economics

(TCE) emphasize the riskiness of opening up to competing firms. The relevance of knowledge in cooperation is advanced by the knowledge-based view (KBV). In relying on these different theoretical notions, this dissertation provides further insights into value creation, as well as the value appropriation aspects of cooperation. In addition to that, this thesis also emphasizes the relevance of employing methods that are rather novel to cooperation and strategic management literature. In particular, Chapter 3 deviates from traditional mediation analysis tools such as suggested by Baron and Kenny (1986). Instead, the chapter emphasizes the usefulness of the methodology proposed by Imai et al. (2010), which can account for non-linear models. Furthermore, Chapter 4 acknowledges that multiple causal paths (here: cooperative portfolio configurations) can lead to the same outcome (here: product innovation). As well-established regression-based approaches are not able to account for such equifinality, the chapter follows up on calls from existing methodological research to rely on tools that are able to do so (see e.g. Woodside, 2013). Overall, this dissertation highlights the relevance of continuously developing and improving existing empirical approaches and standards.

Societal impact

This doctoral thesis provides insights that are relevant to managers, policy makers and society at large. The findings indicate that it is important to be aware of firms' internal and external circumstances when engaging in competitor collaboration. Contrary to the belief that collaboration between rivals results in collusion (Rusko, 2011; Walley, 2007), I show that engaging in cooperation can be a viable strategy for firms to jointly increase their innovation performance. In contrast to the negative effects of collusion between firms such as price-fixing (Rusko, 2011; Strutton et al., 2001; Walley, 2007), enhanced innovation performance can benefit society, e.g. through faster introduction of new products to the market (Gnyawali & Park, 2009; Ritala & Hurmelinna-Laukkanen, 2009). This means that for instance pharmaceutical drugs can be developed quicker and thus also be put to use sooner. This is also illustrated by the Bayer AG (2020) or by the joint vaccine development of Pfizer and BioNTech (Bildstein & Zanardi, 2021; Pfizer Inc., 2020). Subsequently, such cooperation then allows for faster treatment of illnesses and diseases. Related to that, the exchange of resources and knowledge can also enable partners to

develop new products that neither of them could have created on their own (Chiambaretto & Fernandez, 2018; Gnyawali & Park, 2009; Mitchell et al., 2002).

In light of those examples, the findings of this dissertation suggest that policy makers should encourage collaboration between competing firms, if the partners' aim is to improve their innovation performance and therefore to benefit society.⁷² Furthermore, a safe and regulated coopetition environment that builds trust and disincentivizes opportunistic behavior might decrease (part of) the need for IP protection mechanisms. This could result in more knowledge sharing, inducing innovation. Ultimately, policy makers need to make a clear distinction between coopetition for the benefit of society and collusion. Moreover, this thesis also provides some important take-aways for managers. In particular, I emphasize that it is necessary for managers to be aware of the industry context their firm is operating in, and which strategic tools and decisions they rely on. The findings underline that the effectiveness of formal and informal IP appropriation mechanisms and coopetition, as well as the beneficial combination of partner types can differ depending on industry circumstances and firm-specific characteristics. This needs to be kept in mind by decision-makers when choosing to engage in coopetition to improve innovation performance.

⁷² For a broader, more in-depth assessment of the role of policy makers for coopetition, please refer to Mariani (2018).