

Evolutionary or Revolutionary Business Model

Innovation through Coopetition?

The Role of Dominance in Network Markets

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Abstract

This paper examines how the level of dominance in firms affects when they engage in coopetition in order to innovate their business model. We present a longitudinal and in-depth single case study of the business model innovation decisions of investment banks in the US corporate bond trading market. We find that, in network markets, when firms choose to engage in coopetition in light of competitive threat it is done so in order to adopt a defensive or offensive strategy. The study shows that in network markets the less dominant firms tend to engage in coopetition to innovate their business model in an evolutionary manner before the dominant firms, as a defensive strategy to protect their existing business model. In contrast, the dominant firms tend to engage in coopetition to innovate their business model in a revolutionary manner after the less dominant firms, as an offensive strategy to alter radically their existing business model. We draw implications of coopetition in network markets for both theory and practice.

Key words: Coopetition, Business Model, Innovation, Network Markets, Dominance

1. Introduction

Firms are increasingly cooperating and competing at the same time in order to create and capture value (Bouncken & Kraus, 2013; Ritala, Golnam, & Wegmann, 2014; Rusko, 2014). Shorter product lifecycle, convergence of multiple technologies and increasing costs of conducting R&D require firms to have multiple resources to improve continuously on delivering the existing value proposition, while exploring new opportunities to foster innovation (Gassmann, 2006; Gnyawali & Park, 2011). Such multiple resources often do not reside within a single firm and, hence, firms in the same industry often cooperate in order to share such resources and then compete to divide the created value jointly. Such collaborative activity has been termed *coopetition* (see Bengtsson & Kock, 2014; Yami, Castaldo, Dagnino, & Le Roy, 2010). Recent research has highlighted the importance of understanding how organizations can affect the mechanism of value creation and capture in a *coopetition* context using the concept of business models (Ritala, Golnam, & Wegmann, 2014). However, research in this area has not explored when and how firms in an industry might decide with their competitors to adopt a *coopetition* strategy in order to innovate their business models. This study aims to explore the incentive for incumbent firms of various sizes to innovate their business model over time by adopting a *coopetition*-based strategy.

Studies on strategic management have focused primarily on inter-firm competition to create competitive advantage (Brandenburger & Nalebuff, 1996; Gnyawali, He, & Madhavan, 2008). Competition and cooperation have been considered separate modes of firm interaction (Chen, 2008; Tidström, 2014). However, more recently scholars have been placing emphasis on studies that examine firms simultaneously engaging in cooperation and competition (see Bengtsson & Kock, 2014; Ritala & Hurmelinna-Laukkanen, 2013). Such studies have examined the motivations for *coopetition* as a need to innovate in order to gain and sustain competitive advantage (Ritala,

2012). A recent study has also emphasized the emergent as opposed to the planned mode in inter-organizational relationships in that coopetition might emerge as unplanned competition within firms that are cooperating (Czakon 2010). Studies have shown that coopetition can enhance the innovativeness of firms (Belderbos, Carree, & Lokshin, 2004; Quintana-García & Benavides-Velasco, 2004; Tether, 2002), but it is moderated by the degree of competition (see Park, Srivastava, & Gnyawali 2014; Ritala, 2012). These studies have focused predominantly on the influence of coopetition on product innovations. However, recent studies have emphasized that business-model innovation takes place when a firm adopts a new approach to commercializing its assets and could be a source of innovation activities (Ehret, Kashyap and Wirtz 2010; Mason and Spring 2010).

A business model summarizes the architecture and logic of a business (Baden-Fuller & Morgan, 2010) – it defines the organization’s value proposition and its approach to value creation and value capture (Teece, 2010). Therefore, business model innovation involves the adoption of fundamentally different modes of value proposition, value creation and/or capture (Markides, 2006). Business model innovation can redefine what a product or service is, how it is provided to the customer, and the means to monetize the customer value proposition. The degree of business model innovation can be either incremental or radical (Velu, 2015). Incremental business model innovation is when there are minor changes to the value proposition, value creation and approach to value capture with respect to the existing business model, while radical business model innovation involves major changes to these elements. Moreover, the degree of business model innovation needs to be studied by transcending the firm boundary and examining how partner firms with complementary resources might influence its outcome (Berglund & Sandstrom, 2013; Zott and Amit 2008). The intensity of competition in an industry could affect the need for sharing such

resources, which in turn could affect the incentive to cooperate among competing firms and influence the degree of business model innovation.

One of the key resources for a firm is the installed customer base. The dominance of the firm, often measured in terms of market share, captures the resource in terms of the installed customer base. The dynamics of how the installed customer base changes are particularly important in network markets, which are subject to externalities in demand, whereby the utility to each customer of adopting a firm's proposition increases with an increase in the total number of customers who have adopted the proposition (Farrell & Saloner, 1986; Katz & Shapiro, 1985). Therefore, the resulting customer adoption dynamics¹ in network markets will influence how and when firms engage in cooperation. This is because as customers dis-adopt an existing product or service proposition in order to adopt a new proposition provided by a new entrant, the resource base of the incumbent firms diminishes. Such diminishing resource base of the incumbent firms might incentivise them to cooperate with their competitors. Such cooperation with competitors enables incumbents firms to regain market share in order help innovate their business models as a means to retain their leadership position in the industry. The research question we pose in this paper is as follows: 'How does the level of dominance of incumbent firms affect when they engage in cooperation and how they would innovate their business models in doing so?'

We present a longitudinal and in-depth single case study (based on 60 interviews with senior management) of the business model innovation decisions of investment banks in the US corporate bond trading market, a huge industry with trading volumes exceeding \$US400 billion per day. Despite its importance, this industry has rarely been studied from an innovation perspective (Frame & White, 2004). We find that, in network markets, when firms choose to engage in cooperation in

¹ The customer adoption dynamics describes when customers adopt or dis-adopt a product or service proposition.

light of competitive threat it is done so in order to adopt a *defensive* or *offensive strategy*. We show that, in network markets, the less dominant firms tend to engage in coopetition to innovate their business model in an evolutionary manner before the dominant firms, as a defensive strategy to protect their existing business model. On the other hand, the dominant firms tend to engage in coopetition to innovate their business model in a revolutionary manner after the less dominant firms, as an offensive strategy to alter radically their existing business model. In doing so, we make two contributions to the literature. First, we contribute to the coopetition literature by showing that one of the mechanisms, namely the customer base, can act to influence the interplay between competition and cooperation in order for firms to engage in coopetition. Second, we contribute to the business model literature by showing how the resource base, namely the installed customer base, drives firms to engage in coopetition in order to innovate the business model in an evolutionary or revolutionary manner.

The next section reviews the relevant literature. Section 3 describes the data and method adopted for the case study, and Section 4 uses the empirical evidence to extend the theory on coopetition. Section 5 discusses the managerial and theoretical implications, and Section 6 concludes.

2. Literature Review

2.1 Coopetition

Coopetition is seen as a paradoxical relationship whereby firms compete and cooperate at the same time (Bengtsson & Kock, 2014). Coopetition could exist between either two firms or many firms simultaneously. Researchers have examined coopetition by examining when a ‘win-win’ relationship could come about by balancing value creation and value capture. Brandenburger and Nalebuff (1995, 1996) use concepts from game theory to articulate how coopetition could

enhance value for firms. The authors do so by examining how other firms in the network could act as complementors or competitors to a focal incumbent firm depending on their respective roles (Brandenburger and Nalebuff, 1995, 1996). They show how firms might cooperate to create a new product and then compete to get a share of the market in order to distribute the returns from the value that has been created. Such cooperation often requires the management of tension between cooperation and competition (Tidström, 2014); several factors are important for balancing such tension. These include leadership, organizational design and relationship-specific trust (Chin, Chan, & Lam, 2008; Lacoste, 2012). Some scholars have examined cooperation from the network perspective, such as learning and knowledge-sharing (Powell, Koput, & Smith-Doerr, 1996; Gnyawali & Madhavan, 2001). Other scholars have explored such balancing of value creation and capture by examining the resource-based view of sharing technologies and resources (Chen, 1996; Emden, Calantone, & Droge, 2006). Studies have argued that the main motivations for cooperation are access to resources in order to create competitive advantage from existing business or for growth through innovation (Bengtsson & Kock, 2014; Raza-Ullah, Bengtsson, & Kock, 2014).

Competitive advantage has been discussed from the perspective of examining the position of the firm and the characteristics of the network (Gnyawali & Madhavan, 2001). Such a network-centric approach allows firms to obtain better information, resources and status and to facilitate learning, which could stimulate knowledge-sharing, market expansion and technological progress (Dahl, 2014; Bengtsson, Eriksson, & Wincent, 2010). Studies have argued that competitive advantage could manifest itself in the form of strategic flexibility as a result of cooperation (Bengtsson et al., 2010). The role of firms within a business network has been shown to be a key enabler of cooperation (Bengtsson and Kock 1999; 2000). In particular, cooperation will be more prevalent in the case where there are heterogeneity in terms of the resources of the firms

(Bengtsson and Kock 2000). However, the degree of competition might differ according to the position in the value chain whereby competition might be more prevalent in activities closer to the customer or downstream activities whereas cooperation might be stronger in the activities further away from the customer or upstream activities (Bengtsson and Kock 2000).

Studies have also shown that competition and cooperation are influenced by industry structure in network markets, which are markets that display network externalities in which the addition of a new customer adds value to other customers (Katz & Shapiro, 1985). In network markets the utility of each customer is an increasing function of the number of other customers in the market (Katz & Shapiro, 1985). In such markets the addition of a new customer adds value for others. The externalities derived by customers in network markets as a result of other customers are called demand-side externalities. Studies have shown that the likelihood of competition among incumbent firms increases with market concentration and greater customer penetration, and diminishes with time (Fjeldstad, Becerra, & Narayanan, 2004). In particular, the objective is to avoid competitive retaliation when market concentration is high, the incentive to increase transaction volume among existing customers when customer penetration is high or the desire to cooperate among competitors could be driven by the need to compete to create standards early in the industry's evolution (Gwynne, 2009; Spiegel, 2005).

Cooperation as a means to foster innovation is becoming increasingly common as a result of shorter product lifecycle, convergence of multiple technologies (e.g. telecommunications, computers and television) and increasing costs of conducting R&D (Gnyawali & Park, 2011). Increasing product lifecycle due to rapid changes in customer preferences and technological obsolescence provides an incentive for firms to cooperate as well as compete (Gassmann, 2006). Moreover, convergence of multiple technologies provides incentives for firms to manage risks

while leveraging opportunities through cooptation (Garud, 1994). In addition, when technologies converge, cooptation provides opportunities to shape the institutions and standards (Gomes-Casseres, 1994). High R&D costs also provide incentives for firms to combine R&D resources in order to share the process of creation, acquisition and knowledge-sharing (Zineldin, 2004).

In general, inter-firm relationships are driven by the desire to integrate supplementary and complementary resources in order to create and capture more value than would be possible if the firms were to do so independently. However, in a cooptation context the sharing of resources is even more complex compared to other inter-firm relationships because the same resource could be used to create value for both competition and cooperation (Ritala, Golnam, & Wegmann, 2014). Moreover, the value capture potentially takes place in the same market or industry. Therefore, understanding the rationale for the business model – the mechanism by which value is created and captured – is particularly important in the context of cooptation. The rationale for cooptation-based business models in this context could be to increase the size of the current market, create new markets, increase efficiency in resource utilization and improving the firms' competitive position (Ritala, Golnam, & Wegmann, 2014). However, extant studies have not explored how changes in resources as a result of competition might influence the incentive to engage in cooptation in order to innovate the business model. We next review the literature on business models and innovation in order to explore this issue further.

2.2 Business Model Innovation and Firm Dominance

The business model is a structural template that describes the system of interdependent activities transcending the focal firm and spanning its boundaries in order to create and capture value (Zott & Amit, 2001) – it is the realized strategy of the firm and is a combination of complementary resources that support the commercialization of core products (Vidal & Mitchell,

2013). It follows that business model innovation involves a more systemic change than product or process innovation because it involves changes to the customer value proposition, value creation and capture (Markides, 2006; Velu & Stiles, 2013). Therefore, one needs to study how transcending the firm boundary and sharing resources helps firm to innovate their business model. The calculus of how and when to engage in cooperation in order to implement a business model innovation varies depending on whether the incumbent firm in question is dominant – in other words, has a large market share and hence customers as resources in the traditional business – or less dominant.

Scholars in the management of technology argue that established dominant firms are slow to respond to radical innovation, primarily as a result of issues related to competence (Henderson, 2006; Henderson & Clark, 1990; Tushman & Anderson, 1986). In essence, when a technological change destroys competence, the disruption renders the capabilities of the established firm obsolete. Therefore, in the presence of organizational inertia the dominant established firm might not be able to reconfigure its resources to take advantage of the new technology and, hence, might be slow to adopt the innovation. The capabilities that make firms market leaders might subsequently act as competency traps, whereby the established routines make it extremely difficult for the firm to change its mode of operation (Leonard-Barton, 1992).

On the other hand, Christensen and Bower (1996) argue that the inability of leaders to innovate radically is a result not of a lack of competence but rather of cognition failures in the senior management team, resulting from resource dependency and the resource allocation procedure. Leading firms often place an emphasis on allocating resources to their most demanding larger customers in order to improve the focal mainstream performance of existing technologies. The practice of allocating resources to improving existing technologies prevents such leaders from

investing in new, potentially disruptive technologies. Christensen and Bower (1996) show how dominant firms in the disk drive industry lost their leadership position following each generation of new technology as a result of such a resource-dependent investment programme. A recent study has also shown how changing behavioral norms in an industry can play a role whereby leadership position of the incumbent firm can be overturned by entrants to an industry by subverting the cooperative norms in the sector (Le Roy and Guillotreau 2010).

Scholars have also argued, from as early as Schumpeter (1942), that the most likely factor influencing dominance and innovation is the availability of slack resources, including money, people and facilities (Hage, 1980). This resource constraint hypothesis argues that the lack of slack resources might inhibit firms from adopting radical innovation. The effect of the resource constraint hypothesis could work favourably for dominant firms. Arguably, dominant firms are more innovative because they have more resources to invest in research and a greater ability to hire skilled workers and also maintain technical facilities (Hitt, Hoskinson, & Ireland, 1990; Singh, 1990). Moreover, using the resource-based view, scholars have also argued that dominant incumbent firms have an advantage over smaller firms or new entrants because they possess complementary assets that are less dependent on specific inventions (Teece, 1986; Rothaermel, 2001). Complementary assets, which include large customer base, brand, reputation and distribution capabilities, might give dominant firms an advantage over their smaller rivals in innovation (Ofek & Sarvary, 2003). In contrast, complementary assets, such as the installed customer base, can result in investment inertia due to the fear of cannibalization, resulting in a lower incentive to innovate among dominant incumbent firms (Ghemawat, 1991).

Although – using the resource-based view – scholars have argued that complementary assets such as large customer base could affect the incentive to innovate, the extant literature does not

examine how customer adoption dynamics affect how and when incumbent firms cooperate in order to innovate their business models. Customer adoption dynamics are particularly important in network markets. The presence of demand-side externalities in network markets influences customers to adopt an offering based on a particular business model because other customers have adopted it (Katz & Shapiro, 1985; Gladwell, 2000). Adoption would be slow initially but accelerate as more customers adopted and, hence, the utility from adoption increased. The adoption rate would then slow down as the market reached saturation. In this formulation of customer adoption, an S-shaped curve is obtained (Young, 2009; Griliches, 1957).² Although many studies have looked at the S-curve as a result of customer adoption behaviour, little has been said about the shape of customer attrition (Mahajan & Wind, 1986; Stoneman & Battisti, 2000; Stoneman & Karshenas, 1995). As customer utility in network markets is dependent on how many other customers are in the market, a similar argument could hold for customer attrition. In the case of customer attrition the rate at which customers leave a particular business model depends on how many others continue to use it. As before, customer attrition is initially slow but accelerates and tails off as most customers leave, giving rise to a reverse S-curve.

The decisions about how and when to innovate the business model are especially challenging in network markets (Bonaccorsi, Giannangeli, & Rossi, 2006). An important effect of demand externalities in network markets is that the calculus of how and when to engage in competition in order to implement an innovation varies depending on whether the incumbent firm in question is dominant or less dominant. Dominant incumbents have more to lose by implementing an innovation because they face the prospect of losing the substantial profits they derive from the

² The technology management literature also explains the concept of S-curves in the take-up of new technologies, but does not invoke the notion of network externalities. The S-curve is driven by the increased benefits of the new technology over time (Foster, 1986; Utterback, 1994).

existing business model, product or service proposition. Firms that adopt a cooperation strategy are arguably either more or less incentivized to innovate their business model. On the one hand, it has been argued that firms in the same industry might have similar assets and, hence, any innovation to the business model will be incremental in nature. On the other hand, one can argue that the sharing of resources among competing firms enables more resources that would enable radical business model innovation. We next examine a case study in the financial services industry in order to explore this issue further.

3. Method and Empirical Context

Our empirical analysis is based on detailed interviews with managers and analyses of archival material. We study business model innovations in the US bond market between the years 1995 and 2000. The US bond market represents the largest securities market in the world, with over \$17 trillion in bonds outstanding as at the end of 2000. The bond market consists of the primary and secondary markets. In the primary market government agencies and corporations issue securities to raise funds. In the secondary market, institutional investors (such as asset management firms and pension funds) buy and sell these securities. The business model innovations in the US bond market displayed three characteristics that offered a particularly suitable setting for an in-depth case study of the central research question, for several reasons. First, the banks engaged in cooperation in order to innovate their business models; second, the US bond market was an industry in which a traditional business model existed with the potential to be transformed into different types of business model; third, the bond markets displayed significant network effects,³ which influenced one of the key resources, namely, the size of the installed customer base; and, the

³ This is because as the liquidity (total number of transactions) increases, the ability for a buyer (seller) to execute a trade in a timely manner at a fair price increases as a result of the increase in the probability of finding sellers (buyers) with a counter offer (Economides & Siow, 1988).

incumbent banks displayed different degrees of market dominance.

3.1. Data Collection

Our data about the bank's innovation decisions came from both semi-structured interviews and secondary data sources. We followed the method of 'purposeful sampling' in choosing our interviewees. We initially contacted informants at a number of the banks involved in forming the consortiums, whom we believed would be the most knowledgeable to inform us about our research question about cooperation. Following this, we then asked each interviewee for recommendations about who could best provide further detail on our question of interest. We followed this approach to create an ongoing sample of interviewees, focusing our data collection on emerging themes until further interviews yielded no significant new information. To maintain consistency, the author conducted all interviews and managed the data collection meticulously to ensure its trustworthiness, writing up notes within 24 hours to ensure reliability.

We interviewed 60 key senior executives across the banks that were affected by, or directly influenced, the formation of the cooperative consortiums (as summarized in Table 1). The executives were from various divisions, including strategy, sales and trading, human resources, information technology and finance. The interviews took place during three visits to New York in 2003, 2004 and 2005; they were semi-structured (interviewees were provided with a list of questions beforehand but were not constrained by them during the interviews) and examined the decisions associated with forming the consortiums. Most of the interviews lasted between 60 and 90 minutes and, while they were not recorded for confidentiality reasons, the interviewer took extensive notes following the interviews, which were then typed up immediately. The interviews covered areas such as the history and background of electronic trading, innovation in the industry, competition and the forming of the consortiums across the firms in the industry. The interviews

covered these areas whilst emphasizing the aspects where the interviewees had particular expertise based on the division they were from as outlined in Table 1. The approach enabled triangulation of the information collected from the interviews in order to provide more focused exploration of the issues.

Table 1 about here.

We followed a qualitative case-study approach, as answering the research question required a rich, process-orientated analysis (Yin, 2003). In conducting our research we were aware of the possible disadvantages associated with this method, as retrospective bias and an ‘official firm line’ might be present. In order to overcome some of these shortcomings, we interviewed several executives from each department in order to cross-check the validity of the evidence being provided by the interviewees. In addition, we asked the interviewees to provide contact details for other relevant individuals within and across firms. We then interviewed these other executives in order to confirm earlier interview evidence or provide alternative perspectives. In addition, we further corroborated our interview data from archival and other secondary material available on the topic (press reports, for example, Factiva; financial databases, for example, Thomson Financial; and industry reports, for example, Bond Markets Association reports). In order to ensure reliability of our data, we carefully cross-checked any interview data with news reports, industry newsletters and annual reports of the firms, where possible. We did not find any significant discrepancies between our interview data and these independent sources. Moreover, we also interviewed three officers from industry associations and two partners of strategy consulting firms who were familiar with the bond markets, to corroborate further the data. We used a combination of coding, grouping, triangulation and discussion to analyze our interview data.

3.2. Data Analysis

The data analysis for the case study consisted of three stages:

- (i) The case study data was coded based on the theoretical classification developed around competition as our initial analysis framework.
- (ii) Our initial concepts were refined and iterated between emerging categories and the literature on dominance, innovation and business models with competition in order to revise continuously our analysis framework.
- (iii) We confirmed and refined the mapping of evidence to the revised framework through discussion between the interviewing author and two other researchers.

We followed a number of steps when coding and analysing our data. First, we started the data analysis using open coding to identify initial concepts, which we then grouped into categories (Van Maanen, 1979). Second, we examined and searched for relationships between and across these categories to gather them into higher-order themes, and then grouped similar themes into several overarching dimensions to help develop some of the key constructs for our framework on competition, dominance and innovation (Strauss & Corbin, 1998). Third, where possible, we used secondary source material to triangulate our data to increase its reliability via a recursive process, which was repeated until no new relationships were revealed. Following such an approach, we were able to develop themes that formed our first-order concepts. The fourth analysis stage involved refining our first-order concepts by iterating between emerging categories and the competition literature. Attempts to map the evidence pointed to the dominance, innovation and business model literature as a basis for refining our framework to map our second-order themes, resulting in the identification of dominance and timing concepts. In the fifth analysis stage, we used peer debriefing, which involved the field researcher discussing with researchers who were

not directly involved in the fieldwork in order to obtain an independent, outside view of the themes, also enabling us to consider and eliminate possible alternative explanations.

Figure 1 about here.

We present our data structure in Figure 1 by highlighting the first-order concepts, second-order themes and aggregate dimensions from which we developed our model. We also provide additional selected quotations supporting our interpretation of the data in the Appendix in line with the recommendation for data reporting from recent studies (see Pratt, 2009).

4. Findings

4.1. The US Bond Market Following the Advent of the Internet

The trading of bonds has traditionally been done via dealer banks that act as intermediaries. In 1995 buyers and sellers often obtained quotes from multiple dealers almost exclusively via a telephone-based system (see Figure 2). Dealer banks in turn generated revenues from the bid-ask spread between the buy and sell prices. The dealers often had to buy securities and hold them in inventory before being able to sell them to another investor. The dealer assumed the risk of price fluctuations, which required economic risk capital.

(Figure 2 about here)

The process of matching buyers and sellers via the telephone is relatively slow and inefficient, as buyers and sellers cannot view the full liquidity (total number of buy and sell orders for the various securities in the market) of the market in a transparent manner. The advent of Internet technology enabled two new business models to emerge. The first was an evolutionary business model. This business model innovation (as shown on the left of Figure 3) maintains the traditional business model, whereby buyers and sellers transact via an intermediary bank; however, the process migrates to an electronic platform where prices are posted directly by dealers. The

value proposition is essentially the same as the traditional business model, whereby the price and quality elements are marginally altered. Specifically, the business model involves marginal changes to the price, because the electronic platform permits easier price comparison through the instantaneous availability of information across dealers. The evolutionary business model also involves marginal changes to other elements of the value proposition. Specifically, it involves minor changes to the product (from telephone to e-trading platform), distribution (buyers and sellers still trade through a dealer bank acting as an intermediary, but it occurs over the electronic platform rather than via telephone), and promotion (which remains active and dealer-led, but occurs over the electronic platform rather than via telephone). Therefore, the approach to value creation is substantially the same, whereby the banks still act as intermediaries between buyers and sellers. Moreover, because the dealers continue to generate revenues from the bid-ask spread, the capital commitment and the corresponding cost of this business model are similar to that of the traditional telephone-based trading model.

(Figure 3 here)

The second business model innovation (as shown on the right of Figure 3) entails a revolutionary change to the traditional business model, whereby buyers and sellers execute trades directly among themselves on an electronic platform. In this model, the role of the intermediary bank as dealer becomes obsolete. The value proposition is substantially different, as buyers and sellers transact directly with one another. Specifically, the business model involves a major change to the price, from being based on the spread to being based on a transaction fee. The revolutionary business model innovation also involves substantial changes to other elements of the value proposition. Specifically, it involves major changes to the product (from telephone to e-trading directly between investors), distribution (from dealers acting as intermediary to direct trading

between buyers and sellers, which enables a more transparent, comprehensive and unfiltered view of the market place), and promotion (from being actively dealer-led to being passively buyer-initiated information-gathering on the e-platform). Therefore, the approach to value creation is substantially different, whereby the banks do not act as intermediaries but enable direct trading between buyers and sellers. Finally, the cost structure changes, as the banks can reduce the amount of economic risk capital set aside for market-making compared to the traditional business model, as their role as market-making intermediaries becomes redundant.

4.2. Market Dominance in the Corporate Bond Market

In this section we describe the major firms and their relative dominance in the US corporate bond market in the period 1995–2000. The corporate bond market was highly concentrated. We use the underwriting league table based on the primary market as a proxy for market concentration and dominance.⁴ During the five years from 1995 to 1999, the top ten dealer banks underwrote approximately 94 to 98 per cent of corporate new issues (as shown on the left of Figure 4). The four dominant banks (Bank 1, Bank 2, Bank 3 and Bank 4) grouped together to form one consortium while the less dominant banks formed another. For the purpose of implementation of the business model innovations leveraging the Internet, these banks engaged in cooptation to form two consortiums – one dominant and the other less so. We next describe how the less dominant and dominant firms respectively responded to a new entrant.

(Figure 4 about here)

⁴ Underwriting is the process by which banks agree either to distribute or buy a particular amount of a new issue of bonds for a fee. Dealer banks are not required to – and do not – report secondary trading market shares. Consequently, there is no publicly available syndicated source or database upon which we can draw for this information. However, our interviews with senior bankers in the bond divisions of the major investment banks confirmed that the primary issue underwriting league tables provide a good proxy for dealers' shares of the secondary trading market. This is because the process of underwriting primary issues gives banks leverage over, and privileged access to, investors in the secondary trading of bonds.

4.3. Response of the Less Dominant Firms

A new entrant called NewTrade⁵ took advantage of the Internet to launch a revolutionary business model (right of Figure 3). NewTrade announced the launch of RevolTrade to trade high-yield corporate bonds (in 1998) and opened for trading in 1999 to allow investors to trade directly with one another. We now look at how the incumbent banks responded to the new entrant to address the question of how and when incumbents engage in cooptation in order to implement business model innovations.

Initially, both the dominant and less dominant banks merely noted the emergence of a new entrant with a radically different business model. This was encapsulated in an interview with an executive from one of the incumbent banks:

Initially we did not think that RevolTrade was a major threat to us as it was a radically new business model and had to build up customers in order to be credible. This was difficult in a market where customers want a market that is liquid in order to ensure that they are able to buy and sell when they want.

As a result the banks did not respond to the launch of RevolTrade. However, after a few months of trading, the less dominant incumbent banks were beginning to lose customers to RevolTrade, at a faster rate than the dominant banks. This was noted by an executive from one of the less dominant banks:

Following a few months of their launch, RevolTrade was beginning to pick up some of our trades partly because they were able to offer superior prices given their low capital based trading model that enabled direct trading between buyers and sellers. We were finding it increasingly difficult to retain these customer orders as we did not have the liquidity of the large banks and could not match

⁵ The names of the firm and all trading platform business models have been changed.

the pricing of the new entrant, RevolTrade, either. It was increasingly becoming clear that we needed to respond to the threat posed by RevolTrade.

In January 2000, in response to the new entrant, the less dominant incumbents, Bank 6, Bank 8 and Bank 9, announced the launch of the Begonia consortium for trading corporate bonds. Begonia was conceived at Bank 9. The objective of Begonia was to maintain the current business model, whereby investors could still buy and sell securities via an intermediary dealer but migrate this to an electronic medium. Begonia was therefore an evolutionary business model compared to the traditional business model, as it involved marginal changes to the value proposition, value creation and approach to value capture (as shown on the left of Figure 3). This was evident from a statement taken from one of the interviews: *‘Begonia will be a comprehensive multi-dealer transaction platform on the Internet that will maintain the existing approach to trading but move it to an electronic interface.’* The less dominant banks were of the view that an evolutionary business model innovation would help stem the loss of customers from their existing business model. This was articulated very neatly by one of the executives from the founding bank for Begonia:

We needed to reduce our costs of the telephone based trading model. Hence, we decided to migrate the trading of bonds to an electronic platform in order to do so. We strongly believed that if we reduced the cost whilst still providing the customer the benefit of acting as an intermediary dealer, we would be able to defend our franchise. However, we need to have a larger market share in order to be able to be competitive against the large banks. We knew that the large banks would not be interested to join the consortium as they already had a large market share and can defend themselves against any loss of market to RevolTrade. Therefore, we decided to ask a number of the smaller banks to join the Begonia consortium.

In addition, the potential market share loss – as a result of the strong network effects due to

the smaller market shares of the less dominant banks – was encapsulated in the following statement made by a senior executive at one of the less dominant banks:

We were a small bank relative to other large banks in the market and we were in danger of losing our customers very rapidly to the new entrant, RevolTrade. This is because the market trades where there is liquidity and we were consciously aware that once we start losing market share there is likely to be a fast avalanche away from our trading floors to the other avenue. Therefore, we needed to join the Begonia consortium because the fear of losing our customer franchise drove our investment decision.

Hence, Bank 6 and Bank 8 joined Bank 9 as founding partners. Soon after, in 2000, Bank 10 and Bank 12 also joined the Begonia consortium. The combined average market share of these less dominant banks in the corporate bond market over the five-year period from 1995 to 1999 was 19.4 per cent (see right of Figure 4). The response of the less dominant banks in launching Begonia, an evolutionary business model, was aimed at protecting the traditional business model. Therefore, we propose:

Proposition 1: In network markets the less dominant firms tend to engage in cooptation to innovate their business model in an evolutionary manner before the dominant firms, as a defensive strategy to protect their existing business model.

We next discuss the response of the dominant firm.

4.4. Response of Dominant Firms

As discussed earlier, the dominant banks initially did not respond to the launch of RevolTrade. This is because the dominant banks had the largest market shares and, hence, had effective control of liquidity in the market. After a few months, following the launch of RevolTrade, the dominant banks lost some market share to RevolTrade; however, they did not see this as a major threat. This was articulated by a senior executive at one of the dominant banks:

Although we were losing some trades to RevolTrade, we considered these to be marginal. We still held most of the market and provided liquidity to our customer base. Hence, although RevolTrade was offering lower commissions to trade, we beat them more often on the basis of our superior liquidity and being able to execute the trades in a timely manner at a fair price.

However, the stance taken by the dominant banks changed dramatically following the launch of the evolutionary business model, Begonia, by the less dominant banks. This was a result of the acceleration in the loss of market share due to network effects, which was encapsulated by an executive from one of the dominant banks:

The launch of the Begonia business model was a timely reminder for us that doing nothing was not an option any longer. We were beginning to see an erosion of our market share not only to the new entrant, RevolTrade, but also to the business model consortium formed by other incumbent banks, Begonia. Although initially we were not seeing any major loss of trades due to us being the liquidity holders, this position was becoming increasingly untenable as customers were switching to the other two avenues with increasing alacrity. Our traders were finding it increasingly difficult to retain some of the key trades and we could see ourselves losing our competitiveness.

The desire of the dominant banks not to be followers or to invest in the evolutionary business model was clearly encapsulated in the words of a senior executive from one of the dominant banks:

We did not want to accelerate the margin compression that a multi-dealer electronic platform such as Begonia would have caused.⁶ Accelerating margin compression will reduce revenues from spread based commissions and hence, hit our bottom line very quickly as we had very high costs from operating in the business in the form of trading capital as well as other fixed costs.

However, the dominant banks needed to react to the evolutionary business model put forward

⁶ ‘Accelerate the margin compression’ refers to the speed of reduction in the spread. The evolutionary business model would have caused a decline in the spread without corresponding reduction in capital, which would have caused a decline in the return on capital.

by the less dominant banks, as this was increasingly likely to affect their market shares. Accordingly, one of the executives said: *'We needed to change the metrics of competition in the market. We felt that we needed to change the game to continue to be leaders as the existing intermediary based business model was no longer viable.'*

The dominant dealers in the corporate bond market, namely, Bank 1, Bank 2, Bank 3 and Bank 4 (as shown on the right of Figure 4), were not part of the Begonia consortium. However, they needed to respond strategically to the new entrant and the Begonia consortium. Driven by the new developments in the market, the secondary trading business was becoming relatively less profitable for the four most dominant dealers. The reason for this was articulated by one of the executives interviewed:

As we were one of the largest banks in the corporate bond trading market, we needed to hold a significant amount of capital in order to buy and hold inventory. However, when we started losing market shares to the newcomer and consortium formed by the smaller banks, the economics of scale started to work against us. We very quickly went from a position of being extremely profitable to one where bond trading was seen as a weak step-sister and increasingly less profitable for us.

The dominant banks lost some market share and the business looked decidedly unprofitable and less attractive. This was because of large fixed costs; the usual benefits of scale economics were working against the dominant banks much faster than they were against the less dominant banks with commensurately lower fixed costs. The dominant dealers saw an opportunity to reduce the capital commitment to a relatively less profitable business by facilitating direct dealing between investors. This was a revolutionary change to the existing bond trading business model. The revenue architecture of the new business model was substantially different from the established business model of market-making for the dealers. The dealers no longer had to commit to making markets in the securities but could provide the risk capital required to guarantee the

credit risk of the transaction. Moreover, the founding partners could generate a fee from each transaction. If the new business model were successful it could make the initial business model obsolete. The idea was conceptualized within Bank 1. However, Bank 1, with approximately 17.5 per cent of the market share, felt that it did not have sufficient liquidity on its own to make this a success. Bank 1 approached Bank 2 and Bank 3 to join the consortium. The three dominant players between them had more than 46 per cent of the market share (see right of Figure 4). The benefits of competitor banks joining forces were articulated by a senior executive of one of the dominant banks:

Although we were competitors, we believed that by joining forces we could leverage the size of our installed customer base and alter the probability of success substantially for ourselves. Moreover, we felt that if we did not join the consortium, we could be locked out of the market and other large banks might be invited to join the consortium instead.

An announcement was made by Banks 1, 2 and 3 respectively in 2001 about the launch of Orchid, with its revolutionary business model. Orchid was launched to trade investment-grade corporate bonds in the first instance, followed by high-grade corporate bonds and municipal bonds. Immediately following the announcement of the launch of Orchid, Bank 4 was invited to join the consortium. Bank 4 effectively became the fourth founding partner of Orchid later in 2000 by taking an equity stake. The four largest investment banks in the US corporate bond market, with market shares of more than 58 per cent, adopted the technology to launch a radically new business model that could potentially render obsolete the dealer's role as an intermediary in the world's largest fixed income market. The commitment to a new business model was encapsulated in an interview with one of the senior executives: *'Orchid was going to allow direct trading between market participants, in an open platform with live bids and offers.'* Figure 5 provides a summary timeline of the launch of the different business models.

(Insert Figure 5 about here)

The founding dealer banks committed to providing credit support for Orchid, which was to serve as the credit intermediary for all trades and to guarantee them. This commitment would require approximately 75 per cent less capital compared to the telephone-based business model. The dominant banks had set the stage for the total transformation of the fixed income market. Orchid was an option to revolutionize the business model of bond trading.

Therefore, we propose:

Proposition 2: In network markets, the dominant firms tend to engage in cooperation to innovate their business model in a revolutionary manner after the less dominant firms, as an offensive strategy to alter radically the existing business model.

5. Discussion

Firms who normally compete are increasingly also cooperating among themselves. There are many motivations behind these cooperation arrangements of sharing resources (Ritala, 2012). First, firms might have a desire to increase the size of the current market or to create totally new ones. Second, firms might want to use fewer resources or use the existing resources more efficiently. Third, firms might want to protect their existing share of the market and perhaps capture a larger share of the remaining market. All of these motivations are aimed at improving performance through competitive advantage from existing business or for growth through innovation. Extant research has identified some contingency factors that drive firms to engage in cooperation. For example, Ritala (2012) shows that network externalities and competitive advantage are important contingency factors that could determine innovation and performance of the cooperative entity. Absorptive capacity and appropriability regimes have also been seen to influence incremental and radical innovations differently (Ritala & Hurmelinna-Laukkanen,

2013). However, studies have not examined the mechanisms that drive the changing needs for such contingency factors and, hence, the interplay of the coevolution of competition and cooperation to drive innovation. In this study, we show how one such resource, the installed customer base, might change as a result of competition and influence the incentive to engage in cooperation in order to innovate business models in network markets. In this context, the installed customer base defines the dominance of the firm in the marketplace.

The literature has made a distinction between incremental and radical innovation based on the degree of newness relative to an existing proposition. The degree of newness can be seen from an internal, as well as external, perspective (Garcia & Calantone, 2002). An internal perspective concerns the firm in terms of technology and other resources and routines, while an external perspective concerns the customers and the market. In making a connection between the internal and external perspectives, a number of scholars have made a distinction between innovation that challenges the technical capabilities of the firm and innovation that challenges the firm's knowledge of the market and customer needs (Abernathy & Clark, 1985; Henderson & Clark, 1990). However, in network markets, as a result of increasing returns to scale from demand-side externalities, the external factor, customers themselves become a key resource for the firm, which can shape the incentives for firms to innovate their business model. Moreover, the forces from demand-side network externalities could be extremely compelling factors for competitor firms to cooperate in order to innovate their business models either to prevent newcomers from succeeding or to overturn other incumbent firms. In this paper we study the dynamics of such competition between incumbent firms to adopt a cooperation-based strategy to innovate their business models.

We show how the incentives for cooperation among incumbent firms changes as the competition for market share changes over time. This in turn influences how firms with different

levels of dominance affect the type of business model innovation adopted. In particular, our research shows that, in network markets, when firms choose to engage in coopetition in light of competitive threat it is done so in order to adopt a defensive or offensive strategy. We show that in network markets the less dominant firms tend to engage in coopetition to innovate their business model in an evolutionary manner before the dominant firms, as a *defensive strategy* to protect their existing business model. On the other hand, in network markets, the dominant firms tend to engage in coopetition to innovate their business model in a revolutionary manner after the less dominant firms, as an *offensive strategy* to alter radically the existing business model.

5.1. Managerial Implications

There are several managerial implications of our study. First, this paper suggests the importance for dominant firms to understand resource movements, such as installed customer base, as an input into coopetition and business model innovation decisions in network markets. The lesson for dominant incumbents in network markets is not to be complacent about the initially slow customer attrition rate following the emergence of new propositions. Often the rate of customer attrition could accelerate resulting in rapid loss in installed customer base. Therefore, dominant incumbents can quickly move from a position of making large profits to one of making large losses. This calls for vigilance among dominant incumbents in being able to form coopetition arrangements rapidly with competitors in order to be on the offensive to be able to implement revolutionary business models that would change the game and maintain leadership in the industry.

Second, for less dominant incumbents, this research shows that it is vitally important to remain strategically flexible. Less dominant incumbents often need to form coopetition arrangements in order to innovate their business model earlier as a defensive strategy to maintain market share; the empirical case shows that they are more likely to implement an evolutionary

business model to do so. However, our case study shows that dominant incumbents may not fit the common stereotype of sluggish and hidebound players. Indeed, dominant incumbents, by forming a coopetition-based consortium, can implement revolutionary business models with surprising alacrity and resolve. The less dominant incumbents must therefore be vigilant about the actions of dominant firms, especially since they have a smaller installed base of customers than their dominant counterparts, and are therefore less able to influence the outcome of new business models.

Third, our study shows when firms might need to adopt a coopetition strategy. Our results has implications for coopetition based strategy in order to defend market shares as opposed to grow market shares and how such motivations might change over time for different incumbent firms depending on their respective levels of dominance.

5.2. Theoretical Implications

There are several theoretical implications of our study. First, we introduce the concept of customer adoption dynamics in a competitive setting and how that influences the incentive for dominant and less dominant firms to engage in coopetition in order to innovate their business models. By doing so, we show that some firms cooperate and compete in order to adopt evolutionary or revolutionary business model innovations; we provide a more nuanced view of the business model innovation behavior of firms based on coopetition. Research that examines only one form or the other is likely to draw incomplete or misleading conclusions about how and when firms display coopetition to innovate their business models. This paper serves as a call for a more comprehensive view of coopetition and business model innovation.

Moreover, we enhance the understanding of the complex relationship between firm dominance and business model innovation. The extant literature has focused on incompetence

(Henderson, 1993), resource dependence that results in focusing on current customers at the expense of emerging customers (Christensen, 1997), or the amount and type of resources available to the firm (Hitt, Hoskinson & Ireland, 1990). We add to this line of reasoning an alternative explanation based on customer adoption dynamics. In particular, we explore the implications for innovation strategy as a result of the dynamically changing resource base of the firm, namely the customer base. Although we consider network markets, our results would hold in markets that display an S-shaped (reverse S-shaped) innovation diffusion curve due to internal feedback effects from previous to future adopters (dis-adopters) as a result of contagion, social influence and social learning (Young, 2009).

Our results are closely related to the concepts of replacement and efficiency effects in industrial economics (Tirole, 1988). The replacement effect is the force that prevents dominant firms from innovating as a result of the risk of losing the substantial profits they derive from the existing business model, product or service proposition. On the other hand, the efficiency effect encourages dominant firms to innovate because they stand to lose more if a competitor firm were to innovate first. We show how changes in the relative strength of the replacement and efficiency effects for a dominant firm, due to the customer adoption dynamics, initially causes the firm to be lethargic; however, when it does innovate its business model it does so in a radical manner through coopetition.⁷

Our work also has implications for research on business models. In particular, the business model has been argued to transcend the boundary of the firm. One element of such transcendence of the business model is how it connects to other competing firms in order to adopt a coopetition

⁷ Our work is also closely related to the concept of judo and sumo strategy (Brandenburger & Nalebuff, 1996). In the judo strategy, the less dominant firm uses the strength of the dominant firm to transform it to its weakness. On the other hand, when a firm wants to be large it is best to start out large. Therefore, the sumo strategy states that when the dominant firm innovates it is best to innovate radically.

strategy. Our study shows that such wider conceptualization of the firm includes not just the transactions element but also how the firms might innovate their business model. This has implications for how coopetition might shape industry structure and business model evolution.

6. Conclusion

Interest in coopetition as a way of building competitive advantage has been increasing, but the strategic management literature has only recently begun to address more comprehensively how cooperation and competition might occur simultaneously. In particular, mechanisms that drive the changing needs for resources and, hence, the interplay of the coevolution of competition and cooperation, have received little attention. While conclusions drawn from a single case study require certain caveats, our research highlights that, in network markets, when firms choose to engage in coopetition in light of competitive threat it is done so in order to adopt a defensive or offensive strategy. In particular, we show that, in network markets, the less dominant firms tend to cooperate to innovate their business model in an evolutionary manner before the dominant firms, as a defensive strategy. In contrast, the dominant firms tend to engage in coopetition to innovate their business model in a revolutionary manner after the less dominant firms, as an offensive strategy.

There are several possible limitations and extensions of this study to investigate. First, our study was done in the financial services industry with strong demand side network effects. An extension of the study could examine whether our results hold in other industries where network effects are less important. Second, our study focused on customers as the key resource. An extension of the study could explore how other resources of the firm, apart from the installed customer base, might influence the coopetition decision. Third, our study did not explore to what extent the coopetition among the firms arose from planning as opposed to emergence which could

be a line of enquiry for future studies. Fourth, our study is based on single case study with its attendant limitations. In order to validate the robustness of our results, future studies need to collect and test our propositions using large sample empirical data. Finally, our study did not examine the behavioral norms of the industry on cooperation changes as a result of the competitive forces and this could be further examined in future studies. Acknowledging these limitations, we argue that our study provides a useful framework for understanding a mechanism, namely the customer base, as a resource that drives firms to engage in cooperation in order to innovate.

Table 1: Interviews Conducted

Interviewee Affiliations	Number of Organizations	Interviews Conducted					
		Strategy	Sales & Trading	Human Resources	Information Technology	Finance	Number of Interviews
Investment Banks	12	9	22	2	7	5	45
Electronic Trading Platforms	3	4	3		2	1	10
Asset Management Firms	2	2	1				3
Information Service Providers	2	2					2
Total	19	17	26	2	9	6	60

Figure 1: Data Structure

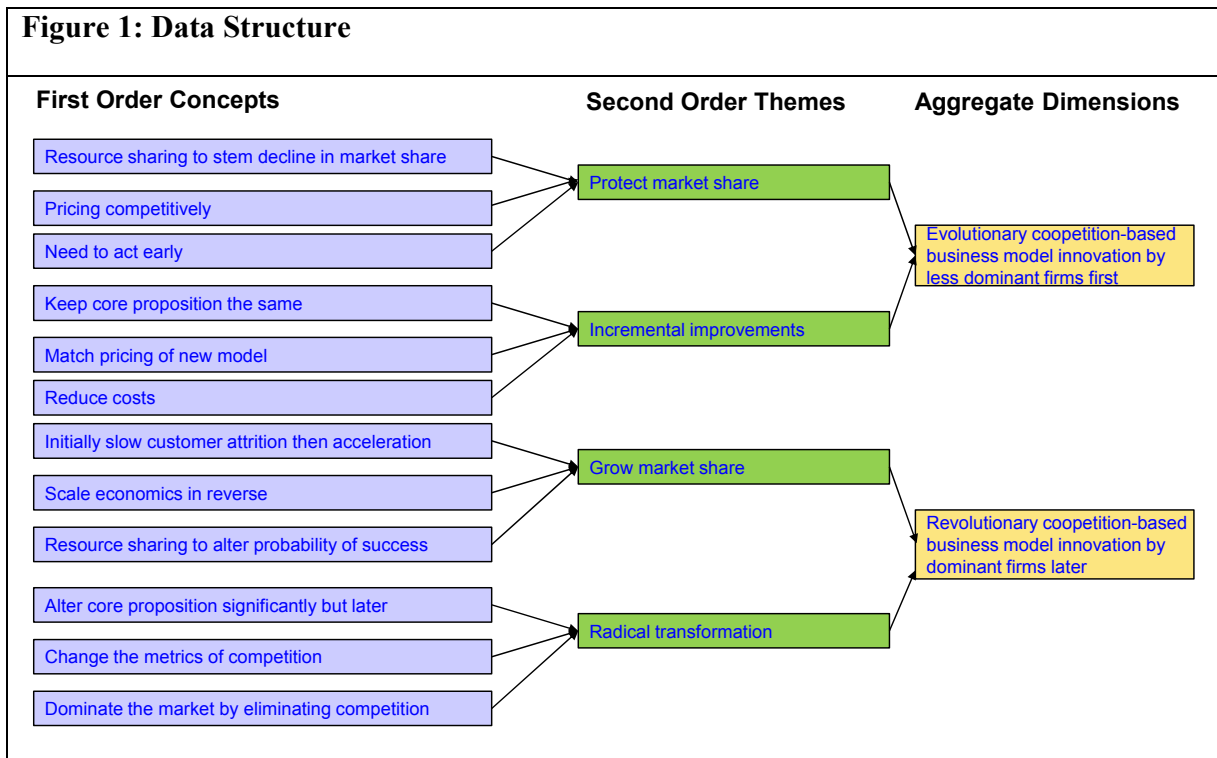


Figure 2: Traditional Business Model

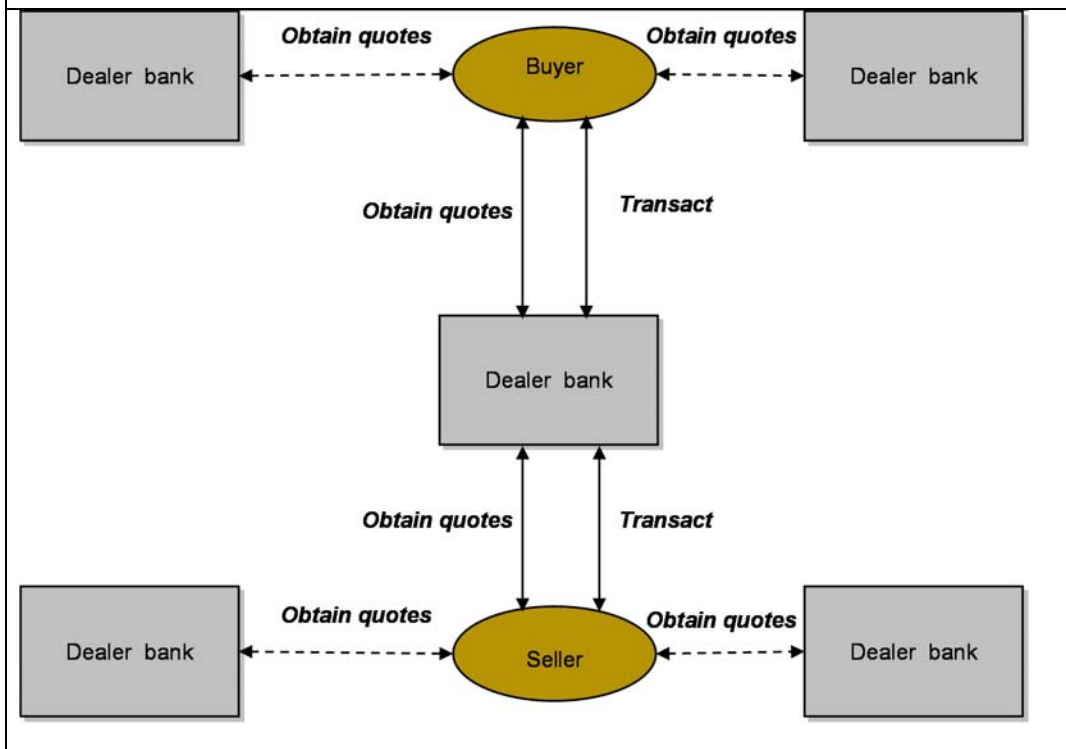


Figure 3: Alternative Business Models with New Technology

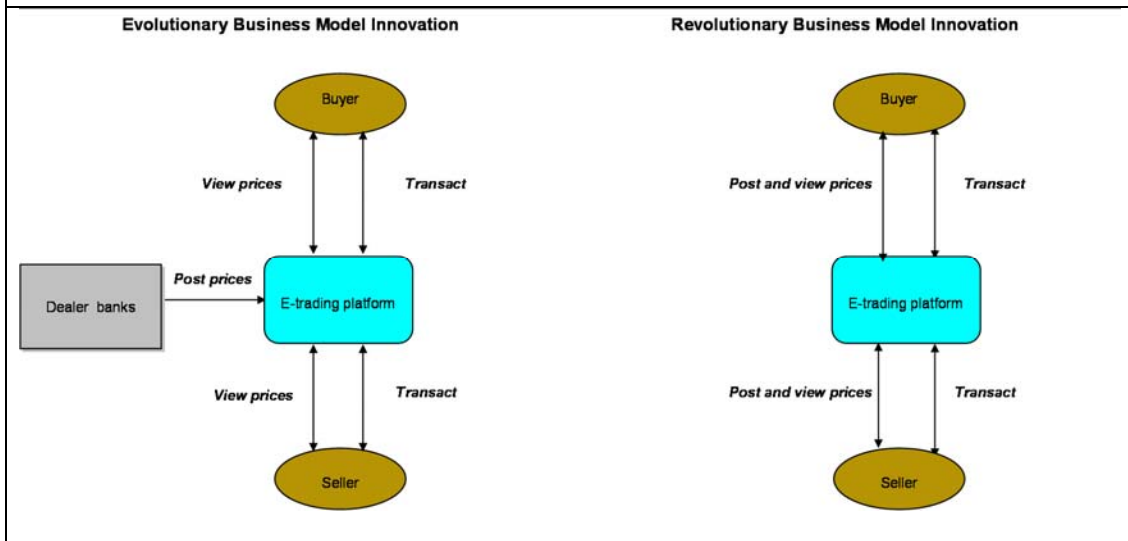


Figure 4: Market Concentration and Dealer Market Shares in the US Corporate Bond Market

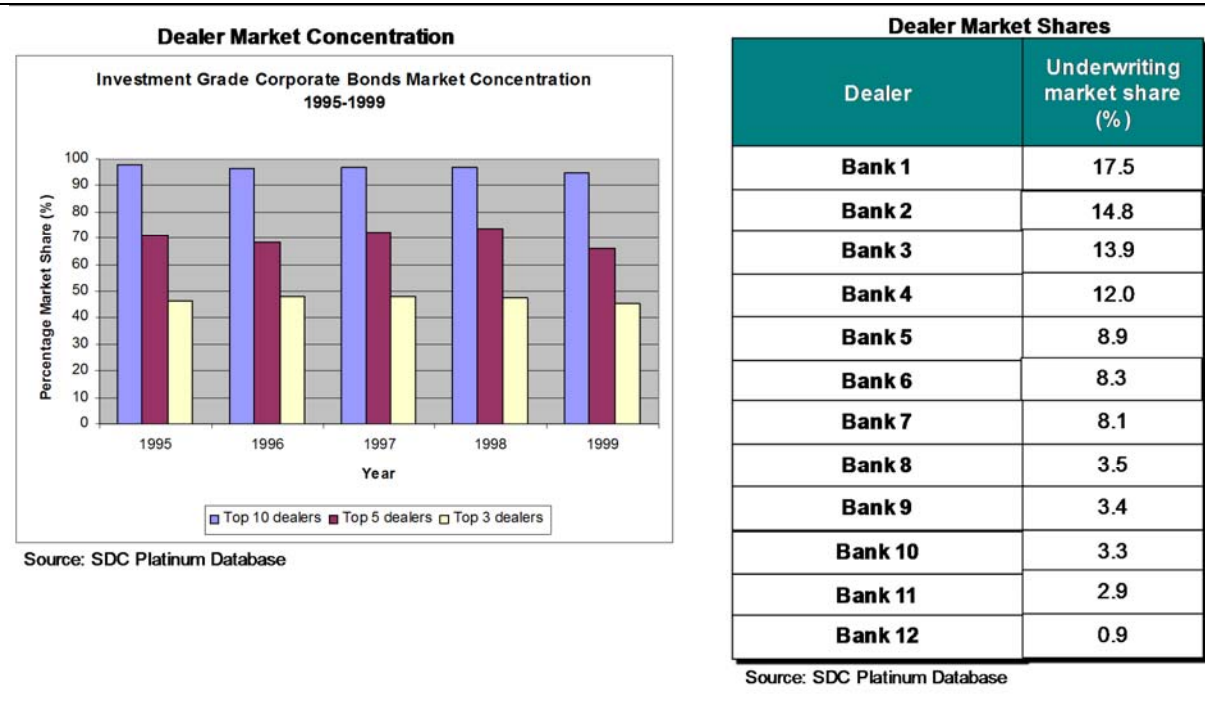
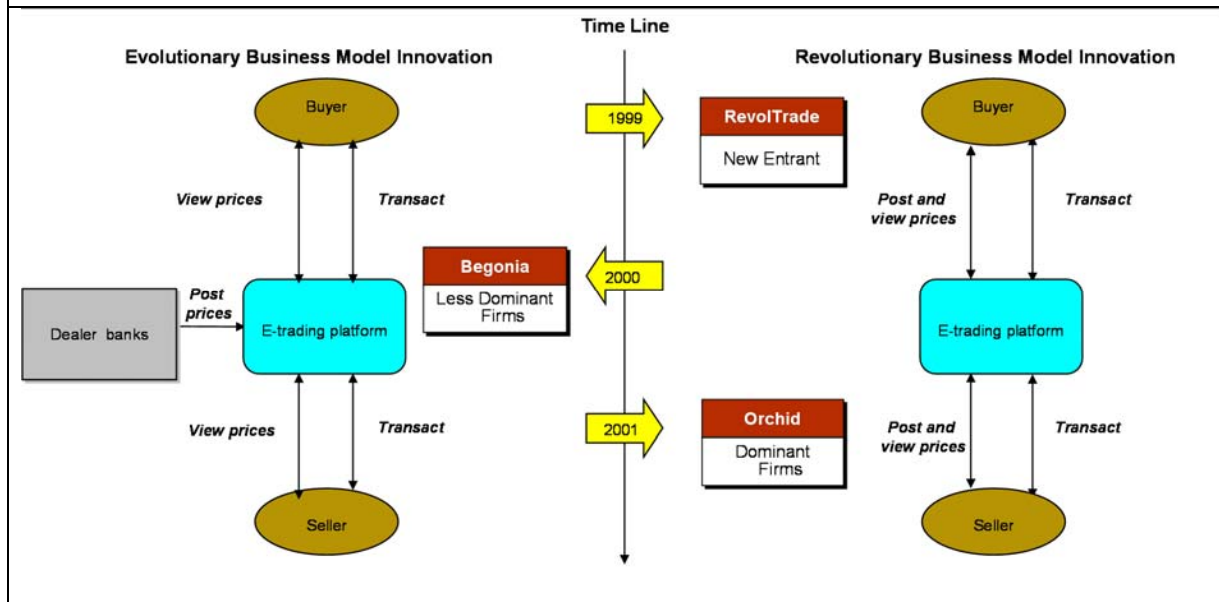


Figure 5: Summary of the timeline of the launch of the different business models



Appendix. Selected Evidence.

Coopetition to protect market share

The less dominant firms tried to protect their market share following the entrance of RevolTrade.

- *'We did not have the market power to stem the losses in market shares as we were too small individually. We needed to work with our smaller competitors to gain market power'* (Head of e-commerce of a less dominant bank).
- *'We were committed to maintaining the existing approach to trading bonds and saw any new approaches as a threat that we can collectively protect ourselves from, even though we normally compete with each other'* (Strategy Officer of a less dominant bank).

Incremental improvements

The less dominant firms tried to improve incrementally the existing business model following the entrance of RevolTrade.

- *'We did not want to disintermediate the banks as market makers. We just wanted to electrify the phone trading process. Although margins had fallen, we felt that vanilla products can be traded electronically and hence, more clients can be reached which should compensate the margin fall'* (Vice President, Electronic trading architecture strategy of a less dominant firm).
- *'We did not think that a direct investor to investor trading model would work. Moreover, as margins in the market become too thin, the dealers in the market will stop making markets and the margins will increase again. Hence we formed a consortium to improve the efficiency of existing dealer-based model'* (Chief Marketing Officer of a less dominant bank).

Coopetition to grow market share

The dominant firms wanted to grow market share considerably following the launch of Begonia, the coopetition-based business model, by the less dominant firms.

- *'The bank with the largest market share in corporate bond trading approached us to form the direct investor to investor business model. We were the second largest player in the market and initially felt that we did not want to join forces with our main competitor. However, the more we thought about it the more we felt that if we did not join the consortium, they would approach the next largest banks and we could be locked out. Moreover, the proposition to work together was potentially game changing and could gain us a big market share'* (Managing Director of one of the dominant banks).
- *'We had large fixed costs from our sheer size. As the volume and price declined in bond trading due to competitive forces, our return on the amount of capital invested was looking*

less attractive. We were not big enough individually to make a difference and hence, we needed to persuade each of our large competitors one at a time to cooperate in order to jointly transform the business' (Chief Operating Officer of one of the dominant firms).

Radical transformation

The dominant firms tried to alter radically the existing business model following the launch of Begonia, the cooperation-based business model, by the less dominant firms.

- *'There was increasing volatility in the bond markets needing the dealers to hold more equity for trading, but declining margins meant we needed to change the risk return trade-off for the investor. Therefore, we enabled direct trading between the investors'* (Head of Trading at one of the dominant firms).
- *'We felt that having the top firms coming together to form a consortium enables us to define the future model for the corporate bond trading market by ourselves, which would enable us to admit future partners to the consortium on our own terms'* (Technology Officer at one of the dominant banks).

References

- Abernathy, W.J., Clark, K.B. (1985). Innovation: mapping the winds of creative destruction. *Research Policy*, 14, 3–22.
- Amit, R and Zott, C. (2001). Value in e-Business. *Strategic Management Journal*, 22, 493-520.
- Baden-Fuller, C., & Morgan, M.S. (2010). Business models as models. *Long Range Planning*, 43(2–3), 156–171.
- Belderbos, R., M. Carree and B. Lokshin (2004). Cooperative R&D and firm performance, *Research Policy*, 33, 1477–1492.
- Bengtsson, M., Eriksson, J., & Wincent, J. (2010). *Co-opetition: New ideas for a new paradigm*. In S. Yami, S. Castaldo, & F. Le Roy (Eds), *Coopetition winning strategies for the 21st century* (pp. 19–39). Cheltenham: Edward Elgar.
- Bengtsson, M., & S. Kock. 1999. Cooperation and Competition in Relationships Between Competitors in Business Networks. *Journal of Business and Industrial Marketing* 14(3), 178–190.
- Bengtsson, M., & S. Kock. 2000. Coopetition' in Business Networks—To Cooperate and Compete Simultaneously.” *Industrial Marketing Management* 29 (5), 411–426.
- Bengtsson, M., & Kock, S. (2014). Coopetition – Quo vadis? Past accomplishment and future challenges. *Industrial Marketing Management*, 43(2), 180–188.
- Berglund, H & Sandtrom, C. (2013). Business model innovation from an open systems perspective: structural challenges and managerial solutions, *International Journal of Product Development*, 18(3-4), 274-285.
- Bonaccorsi, A., Giannangeli, C., & Rossi, S. (2006). Entry strategies under competing standards: Hybrid business models in the open source software industry. *Management Science*, 52(7), 1085–1098.
- Bouncken, R., & Kraus, S. (2013). Innovation in knowledge intensive industries: The double edge sword of coopetition, *Journal of Business Research*, 66(1), 2060–2070.
- Brandenburger, A., & Nalebuff, B. J. (1995) *The Right Game: Use Game theory to Shape Strategy*, *Harvard Business Review* 73(4), 57-71
- Brandenburger, A. M., & Nalebuff, A. M. (1996). *Co-opetition*. USA: Currency/Doubleday.
- Chen, M. J. (1996). Competitor analysis and interfirm rivalry: Toward a theoretical integration. *Academy of Management Review*, 21(1), 100–134.

- Chen, M. J. (2008). Reconceptualizing the competition–cooperation relationship: a transparadox perspective. *Journal of Management Inquiry*, 17(4), 288–304.
- Chin, K. -S., Chan, B. L., & Lam, P. -K. (2008). Identifying and prioritizing critical success factors for coepetition strategy. *Industrial Management & Data Systems*, 4(108), 437–454.
- Christensen, Clayton M. 1997. *Innovators Dilemma*. Harvard Business School Press, Boston. MA.
- Christensen, C. M., & Bower, J. L. (1996). Customer power, strategic investment, and the failure of leading firms. *Strategic Management Journal*, 17, 197–218.
- Czakon, W. (2010). Emerging coepetition: an empirical investigation of coepetition as inter-organizational relationship instability in Yami, S., Castaldo, S., Dagnino, G. B., & Le Roy, F. *Coepetition: winning strategies for the 21st century*, Edward Elgar, Cheltenham.
- Dahl, J. (2014). Conceptualizing coepetition as a process: An outline of change in cooperative and competitive interactions. *Industrial Marketing Management*, 43(2), 272–279.
- Economides, N., & Siow, A. (1988). The division of markets is limited by the extent of liquidity. *American Economic Review*, 78(1) 108–121.
- Emden, Z., Calantone, R. J., & Droge, C. (2006). Collaborating for new product development: Selecting the partner with maximum potential to create value. *Journal of Product Innovation Management*, 23(4), 330–341.
- Ehret, M., Kashyap, V. and Wirtz, J. (2013). Business models: impact on business markets and opportunities for marketing research, *Industrial Marketing Management*, 42(5), 649-648.
- Farrell, J., & Saloner, G. (1986). Installed base and compatibility: Innovation, product preannouncements and predation. *American Economic Review*, 76 (December): 940–955.
- Fjeldstad, O. D., Becerra, M., & Narayanan, S. (2004) Strategic action in network industries: An empirical analysis of the European Mobile Phone Industry. *Scandinavian Journal of Management*, 20(1–2), 173–196.
- Foster, R. N. (1986). *Innovation: The Attackers Advantage*. Summit Books, New York, NY.
- Frame, W. S., & White, L. J. (2004). Empirical studies of financial innovation: mostly talk and not much action? *Journal of Economic Literature*. 42(March), 116–144.
- Garcia, R., Calantone, R., (2002). A critical look at technological innovation typology and innovativeness terminology: a literature review. *Journal of Product Innovation Management* 19: 110–132.
- Garud, R. (1994). Cooperative and competitive behaviors during the process of creative destruction. *Research Policy*, 23(4), 385–394.

- Gassmann, O. (2006). Opening up the Innovation Process: Towards an Agenda. *R&D Management*, 36(3), pp. 223–228.
- Ghemawat, P. (1991). Market incumbency and technological inertia. *Marketing Science*, 10(Spring), 161–171.
- Gladwell, M. (2000). *The Tipping Point: How Little Things Can Make a Difference*. Little Brown & Company, New York, NY.
- Gnyawali, D. R., & Madhavan, R. (2001). Cooperative networks and competitive dynamics: A structural embeddedness perspective. *Academy of Management Review*, 26(3), 431–445.
- Gnyawali, D. R., He, J., & Madhavan, R. (2008). *Co-opetition: Promises and challenges, in 21st century management*. In C. Wankel (Ed.), CA: Thousand Oaks.
- Gnyawali, D. R., & Park, B. J. (2011). Co-opetition between giants: Collaboration with competitors for technological innovation. *Research Policy*, 40(5), 650–663.
- Gomes-Casseres, B., (1994). Group versus group: how alliance networks compete. *Harvard Business Review*, 72(4), 62–74.
- Griliches, Z. (1957). Hybrid corn: an exploration in the economics of technological change. *Econometrica*, 25(3), 501–22.
- Gwynne, P. (2009). Automakers hope co-opetition will map route to future sales. *Research-Technology Management*, 52(2), 2–4.
- Hage J. (1980). *Theories of Organization: Form, Process and Transformation*. New York: Wiley.
- Henderson, Rebecca M. (1993). Underinvestment and incompetence as a response to radical innovation: evidence from the photolithographic alignment equipment industry. *Rand Journal of Economics*. 24(2) 248-270.
- Henderson, R. M., & Clark, K. B. (1990). Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms. *Administrative Science Quarterly*, 35(1), 9–30.
- Henderson, R. (2006). The Innovator's Dilemma as a Problem of Organizational Competence. *Journal of Product Innovation Management*, 23, 5–11.
- Hitt, M. A., Hoskison, R. E., & Ireland, R. D. (1990). Mergers and acquisitions and managerial commitment to innovation in M-form firms. *Strategic Management Journal*, 1990, 11(4), 29–47.
- Katz, M. L., & Shapiro, C. (1985). Network externalities, competition and compatibility. *American Economic Review*, 75(3), 424–440.

- Lacoste, S. (2012). 'Vertical coepetition': The key account perspective. *Industrial Marketing Management*, 41(4), 649–658.
- Leonard-Barton, D. (1992). Core capabilities and core rigidities: A paradox in managing new product development. *Strategic Management Journal*, 13, 111–125.
- Le Roy, F and Guillotreau, P. (2010). Successful strategy for challengers: competition and cooperation with dominant firms in Yami, S., Castaldo, S., Dagnino, G. B., & Le Roy, F. *Coopetition: winning strategies for the 21st century*, Edward Elgar, Cheltenham.
- Mahajan, V., & Wind, J. (1986). *Innovation Diffusion Models of New Product Acceptance*. Ballinger, Cambridge, MA.
- Markides, C., (2006). Disruptive innovation; In need of a better theory? *Journal of Product Innovation Management*, 23, 19-25.
- Mason, K. and Spring, M. (2011) The sites and practices of business models, *Industrial Marketing Management*, 40(6), 1032-1041.
- Ofek, E., & Sarvary, M. (2003). R&D, marketing, and the success of next-generation products. *Marketing Science*, 22(3), 355–370.
- Quintana-García, C. and C. A. Benavides-Velasco (2004). Cooperation, competition, and innovative capability: a panel data of European dedicated biotechnology firms, *Technovation*, 24, 927–938.
- Park, B, Srivstava, M & Gnyawali, D. (2014) Walking the tight rope of coopetition: Impact of competition and cooperation intensities and balance on firm innovation performance, *Industrial Marketing Management*, 43, 210-221.
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. (1996). Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative Science Quarterly*, 41(1), 116–141.
- Pratt, M. G. (2009). For the lack of a boilerplate: Tips of writing (and reviewing) qualitative research. *Academy of Management Journal*, 52(5), 856–862.
- Raza-Ullah, T., Bengtsson, M., & Kock, S. (2014). The cooperation paradox and tension in coopetition at multiple levels, *Industrial Marketing Management*, 43, 189–198.
- Ritala, P., Golnam, A., & Wegmann, A. (2014). Coopetition-based business models: The case of Amazon.com. *Industrial Marketing Management*, 43(2), 236–249.
- Ritala, P., & Hurmelinna-Laukkanen, P. (2013). Incremental and radical innovation in coopetition – The role of absorptive capacity and appropriability, *Journal of Product Innovation Management*, 30(1), 154–169.

- Ritala, P. (2012). Coopetition strategy – when is it successful? Empirical evidence on innovation and market performance. *British Journal of Management*, 23(3), 307–324.
- Rothaermel, F. T. (2001). Incumbent's advantage through exploiting complementary assets via interfirm cooperation. *Strategic Management Journal*, 22(6/7), 687–699.
- Rusko, R. (2014). Mapping the perspectives of coopetition and technology-based networks: A case of smartphones, *Industrial Marketing Management*, forthcoming.
- Schumpeter, J. A. (1942). *Capitalism, Socialism and Democracy*. Harper and Brothers, New York.
- Singh, H. (1990). Management buyouts: Distinguishing characteristics and operating changes prior to public offering. *Strategic Management Journal*, 11(4) 111–129.
- Spiegel, M. (2005). *Coopetition in the telecommunications industry*. In M. A. Crew, & M. Spiegel (Eds), *Obtaining the Best from Regulation and Competition*. Kluwer Academic Publishers: Boston.
- Stoneman, P., & Karshenas, M. (1995). The diffusion of technology. in P. Stoneman (ed.). *Handbook of the Economics of Innovation and New Technology*. Basil Blackwell. Oxford, 265–297.
- Stoneman, P., & Battisti, G. (2000). The role of regulation, fiscal incentives and changes in tastes in the diffusion of unleaded petrol. *Oxford Economic Papers*, 52(2) 326–356.
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 2nd ed. Thousand Oaks, CA: SAGE Publications.
- Teece, D. J. (1986). Profiting from technological innovation. *Research Policy*, 15(6) 285–305.
- Teece, D., 2010. Business models, business strategy and innovation. *Long Range Planning* 43 (2-3), 172-194.
- Tether, B. S. (2002). ‘Who co-operates for innovation, and why. An empirical analysis’, *Research Policy*, 31, pp. 947–967.
- Tidström, A. (2014). Managing tensions in coopetition. *Industrial Marketing Management*, 43(2), 261–271.
- Tirole, J. 1988. *The Theory of Industrial Organization*, Cambridge, Massachusetts: The MIT Press
- Tushman, M., & Anderson, P. (1986). Technological discontinuities and organizational environments. *Administrative Science Quarterly*, 31(3), 439–465.

- Utterback, J. M. (1994). *Mastering the Dynamics of Innovation*. Harvard Business School Press, Boston, MA.
- Van Maanen, J. (1979). The fact of fiction in organizational ethnography. *Administrative Science Quarterly*, 24, 539–550.
- Vidal E & Mitchell W. (2013). When do first entrants become first survivors? *Long Range Planning* 46(4): 335–347.
- Velu, C., & Stiles, P. (2013). Managing decision making and cannibalization for parallel business models, *Long Range Planning*, 46(6), 443–458.
- Velu, C. (2015). Business model innovation and third-party alliance on the survival of new firms, *Technovation*, 35, 1–11.
- Yami, S., Castaldo, S., Dagnino, G. B., & Le Roy, F. (2010). *Coopetition: winning strategies for the 21st century*, Edward Elgar, Cheltenham.
- Yin, R.K., 2003. *Case study research: design and methods*. Thousand Oaks, California.
- Young, P. (2009). Innovation diffusion in heterogeneous populations: Contagion, social Influence, and social learning. *American Economic Review*, 99(5) 1899–1924.
- Zineldin, M., (2004). Co-opetition: the organization of the future. *Marketing Intelligence & Planning*, 22(7), 780–789.
- Zott, C., & Amit, R. (2008). The fit between product market strategy and business model: Implications for firm performance. *Strategic Management Journal*, 29: 1-26.