How relationship ending affects the competitive advantage of firms in networks: Evidence from a business net evolution

ABSTRACT

This study explores strategic implications of relationship ending for firms operating in networks. In particular, the study aims at addressing how relationship ending can be utilized to achieve strategic goals and how the ending of relationships impacts the competitive advantage of firms in a network. The investigation of these two research questions is facilitated by adopting a focal net perspective to track the evolution of a business net driven by technological change where relationship ending occurs. This longitudinal single case study that comprises three reconfigurations of the focal net permits us to provide theoretical discussion and managerial implications concerning relationship ending. The research finds that it is plausible to utilize relationship ending as a means to achieve strategic goals because the discretion of relationship ending is interaction-dependent. The research also finds that what directly acts upon the competitive advantage of firms is the changes in resource combination that could be facilitated by relationship ending.

Keywords: Interfirm relationship; Relationship ending; Resources
Type: Competitive

INTRODUCTION

The ending of an interfirm relationship (namely, relationship ending) has been of a particular interest in research, see Tähtinen and Halinen (2002) and Tähtinen & Havila (2004). Despite its increased attention, few efforts are devoted to the investigation of relationship ending with regard to a network-level analysis and its association with the competitive stance of firms in networks. It is imperative to reveal strategic implications of relationship ending because firms (actors) rely on business interaction via developing interfirm relationships to pursue economic goals (Dyer & Singh, 1998; Gulati, Nohria & Zaheer, 2000; Håkansson, Ford, Gadde, Snehota & Waluszewski, 2009; Lavie, 2006; Morgan & Hunt, 1999), and because interfirm relationships have evolving characteristics that result in the reconfiguration of networks to which the firms are part (Dwyer, Schurr & Oh, 1987; Ford, 1980; Halinen, Salmi & Havila, 1999). In this research we attempt to uncover how relationship ending impacts the competitive advantage of firms and how a firm can utilize relationship ending to achieve strategic goals.

Existing research on relationship ending, as Tähtinen and Halinen (2002) indicate, is still diverse in terms of disciplinary background and terminology used. In literature attention is mainly focused on factors affecting relationship ending (Ping, 1999; Stewart, 1998; Tuusjärvi & Blois, 2004), communication (or intervening) strategies facing relationship ending (Alajoutsijärvi, Möller & Tähtinen, 2000; Hibbard, Kumar & Stern, 2001), and the ending process where the model of relationship ending process developed by Halinen and Tähtinen (2002) can be seen as the seminal work. Research on relationship ending also includes restoring relationships through analysing attenuating factors (Tähtinen & Vaaland, 2006) and achieving satisfactory result from ending a relationship (Giller & Matear, 2001; Pressey & Qiu, 2007). These studies, however, leave the impact of relationship ending on other connected interfirm relationships on which a firm's competitive advantage rests under-investigated.

Literature reveals the strategic importance of relationship ending. The factors that occasion the ending of interfirm relationships are found to be related to the performance of involved parties (e.g. profitability and customer satisfaction) and innovation capabilities of firms (Afuah, 2000; Harrison, 2004; Helm, Rolfes & Günter, 2006; Tuusjärvi & Blois, 2004). Additionally, a good interfirm relationship at a point in time may become a burden (e.g. preclusion of opportunities) to the counterpart at another point in time (Håkansson & Snehota, 1998; Uzzi, 1997), suggesting a need of terminating a cooperative relationship as a way of adjusting relationship portfolios (Morgan & Hunt, 1999; Zolkiewski & Turnbull, 2002). Apart from ending a relationship, a previously ended relationship could be reactivated for business development (Havila & Wilkinson, 2002). These studies show that relationship ending has an important effect on firm performance.

Utilizing relationship ending has been considered as a crucial means to enhance or improve the competitive advantage of firms. In the business environment where firms have to relate their resources and activities to others (Håkansson et al., 2009), Ritter and Gemünden (2003, p. 745) indicate that "a firm's ability to initiate, handle, use, and terminate interorganizational relationships becomes of central importance." Moreover, by focusing on relating the capabilities of the firm to the capabilities of other significant actors, Araujo, Dubois and Gadde (2003, p. 1271) argue that setting the boundaries of a firm can be seen as "a matter of establishing, maintaining, developing or terminating connections amongst clusters of capabilities." Extant evidence also stresses the strategic importance of developing, sustaining and protecting a firm’s network position (Johanson & Mattsson, 1992; Wilkinson, 2006; Zaheer & Bell, 2005), in which interfirm relationships can be not only established but also ended. Despite realizing the importance of relationship ending, how it can be utilized for strategic goals remains obscure.

The paper continues as follows. Firstly, we lay the theoretical foundation using an interactive view of interfirm relationships on strategy, on which the issue of relationship ending in network contexts is investigated. Secondly, we rationalize the adoption of a longitudinal (processual) and cased-based approach for empirical study. We then present the case which is embedded in the optical recording media industry and which is based on a processual analysis. Finally, we conclude the paper by offering a discussion of theoretical contribution and managerial implications.

AN INTERACTIVE VIEW OF INTERFIRM RELATIONSHIPS ON STRATEGY

Interfirm relationships play a central role in network economy because they form self-organized, adaptive and knowledge-rich interfirm structures (also known as networks), within which value is jointly created through collective actions (Achrol & Kotler, 1999; Gulati et al., 2000; Möller & Svahn, 2006; Powell, Koput & Smith-Doerr, 1996). In networks, an actor’s economic gains comes from and is determined by its resources and activities that are respectively combined and connected in relation to the resources and activities of other actors via relational linkages (Håkansson et al., 2009; Normann & Ramirez, 1993). Put it differently, due to the bridging function of interfirm relationships, the competitive stance of firms in networks, seen as network positions, is shaped by interfirm relationships to which the firms are connected (Borgatti & Halgin, 2011; Jarillo, 1988; Johanson & Mattsson, 1992; Zaheer & Bell, 2005).

Realizing interaction is ubiquitous in business environments, the role of interfirm relationships in attaining competitive advantage receives increased attention, such as Lavie (2006) and Morgan and Hunt (1999). Such importance of interfirm relationships in strategic management is synthesized in the work by Baraldi *et al.* (2007). The authors conduct a theoretical comparison of an interaction perspective on strategy with five important schools of thought in strategy: Ansoff’s (1965) rational planning, Porter’s (1980) positioning, Barney’s (1991) resource-based view, Mintzberg’s (1994) organic, incremental strategy and Whittington’s (2003) strategy as a social practice. Their findings accentuate a firm’s network position whose competitiveness depends on how the firm relates to others in its networking environment where conflict and cooperation co-exist. They also argue that the firm's relationship portfolios and its network as vital components in strategy formulation in which an organic view of the interplay between gaining knowledge, generating action and achieving commitment is emphasized.

Apart from its bridging function, an interfirm relationship can positively or negatively impact on other connected relationships (Anderson, Håkansson & Johanson, 1994; Ritter, 2000). An interplay between these positive and negative influences travelling through relational linkages results in relationship dynamics (where relationships can be established, maintained or ended) that reconfigure the network to some extent (Halinen et al., 1999). From a life-cycle perspective, an interfirm relationship may go through a numbers of stages, from its birth to maintenance, declination and dissolution (Dwyer et al., 1987; Ford, 1980). This view of relationship development is not deterministic, implying that a relationship may not exactly follow the order of the stages or reach certain phases at all. A network reconfiguration caused by the development of interfirm relationships signifies the changes not only in aggregated resources of connected firms but also in competitive stance of firms.

Despite the evolving characteristics of interfirm relationships, the impact of relationship dynamics on firm competitiveness is less investigated, particularly relationship ending. Existing research tends to study the association between the interfirm structure and the competitive advantage of firms (e.g. Borgatti & Halgin, 2011; Zaheer & Bell, 2005); which is static in nature. Additionally, in the face of changing environments, a firm's ability to balance the exploitation and exploration of resources or capabilities becomes important and necessary, so as to stay competitive (Harryson, Dudkowski & Stern, 2008; Kash & Rycoft, 2000; Wilkinson & Young, 2002). However, the attention of balancing the exploitation and exploration of resources and capabilities remains on utilizing the existing and new interfirm relationships (or weak ties), rather than on ending a relationship.

Although relationship ending is seen as a negative phenomenon of relationships (Anderson & Jap, 2005; Morgan & Hunt, 1994), it would be generally agreed on that a firm's competitive stance will be affected by its ending of an interfirm relationship. Literature has shown that relationship ending is often related to the issues of profitability and customer satisfaction (Harrison, 2004; Helm et al., 2006; Holmlund & Hobbs, 2009; Ping, 1999). Relationship ending may also occur in the face of changing environments, e.g. technological change, due to the capabilities of the firm or its counterpart being obsoleted by the change (Afuah, 2000; Christensen, 1997).

From an interaction and networks perspective, the ending of interfirm relationships accompanies certain broken resource ties and activity links spanning firm boundaries, affecting the ways of how value is jointly produced (Håkansson et al., 2009).

It has been explicitly pointed out in the literature that relationship ending deserves more managerial attention and can be utilized to enhance or improve firm performance. As Halinen and Tähtinen (2002, p. 163) argue, “For the effective management of business relationships, managers should not only know how to establish a relationship, but also how to end one.” Holmlund and Hobbs (2009, p. 268) also note “managing the ending of a relationship in a suitable manner can entail positive outcomes in both the short term and the long term.” Similarly, the studies by Araujo, Dubois and Gadde (2003) and Ritter and Gemünden (2003) suggest that relationship ending can be one of the options to manipulating interfirm relationships to achieve strategic goals, such as innovation. However, these studies disclose two deficiencies. For one, more empirical work is required to verify the exercisability of relationship ending in strategic management. This is an important issue since temporal embeddedness of business interaction facilitates, and simultaneously, constrains a firm’s acting and reacting within a web of interfirm relationships (Håkansson et al., 2009; Halinen & Tähtinen, 2002). For the other, existing research pays major attention on a dyadic level analysis of relationship ending, rather than a network level analysis. Redressing this deficiency is necessary since no firm can evade from business interaction within which a firm’s competitive advantage hinges on how it connects to other firms via developing interfirm relationships (Borgatti & Halgin, 2011; Johanson & Mattsson, 1992; Zaheer & Bell, 2005).

RESEARCH METHODOLOGY

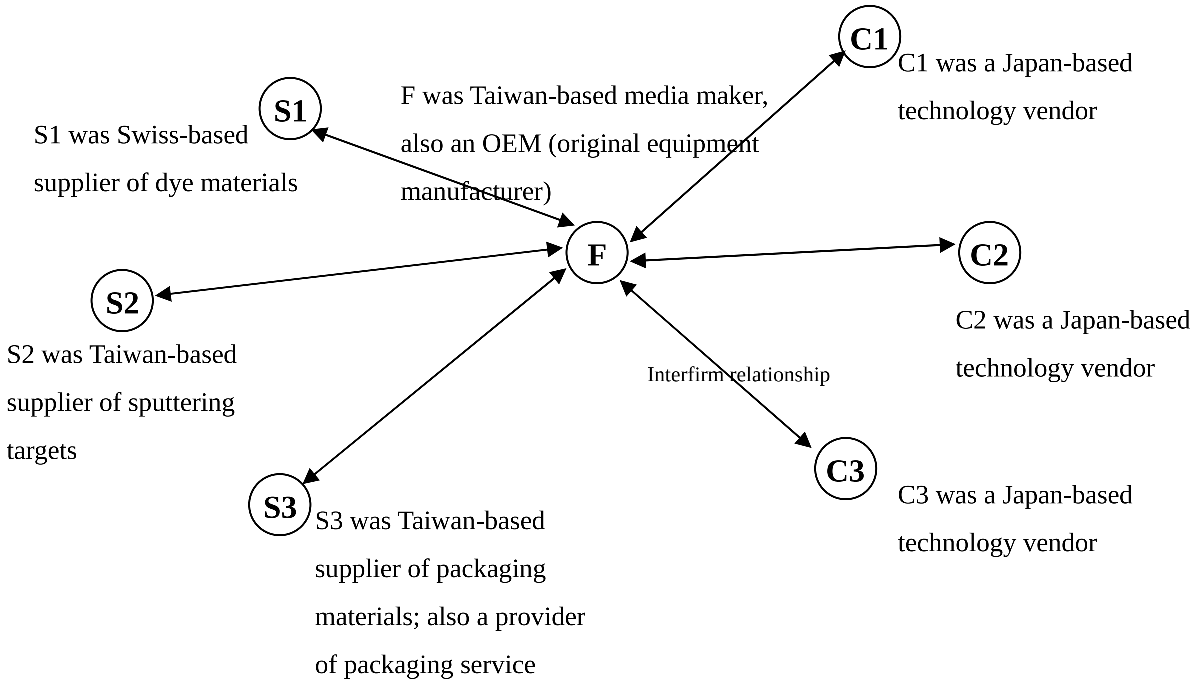
A processual and cased-based approach was opted to carry out empirical investigation for this network research (Halinen & Törnroos, 2005). This approach was considered appropriate for dealing with “how” questions developed in this research (Yin, 2009). More importantly, relationship ending is best understood from a processual point of view, suggesting that time and temporality have to be taken into account (Halinen & Tähtinen, 2002; Halinen & Törnroos, 2005). In addition, the study of strategic implications resulting from relationship ending needs to be placed in a network setting because an ended relationship could positively or negatively impact a firm’s portfolios of relationships (Anderson et al., 1994; Möller & Halinen, 1999; Zolkiewski & Turnbull, 2002). While the attention of the research is focused on the patterns of connections that created network processes, quantitative research methods based on the sampling theory are never likely to be applicable (Easton, 1995).

The investigation into relationship ending was facilitated by a focal net perspective. The adoption of a focal net perspective was under three considerations. Firstly, the focal net of this research took into account the focal actor's important relationships that affect how value was co-produced (Alajoutsijärvi, Möller & Rosenbröijer, 1999; Jarillo, 1988; Möller & Rajala, 2007). Secondly, the focal net consisting of the focal actor's supplier relationships and customer relationships was able to illustrate the focal actor's network position which signified its dependence on other resources (Mattsson, 1987; Wilkinson & Young, 2002). Thirdly, the focal net captured the characteristic of connectedness in which influences of individual relationships were bridged (Anderson et al., 1994; Halinen et al., 1999).

The construction the focal net was grounded in the optical recording media industry. This industry suited the need of this research mainly because the industry had undergone three major technological changes which resulted in radical changes of interfirm relationship, including relationship ending. These three major changes are from CD-R to 1) DVD-R and DVD+R, 2) DVD-R DL and DVD+R DL and 3) HD DVD-R and BD-R[1]. The focal actor (F) was a Taiwan-based maker of optical recording media. The focal net members included F's business customers (C1, C2, and C3; all based in Japan) and suppliers (S1, S2, and S3; in which S1 is based in Swiss while S2 and S3 are based in Taiwan). The focal net centred by F is presented as Figure 1.

[1] R in CD-R, DVD-/+R, DVD+/-R DL, HD DVD-R and BD-R is the abbreviation for "recordable". DVD-R and DVD+R are competing formats where the former is developed by the DVD Forum (an international organization aiming to develop, disseminate and verify their formats) while the latter is developed by the DVD+RW Alliance (an international organization which has similar goals to the DVD Forum). While DL stands for double layer (simply means double recording capacity), BD refers to blu-ray disc which is a competing format to HD DVD-R (HD refers to high definition) and which is developed by the Blu-ray Disc Association led by Sony. BD-R is a competing format to HD DVD-R which is developed and promoted by the DVD Forum.

FIGURE 1 THE FOCAL NET BASED ON CD-R



72 interviews and archival materials were collected to depict the evolution of focal net which was marked by net reconfiguration driven by technological change. These interviews were carried out with managers from the focal actor (F), its net members and other companies which had relationships with S1, C1 and C3. These interviews were undertaken in three stages, which covered a time period from late 2007 to mid 2009, and between which relevant literature was reviewed. This iteration between theory and empirical data permitted the adjustment of research boundary from a dyadic level to a network level, which enriched the analysis of relationship ending (Dubois & Gadde, 2002).

The data analysis began with organizing and reading through interview transcripts; and at the same time, consulting company documents, industry reports and market intelligence. This analysis was facilitated by taking research memos which were the researcher's brief analytical notes. With these memos theoretical understanding towards relationship ending was refined. A particular emphasis in the data analysis was on identifying significant events that occasioned the ending of interfirm relationships in the evolution of the focal net. The events produced change forces that affected the development of focal relationships and thus impacted on the configuration of the focal net (Schurr, Hedaa & Geersbro, 2008). These significant events were arranged in a chronological sequence and their causal relationships, including the influences of time and temporality, were studied (Yin, 2009).

This research has two limitations. Firstly, the research draws on a purposeful and artificial boundary to conduct empirical investigation. However, while a boundary is delimited, our understanding of the real world in constrained. Second, this research presents a subject view on relationship ending although it is built on dyadic views of interacting parties. It has to be stressed that the aim of this research is to advance the knowledge towards relationship ending in a network setting rather than achieving the generalization of empirical findings.

THE CASE: THE EVOLUTION OF THE FOCAL NET MARKED BY RELATIONSHIP ENDING

The Formation of the Focal Net

After the initiation of supplier relationship with S2 in the late 1990s, F built their business customer relationships with C1, C2 and C3 respectively in late 1998, late 1999 and early 2000, by signing OEM business agreements. The key for F to gain OEM orders from these customers lay in their R&D and manufacturing capabilities in terms of 1) developing dye materials[2] used in C1's and C3's CD-Rs; 2) handling C2's key materials and process for C2's CD-Rs; and 3) managing mass production in an efficient and effective fashion that met their business customers' requirements. The cooperation with these customers, on the other hand, allowed F to pursue economies of scale and enhance its knowledge of production management and product marketing.

In order to enhance their knowledge of dye materials and diversify its CD-Rs, F introduced S1's dye materials into their manufacturing systems near the end of 2000. Additionally, F further set up S3 in August 2001, which specialised in the manufacturing of disc-packaging cases and providing packaging services. This supplier relationship with S3 permitted F to create added value for their business customers by satisfying their needs at the end-user markets. Thus, the focal net consisting of customer relationships and supplier relationships appeared in late 2001.

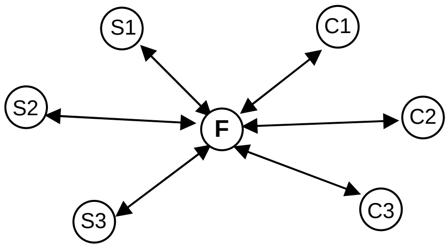
Three Reconfiguration of the Focal Net Resulting from Relationship Ending

During a period of time from 2001 to 2008 the focal net undergone three

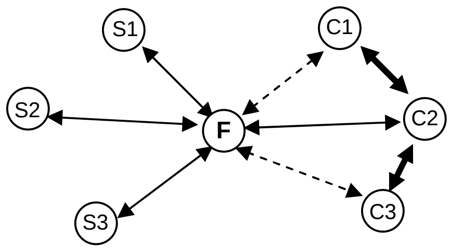
[2] Dye materials, chemical compounds, are key materials in optical media manufacturing that will determine the yield rate of mass production and product quality (e.g. the compatibility with optical drives and readability of data stored on each piece of disc after recording/burning).

reconfigurations of the focal net driven by technological change. As shown by Figure 2, each reconfiguration resulted from radical changes of relationships within the net, especially the ending of relationship.

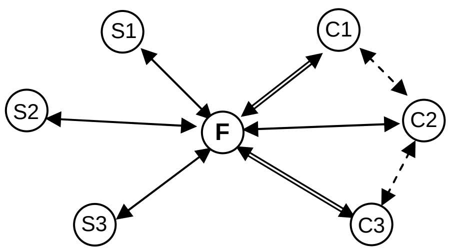
FIGURE 2 THE EVOLUTION OF THE FOCAL NET



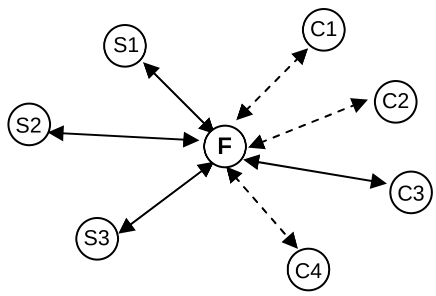
I. The focal net in late 2001



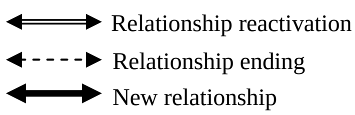
II. The focal net in early 2004



III. The focal net towards the end of 2005



IV. The focal net in mid 2008



The First Reconfiguration of the Focal Net in Early 2004

Bridging technological change from CD-R to DVD-R and DVD+R was viewed among major players in the industry as a crucial means to get rid of fierce competition in CD-R business which was caused by a plethora of media makers and turnkey solution provides. However, the focal net actors developed different strategies towards this bridging of technological change, resulting in both fits and misfits of actions and reactions among these actors. It was these actions and reactions by the focal net members that begot radical changes of relationships which reconfigured the focal net.

These radical changes included F’s ending relationships C1 and C3, and C2’s new relationships with C1 and C3.

F’s recruitment of a vice president (VP) in July 2001 to devise their operational strategies was a critical factor that leaded to a number of significant events affecting the development of F’s relationship with their business customers, including the relationship ending with C1 and C3. Although F and C1 viewed each other as important OEM business partners, C1’s dissatisfaction was mainly intensified by F’s reluctance to purchase C1’s used CD-R production lines, F’s unwillingness to expand more CD-R production capacity for C1, and F’s mark-up of optical media for its OEM customers. These events made C1’s relationship with F faded away and forced C1 to turn to R1 (F’s major competitor based in Taiwan) in early 2004.

In order to enhance the competitiveness via introducing the next generation of technologies, C1 closed their CD-R production factory in the US in January 2001 and focused on manufacturing DVD-Rs themselves in Japan. C1 hoped their relationship with F could be strengthened by releasing more CD-R OEM orders to F if F could purchase their used production lines and expand more CD-R capacity for them. Unfortunately, F’s new VP viewed that used production lines created little value but burdens, and he thought that F should establish the capacity for DVD manufacturing and develop their own brand business by leveraging their technological competences, including the ability of transferring production lines between CD and DVD manufacturing[3]. Finally, C1’s used production lines were taken over by R1 in the end of 2001.

Within the new VP’s strategic maneuvering, in March 2002 F set up a new marketing team lead by a new deputy general manager recruited from a well-know IT company. Apart from developing F’s brand business, the marketing team also revised OEM business plans by including new criteria of selecting OEM customers (e.g. the volume of monthly purchase orders) and a mark-up of optical media. The changed OEM plans made F not to continue their business with C3 from mid 2003. This relationship ending was mainly because C3’s orders for F were neither large nor stable, and C3’s cooperation with R2 (another media make based in Taiwan) made F view C3 strategically unimportant.

In spite of F’ relationship ending with C1 and C3, their relationships were indirectly

[3] Most of CD-R makers were required to install new production lines and acquire new dye materials, so as to produce DVD-Rs and DVD+Rs.

connected via C2, which was a technology leader in the DVD+RW Alliance and which partnered with F as an OEM while both parties maintained their own brand businesses. In the strategic partnership, F produced DVD+Rs using C2 proprietary dye materials and process while C2 controlled the product quality and approach major brands as OEM customers. This strengthened relationship between F and C2 was built on mutual trust accumulated from doing CD-R business and F's technological competence in handling C2's technology in an efficient and effective manner. This partnership allowed C2 to launch good quality new products ahead of competition, and thus, they were able to acquire DVD+R OEM orders from major brands, including C1 and C3.

The Second Reconfiguration of the Focal Net towards the End of 2005

The constant need for investment in new technology and new production equipment did not deter CD-R makers (especially those medium and small sized ones) and newcomers from entering the DVD battle field. The availability of key materials, equipment and even turn-key solutions meant DVD manufacturing technology was not a serious issue. This situation drove major players (e.g. C2) to expedite the launch of new products by enhancing the recording speed of the media so as to enjoy higher profits, and thus, the product life cycle of DVD-R and DVD+R was shortened. Consequently, introducing DVD-/+R DL (double layer) became a must for major players. Prior to this introduction, F reactivated their relationships with C3 and then C1 near the end of 2004.

F encountered a technical barrier when they attempted to release new DVD-R products for higher speed recording by adjusting their in-house dye materials. The barrier suspended F's momentum in both OEM and own brand business, forcing them to turn to external dye solutions for DVD-R manufacturing. Initially, F approached a Japan-based supplier for dye materials but they were turned down because F was reluctant to adopt this supplier's materials in early 2002 when F was actively preparing for the mass production of their DVD-Rs. Another reason was that this supplier had a close relationship with R1 (F's main competitor). Without other good choices, F approached C3.

Despite their relationship ending, C3 was pleased to re-cooperate with F because F's huge production capacity meant that their newly established dye materials business could get boosted. Using their expertise in the photographic area, C3 invested R&D resources in developing dye materials for DVD recordable media, as a means to improve their position in the industry. In order to enhance their dye materials business and the reactivated relationship with F, C3 utilized the advantage of their brand business by giving F OEM orders. Moreover, both parties initiated some projects that aimed at niche markets. Following their re-cooperation with C3, F also restarted their OEM business with C1, mainly because F's DVD-Rs using C3's dye materials could diversify C1's product lines.

Not long after the reactivation of the F-C3 and F-C1relationships, C2's business model by partnering with F as an OEM was challenged. Although the partnership allowed C2 to gain a lead in the DVD+R market in terms of market share, product quality and new product launch, the advantage had been gradually neutralized by its main competitors' improvement of efficiency and effectiveness. Moreover, after C2 launched their DVD+R 16X (the highest recording speed and the technical limit in DVD+R technology) in December 2004, what left in the DVD+R market soon was the competition on price, leading to squeezed profits that had to be shared by two parties. The deteriorated profitability endangered C2's business model.

Another thing that contributed to the disruption of C2's business model was F's introduction of their in-house developed DVD+R DL. Although F's partnership with C2 was sustained by signing an OEM and technology transfer deal for DVD+R DL business in May 2005, F's small volume-production of DVD+R DL using their in-house dye materials and process near the end of 2004 undermined their partnership with C2. Many of C2's OEM customers started to question why they had to purchase F-produced DVD+R and DVD+R DL from C2. Towards this, F thought C2 gradually lost their promptness in responding to the changed market situation by releasing the "right" technology (DVD+R DL). To C2, they thought it was their sales team's weak skills in managing OEM and own brand businesses that made them lose their competitiveness.

Finally, C2 discontinued their OEM business in December 2005 but still retained their brand business, in which they provided their materials for F to produce DVD+R and DVD+R DL products for them. And, most of C2's OEM customers were taken over by F, resulted in C2's relationship ending with C1 and C3. As a result, another reconfiguration of the focal net caused by radical changes of relationships towards the end of 2005 was observed.

The Third Reconfiguration of the Focal Net in Mid 2008

Similar to some of major players, F thought that being able to produce HD DVD-R and BD-R could create sustainable momentum despite the high technical barrier and huge capital for installing brand new machines, especially for BD-R manufacturing. For HD DVD-R and BD-R which were generally viewed as the ultimate generation of optical recording media, F kicked off their BD and HD projects respectively in November 2004 and August 2005. Because of their technological competences and investments, F was able to volume produce HD DVD-R in mid 2006 and BD-R in March 2007, based on their in-house solutions. In particular, F achieved a technical breakthrough in HD DVD-R that allowed them to produce high quality discs cheaply using the existing manufacturing system. However, F's marketing team hesitated to promote their HD DVD-R owing to few market demands and their sitting on the fence towards the format competition between HD camp and BD camp.

In June 2007, F's hesitance to promoting their HD DVD-R was removed by the acquisition of OEM orders from C4 by singing a NDA (non-disclosure agreement). C4 was a leading Japan-based technology vendor in the DVD Forum (the HD camp). In addition to their OEM business, F was invited to join C4's promotional events for the HD format in Japan using F's branded media. F expected their cooperation with this format leader would enable them to increase their influences in the DVD Forum in which they could participate in standardisation activities. However, F's cooperation with C4 was short-lived; a few months only. F's business relationship with C4 came to an end when C4 announced in February 2008 that they would no longer make and market HD DVD players and recorders.

Prior to the relationship ending with C4, F discontinued their cooperation with C1 and C2 roughly at the same timing in mid 2007, rendering another reconfiguration of the focal net. Being as a patent member in the Blur-ray Disc Association (the BD camp), C1 thought the best strategy to survive the optical recording media industry was to focus on BD-R manufacturing because they were able to waive the royalty fees in each piece of disc produced. Then in July 2007, C1 agreed their brand recording media business being acquired by a US-based technology vendor whose business focus was placed on the areas of magnetic, optical, flash and removable hard disk storage. This refocus of the attention on media manufacturing made it difficult for F to continue their OEM business with C1.

As for C2, they changed their operational strategies when the development of DVD+R DL reached its technical limit in early 2007; they began to sell their manufacturing process and key materials to other media makers in order to improve their performance. Unlike their strength in CD-R, DVD+R and DVD+R DL, C2 considered themselves as a “follower” in the battle of high definition optical recording media because they possessed neither key materials nor patents. Finally, C2 decided to exit from the optical recording media industry.

DISCUSSION

The case that details a business net evolution driven by technological change permits a deep understanding of relationship ending in strategic management. The findings confirm that relationship ending is closely related to the performance of firms who operate in relation to others (Halinen & Tähtinen, 2002; Harrison, 2004; Holmlund & Hobbs, 2009). But the findings suggest that relationship ending is better understood in a network context. In particular, the findings provide insights into our research questions: how relationship ending impacts the competitive advantage of firms and how a firm can utilize relationship ending to achieve strategic goals.

Concerning the impact of relationship ending, our case obviously shows that the ending of interfirm relationships reconfigures the focal net (see Figure 2). The reconfiguration of the focal net, no matter by the ending of directly or indirectly connected relationships, signifies the change in the competitive stance of firms within the net as well as in the broader environment (Johanson & Mattsson, 1992; Zaheer & Bell, 2005). More importantly, our findings allow us to develop a key strategic implication towards relationship ending in a network context: the aggregate resources spanning firm boundaries can be renewed via relationship ending. Prior to elaborating this implication, it is necessary to discuss another strategic implication concerning the role of interfirm relationships.

We find that interfirm relationships act as a platform that permits the creation of valuable or imperfectly imitable resources. This can be demonstrated by 1) the F-C2 partnership for DVD+R OEM business in which C2’s technical resources were combined with F’s superior manufacturing capabilities, 2) F’s introduction of C3’s dye materials that enabled F to tide over its technical barrier in DVD-R manufacturing and to regain OEM business from C1, and 3) F’s cooperation with C5, despite being short, to show off and promote its industry-leading HD DVD-R. This implication accords with that the value of a single resource is determined by its combination of other resources (Håkansson et al., 2009), and that sources of competitive advantage usually reside in interfirm relationships, rather than merely within the firm boundary (Barney, 1991; Lavie, 2006; Morgan & Hunt, 1999). It has to be noted here, our implication not only considers the bridging function of interfirm relationships but the interactivity of resources within relationships, in which the latter is neglected in the view of interconnected firms by Lavie (2006).

Because of the interactivity of resources, the empirical result allows us to argue that the creation of valuable or inimitable resources via relational linkages is conditioned by the connectedness of interfirm relationships and temporal embeddedness in business interaction. This can be exemplified by 1) C2's discontinuation of its OEM business model through partnering with F and 2) F's short-lived cooperation with C5. The performance of the C2-F partnership as an OEM became deteriorated when C2's main competitors gradually caught up with C2's technical development and when C2's business customers demanded a more competitive price for DVD+R after the release of DVD+R DL. As for F's short-lived cooperation with C5, the advantage created by the combination of F's technical resources and C5's marketing resources was rendered useless while C5 lost the support of its HD DVD format from its important partners. The examples also highlight that the benefits of keeping an interfirm relationship has to consider how it is connected to other relationships. Following this thread, relationship ending at a certain point in time becomes necessary or unavoidable in order to improve or enhance firm competitiveness.

Concerning the renewal of aggregate resources via relationship ending, we argue that the ending of an interfirm relationship allows a firm's resources which are devoted for the dyad to be released and used for other dyad(s) in a more beneficial way. For example, the CD-R production capacities released from the ending of relationships with C1 and C3 permitted F to produce more DVD+Rs and DVD-Rs for C2 and their newly established brand business by their competences in transferring production lines. However, our case also shows that relationship ending in some occasions is at the discretion of counterparts, such as C2's and C5's decisions to exit from the industry and C1's repositioning as OEM. Thus, we suggest that a firm's renew of aggregate resources facilitated or caused by relationship ending needs to be complemented by its ability to mobilize relevant resources to other connected relationships, so as to create an appropriate interdependence structure that could produce economic outcome for the firm. F's taking over C2's OEM customers and F's active development of its branding business in the face of relationship ending with C1, C2 and C5 just illustrate the ability of resource mobilization.

With regard to our second research question, our findings keep us from drawing a conclusion on how a firm can utilize relationship ending to achieve strategic goals. As the case shows, relationship ending can occur in directly or indirectly connected relationships (see Figure 2) and in a number of situations, including a firm's planned strategy (e.g. F's criteria of selection OEM customers), temporal influences (e.g. the F-C1 ending as the result of several connected events), and counterparts' discretion (e.g. C2's and C5's exits and C1's repositioning). We find that relationship ending appears as one consequence of resource combination and recombinations spanning firm boundaries; other consequences include the establishment, maintenance, enhancement and reactivation of interfirm relationships; namely, relationship dynamics that bring about network reconfigurations. An ending of relationships is usually unavoidable or takes place naturally as the result of certain resource combinations. Thus, utilizing relationship ending to achieve strategic goals is plausible and its exercisability is quite limited.

Further, with the findings we are able to argue that relationship ending as well as other forms of relationship dynamics is not directly linked to the competitive advantage of firms. What links to competitive advantage are resources that are combined and used for productive activities where value is generated (Barney, 1991; Håkansson et al., 2009; Möller & Svahn, 2006). This case result highlights the importance of a firm's handling relationship dynamics in the pursuit of competitive advantage, in which the firm is engaged in the process of resource combinations and recombinations going beyond its firm boundary. A successful handling of relationship dynamics, based on previous discussion, lies in the firm's ability to mobilize relevant resources within and between relational linkages. As a result, this ability of resource mobilization is pivotal to maintaining the competitive stance of firms in networks.

MANAGERIAL IMPLICATIONS

It is fair to argue from our case that the ending of interfirm relationships has become part of business operation in network-like environments. In the pursuit of competitive advantage, firms sometimes have to confront and deal with relationship ending. However, managers need to heed that although relationship ending could be included in strategy formulation, it is the resources being disposed though relationship ending that directly impact the competitive advantage of firms, rather than the ending per se. Based on this understanding we develop the following managerial implications.

An implication is that a firm will benefit from constantly conducting a network level analysis of its interfirm structure of which it is part. To do so, the firm needs to consider its portfolios of relationships as a whole embedded in a broader environment.

Then particular attention should be placed on investigating the combinations of resources and connections of activities structured by these interfirm relationships. This network analysis helps the firm understand how its operation is related to other actors and how value is systematically created through collective actions. Additionally, the analysis allows the firm to gain deeper knowledge towards the usefulness of its resources and the manners these resources can be combined for larger value. In this way, the establishment, maintenance, ending or reactivation of interfirm relationships or a combination of these is required in order to facilitate the changes in resource combination.

Another implication we suggest is that managers need to understand temporal embeddedness in business interaction in order to effectively handle relationship dynamics, including relationship ending, that facilitate the combination or recombination of resources. As our case reveals, a firm's ability to mobilize and use other actors' resources differ at points in time and are affected by temporal influences travelling within and between interfirm relationships to which the firm is connected. This signifies that managers have to keep studying temporal embeddedness in business interaction since networks exist in fluidity characterized by relationship dynamics. One of the ways to gain knowledge of temporal embeddedness is to track significant events taking places within the firm's interfirm structure and analyse the impact of these events on the existing combinations of resources and connections of activities spanning firm boundaries. With this knowledge the firm is able to understand better the opportunities of and constraints to resource mobilization and combination that is crucial to its sustainable competitive advantage.

CONCLUSIONS

This research provides a deeper understanding towards relationship ending, particularly its strategic implications. This research contributes to existing knowledge of relationship ending (e.g. Tähtinen & Halinen, 2002; Tähtinen & Havila, 2004), by investigating it from a network perspective and by relating it to strategic management. Additionally, another contribution of this research lies in that it complements the view of the RBV-grounded interconnected firms (Barney, 1991; Lavie, 2006), in which particular emphasis is placed on the bridging function of interfirm relationships for creating competitive advantage, rather than their ending. The research finds that it is plausible to utilize relationship ending as a means to achieve strategic goals because the discretion of relationship ending is interaction-dependent. The research also finds that what directly acts upon the competitive advantage of firms is the changes in resource combination that could be facilitated by relationship ending.

Despite the above contribution, this research has two limitations. One of the limitations is that it is difficult for this research to achieve statistic generalization due to its exploratory nature and employment of a longitudinal single case study. The other limitation is that our understanding of relationship ending remains constrained since we adopt a focal net perspective as the research boundary. However, this boundary setting is necessary because a network can extend boundless. Apart from the limitations, we suggest the following directions for future research. An obvious and beneficial direction is to continue this longitudinal research in order to discover emerging patterns of relationship ending for strategic management. Another direction is to conduct the same research inquiry in other contexts, so as to gain fuller knowledge of relationship ending. It is also beneficial to study the association between the competitive advantage of firms and relationship dynamics, not merely relationship ending.

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