SURVIVAL FITNESS OF JOINT VENTURES IN CHINA

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Statement of Authorship

Except where reference is made in the text of the thesis, this thesis contains no material published elsewhere or extracted in whole or in part from a thesis submitted for the award of any other degree or diploma.

No other person's work has been used without due acknowledgement in the main text of the thesis.

This thesis has not been submitted for the award of any degree or diploma in any other tertiary institution.

All research procedures reported in the thesis were approved by the relevant Ethics or Safety Committee or authorised officer as appropriate.

Signed,

Lance James Smith 22 January 2014

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I was told that studying a Doctor of Philosophy is a voyage of discovery. Of course, my understanding of the topic, theory and research in general has changed dramatically. However, there is more to the parallel. Like an explorer on a ship, you set out into virgin territory without really understanding what lies ahead. You toil tirelessly to overcome obstacles and face up to challenges. Eventually you reach a destination of sorts. This was all expected when I began. What I did not realize is that like an explorer, reaching the destination only leaves you hungrier for the next expedition!

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Thesis Summary

The lifecycle of joint ventures (JV) and alliances between firms has been studied extensively. Researchers have applied transaction cost theory to explain why they form, and they have considered the importance of partner choice and social capital between partners. Joint ventures have been considered in the context of market entry, and they have been examined for effective skill transfer. Despite the extensive research, concerns remain regarding cheating, operational difficulties and a general dislike of joint ventures. Research on failures has found conflicting results on issues of culture, interdependence, control, and trust.

This study presents a fresh view as part of a new movement in the joint venture and alliance literature using evolutionary theory as an explanatory framework. Some studies have used evolutionary theory in a literal sense to investigate how business collaboration changes over time. A divergence is made here by making use of a deeply studied, evolved phenomenon in nature called "mutualism", wherein two different species of animals cooperate for mutual benefit. This model is promising because it explains why partners should cooperate, how they deal with cheating, and how the act of cooperation can improve the survival rates of both partners.

The case study method was used to retrospectively investigate the full life of a number of real joint ventures in China. Their successes, challenges, and problems are all compared to similar events and behavior found in mutualistic organisms in nature. The results have shown that this framework provides an interesting holistic perspective on understanding the relationships built between these companies, and that it adds to, rather than contradicts, existing research describing specific aspects. Lastly, since trust is such a predominant topic in the literature, the classification of cooperation in nature as mutual exploitation for mutual gain narrows the broad and difficult-to-define concept of trust down to the more transparent idea of reciprocity. This facilitates a better understanding for both researchers and practitioners by demonstrating that cooperation is not necessarily a friendly affair. In fact, partners do not even need to like each other in order to achieve a level of success that they could never manage on their own.

Chapter 1: Introduction

1.1 Thesis Structure

This thesis covers a broad range of material and topics in order to bring together two distinct scientific concepts that are not commonly considered to have a strong relationship. In covering such diverse topics, the reader may lose his or her orientation within the work. Therefore, an explanation is required regarding the rationale used to construct the thesis.

The overall structure of the thesis is outlined in Figure 1.1.



• Chapter 13: Conclusion of findings, including comparison with existing theory



The first section will prepare the reader for the presentation of the case studies in the second section. The first step involves examining the literature available at the time of writing relating to the survival of joint ventures. Many aspects of joint venture operation can affect their survival; as there is a large body of literature that addresses these aspects, a review of all relevant works is impossible. Therefore, Chapter 2 will review the most relevant and influential research on joint venture survival. Since the thesis topic is based

on Darwinian evolution, Chapter 3 will present how this theory has been applied to firms. Chapter 4 will introduce the biological theory that explains why stable—even permanent and cooperative—relationships develop between biological organisms. These three chapters form a theoretical bridge that moves the reader from the current state of theory, adds what is known about applying Darwinian theory to firms, and finally introduces a theory in the biological sciences that will form an integral part of this thesis. The first section concludes with Chapter 5, which will introduce the methods that will be used in this work.

The second section comprises six distinct case studies of joint ventures operated in the People's Republic of China. Each case study was selected for its ability to provide rich data that describes how it was formed, developed and perhaps ended. Each case has unique elements that will be used in the research topic. Chapter 6 details why the venture was formed, while Chapter 7 demonstrates how collaboration can collapse quickly after foundation. Chapter 8 exhibits what happens when a stable, cooperative structure is subjected to ever-increasing environmental pressure. Chapter 9 outlines the story of how two partners persevere through the difficult first few years to develop a very strong joint venture. Chapter 10 exemplifies that a joint venture can perform better than a wholly owned subsidiary. Finally, Chapter 11 tracks one firm through the process of forming three different joint ventures in the same business. All of these cases present "critical incidents, crises, transitions, or organizational lessons learned" (Patton, 2002, p. 451).

The final section is dedicated to analyzing, summarizing, and concluding the findings of the thesis. The discussion in Chapter 12 takes the single-case analysis performed within each case study and conducts cross-case comparisons to draw out more findings from the data. Chapter 13 compares the findings of this work with significant findings and trends in the literature in order to establish how this work contributes to the body of literature. It also discusses any limitations to the research that must be addressed.

1.2 Introduction to the Topic

Joint ventures have become an increasingly important part of corporate strategies in international business. Pekár and Margulis (2003) found a significant rise in the use of equity partnerships. A joint study by IESE and KPMG of global senior managers (McPhee, Heckemüller, Ariño & Ozcan, 2009) found that more than 50% expected to be involved in more joint venture activity in the future. Both of these studies cited a much higher success rate for joint ventures compared to mergers and acquisitions. This perceived increase and success contrasts with horror stories such as the collapse of the partnership between DANONE and Wahaha in China (Barboza, 2009; Waldmeir & Tucker, 2009). Therefore, partnering can be an important growth strategy for firms that want to avoid the pitfalls of acquisition or simply to stretch their tight liquidity. However, the process is not risk-free.

China forms an interesting context for the study of joint ventures for several reasons. The image of joint ventures in China is strongly tainted by negative cases such as that of DANONE and Wahaha, which resulted in years of litigation and public accusations from both sides. Founding, developing, operating and, if necessary, closing a partnership in China is clearly not an easy task. Such a challenging atmosphere provides vivid illustrations about how such partnerships can succeed or fail. The legal environment in China has changed within the past 10 years, shifting from placing stringent limits on foreign investment to more liberal practices. Although joint ventures with local Chinese partners are still required in industries such as automobile manufacturing, many have been liberalized to allow foreign firms to invest in wholly owned enterprises. This change must have forced firms that were involved in joint ventures before the change to re-think the structure of their operations and to consider how to move forward. This artificial change would be a powerful context from which to observe how this change impacts other aspects of partnerships.

The concept that joint ventures will adapt and change in response to changes in the environment is growing in importance in the literature. This adaptation and evolution carries with it some challenges that both partners need to be aware of. Theorists have investigated various aspects of this phenomenon; however, this work has significantly diverged from what has been done previously. This divergence takes the form of an existing base of theory in biology that explains why and how partnerships between distinct living animals are formed. This work contributes to theory by borrowing the language and concepts already developed and tested by evolutionary biologists and applying them to several partnering firms in China. The application of this theory will be tested using six in-depth case studies and observing the long-term development of these cooperative entities. The results will be compared and synthesized together with existing theory to further the understanding of joint venture survival.

This work aims to apply these biological ideas in a study of equity joint ventures. For the purposes of clarity, the term equity joint venture will mean an organization that is jointly owned by two or more firms. This should not limit the application of these ideas outside the realm of equity joint ventures. There is no cause to assume that this theory would not be equally applicable in the larger field of cooperative strategy.

It is therefore argued that alliance and joint venture theory can be enhanced with the use of evolutionary theory to explain the development and adaptation of the relationship between two firms. In defense of this argument, it is first necessary to examine the appropriateness of such theoretical cross-pollination. There is a widely held view that social scientists suffer from "physics envy" (Clarke & Primo, 2012). The authors argue that:

Many social scientists contend that science has a method, and if you want to be scientific, you should adopt it. The method requires you to devise a theoretical model, deduce a testable hypothesis from the model and then test the hypothesis against the world. If the hypothesis is confirmed, the theoretical model holds; if the hypothesis is not confirmed, the theoretical model does not hold. If your discipline does not operate by this method—known as hypothetico-deductivism—then in the minds of many, it's not scientific.

The following work is not an example of "physics envy" or even "science envy"; rather, it is an attempt to add to our understanding of organizational dynamics by utilizing cognitive tools that are not usually applied to such contexts. A significant effort will therefore be made to be mindful of the parochial views held by some regarding the use of what they view as the language and theories that are exclusive to their own disciplines.

Petre and Rugg (2010, p. 109) contended that a temptation exists for doctoral students to follow a path that leads to safe but boring research that avoids challenges, difficulty and novelty. Every effort has been made to avoid this path. Although the topic of joint venture survival is not new, emphasis has been placed on finding novelty within a well-researched topic. Forming a synthesis with biological mutualism theory is an interesting topic that is uncommon within the literature. The challenge of negotiating access to joint ventures together with a discussion of their sensitive topics is not safe or risk free.

Lastly, the six cases have been presented with the intention that they portray poignant examples of what happens in real-life joint ventures in China rather than sterilized commentary.

1.3 Research Questions

The topic of joint venture survival is significant and wide-ranging. Addressing such a broad topic can be fraught with difficulty simply due to the many aspects that might be present. One stream of research has sought to correlate various factors versus the likelihood that the joint venture would discontinue, thereby focusing on the end of the relationship. One aspect includes comparing joint ventures and wholly owned entities (Gomes-Casseres, 1987; Chowdury, 1992; Hennart, Kim & Zeng, 1998). Another has examined specific factors such as changes in contracts (Blodgett, 1992), country of origin (Lee & Beamish, 1995), culture distance (Park & Ungson, 1997; Makino & Beamish, 1998; Hennart & Zeng, 2002), degree of competitive rivalry (Park & Russo, 1996), and the effect of parallel connections between the partners (Kogut, 1989). All of these studies have specifically examined the possible influences of the end of partnerships and the factors that have negatively affected survival. Transaction cost economics (TCE) has been used to explain why joint ventures come into being (Hennart, 1988, 1991; Hennart & Reddy, 1997; Kogut, 1988; Root, 1988; Contractor & Lorange, 1988; Buckley & Casson, 1988). Partner selection has been addressed by several authors (Hitt, Dacin, Levitas, Arregle & Borza, 2000; Luo, 1997; Islam, Ali & Sandhu, 2011). These two topics have focused on the beginning of the relationship. Investigation into how the relationship develops and evolves has been a newer aspect of alliance research (Luo, 2002, 2005; Ring & Van de Ven, 1994; Doz, 1996; Yan & Gray,

1994; Barkema, Bell & Pennings, 1996; Hamel, 1991; Ariño & de la Torre, 1998; Kogut & Zander, 2003; Koza & Lewin, 1998; Inpen & Currall, 2004; Belderbos & Zou, 2007). However, survival must entail the entire process from foundation to development and finally termination. An effort must be made to focus on this broad topic. This begins with summarizing the topic in two questions to be addressed: Why do firms decide to partner in the first place? Why do firms continue or exit the partnership? This topic can then be separated into the following specific questions:

- Formation:
 - Why do firms decide to form joint ventures instead of choosing other organizational options?
 - Why do they choose a particular partner?
- Evolution of the relationship:
 - Why do firms continue to cooperate as time passes?
 - How does their relationship change as the external and internal environments within the alliance and parent organizations change?
 - How are the risks of opportunism or non-cooperation assessed and addressed?
 - How do these risks and the relationship change and evolve over time?
- Finality:
 - Why do firms discontinue their cooperation?

These questions are broad, and significant research has already delved into many of these aspects individually. Although many topics have been studied individually, this strand of research has been difficult to synthesize into a whole (Parkhe, 1993a; Reus & Rottig, 2009; Christoffersen, 2013; Lowen & Pope, 2008). In this case, a theory already exists that may address all of the above questions. Evolutionary biology has developed a body of theory that addresses why individual organisms in nature cooperate for survival. It explains why they cooperate, how they pick their partners, how the relationship evolves over time, and how it can fall apart. In this way, this broad topic will be addressed by applying existing theory in a new setting instead of developing an entirely new theory.

Chapter 2: Literature Review—Alliance Survival

2.1 Current Knowledge

Cooperative strategy, including the use of licensing, equity and non-equity alliances, is a large and growing field of study (Beamish & Lupton, 2009). Thousands of books and journal articles have been written on the subject. Many prominent authors tout the benefits of using joint ventures and strategic alliances as part of a firm's overall strategy (Gomes-Casseres, 1998; Killing, 1982; Hamel, Doz & Prahalad 1989; Parkhe, 1991; Beamish & Lupton, 2009; Julian, 2008; Robson & Katsikeas, 2005; Petrovic & Kakabadse, 2003; Kaufmann, O'Neill & York 2006). Bleeke and Ernst (1993) proclaimed that the days of pure competition between firms have ended and that the survival of the firm is dependent upon its ability to cooperate with other firms. Luo (2004, p. 37) declared that "cooperation is a means of winning competition". Many authors (Pekar & Margulis, 2003; Contractor & Lorange, 1988; Chowdhury, 2009; Chang, Chung & Moon, 2013; Christoffersen, 2013; Zineldin & Dodourova, 2005; Petrovic & Kakabadse, 2003; Kaufmann, O'Neill & York, 2006) have claimed significant growth in the use of such ventures by companies.

Despite the apparent explosion in popularity and the apparent benefits of cooperative strategies in business, many of the same authors (Gomes-Casseres, 1998; Contractor, 1990; Parkhe, 1991; Beamish & Lupton, 2009; Zineldin & Dodourova, 2005; Kaufmann, O'Neill & York, 2006) acknowledged that these organizational forms are difficult to manage. Statistical studies have found that a high number are unstable in their original ownership structure. Some studies (Franko, 1971; Gomes-Casseres, 1987) that used the Harvard Multinational Project data found that 30% of the ventures were unstable, whereas researchers (Bleeke & Ernst, 1993; Harrigan, 1988b) who used different samples found that more than 50% were unstable. Finally, two more recent studies (Hennart, Kim & Zeng, 1998; Makino, Chan, Isobe & Beamish, 2007) found that approximately 30% of joint ventures were unstable.

Considering the growth in alliances coupled with the difficulty observed in successfully operating them, it is reasonable to expect that a large and robust body of research exists to explain the phenomenon in its entirety. In truth, a significant amount of literature addresses alliances in one form or another. Unfortunately, the understanding of the phenomenon is still fairly fragmented, and there appears to be no clear account for the macro process. Instead, most research takes a micro view of how one factor influences a single aspect such as formation or survival.

Many works make an underlying assumption that alliances are used as market entry tools (i.e. Franko, 1971; Inkpen & Beamish, 1997; Kogut & Singh, 1988); however, the internationalization of firms is itself a large research field. This theory is relevant to alliances and joint ventures such as Pan and Tse (2000) and the staged entry theory made famous by Uppsala theorists Johansson and Vahlne (1977, 2006) and further developed by Guillen (2003). The latter is best described as an incremental learning theory, which will be classified as such and mentioned again later. As only a small number of studies in this field are directly relevant to the topic of alliance survival, many will be ignored. This should not distract from the apparent general acceptance that market entry is an important topic in the overall discussion of alliances.

As the formation of cooperation requires two or more partners to come together, partner selection (Hitt, Dacin, Levitas, Arregle & Borza, 2000; Luo, 1997; Islam, Ali & Sandhu, 2011) has played a prominent role in the literature. Since survival is a process that describes the development of the venture after foundation, the topic of partner selection will be neglected. However, this strand of literature should not be considered unimportant—especially the path dependence limiting the available choices proposed by network theorists (Gulati, 1998; Gulati & Garguilo, 1999), and further development is needed to understand the forces at work (Beamish & Lupton, 2009).

There is a long-running debate in the literature about the role of survival or longevity as a suitable measure of performance. The root of this debate is a stream of research that sometimes compares the performance of joint ventures with wholly owned subsidiaries based on survival (Gomes-Casseres, 1987; Chowdhury, 1992; Hennart, Kim & Zeng, 1998; Lowen & Pope, 2008; Kaufmann, O'Neill & York, 2006). This stream has been soundly criticized (Yan & Zeng, 1999; Gomes-Casseres, 1987; Parkhe, 1993). More

recently, theorists have accepted that survival can be used as one of many measures of performance (Beamish & Lupton, 2009; Christoffersen, 2013; Puck, Holtbruegge & Mohr, 2009; Child & Yan, 2003), but it cannot be taken as the only measure. Using survival as a proxy for performance assumes that exiting the alliance is not in the best interest of either partner at any time. This is simply not the case; for example, many firms enter into alliances for motives other than long-term cooperation (Todeva & Knoke, 2009), and others stay in alliances long after they should have exited (Inkpen & Ross, 2001). For such cases, survival may not be a reasonable measure of success.

Skill Transfer

Theorists have recognized that joint ventures are exceptionally effective in transferring tacit (Polanyi, 1958) knowledge from one firm to another (Killing, 1980; Crossan & Inkpen, 1995, 1996; Annand & Khanna, 2000; Tsang, 2002; Das & Kumar, 2008; del Mar Benavides-Espinosa, 2012; Gomes-Casseres, Hagedoorn & Jaffe, 2005). Therefore, the expansion of a firm's capabilities through learning has been proposed as one of the main reasons for forming cooperative ventures (Gomes-Casseres, 1989, 2003; Bleeke & Ernst, 1993; Ratten & Suseno, 2006). As a result, studies of alliances and joint ventures from a learning perspective have a particularly strong focus on knowledge transfer. Many studies have focused on how to improve this type of learning. Topics include how to learn in an alliance (Das & Kumar, 2007; Inkpen, 1998; Ratten & Suseno, 2006) and how to effectively transfer and use alliance learning in the parent company (Inkpen, 1996; Inkpen & Dinur, 1998). Studies on specific factors have found that management involvement (Tsang, 2002) and strong intent (del Mar Benavides-Espinosa, 2012) enhance learning processes, whereas the presence of a culture gap inhibits learning (Rodriguez, Perez & del Var, 2003). Two studies examining the same dataset have shown that knowledge transfer from the parent company to the joint venture is significantly related to performance (Lyles & Salk, 1996; Lane, Salk & Lyles, 2001). However, such a transfer has not been proven to benefit survival (Steensma & Lyles, 2000).

One idiosyncratic case—typically referred to as a learning race—has achieved prominence in the literature. In such a venture, one or both partners seek to extract valuable know-how from the other (Hamel, Doz & Prahalad, 1989). The intent of this

type of joint venture is to make cooperation superfluous after the goal has been attained (Hamel, 1991). Khanna, Gulati, and Nohria (1998) further developed this idea into a typology based on the varied learning intent of partners. Inkpen and Beamish (1997) presented an example of a foreign partner in a market entry joint venture intending to acquire local knowledge, thereby making the local partner expendable. This scenario would squarely fit into the staged market entry theory of the Uppsala School (Johanson & Vahlne, 1977; Guillen, 2003). There is general consensus that learning asymmetries contributes to the demise of an alliance (Cimon, 2004; Hamel, Doz & Prahalad, 1989; Hamel, 1991; Khanna, Gulati & Nohria, 1998; Inkpen & Beamish, 1997; Inkpen, 1998, 2000; Hennart, Roehl & Zietlow, 1999; Habib & Mella-Barral, 2007). However, the idea of poaching a partner's know-how has proven somewhat controversial, with Inkpen (1998, 2000) questioning the intent aspect of the scenario. Hennart, Roehl, and Zietlow (1999) also found no statistical evidence to support such behavior. In such seemingly dishonest scenarios, it is also possible that the payoff for both partners will result in a win-win situation (Habib & Mella-Barral, 2007). The result is that, although this peculiar scenario has received such attention, it appears to be an exceptional circumstance. Independent of the subject of intent, theories describing alliances that have been set up to learn skills from partners have developed to the point where a lifecycle process can be identified.

Learning

Inkpen and Currall (2004) make an important distinction between learning from and learning with a partner. Although a significant body of work focuses on learning from a partner, only a limited number of studies investigate the possibility of learning with a partner (Das & Kumar, 2007). A few large-scale studies have observed that the host country experience for the foreign partner improves the survival chances of its joint ventures in that country (Delios & Beamish, 2001), but that previous experience operating joint ventures has no significant effect (Park & Russo, 1996). Although the accumulation of experience is important for learning to occur, it cannot be assumed that all experience leads to learning (Merriam & Clark, 1993). In one study that focused on the "learning with" paradigm, the survival of four non-equity alliances in two firms were shown to be dependent on a recursive process of learning, re-evaluation, and readjustment (Doz, 1996). This type of learning would have a positive effect on the

development of the cooperative venture and would therefore be likely to contribute to improving the results and long-term stability of the alliance. However, this is not certain and is not clearly exhibited in the literature. Gerwin (2004) argued that developing a relationship with someone does not necessarily result in an easier working relationship. Therefore, the causality of the relationship with learning appears to be indirect. In addition, learning with a partner cannot explain why partners choose to cooperate in the first place. This type of learning can be considered an important contributing factor when considering survival, but it is not a direct explanation.

Culture

Alliances often combine organizations that have different company cultures, national cultures, or a combination of the two. Thus, it stands to reason that culture fits within the list of topics that are highly important to the study of cooperative ventures. Cultural aspects cannot explain why two firms would choose to cooperate in the first place, but does culture have a direct causal link to continued survival or termination? If two partners have similar cultures, would their survival tendencies improve? This logic leads to the contention that Korean joint ventures in less developed countries (LDCs) would survive better than those of developed countries (DCs) because the Republic of Korea is a recently developed nation (Lee & Beamish, 1995). Fitting comfortably alongside this line of logic is the finding that the longevity of joint ventures is negatively related to culture distance (Barkema, Bell & Pennings, 1996). Park and Ungson's (1997) findings that culture distance has no effect on survival clearly does not fit; however, methodological issues could provide an explanation.

A more rigorous test of the concept is a comparison between two studies with similar datasets. Both studies compared Japanese joint ventures with other Japanese firms and Japanese joint ventures with firms in other countries. Makino and Beamish (1998) found that joint ventures between two Japanese firms survived longer, whereas the other study found that culture was not a significant factor (Hennart & Zeng, 2002). If all results for culture are analyzed from a methodological point of view, the striking difference between the studies is that some have operationalized survival as longevity and others as a hazard rate. Does this then mean that joint ventures between two firms from similar cultures do not have a better chance of surviving than those between

different cultures? Does it additionally mean that those that survive are together for the long term? This explanation is brought into question by Meschi's (1997) findings that culture distance decreases over time. This finding has also been called into question, as national identities have been found to be more robust than previously thought (Salk & Shenkar, 2001). Katsioloudes and Isichenko (2007) found that the fundamental business culture of Russian and foreign business people was the main reason for the failure of so many joint ventures in the Russian oil industry. Other theorists have asserted that company cultures can evolve down four pathways: either one may dominate, they may mix, or an entirely novel culture may develop (Danis & Parkhe, 2002). This concept appears to be supported, with studies suggesting that the culture of Western companies in China is going through a sinification process (Chang, Chung & Moon, 2013). An alternative explanation is that the causal relationship between culture and survival is more complicated, if it exists at all.

Control/Power

Control has been a prominent debate in the discussion of alliance and joint venture survival. Killing (1982, 1983, 1988) has consistently argued that if control in joint ventures is shared, survival chances decrease. He proposed that a second type of control—dominant control by one partner—is more stable. However, Killing's (1983) findings showed that the best chance for survival is under a third type of control: independently controlled ventures. The dominant control hypothesis had some support from Ding (1997), who found that satisfaction improved under dominant control by the foreign partner. Further, evidence shows that majority control by the foreign partner increases the chance of survival compared to minority control (Makino & Beamish, 1998), and that mortality risk decreases as foreign equity ownership share increases (Dhanaraj & Beamish, 2004).

Despite the above findings, the dominant control hypothesis is countered by significant contradictory findings. Several studies have argued that balanced equity arrangements in alliances improve survival (Bleeke & Ernst, 1993; Blodgett, 1992), while others have contended that control in the form of bargaining power should be balanced to ensure long-term survival (Harrigan, 1988b; Yan & Gray, 1994). A fourth type of control was proposed by Geringer and Hebert (1989), who made a distinction between shared

control—where there is a clear division of responsibilities—and control that is not shared. They labeled the former *split control*. Choi and Beamish's (2004) results showed that this fourth type performed best in their dataset in terms of survival. Several theorists have moved away from considering the quantity of control to question how control is applied. Schaan (1983) segregated control into two types. His findings found that a more collaborative type of control compared to a procedural, power-based control led to improved satisfaction for both partners. However, it is interesting to note that his findings were not significant for survival. Luo (2004) proposed a similar concept; however, he divided control based on whether it was applied to achieve private benefits (those received by one partner) or public benefits (those shared by both partners). However, no empirical results were present to support this concept. Luo, Shendar and Nyaw (2001) considered overall control versus specific control and found that both parent firms were interested in operational control (specific control), whereas only the foreign parent was concerned with strategic control (overall control).

The above results are inconsistent in their capacity to clearly address what effect, if any, control has on the survival of alliances. Some of this inconsistency can be attributed to differences in the operationalization of variables. For example, the above studies defined control as the relative bargaining power of the individual parents (Harrigan, 1988b; Yan & Gray, 1994), the relative equity ownership positions (Bleeke & Ernst, 1993; Blodgett, 1992; Makino & Beamish, 1998; Dhanaraj & Beamish, 2004), and perceived decision authority over nine operational dimensions (Killing, 1983). Further, although the studies examined how control affects survival, the proposed underlying causal chain may not be the same. Unfortunately, this is difficult to ascertain in many cases because causality is either not stated or is ambiguous. However, several good examples provide evidence that causality is an important point. Killing (1982, 1983, 1988) has consistently argued that shared control leads to complexity in operation, which leads to hampered decision-making, poor performance, and termination:

...virtually all of the twenty of so managers interviewed in this study suggested that the key to successful alliance building is to create an alliance that is simple enough to be manageable. Complexity, they argued, leads to failure (Killing, 1988, p. 57).

Harrigan (1988b) and Yan and Gray (1994) instead proposed that control in the form of bargaining power must be balanced to avoid instability in the overall constellation. Several studies have alluded to a relationship between control and conflict (Yavas,

Eroglu & Eroglu, 1994; Steensma & Lyles, 2000; Barden, Steensma & Lyles, 2005; Schillaci, 2007), with the conflict later bringing about termination. The causal link between control and conflict also appears to be complicated. Some have proposed that the internal management teams of the joint venture fight with each other over control on behalf of each parent (Pearce, 1997; Hambrick, Li, Xin & Tsui, 2001). Others have suggested that the link stems from control struggles between joint venture management and the parent companies (Johnson, Korsgaard & Sapienza, 2002; Luo & Park, 2005). Additionally, it has been suggested that the combination of partner need, commitment, and control leads to conflict (Julian, 2008). Thus, there is not a direct relationship between control, power, and survival. In addition, control cannot explain why the venture was originally created.

Trust—Social Capital

In a relationship such as an alliance or joint venture, where two different firms combine efforts, how these two firms relate is an important factor in the survival of the cooperative effort. Thus, it is not surprising that trust has received significant attention from theorists. The findings that prior relationships (Park & Ungson, 1997) and other parallel relationships (Kogut, 1989; Park & Russo, 1996) have a significant positive effect on survival can be interpreted in two ways. First, these prior or parallel relationships can be taken as a proxy to demonstrate that social capital has been built up between the partners (Ring & Van de Ven, 1994; Abador, 2005). This process can be improved with effective boundary spanners (Newman, 1992) or through activities such as training (Baughn, Neupert, Anh & Hang, 2011). Second, these relationships ensure reciprocal behavior (Axelrod, 1984; Luo, 2004; Chung, Singh & Lee, 2000) because they can be used to enact sanctions on non-cooperating partners (Suen, 2005; Zhang & Rajagopalan, 2002; Cooper & Ross, 2007). The importance of these networks of interrelationships has been studied in detail in terms of network theory (Gulati, 1998, 1999; Gulati & Gargiulo, 1999). The main argument is that firms are embedded in a network of other firms; they do not act in a vacuum (Gulati, 1998). In this way, their actions are observable to other firms in their network, and firms tend to select partners from their network based on reputation (Gulati, 1999). Some experimental evidence supports this concept (Dollinger, Golden & Saxton, 1997), while others have argued that a high payoff can overcome a bad reputation (Arend, 2009).

Despite inconsistent evidence concerning the relationship between trust and survival, some still argue that it reduces governance costs (Hitt & Ireland, 2002) and risk (Nooteboom, Berger & Noorderhaven, 1997). Others have proposed that ownership is overrated and have suggested that theorists and practitioners should assume trust (Madhok, 2006). Not all voices are in favor of trust. Currall and Inkpen (2002) have observed that many studies on trust propose a relationship based on one level of trust, such as firm-based trust, but measure a different level, such as individual trust. Findings have also shown that the relationship between trust and performance has diminishing returns (Luo, 2002). More important than methodological issues is the question of causality. Koza and Lewin (1998, p. 259) laid down a strong challenge to the work on trust by questioning this causal link:

...successful alliances have trust; unsuccessful alliances do not have trust. And, typically, trust is attributed ex-post. For trust to be a useful concept, its principle components must be identified, operationalized, and measured.

In the midst of the trust discourse lays the lingering obsession of opportunistic behavior by partners (Contractor & Lorange, 1988; Das, 2004, 2005), with cases documenting such action (Qiu, 2005; Carrol, 2012; Pu & Que, 2004). Finally, it is clear that trust is an acutely complicated concept that needs to be further developed and considered in combination with forbearance, reciprocity, and opportunism (Parkhe & Miller, 2000). Some studies have widened the topic by measuring the effect of various amounts of uncertainty on trust (Adobor, 2005) or showing that imbalances in commitment can lead to distrust (Delerue-Vidot, 2006). Others have looked outside of trust as an isolated topic to consider it in combination with governance (Luo, 2007) as well as both control and learning (Currall & Inkpen, 2002).

Transaction Costs

The basic underlying premise here is that partners in a cooperative venture cooperate because a clear economic incentive results from cooperating compared with acting alone. The theory in this regard has been developed rather deeply. The most prominent faction takes TCE (Williamson, 1975) as a basis. Theorists have identified alliances as a "hybrid" structure between the two poles of *markets* and *internalization* (Hennart, 1988, 1991; Kogut, 1988). The proposal is that this option provides some of the advantages of

internalization in cases where a market failure is accompanied by circumstances that make internalization impractical. Hennart and Reddy (1997) identified that joint ventures are the preferred option in acquisition settings where the desired assets cannot be effectively separated from the other firm, thus being *indigestible*. Debate has ensued over a second possibility, where the assets under discussion are difficult to value, thereby creating a situation of *information asymmetry* (Reuer & Koza, 2000a, 2000b; Hennart & Reddy, 2000). Buckley and Casson (1988) took a more general approach and argued that the hybrid of markets and internalization acts as a device for aligning the motives of both partners. The advantage of collaborating in an alliance is thus to allow partners to benefit from each others' unique assets in an equitable manner.

Although this hybrid concept plays a prominent role in the literature, a second version carrying the flag of TCE has appeared. This version is slightly different because it expressly accounts for the difference in the net benefits for each partner in cooperating instead of going alone. In findings drawn from a case study of three alliances, Root (1988, p. 77) observed that firms enter cooperative ventures when the "incremental benefits of participation exceed its incremental costs and these incremental net benefits exceed those of open market transactions or interfirm cooperative arrangements". The arrangement is thereafter "dissolved when the net benefits of either partner or both partners become negative". Contractor and Lorange (1988, p. 20) expressed a similar idea in the below formula.



Figure 2.1: Illustration of economical view of partner motivation for cooperation.

Although this concept provides a clear explanation of why two partners would formalize a cooperative venture, why they would continue it, and under what circumstances it would make sense to dissolve it, the conept has seen little ongoing development. In general, TCE-based concepts have gone out of fashion, and little development has been made on these concepts over the past decade.

Risk Sharing

Several theorists have viewed joint ventures as non-financial options that firms could use to minimize risk through a buyout in times of success or through liquidation in times of hardship (Kogut, 1991; Balakrishnan & Koza, 1993; Chi & McGuire, 1996; Chi, 2000). Although this concept explains why two firms cooperate (sharing of risk), why they continue to cooperate, and why they decide to end the cooperation, it cannot be thought of as clarifying a process. Instead, it reduces the alliance to a portfolio investment and treats it as a put/call option. This point of view is likely a valuable one-particularly when reducing risk is the primary reason for forming the venture. It has already been demonstrated that other reasons for cooperation exist, so it stands to reason that the real options hypothesis cannot be applied in all cases. Although the theory is well explained (Chi & McGuire, 1996; Chi, 2000), the empirical results have been inconsistent. Several studies (Kogut, 1991; Balakrishnan & Koza, 1993) have shown that risk sharing can provide benefits. In contrast, Reuer and Leiblein (2000) showed that firms that are active in forming joint ventures have a higher return on equity (ROE) downside risk. Recently, theorists have begun to investigate specific circumstances for real options. One study found that growth options were only present for minority and diversification joint ventures (Tong, Reuer & Peng, 2008). Recently, Cuypers and Martin (2010) argued that options are only valuable to firms in cases of exogenous uncertainty. In any case, the multitude of mining and resource consortia show that alliances are used in some way for risk sharing and that the real options hypothesis is useful in directly understanding the reasons for forming, continuing, and terminating the alliance.

Strategic Factors

The basic premise behind strategy as a factor is that, in general, alliances are tools to be deployed when strategically relevant (Gomes-Casseres, 1987). Strategies come in all shapes and sizes, with formulaic, one-size-fits-all strategic plans being a passé concept in management thought. Despite the infinite possibilities, theorists have converged on a

relatively small number of occasions where alliances are advantageous. In a very early and important work in the field of alliance survival, Franko (1971) found that joint ventures were common in firm strategy early in the product/industry lifecycle. Once maturity was reached and the firm's focus shifted to standardization and global integration in an effort to reduce costs, the hazard rate of joint ventures increased significantly. Other investigations have shown alliances to be better suited for growth (Kogut, 1988) or for expanding capabilities as opposed to exploiting them (Gomes-Casseres, 1989). In her large cross-sectional study on alliances, Harrigan (1988a) found that the tendency to form cooperative ventures decreases in declining or consolidating markets. The only exceptions are scale joint ventures because of their special nature in consolidating capacity (Hennart, 1988). Scale joint ventures have also been found to have better survival characteristics than link joint ventures (Dussauge, Garrette & Mitchell, 2000), which are commonly used for tapping external capabilities (Hennart, 1988). There seems to be a convergence on alliances being suited to expansion modes of strategy, with the sole exception being those used to consolidate economies of scale.

2.2 Points of Debate

Many early studies in the field focused on the statistical analysis of large datasets. A good example of this was the stream of research comparing the termination rates of joint ventures and wholly owned subsidiaries (Gomes-Casseres, 1987; Chowdhury, 1992; Hennart, Kim & Zeng, 1998). Although this research was criticized by Yan and Zeng (1999) for methodological shortcomings, such large-scale studies abound in alliance literature and continue to be published (Lowen & Pope, 2008; Kaufmann, O'Neill & York, 2006). Contractor (2005, p. 126) argued that "the volume of work in alliance research is skewed in favor of large-sample studies, to the detriment of the kind of detail-rich and nuanced studies needed at the firm level". Instead, he feels that "(r)icher data are obtained in case studies or directly from companies" (p. 125). Beamish and Lupton (2009, p. 88) described it another way:

Currently, most studies rely on secondary data sources and surveys rather than direct contact with joint venture and parent firm managers, which has a few limitations. First, research that uses secondary data usually does not result in the depth of insight made possible by case studies...

...case studies allow researchers to track the development of joint ventures over time, which allows greater insight into how the dynamic interaction

among partners, stakeholders, and other environmental influences affects the partnering process. They clarify the challenges faced by managers in designing a joint venture, pitfalls to be avoided, and management techniques for resolving those challenges.

This call for more qualitative research is not without reason. Alliances, including those with shared equity, have been documented to be versatile. They can accelerate development and reduce risk in product development (Anderson, Benavides-Espinosa & Mohedano-Suanes, 2011; del Mar Benavides-Espinosa, 2012; Das & Kumar, 2007), survive in a rapidly developing market (Gomes-Casseres, 2003), facilitate entry into new markets (Franko, 1971; Johanson & Vahlne, 1977, 2006; Beamish & Lupton, 2009), act as non-financial options (Chi & McGuire, 1996; Chi, 2000), and provide access to valuable resources (Das & Kumar, 2007). Next, consider complicating this with a plethora of firm sizes, cultures, governance structures, and strategic rationales. It then becomes clear that context is a very important aspect to consider when studying how a joint venture or alliance develops and thereafter acts in the face of threats to its existence (Yin, 2003; de Vaus, 2005).

Process Focus

Some researchers have answered the call for more qualitative studies to provide a more detailed view on the underlying process. Although these works all examine, or at least propose, a causal process, the literature tends to categorize them according to which factor affects survival. This is unfortunate and makes analysis much more difficult because the process is not prominent in the analysis. To resolve this issue, the studies mentioned in the following sections have been grouped together based on similarity in the proposed causal sequences, which could affect the survival of the venture. This exercise is expected to produce some intriguing results and may paint some of the studies mentioned earlier in a different light.

Parent—Environment Adaptation

As highlighted earlier, the work on the international expansion of firms is a large field of study that overlaps the joint venture literature. Many theorists in this field have noticed that firms learn and adapt their structures as they develop and grow in a new country (Johanson & Vahlne, 1977, 2006; Guillen, 2003). Alliance theorists have not missed the fact that many multinationals appear to form joint ventures with local partners as a stage in a longer development process. The arguments used as a basis are subtly different. Franko (1971) pointed out that as a firm develops internationally, it will eventually reach the point where a local partner acting in the interest of one particular country may hinder the global firm from implementing the policies it needs to survive worldwide. One parent company may be faced with environmental shifts that require specific adaptations. If the joint venture or alliance is a hindrance to advancing these changes, it becomes a strategic liability. Beamish and Lupton (Beamish & Lupton, 2009, p. 80) echoed this point:

Restructuring of a joint venture often indicates that it isn't performing as planned. However, it may also simply indicate strategic adaptation to changing economic and competitive conditions...

Therefore, the situation from environmental and competitive perspectives will change over time, resulting in a changed relationship between the parent and the alliance (Gomes-Casseres, 1988; Harrigan, 1988a). Lunnan and Haughland (2008, p. 552) observed this specific point:

The relationship between the partners must adapt over time in response to changing environmental conditions and partner objectives, and managerial attention to post-formation dynamics may be critical for alliance performance...

This means that such alliances are conceived and formed based on the strategic environment as observed by each parent at the time of formation. The context of formation is therefore intimately entwined in the DNA of the venture; its very existence is grounded upon it. The next logical question is: what happens as time passes? It is unlikely to assume that the context that brought the partners together will remain the same. Therefore, adaptations made by parent firms in response to the environment have significant implications at the alliance level.

In practical terms, this means that one causal chain that threatens the survival of joint ventures is the evolution of the parent firms within *their* strategic environment. The life or death of the venture may not be in its own hands; it may be determined by forces outside of its control. This is a logical and concise causal chain that can be studied rigorously if the initial context at formation is accounted for. This was observed in two separate empirical studies (Lunnan & Haughland, 2008; Meschi, 2005), where the results showed that strategically important alliances were less likely to be terminated.

Alliance—Environment Adaptation

The previous section outlined a process in which alliance survival is threatened by shifts in the external environment, and corresponding adaptations are required by the parent firms. This section discusses a different chain of events that is at least as ominous for a venture's survival. Many theorists subscribe to the position that joint ventures are less stable than wholly owned subsidiaries because they have divided control (Killing, 1982, 1983; Schillaci, 2007), which may lead to inefficient decision making if the two parents disagree. Slow and hampered decisions then lead to poorer performance.

This point has been further extended by theorists who have investigated how the involvement of two or more distinct parents can affect the management team of a joint venture or alliance. For example, it has been argued "that both political influence and bargaining activity are antagonistic to efficiency in the TMT (*top management team*) decision-making process, undermining adaptability, performance, and survival" (Pearce, 1997, p. 209). Based on a quasi case study of one sino-foreign joint venture, Hambrick, Li, Xin and Tsui (2001) illustrated how such divides within international joint venture management groups (IJVMG) can lead to termination:

Compositional gaps in the IJVMG give rise to stereotyping and mistrust, which will accentuate the reciprocal conversion of substantive conflict into relationship conflict and vice versa (p. 1044).

In the context of an IJVMG with wide compositional gaps, this spiral of substantive conflict, and behavioral disintegration is very likely to occur and will be quick to accelerate (p. 1046).

Such groups will fail to exchange information, fail to collaborate, create schisms within the ventures, and engage in erratic decision making (p. 1047).

Thus, the disharmony caused by having two or more distinct factions within the joint venture management team can result in termination. More recently, theorists have found that although this pattern may hold true in some cases, the relationship between control, conflict, and termination is more complex (Steensma, Barden, Dhanaraj, Lyles & Tihanyi, 2008; Barden, Steensma & Lyles, 2005).

A divided management team could have additionally complex relations with the various parents, each of whom has distinct intentions for the venture. In such a case where goal

incongruence exists, "close cooperation between one of the partners and the Ejoint venture management is viewed negatively by the other party" (Luo & Park, 2005, p. 157). This tenuous relationship balance is further influenced by the heightened sensitivity of alliance managers to procedural justice (Johnson, Korsgaard & Sapienza, 2002). The relationship between the parents and the joint venture is unlikely to be static, which may result in other performance issues (Kumar & Seth, 1998; Barden, Steensma & Lyles, 2005).

The true causal process includes various sources of inertia that lead to the paralysis of the joint venture or alliance in the face of a dynamic environment. Another such source of inertia is the joint venture contract itself. Like many theorists, Luo (2002, p. 905) noted that "(m)anagers cannot predict and contractually resolve every future contingency". However, he further elaborates on the relationship between contracts and cooperation:

Cooperation hence becomes a necessary complement that overcomes a longterm contract's constraints in adaptation and execution and becomes an important vehicle that nourishes continuity and flexibility when change and conflict arise (p. 905).

Luo (2005) then issued a warning to avoid the temptation to write contracts too specifically:

Contracts for long-term hybrid governance structures (such as IJVs) require adaptive, elastic mechanisms that can realign the venture, and restore efficiency when it is beset by unanticipated environmental disturbances (p. 211).

Empirical studies have had mixed results, with two studies confirming that joint ventures cannot adapt as well as, or better than, wholly owned subsidiaries in unstable environments (Luo, 2005; Beamish & Lupton, 2009; del Mar Benavides-Espinosa, 2012). Two studies have shown that some types of alliances are much more robust to environmental shocks (Pangarkar, 2007; Belderbos & Zou, 2007).

Parent—Parent Adaptation

As alliances involve the willing cooperation of several parties, what happens if the relationship between the parents changes over time? The simple answer to this is that "alliance survival or termination is a logical consequence of a firm's adaptive responses to the dynamics of both environmental and partner dependencies" (Xia, 2011, p. 231).

However, the mutual dependence aspect may not be so stable. This situation can be traced to Resource Dependence (RD) theory (Pfeffer & Salancik, 1978; Pfeffer & Nowak, 1976). Danis and Parkhe (2002) found that the contribution of critical resources determines the bargaining power of the partner. If the contributions are approximately equal, the control will be shared. If one partner is unable to contribute critical resources, its control in the venture will erode over time.

The effectiveness of joint ventures in know-how transfer (Killing, 1980; Gomes-Casseres, Hagedoorn & Jaffe, 2005) demonstrates one particular type of shift in the evolving relationship between the partners in the venture. This relationship between learning, dependence, and bargaining power was highlighted by Hamel (1991) and further elaborated by Khanna, Gulati and Nohria (1998, p. 204), who argued that "as asymmetries in the learning process evolve, each firm continually evaluates whether staying in the alliance is worthwhile", and that this leads to "each firm trying to learn as much as it can from its alliance partner in an attempt to preempt a situation in which the other is the first to sufficiently complete its learning and terminate its involvement in the alliance" (Khanna, Gulati & Nohria, 2000, p. 781). In the specific case of market entry joint ventures, Inkpen (1995, p. 109) argued that knowledge creation creates "a shift in the foreign partner's bargaining power", and that this shift leads to a "dissipation of mutual partner need that existed at the time of joint venture formation". Zooming in on cases where the foreign partner acquires the local partner's stake, Inkpen and Beamish (1997, p. 180) observed that "the MNE's acquisition of local knowledge enables the MNE to make the transition from an IJV to a subsidiary".

In the above examples, coveted knowledge was the source of interdependence, and learning was the path for one partner to reduce dependence and increase bargaining power. As this is an idiosyncratic example, there must also be a more general process. Consistent evidence has indicated that there is "a direct, positive relationship between bargaining power and management control" (Yan & Gray, 1994, p. 1508). When one considers the case of learning key know-how from the other partner, this leads to another aspect of this process as viewed from the weaker partner's point of view:

...there is the intriguing possibility of trust leading to more learning from a partner, which then leads to shifts in bargaining power, less trust, and more formal controls (Inkpen & Currall, 2004, p. 595).

Asymmetrical control by one partner will constrain the decision-making authority of the other partner and constrain that partner's ability to achieve its alliance goals. A firm may therefore seek to compensate for its lack of control and influence by engaging in opportunistic behavior in areas over which the partner does not have control (Inkpen & Currall, 2004, p. 591).

While investigating Hungarian joint ventures, Steensma and Lyles (2000) made the following more general observations, which follow the same logic:

...a power advantage in an exchange relationship often bolsters the dominant firm to act opportunistically and extract a disproportionate share of the gains from the relationship (p. 834).

Furthermore, the low-power firm often behaves opportunistically to rectify its power handicap, further aggravating the exchange relationship (p. 834).

...the resulting opportunism is likely to lead to conflict and mistrust between the parents of the IJV. Disputes over the original agreement and intentions for the IJV may arise (p. 835).

In this way, the power differential may lead to either partner acting opportunistically. Despite the arguments for building an "inventory" of trust to buffer such situations (Ring & Van de Ven, 1994, p. 105), it was also admitted that "if commitments are violated by one party or both, more elaborate and formal structural safeguards will likely emerge in subsequent cycles of negotiation, commitment, and execution stages". This process was well documented in the detailed case study of Ariño and de la Torre (1998).

Thus, changes over time in the mutual dependence between two partners can either lead to the less dependent partner liquidating the venture in favor of a non-cooperative option, or to an imbalanced power situation laden with opportunism. The impression is made that such ventures are stormy relationships at best. However, Barden, Steensma and Lyles (2005) found that conflict only arises in some cases where either partner attempts to increase control. In the case of knowledge transfer, Habib and Mella-Barral (2007, p. 191) made a strong theoretical argument that this process may lead to a satisfactory end for both partners in some cases:

Such learning decreases the incremental benefit from having the partners join forces. It may then become more profitable for the joint venture to be dissolved and for one partner to buy out the other and operate the asset alone.

...the dissolution of a joint venture is not a failure attributable to the parent companies' inability to cooperate, but an efficient adaptation to a changed situation.

The crux of the process is then captured by the observation that the relationship between the partners, which may begin as respectful cooperation between equals, is bound to change over time. Yan (1988, p. 789) argued that these changes are certain to be present to some degree, and that they are just a component of the relationship:

A balanced view of IJV development argues for a dynamic stability of the coalignment between structure and environment, and the congruence between the partners' bargaining power and management control.

2.3 Development of Evolutionary Processes

The above review has shown that a fresh perspective on existing findings can be obtained by moving from studies that focus on the factors that affect the survival of joint ventures to analysis that is based on distinct processes. Some studies that sought to compare seemingly similar factors may not have been examining precisely the same causal process. In this way, some findings may be explained by a deeper examination of the context under which the partnership was formed and how changes in this context over time affect the operation of the partnership.

By analyzing the available literature based on similarities in the causal processes presented, three distinct schools of thought emerged (see Table 1). These schools of thought outline the evolutionary processes of adaption between a) one parent and its environment, b) the alliance and its environment or c) the parents. The survival of the venture is therefore dependent on the ability of the entire system to co-adapt in response to both environmental changes and changes in the relationship itself. The underlying dimension in all three schools of thought is adaptation over time: How do such collaborations evolve in the first place? How do they adapt to their environment? What happens to them if they fail to adapt?

Although many theorists consider evolution or adaptation in their research (Luo, 2002, 2005; Ring & Van de Ven, 1994; Doz, 1996; Yan & Gray, 1994; Barkema, Bell & Pennings, 1996; Hamel, 1991; Ariño & de la Torre, 1998; Kogut & Zander, 2003; Koza & Lewin, 1998; Inpen & Currall, 2004; Belderbos & Zou, 2007), only one uses Darwinian Evolution (Kogut & Zander, 2003). Most develop specific evolutionary models based on the specific topic being studied, such as trust (Ring & Van de Ven,

1994; Ariño & de la Torre, 1998; Koza & Lewin, 1998), learning (Doz, 1996; Hamel, 1991; Kogut & Zander, 2003), or power (Yan & Gray, 1994). Using the existing theory developed on Darwinian Evolution is an area that has not yet developed in the literature. Basing a model for the formation and development of alliances on these well-tested and robust ideas presents a unique opportunity to present these collaborations in industry from a new perspective, thereby adding significantly to the existing knowledge.

An additional potential benefit of attempting to develop the analysis of alliances from the Darwinian perspective is that it could increase the relevance of this research to practitioners. As noted by Yan and Zeng (1999, p. 405):

We propose that instability research refocus on the process of IJV development, reveal the dynamic evolution and changes over the venture's life, offer insights on the effect of these changes on IJV performance, and provide useful, practitioner friendly implications with respect to initiation and management of organizational changes in IJVs.

Therefore, the development of a theory for the formation and survival of alliances based on Darwinian processes can contribute to the general state of knowledge in two ways: it can fill a gap in the existing theory from an academic perspective, and it can assist practitioners in understanding these governance forms. The Darwinian perspective may address the criticisms that current research is non-additive (Parkhe, 1993; Reus & Rottig, 2009; Christoffersen, 2013; Lowen & Pope, 2008) by advancing explanations for the overall process.

Chapter 3: How Do Firms Evolve?

3.1 Introduction

The previous analysis of the existing research on joint ventures and alliances has shown that several models have proven useful in explaining diverse aspects of the alliance structure, such as skill transfer between partners (Hamel, 1991; Hamel, Doz & Prahalad, 1989; Inkpen, 1998, 2000; Khanna, Gulati & Nohria, 1998, 2000; Dussage, Garrette & Mitchell, 2000; Habib & Mella-Barral, 2007), learning (Doz, 1996; Crossan & Inkpen, 1995; Inkpen, 1995, 1996, 1998; Lyles & Salk, 1996), culture (Meschi, 1997; Lee & Beamish, 1995; Barkema, Bell & Pennings, 1996; Hennart & Zeng, 2002), control (Killing, 1982, 1983, 1988; Geringer & Hebert, 1989; Harrigan, 1988b; Yan & Gray, 1994; Blodgett, 1992), development of trust (Inkpen & Currall, 2004; Luo, 2007; Abador, 2005; Das, 2004; Currall & Inkpen, 2002; Ring & Van de Ven, 1994), benefits of risk sharing (Chi & McGuire, 1996; Chi, 2000), and which strategic circumstances favor such structures (Harrigan, 1988a; Kogut, 1989; Bleeke & Ernst, 1993). However, none of these models can provide a clear picture of: 1) why partners decide to cooperate; 2) why they continue to cooperate as time passes; and 3) why they might discontinue their cooperation. To fill this gap, a model is required that not only shows why collaboration began at the initial stage, but also how it developed over time. Chapter 2 pointed out that this is, in essence, an evolutionary process. Although some theorists have begun to examine alliance behavior from an evolutionary perspective (Ring & Van de Ven, 1994; Doz, 1996; Yan & Gray, 1994; Hamel, 1991; Barkema, Bell & Pennings, 1996; Ariño & de la Torre, 1998; Luo, 2002, 2005; Kogut & Zander, 2003; Koza & Lewin, 1998; Inkpen & Currall, 2004; Belderbos & Zou, 2007), no model has been found that attempts to describe the full process using Darwinian Evolution. Before such a model can be developed, an examination is required of the current evolutionary theory from the perspective of the firm.

3.2 Development of the Evolutionary Concept

The origins and early influences of the concept that firms can be seen as entities capable of evolving and adapting have some differences depending on the viewpoint of the author describing the concept's development. Nelson and Winter (1982) named Veblen (1898) and Joseph Schumpeter as early developers of the concept, whereas Hodgson (1998) labeled Karl Marx, Frank Knight, Edith Penrose, and George Richardson as early influences. Although many academics' ideas may have contributed to conceptualizing firms as evolving entities, Veblen (1898) and Alchian (1950) unambiguously made this assertion. Many recent authors have also drawn inspiration from the evolutionary epistemology works of Popper (1972), Toulmin (1972), Campbell (1977), and others. Despite these works, the use of evolution to analyze firms and their behavior remained on the fringe until Nelson and Winter released An Evolutionary Theory of Economic Change in 1982. Following its release, there was a significant increase in the number of works that used evolution to analyze firms and markets. Witt (2008) found an "exponential" growth in the Econlit use of the keyword "evolutionary" between 1986 and 2005. He also noted, as will be further discussed below, that there remains a significant lack of coherence concerning the development of the theory into a comprehensive tool to analyze firm behavior.

Both Nelson and Winter (1982) and Hodgson (1998) asserted that Adam Smith originally included such concepts in his writings. It is not surprising that Smith is considered to have influenced evolutionary thought in economics because he is typically noted as an influence on Darwin himself (Boucher, 1985). As nearly all selectionist theories of evolution are derived from Darwin's ideas, the common roots between these concepts are clearly solidified. These connections are important and will be revisited later.

3.3 Theoretical Factions

The main body of theory regarding the evolutionary behavior of firms has been developed under the flag of academic economics. This community of academics, originally united against neo-classical economic theory due to its focus on equilibrium and maximization, has split into two main factions, which will be introduced and developed following a short but necessary discussion of the ontological assumptions used in this work.

Ontology

In his review of the economic evolution literature, Witt (2008) observed that the modern mainstream application of evolutionary ideas to firms and economies makes an important ontological assumption:¹ they use a dualistic ontology and practically ignore the possibility of a monistic one. This is an important point that deserves further discussion. The theories described in more detail in this section are derived by taking modern evolutionary theory, which is robust and widely accepted in describing evolution in nature, and applying it to a similar phenomenon in economics. Therefore, it is implicit that the two phenomena-evolution in nature and in economics-are disparate and not causally interconnected. The opposing view would consider that economic behavior in general has evolved from human genetic programming. The behaviors that are used in the act of "making business" have evolved in humans from the time when there would have been significant survival ramifications and thus selection pressure arising from the outcomes of such decisions (Witt, 2008). Human economic behavior could then be guided by genetic programming developed in a long lost age when economic decisions were truly of the "life and death" variety. Although the potential of such a connection is immense, pursuing such an idea lies well outside the objectives of this work and would be an enormous undertaking. For this reason, such a possibility is acknowledged here but will not be pursued further. Instead, this work will continue to expand the dualistic assumption.

There is an impressive degree of diversity in the remaining dualistic theories presented in the literature. Witt (1992) provided an excellent example when he argued that evolution can only be applied to populations. His theory proposes that novel ideas compete for survival and that the firms themselves are not relevant. Therefore, observing the evolutionary progress of economies requires a focus on the *dynamics* of novelty within the *population* as a whole. The observation of one single firm will yield

¹ He mentions Veblen (1898), Georgescu-Roegen (1971), Hayek (1988), and North (2005) as exceptions to dualistic ontology.
no valuable information. Neglecting the many fringe theories, two main schools of thought have emerged within the literature. Although both are concerned with evolution by natural selection, some subtle differences appear when they are applied to the problem of understanding human economic and organizational behavior (see Table 2.1). The most prominent formalized theory was introduced by Nelson and Winter (1982), who built a nearly complete theory starting from an analogy between organizations and organisms. The analogy is centered on proposing that organizational routines should be positioned as genes would be in organisms, and that they would play the same role in variation, selection, and continuity processes within firms. Backed by prominent philosopher David Hull, the other set of theorists contends that all contexts in evolution share the same principles and a common overarching process. Therefore, they argue that *Darwin's* ideas should be *generalized*:

The idea of generalizing Darwinism has little to do with biological metaphors or analogies. Instead of drawing analogies, which are often inexact and sometimes treacherous, generalized Darwinism relies on the claim of common abstract features in both the social and the biological world; it is essentially a contention of a degree of ontological communality, at a high level of abstraction and not at the level of detail (Aldrich, Hodgson, Hull, Knudsen, Mokyr & Vanberg, 2008).

This theory can therefore be effectively divided based on how these theories have developed. As one begins with an analogy for the basic component of evolutionary processes—the gene—and then builds upward from this analogy, it will be termed *Analogy*. The other school, which takes the general macro-view aspects of the theory as a starting point and then dives deeper, will be termed *Generalized Darwin*. Although the product theories may superficially appear to be very similar, the difference in how they were developed brings about some fundamental differences, which are quite significant. Contrasting these differences will require an in-depth discussion of concepts such as Darwinian Evolution, which are not commonplace in the world of management. As this work is focused on management theory rather than biology, it is wise to make a small diversion in order to introduce the theory of evolution by natural selection as it is applied in biology. This introduction will be made in general terms, and a modern illustration will be offered for clarification.

Basic Process

Human understanding of evolution did not begin with the full knowledge that the phenotypes subject to selection are simply projections of chromosomes composed of a chemical called DNA (Orr, 2005). Darwin originally formulated evolution by natural selection based on a simple process. Only later was the research of Mendel rediscovered and paired with Darwin's theory to begin to reveal the underlying mechanism behind evolution by natural selection (Boucher, 1985). This mechanism can be seen by taking simplified components of the process of evolution by natural selection and reducing them to their key components: variation, continuity, and selection. According to Mayr (1982), this process brings the remainder of this section into focus. Evolution by natural selection by natural selection.

- 1. organisms have traits that are in some ways different (phenotype)
- 2. the environment contains constraints that limit survival or propagation (selection pressure)
- 3. each trait may be particularly strong or weak in dealing with any particular pressure (relative fitness)
- points 1–3 lead to a higher presence of organisms possessing such advantageous traits in the future (selection)
- 5. successful traits must be preserved in some way in the population (continuity)
- 6. mechanisms exist that bring about new traits, thus beginning the cycle anew (variation).

Selection pressure then narrows down existing organisms to the ones whose key traits are most successful at reckoning with pressures applied by the ambient environment. The sufficient flow of additional new traits may bring more varieties into the mix and start the selection process anew. Many of these new varieties will likely not be more successful than the best selected in the previous generation, but occasionally a more successful variety will appear to compete for survival in the long term. This can be exemplified by an account of how so-called "superbugs" or antibiotic-resistant bacteria came into being. Walsh and Fischbach (2009, p. 46) first described how variation occurs:

Where do these resistance genes originate? Some arise through random mutations in the bacterial cell's own genes...

Other resistance genes are picked up from nearby bacteria...through the ongoing genetic swap meet that bacteria engage in, known as horizontal gene transfer.

Thus, bacteria surviving within a human host can change their phenotype by acquiring new traits. In this case, two examples are given of mechanisms providing variety; however, the details are not important for the overall process. It is only important to note that variation will continue to occur. The other half of the process involves selection:

Because hospital intensive care units and nursing homes are often populated with immuno-compromised patients undergoing intensive antibiotic treatment, they are the best-known breeding grounds for the new antibiotic-resistant bacteria (Walsh & Fischbach, 2009, p. 48).

Patients undergoing treatment and receiving abnormally high doses of antibiotics for extended periods results in an environment with selection pressure that is conducive to selecting all but the bacterial variants that are resistant to antibiotics. As they survive, each successive generation will carry a higher portion of only the most successful variants. In this way, the bacterium evolves into a new phenotype that is resistant to specific antibiotics. This exemplifies how simple the superficial process can be. Variety provides a chance for a more successful trait to arise, and selection ensures that only the most successful traits thrive.

Now that the basic process used in nature has been introduced, these same steps will be used to analyze the similarities and differences in the two schools of thought. This methodology imparts the analysis with continuity—particularly when analyzing disparate concepts. As the below analysis proceeds, the overall picture of the current state of evolutionary theory as it applies to firms and economies will become clear. This will set the stage to examine the whole picture and evaluate the best way to apply such a theory to the behavior of firms.

The Basic Unit

As noted previously, the first prominent theory of evolution as applied to firms and economies was the *Analogy* school of thought. The general theory developed by this school of thought can be best introduced in the words of the founders:

Our general term for all regular and predictable behavioral patterns of firms is 'routine'. We use this term to include characteristics of firms that range from

well-specified technical routines for producing things, through procedures for hiring and firing, ordering new inventory, or stepping up production of items in high demand, to policies regarding investment, research and development (R&D), or advertising, and business strategies about product diversification and overseas investment. In our evolutionary theory, these routines play the role that genes play in biological evolutionary theory. They are a persistent feature of the organism and determine its possible behavior (although actual behavior is determined also by the environment); they are heritable in the sense that tomorrow's organisms generated from today's (for example building a new plant) have many of the same characteristics... (Nelson & Winter, 1982, p. 14).

This section of their work summarizes much of the underlying assumptions upon which their theory is based. First, they have taken routines—a concept pioneered by Simon (1957) and then Cyert and March (1992)—as their basic unit. As stated above, routines play the same part in firms that genes play in living organisms. The authors use an entire chapter to clarify what is meant by routines; this is an important point that will be revisited later. Although routines are developed in depth, some ambiguity is present concerning how routines relate to and develop phenotypes. In any case, choosing a pre-existing concept has significant advantages. Not only can it be expected that the concept is well developed and supported by a significant body of literature (Becker, 2004), but it must have also been challenged and refined. The basic properties and functioning of routines is therefore fairly well developed, and a full review of this literature would result in a significant work in its own right. For this reason, this work will only highlight how routines fit conceptually and practically within the framework of evolution as proposed by this school of thought.

Although there are advantages to using a well-developed concept such as routines, some drawbacks can be expected. The most significant is misunderstanding routines as a stand-alone concept and their place within the greater theory of the firm. Routines as a concept has strong appeal—particularly due to the popularity of competence-based theories of the firm—however, this has led to some confusion. Some theorists simply use terms from both theories interchangeably, while others consider that routines and the greater topic of evolutionary behavior in firms is a revival of the Resourced-Based View of the firm (Teece, Pisano & Shuen, 2000). Hodgson (1998) argued that evolutionary theories belong to a greater family of competence-based theories of strategy. This makes little sense for a number of reasons. The definition proposed by Nelson and Winter (1982, p. 99) stated that routines are all "regular and predictable

behavior patterns". A "resource" or a "capability" is something that can be considered a source of strength (Barney, 1991; Teece et al., 2000). As only some "regular and predictable behavior patterns" can be considered strengths, competencies can be considered a subset of routines, but not vice versa. In addition, routines form only one subordinated component of evolutionary theory as a larger construct. For this reason, the tendency to equate these concepts should be treated with caution.

Neglecting this confusion, researchers have been successful in bringing many aspects of routines to life by expanding upon the hypothesized concept presented by Nelson and Winter (1982). This original hypothesis stressed that routines: 1) represent a truce between various members of an organization; 2) contain an organization's memory; 3) are shaped by history creating path dependency; and 4) can change but that they are stable enough to be analogous to genes in biology. Although plausible, these ideas are only now being empirically tested. Becker (2004) noted in his review of the routine literature that there remain three "sources of ambiguity" holding back routines as a concept. He contended that there is: a) still not enough distinction between individual and collective patterns of action; b) lack of consensus between authors in the field regarding whether routines are cognitive or behavioral; and c) a significant neglect of agency in considering the execution of behavior or the expression of rules. Feldman and Pentland (2003, p. 96) suggested that "(w)hile organizational routines are everywhere around us, they have been remarkably difficult to conceptualize in a rigorous way". However, analysis of the modern literature relating to routines reveals a consensus that routines are conceptual and behavioral, interdependent with each other, highly tacit, difficult for management to control, and at the same time both stable and undergoing constant change. Each of these points will be explored in more detail below.

One of Becker's (2004) challenges related to the confusion between the uses of routines as conceptual or behavioral constructs. Feldman and Pentland (2003) proposed that they are both conceptual and behavioral by positing that routines consist of different parts. One part is "ostensive", which entails the concept of what must be done, while the other is "performative", which describes what actually occurs. The two parts are loosely coupled in that they influence each other but can simultaneously diverge significantly. Feldman and Pentland (2003) additionally argued that a routine outsider, such as a manager, would likely describe the ostensive part of a routine, whereas someone performing within the routine would likely describe the performative part. Changes can be imposed on one part of the routine and bring about little or no change to the other. Meittinen and Virkkunen (2005) suggested that routines are not capable of explaining organizational change; they should instead be shaped by artifacts that are specially created by management to bring about the desired behavior. Pentland and Feldman (2008) addressed this in the above framework by positing that although artifacts have some influence on both the ostensive and performative parts of a routine, they exist outside of the routine. They provided examples, such as signs that all employees ignore or affirmative-action hiring clauses that are never intended to be implemented. In addition, they warn against the temptation to consider artifacts to represent either part of the routine. The duality proposed above not only fits well with the ideas of Nelson and Winter, but it also fits the empirical evidence presented.

The next major point of consensus in the study of routines is that they are very interdependent with each other. According to Feldman and Pentland (2003, p. 104):

There is no single objective routine, but a variety of different perspectives on what is involved.

The parts of any routine are enmeshed in far-reaching, complex, tangled webs of interdependence.

For this reason, many researchers have agreed that changing one aspect of one routine within a firm without affecting wider routines in other parts of the firm is impossible (Teece et al., 2001; Pentland & Feldman, 2005; Becker, Lazaric, Nelson & Winter, 2005). This interdependence has several far-reaching effects. First, not only does it mean that changes in one routine may automatically create unforeseen changes in other routines, but it also brings about an additional source of rigidity because beneficial changes in one routine, which require the implementation of unpopular changes in another routine, could be resisted. In this way, it can be seen that the interdependent nature of routines plays a role as a source of endogenous variety and simultaneously a source of rigidity. Unfortunately, such extensive interdependence adds significant complexity in respect to empirical research, as will be discussed in more detail later.

Most theorists have concluded that routines draw upon knowledge that is tacit in nature. Being tacit means that actors cannot unambiguously express how to complete all actions required to perform the said routine (Polanyi, 1958). Teece et al. (2000, p. 350) elaborated on the implications that this has in the search for improvements of routines:

Indeed, if knowledge is highly tacit, it indicates that underlying structures are not well understood, which limits learning because scientific and engineering principles cannot be as systematically applied. Instead, learning is confined to proceeding through trial and error, and the leverage that might otherwise come from the application of scientific theory is denied.

This idea lends further support to the original presentation of the theory, where the implementation of improvements in routines is stochastic. When search turns up a potential improvement, it cannot be foreseen if the implementation of this idea will lead to an improvement. Becker et al. (2005) added that this tacit nature imposes difficulties when making a true copy of an existing routine. Both of these concepts fit within the original framework of this school of thought.

The use of routine as an analogy for biological genes has significant support (Alchian, 1950; Penrose, 1952; Hodgson, 2002; 2009; Cordes, 2006; McGrath, Gunther & Boisot, 2003) —particularly in terms of the micro view on routines and their behavior. Empirical evidence shows strong support for the original premise set forth by Nelson and Winter (1982). Theorists have shown that routines have path dependent properties and are difficult to change. They thereby have some stability, which they need if the analogy to genes is to fit. If routines were truly in a constant shift and had no stability, it would be difficult to imagine the parallel with the immortal survivors described by Dawkins (1976). In the same respect, they must be able to change and mutate in some way to allow variation to occur. The Analogy school of thought is thereby well supported in terms of the micro view of what their basic unit is and how it operates. This is important, as this is the foundation upon which the theory is built. However, such detail is missing when one examines how the basic unit influences the organism and interacts with the environment. This point will be revisited later, not only because it fits well with the subject of selection, but also because it is logical to now step back and compare it with the micro view of the other school of thought.

In contrast to the detailed development of routines as a concept, the remaining school of thought offers little in the way of novel ideas. The basic unit presented by the *Generalized Darwin* theorists has differing levels of detail in various works. Ideas, memes, customs, rules, habits, and routines have all been simultaneously offered

(Hodgson & Knudsen, 2004, 2006; Aldrich et al., 2008) as possible basic building blocks that could "...be replicated to carry solutions to adaptive problems" (Aldrich et al., 2008, p. 587). This does not mean that they should be ignored because there is less work on alternatives to routines. Knudsen (2002) argued that individual habits should also receive strong consideration. Later works by *Generalized Darwin* theorists (Aldrich et al., 2008) discuss the work on evolutionary epistemology conducted by Popper, Campbell, and others, noting that ideas evolve and can thus be considered a basic unit. There are many alternatives offered but no direct objections to the use of routines. From this point of view, the most significant difference between the two schools of thought is that *Analogy* theorists have significantly developed the *gene* concept for firms, while *Generalized Darwin* theorists have little in the way of new ideas or criticisms of *Analogy* ideas. They have left the door open for other possible alternatives to be used.

Sources of Variety

As shown in the previous section, work on routines as a basic building block is extremely detailed, and the mechanisms through which variety occurs fit within this groundwork. As mentioned previously, the fundamental nature of routines is that they are extremely complex, tacit in nature, and highly interdependent with each other. This nature puts routines under constant pressure from two sides. On one side, the truce nature of routines and their interdependence tends to keep routines constant. On the other side, changes in any aspect can shift the balance to allow novelty to set in. Nelson and Winter (1982, p. 115-116) described this when discussing the ramifications of the loss of a key person. This loss of "...idiosyncratic knowledge poses a major threat to the continuity of the routine". The replacement of this person may be able to keep the routine operating in some form, but it can only be "...guided by whatever clues his predecessor left lying about". With colleagues wanting to "...redefine his organizational role in their own interest...", and coupled with a likely desire on his part to influence his own work, it is no surprise that "...the organizational routine will mutate". Similar effects can be expected from the imitation of another firm's routines, the internal copying of a successful routine, or attempts to improve or implement new routines. In this way, the complex nature of routines presents the best explanation for how novelty arises according to the Analogy school of thought. In the case of variety, little is added by the other school of thought. Generalized Darwin theorists again seem to agree in principle with the work developed under the flag of *Analogy* (Hodgson & Knudsen, 2004, p. 291), but they still contend that "...the existence and replenishment of variety remains a vital question of evolutionary research" (Hodgson & Knudsen, 2008, p. 56).

Forces of Selection

As noted previously, the *Analogy* school has focused on the fundamental unit and how variety occurs, whereas the other school has engaged this topic on a limited basis. In the case of selection, this trend is altered, and *Generalized Darwin* theorists have presented the most developed concepts. The fact that the *Analogy* school has addressed selection only on a limited basis has drawn criticism from *Generalized Darwin* theorists (Hodgson & Knudsen, 2006). Thus, the concepts from the *Analogy* school of thought must again be introduced in order to comprehend the criticisms made by the other side.

The *Analogy* school of thought has taken the position that the firm is the focal point of selection pressure, believing that routines "...are selectable in the sense that organisms with certain routines may do better..." (Nelson & Winter, 1982, p. 14). Routines therefore govern or contribute to the performance of the firm, and the environment separates them based on performance. This is further elaborated in a discussion about market-based entities:

Successful innovation leads to both higher profit for the innovator and to profitable investment opportunities. Thus, profitable firms grow. In doing so they cut away the market for the non innovators and reduce their profitability, which, in turn will force these firms to contract" (Nelson & Winter, 1982, p. 266).

Innovation can refer to innovative routines, and here profit is clearly referred to as the selection criteria. This focus on profit should be qualified, as non-profit firms are discussed in a separate section; in general, they have said that "(f)irms may be motivated by little more than the prestige of being first" (Nelson & Winter, 1982, p. 264). It should therefore be noted that although profit is considered a critical part of survival fitness for organizations, nearly all theorists acknowledge that there are other factors. As firms that are unsuccessful at managing the selection pressure fall under contraction, it has been postulated that they will then be forced to either imitate the successful routines of others or go on a stochastic, satisfying search for improved routines. If either of these actions is unsuccessful, they will perish.

When this selection process is distilled to its essential components, it can be summarized as follows. A firm's routines determine its *performance* in the face of selection pressure, which in turn, through profit derived from its activities, prescribes whether it has the resources to grow, or whether it must shrink. If the firm is forced into decline, it will be consciously aware of this and will seek to specifically alter or replace poorly performing routines. This conscious feedback mechanism between selection and variation, together with the ambiguity on precisely how the selection pressure acts, has been the target of criticism. These points will be discussed in the next two sections.

Durden (2009) provided a clear description of a newly formed entrepreneurial firm— Hubbards—coming under, and reacting to, selection pressure. The firm had just been set up as a local manufacturer of breakfast cereal. It had developed and begun to market its new products, but it could not acquire sufficient sales to continue operations. Under pressure to keep the new company afloat, the owner shifted his focus to producing generic brand cereals for supermarket chains. The business quickly started growing because the small firm could react more quickly to filling orders for these clients compared to larger competitors. Therefore, selection pressure nudged Hubbards to a position to leverage its strongest trait (i.e. speed to market).

Object of Selection

Geneticists and biologists have created a relatively clear separation between a gene independent of its many definitions (Dawkins, 1976)—and the phenotypes, or traits, that they influence. The phenotype is the projection of the genotype into the environment. Selection pressure in nature is applied to the phenotype and not to the genotype directly. Dawkins (1976, 1982) simplified this by referring to living organisms as "vehicles" for the survival of genes. This clear distinction in biology is not present in the *Analogy* theory. Despite the time and effort used to develop the routine and its place in the process, how routines translate into the concept of phenotype is not clear. This resulted in the *Generalized Darwin* theorists calling for greater clarity in what is being selected in the *Analogy* theory (Knudsen, 2002; Hodgson & Knudsen, 2004, 2006). This criticism itself was criticized by Nelson (2007), who stated that the evolution of firms does not need to parallel evolution in biological organisms. Ignoring the theoretical precedent in nature for the moment, additional merit for the question can be found when Witt's (1992) model of selection is compared with the *Analogy* school of thought.

The process that Witt (1992) proposed is simple and can be summarized as follows. There is a population of firms that are more or less equal. A novel idea or innovation becomes available to these firms, and the acceptance of this innovation is governed by the relative advantage bestowed on the accepting firm. This advantage is highest for the first acceptor and decreases as the percentage of the population that accepts it increases. The differences between the two theories are subtle—especially when one considers that Nelson and Winter (1982, p. 128) defined "innovation" as a "change in routine". However, the real implications are significant. In this model, instead of *firms* fighting for survival, it is the fundamental units or *routines* themselves that are competing with each other for survival. The properties of the firm itself are considered irrelevant. This could be a useful abstraction for economists wishing to model behavior within an industry or market, but the model cannot be applied readily on the firm level. Reduction of the firm to an empty shell or "portfolio" of routines or novelty is simply inaccurate, as will be demonstrated below.

If there is no construct, such as a phenotype, standing between routines and direct selection, then there is no appreciable difference between Witt's (1992) theory and Analogy. This would mean that firms in fact do not come under selection pressure only their routines do. However, the empirical evidence of routines in action contradicts this possibility. In a well-documented study of routines in a chain pizza franchise (Argote & Darr, 2000), a specific routine for spreading cheese on pizza was analyzed. This is a difficult problem for pizzerias because a balance must be maintained between cost, product quality, and aesthetics. In this study, one store manager developed a device that ensured optimal distribution. This represents not only a technical innovation as a mechanical device, but also a novel improvement to the "cheese spreading" routine as a whole. The population dynamics model predicts that such an innovation should spread throughout pizzerias until the incremental benefit of this device is no longer attractive because such a large portion of the population is already using it. It is interesting to note that it spread to some pizzerias, but not all. When one of the nonadopter shop owners was interviewed and asked why he did not use the device, he responded that his clientele valued hand-made pizza. Perhaps the owner stressed this

hand-made concept in his marketing routines, but the new routine did not readily fit with his other routines to improve his pizzeria's fitness. He therefore declined to use it.

There are two important points to take from this example. First, in reality, firms should not be assumed to be irrelevant carriers of innovations or routines. If this was true, all pizzerias would have adopted the spreading tool until no incremental advantage remained. Second, there must be a significant difference between the tool adopters and non-adopters. Although such detail was not provided in the study, it would not be a mental stretch to imagine the above scenario involving a budget style "family" pizzeria, where price and consistent quality are the key points for competitive success and survival fitness, and a "specialty" pizzeria, which only uses exotic combinations and ingredients and serves a clientele expecting the product to "look" like it was hand-made. Both are pizzerias; however, the "traits" that define their identity and survival are different. These traits determine how much profit these entities make, and they are too complex to be defined by a single routine. Although the "cheese spreading" routine above was extended to make this point, it cannot be confirmed whether these two stores were family and specialty pizzerias. There could be a significant number of possible combinations leading to this routine and its embedded device not being a proper fit with the rest of the routines.

This example can be transferred to any industry and possibly any evolving system. Just as razor-sharp teeth are not advantageous to all organisms, it cannot be assumed that a single innovative idea (trait) will be beneficial to every firm—even those in similar industries. Each individual routine must work in harmony with all other routines to ensure the survival of that organism or firm as an entirety. The resulting traits, which define the survival of a firm, must be considered analogous of the "phenotype" in nature. *Analogy* did not clarify their existence in detail, and proponents may have taken for granted that such traits exist and are observable. In this case, the *Generalized Darwin* theorists were right to point this out, although they have not explored this relationship fully in their own concepts. While further development of a clear definition for firm phenotype would improve the applicability of evolution by selection in relation to management questions, its absence may not inhibit the immediate application of the concepts. The real ramifications of clarity on both the phenotype and its connection to the genotype can only be comprehended when one considers how such theories can be applied.

Feedback between Selection and Variation

A significant amount of the discussion in the literature concerning this topic involves distaste and criticism over the labels given to either side of the argument—that is, Darwinian versus Lamarckian. Nelson and Winter (1982) stated that they felt their theory resembled Lamarckian selection because a firm that realizes it is in decline will enter into a stochastic search for improved routines. These labels, as well as the referred-to feedback loop, have inadvertently reopened an old controversy. The labels have brought about extraneous issues that have much in name and little in substance. This work will therefore avoid discussion of these labels in favor of focusing on the crux of the disagreement.

Generalized Darwin theorists have highly criticized this feedback mechanism on two main grounds. The first, and perhaps the most critical, is the question of how such a feedback mechanism affects continuity in the phenotype and the firm. In addition, excessive trait changes threaten the necessary presence of continuity in the process. As Hodgson and Knudsen (2006, p. 252) explained:

The genotype carries the accumulated wisdom of past generations, in many environments. To preserve this valuable heritage, this genotypic "baseline" must not adjust too rapidly in response to current phenotypic outcomes.

Biological organisms are not usually considered to change their phenotype over the course of their lives; therefore, they are subject to the same selection pressures over their entire existence (some exceptions exist, such as the "superbugs" used in a previous example). Firms—particularly those described by *Analogy*—can readily change their routines. The crux of *Generalized Darwin*'s argument is that if routines can be so readily changed, then no real selection is possible on the firm (Knudsen, 2002). If selection is to be realized, unsuccessful firms must be selected out (i.e. perish) and successful firms must survive. The remedies offered by these theorists are either to limit a firm's ability to change routines in some way (Knudsen, 2002), or to recommend a different construct involving inheritance (Hodgson & Knudsen, 2004). Considering what could be the "offspring" of possibly immortal organizations is conceptually

challenging to take seriously. Firms certainly do not reproduce in the biological sense, and shifts in ownership, fragmentation, and identity are common. The other remedy offered—of limiting the speed, quantity, and importance of routines that can change—is not at odds with Analogy or even different from what one would expect in reality. Massive, rapid shifts in firm phenotype cannot be expected. If an auto manufacturer such as Ford was faced with a situation where personal autos were no longer desired by consumers (representing massive selection pressure), one would question whether suddenly changing the phenotype and allowing continued survival as a luxury goods supplier would be possible, let alone successful. In fact, such drastic changes in direction are considered rare wonders. The story of BMW's transition from an aircraft engine manufacturer to a motorcycle manufacturer and then a car company is an exceptional case in the corporate lore. Even if taken as a good example of rapid changes in direction for a firm, the transition was a steady progression of building on their core business of engines. Limits to the changing of firm traits would thus receive little criticism from Analogy or even business practitioners. It is therefore only required for some quantification of the limits to be identified and studied in an objective manner.

The second criticism is a much more complex issue. *Generalized Darwin* theorists question the anticipatory nature of the process for searching for new routines. The anticipation is similar to a proposed, but extremely controversial, idea in biology called *directed mutation* (Sniegowski & Lenski, 1995). The argument is best clarified by paraphrasing Hodgson and Knudsen (2006), who contended that the possibility of replacing an existing routine with a new one is only valuable if one knows beforehand whether the new routine will be an improvement. The following quotations from *Analogy* theorists shed some light on the likelihood of this anticipatory capability.

Pentland and Feldman (2005):

...organizations are a sea of interdependent actions, interpretations and artifacts. Identifying a particular routine is a bit like trying to isolate the Gulf Stream from the Atlantic Ocean (p. 798).

Interviews, for instance, could elicit responses about either the ostensive or performative aspect depending on how the questions are asked and how the respondent interprets the questions (p. 800).

Becker et al. (2005):

Even if we admit as candidate accounts all of the accounts that participants provide, we cannot necessarily assemble a scientifically acceptable account of the 'real routine' from these (p. 783).

In such circumstances, it cannot be expected that a small number of human actors embedded in a routine will know for certain whether the changes will be effective. However, this is again not necessarily at odds with *Analogy* theorists, who assert that all changes and improvements are *stochastic*. That is, as long as some practical limits exist regarding how many routines can be changed in a short period, and as long as actors are limited in their ability to predict the effectiveness of their changes, both sets of theorists are in relative agreement. The questionable feedback mechanism does not limit the application of either theory.

3.4 Beyond the Differences

Now that the differences have been outlined, it is not difficult to see these two perspectives as complementary rather than divergent. Although there is a lack of consensus on the fundamental units of evolution in firms, the work on routines has been built on significant theoretical and empirical work. There is no contention that this work is not valid; rather, questions have been raised regarding whether individual habits and ideas can be equally valid options. The generation of variety from routines is understood in some detail, and although the same level of theoretical work does not exist for other proposals, a similar mechanism is not hard to imagine—especially for individual habits. All theories address retention in only a limited way, and as seen above, *Generalized Darwin* injects clarification on the very important topic of how selection should work. It is important to note that all theories use the same process steps outlined by Mayr (1982) at the beginning of this section.

At this point, it is necessary to return to the fundamental process for evolution by natural selection as discussed at the beginning of this section. It is striking that no clear mention of genes, DNA, or heredity is made. Darwin proposed his theory of evolution by natural selection without the benefit of Mendel's work on heredity (Orr, 2005). Darwin was therefore able to conceptualize a coherent and landmark theory without a clear understanding of genetics or heredity. These details later became more important

in order to clarify the basic mechanism of how each process step works. The theory of evolution by natural selection has therefore developed significantly over time without the assistance of a precise understanding of these processes. Later, when the genetic mechanisms were recognized for what they were and their implications for evolution were understood, they could be incorporated and developed further.

This produces an important question: Is it necessary to understand in detail how phenotypes are formed by genes in order to apply Darwinian principles to an organism? In biology, the answer seems to be both yes and no. Despite the general consensus that genes shape phenotypes, complexity makes it impracticable to identify the precise chemical changes that differentiate specific phenotypes (Dawkins, 1982). This is coupled with the point that the theory of natural selection was useful in explaining what was observed in nature long before being combined with Mendel's work on genetics. In this way, the application of natural selection as a general theory to the behavior of any organism (even firms observed in industry) does not need to begin with a clear equivalent of the genetic process for a firm. Even in recent times, much of evolution can be understood without a detailed understanding of genetics or heredity. There is even some contention among biologists regarding the precise definition of a gene (Dawkins, 1976). That is, when discussing the evolution of a particular trait, biologists often have to hypothetically discuss how actual genetic changes contribute to the change in the phenotype without precisely naming the guanine molecule that was changed from cytosine, for example. This is exemplified by a passage where Dawkins (1982) applied this same general Darwinian process to explain how pit digging evolved in ant lions. He described the events and factors that *logically* led to the evolution of this behavior. First, Dawkins (1982) explained that the precise gene (DNA sequence) responsible for the behavior cannot be known, and he justified this position thus:

And "genetic variation in the population for" a trait X is exactly what we mean when we talk, for brevity, of "a gene for" X (p. 20).

Second, he pointed out why it is not necessary to prove that other phenotypes existed in the past:

Unless natural selection has genetic variation to act upon, it cannot give rise to evolutionary change. It follows that where you find Darwinian adaptation there must have been genetic variation in the character concerned (p. 20).

Lastly, Dawkins noted that this is standard practice for critics:

Some may balk at treating "a genetic contribution to a variation in X" as equivalent to "a gene or genes for X". But this is a routine genetic practice... (p. 21).

Therefore, the complexity of the connection between genotype and phenotype in biology is such that modern experts cannot further clarify what specific function a particular DNA sequence has or what protein it will produce. It is therefore a robust practice to observe the evolution of a phenotypic trait according to the general Darwinian process and accept that evolution by natural selection has occurred without observing what underlying changes in the genotype have caused it.

This leads back to the discussion of how firms evolve. If it is accepted in the modern state of genetics to observe phenotypic traits and apply the general Darwinian process described at the start of this chapter, can a similar methodology be supported for the analysis of firms and economies? This is precisely the argument set forth by *Generalized Darwin* theorists, who contend that because this general process is present in all evolving systems, it should be applied in the general sense first, and the details should be sought out. This is contrasted with taking a detailed component, such as using a routine as an analogy for a gene, and building a theory from there. Using the knowledge of how humans learned of evolution in biology as an example, such a methodology has significant merit.

3.5 From Theory to Application

Now that the ideas of the two predominant theoretical schools have been analyzed and contrasted, it is clear that the most appropriate conceptual application of Darwinian evolution for firms involves a *Generalized Darwinian* approach. As routines have been developed so deeply and no part of this work is considered contradictory to *Generalized Darwin*, these concepts can be considered complementary and applied together. Missing components such as the connection between a firm's equivalent of a genotype and its resulting phenotype are more than balanced by the clear empirical evidence that such gene equivalents are truly capable of creating novelty. In the same vein, selection processes and selection pressure are observable and quantifiable. Theorists have even begun using such concepts to understand how a firm has developed over time. Fujimoto

(2000) described how the constraints caused by shortages of materials and capital after World War II led to Toyota making shortcuts in an attempt to copy Ford's practices. These shortcuts evolved into what became Toyota's strengths, thereby allowing Toyota to surpass Western auto firms. Raff (2000) showed how the business of retailing books changed as both Borders and Barnes & Noble developed. It is striking that, despite significant environmental shifts and an eventual apparent convergence in business models, the underlying strengths of information management in one case and scale focus in the other persisted from the beginning until the end of their development. Lastly, Barnett and Hansen (1996) empirically tested the effect of competition on firms over time. Their findings were consistent with the concept in biology of Red Queen evolution or, in Dawkins' vernacular, Arms Races.

Although these examples do not represent all of the studies that have built upon Darwinian evolution in the field of management, there is not a large body of literature to draw from. Even the three examples mentioned previously do not use a uniform basis for their theoretical development. Although references within his work would lead one to believe that Fujimoto (2000) built upon the concepts of the Analogy theory, this is not completely clear. In the case of the two other studies, the basis is completely unknown. In this respect, Darwinian evolution is not a mature topic in this field, and significant work is needed in the development of a consensus for certain key components of the theory. Even if no agreement can be reached regarding a common conceptualization, clarifying what position was taken would go a long way in allowing comparisons between works. It would be much simpler to compare the two analyses of Darwinian evolution if it was clear how the genotype, phenotype, selection pressure, and survival fitness were operationalized. Until then, it is clear that the main consensus in the field is that the generalized process introduced at the beginning of this chapter is the main guiding principle. From there, all basic assumptions must be clearly stated to allow future researchers to compare what has been done and to build on any ideas presented.

There is one final point to note, which may seem like an extreme oversight in this chapter. There has been little or no mention of how the above theorists of evolution in business address cooperation. In this regard, the development of evolutionary concepts in economics and management is proceeding in a similar direction as it has in nature. Cooperation is not visible as an important force in the process. Only one work

(Hogdson & Knudsen, 2008) discussed this topic. Further, as previously mentioned, only one work in the alliance field (Kogut & Zander, 2003) has made use of these concepts in theoretical development. In this regard, the extension of these evolutionary concepts to cooperation between firms represents a significant open field of potential discovery.

Analogy	Generalized Darwin
Firms	Firms or teams
Competitive market forces	Management
Profit	Management reading of environment
1) Mutation of copied routines	Imperfect replication of either
2) Stochastic search for new	routines, habits, or memes
routines	
Crises => satisficing	Chance => no intentionality
Routines	Routines, habits, or memes
Not necessary	Necessary
Nelson & Winter (1982)	Knudsen (2002)
Nelson & Winter (2002)	Hodgson & Knudsen (2004)
Nelson (2007)	Hodgson & Knudsen (2006)
	Hodgson & Knudsen (2008)
	Aldrich, Hodgson, Hull, Knudsen,
	Mokyr & Vanberg (2008)
	AnalogyFirmsCompetitive market forcesProfit1) Mutation of copied routines2) Stochastic search for newroutinesCrises => satisficingRoutinesNot necessaryNelson & Winter (1982)Nelson & Winter (2002)Nelson (2007)

Table 2.1: Comparison between schools of thought

Chapter 4: Evolution of Cooperation in Nature

4.1 Introduction

As noted in Chapter 1, alliance theory needs a framework that can be used to explain the evolution of the relationship between two firms. Chapter 2 analyzed what is known about the application of evolution theories in the field of business and management. Chapter 3 contended that the application of an evolutionary theory generalized from the specific model used in biology is a suitable strategy for the analysis of organizations. This chapter will introduce a theory that has been developed by scientists to explain the evolution of cooperative relationships between organisms in nature, which are called mutualisms or symbioses. This paper proposes to extend the generalization of evolutionary principles to include this model, as it is based on the same evolutionary process (variation, selection, and continuity). The connection between biology and business may appear strange to those who are not familiar with the history of evolution, but the ties between the two run very deep. It is said that Darwin's own ideas in shaping the concept of evolution for biology were influenced deeply by Malthus, who was in turn a student of Adam Smith's ideas (Boucher, 1985). This connection itself is not sufficient to justify this extension. The analysis provided in Chapter 3 is coupled with the growing acceptance in management theory of concepts developed under the flag of evolution in nature (Nelson, 1991; Simon, 1993). As this work focuses on business or management theorists and practitioners, an extensive review of the biological literature would return few benefits. An introduction to the biological theory would therefore be more appropriate to ensure that all readers understand the natural theory sufficiently to envision how it can be applied to firms.

4.2 "Nature, Red in Tooth and Claw"

Alfred Lord Tennyson wrote the words "nature, red in tooth and claw" around the time that evolution by natural selection was gaining prominence. His words appear to lament the cruelty of nature represented by the "struggle for existence" typically attributed to evolution by natural selection. Although Darwin's own work acknowledged that organisms cooperate, he was never certain how that could be explained within his theory (Boucher, 1985; Dugatkin, 1999). Early in the development of evolution by natural selection as a concept, a debate arose regarding whether cooperation belonged in the theory beside competition or whether competition was the single driving force behind evolution. The voices of early proponents of cooperation, such as DeBary, Pound and Kropotkin (Boucher, 1985; Dugatkin, 1999; Kropotkin, 2005) were eventually drowned out by Huxley's "gladiator" view, which was described by Dugatkin (1999, p. 29):

In Huxley's eyes the animal kingdom was a ruthless jungle, and a soft-bellied cooperator would stand no chance against a more cunning individual who would stop at nothing.

This worldview, which was perpetuated by Newtonian ecology (Boucher, 1985), then shifted the focus squarely on competition as the only driving force for evolution (Boucher, 1985; Dugatkin, 1999; Axelrod & Hamilton, 1981). Cooperation was thereafter considered a curiosity of nature that was ecologically unstable and evolutionarily transient (Douglas, 2008, p. 850). This view has increasingly been questioned and criticized for its inability to explain observable interactions that are clearly not competitive (Boucher, 1985). The floodgates then opened more than 100 years later, when a paper that was published in *Science* (Axelrod & Hamilton, 1981) used game theory to explain why some organisms would cooperate with each other. The field is now "...undergoing a revolution as scientists increasingly understand (such cooperative interactions) to be taxonomically and ecologically pervasive" (Sachs & Simms, 2006, p. 586). Current theorists have further stressed this by stating that any doubter should "look out of the window (and make a list of what they see and) that most, probably all, organisms on the list are a product of symbiosis" (Douglas, 2010, p. 1). Janzen (1985, p. 40) wrote that "mutualisms are the most omnipresent of any organismto-organism transaction"; they are "...ubiquitous in nature, as well as extremely diverse..." (Bronstein, 1994, p. 214). This emerging theory, which is used to explain a common but previously ignored phenomenon, offers great potential in explaining a very similar phenomenon between firms. The additional parallels between the focus on competition in biology and the analogous focus on economics, which represents firms as competitive maximizers, make the possibilities for this theory even more interesting.

The amount and diversity of such cooperation in nature is too large for an exhaustive list. Many interactions are behavioral, such as cooperation between the blind shrimp and guide goby (Wirtz, 2008). The shrimp, which is completely blind, allows the goby to seek shelter in its burrow and feed on the particles thrown up when it digs in the burrow. In return, the goby helps the shrimp find its way back to the burrow if it ventures too far out. Cleaner fish are more common than the blind shrimp, and they feed on potentially damaging ectoparasites on the scales, gills, and mouths of other "client" fish (Dawkins, 1976; Bronstein, 1994; Axelrod & Hamilton, 1981; Douglas, 2008). The most intriguing feature of this interaction is that there are exceptional cases of the larger client fish eating the cleaner fish, or of cleaner fish sneaking a bite of flesh from their customers. Ants, which are more commonly known for their strength and ferocity, are exceptional cooperators. Acacia ants protect Acacia trees from herbivores in return for food bodies (Janzen, 1985; Axelrod & Hamilton, 1981), while the Atta ants of South America cut and masticate leaves to feed gigantic underground farms of fungus (Maynard Smith & Szathmáry, 1997), and they protect and raise aphids, from whom they receive nourishing honeydew in return (Bronstein, 1994; Douglas, 2008). In all cases, the partner provides the foodstuffs in environments where the ants would have difficulty foraging by their own means, and the ants reciprocate by protecting the partner.

The previous examples were all behavioral in character, but cooperation in nature does not need to take place between organisms that have the some capacity to "choose" whether to cooperate. One case is that of a vestimeniferan worm living near deep-sea vents. The worm has no mouth or anus and derives all of its nutrients from a symbiotic bacteria living within the worm (Maynard Smith & Szathmáry, 1997). Another example is a symbiosis that "…is very ancient, probably evolving ca. 400 million years ago at the time of the origin of land plants" (Douglas, 2010, p. 20). This relationship consists of a fungus (mycorrhizal) that assists in extracting nutrients from the soil to the plant's root system; in return, the plant supplies carbon, which the fungus cannot synthesize on its own (Douglas, 2008, 2010; Bronstein, 1994, 2001). This relationship is so successful that "…the roots of >75% of all vascular plant species" are estimated to have mycorrhizal fungus infections (Douglas, 2008, p. 850). Some organisms have such close interactions that they are hardly recognizable as separate organisms. A well-known example is represented by reef-building coral. This relationship evolved around 240

million years ago (Douglas, 2008; Sachs & Simms, 2006). The partners in symbiosis are coral and algae. Lichen, which is formed by cooperation between fungi and either algae or cyanobacteria, are also commonly recognized as a single life form (Axelrod & Hamilton, 1981; Sachs & Simms, 2006; Bronstein, 2001). Although the two previous examples are cooperative interactions in which the two partners coevolved to the point where they appeared to be one organism, one well-documented case goes even further. It is a general consensus that the organelles of modern eukaryotic cells were once distinct free-living bacteria that developed a symbiotic relationship with primitive prokaryotic cells and then coevolved to such an extent that they became a single, novel life form (Douglas, 2008, 2010; Maynard Smith & Szathmáry, 1997; Frank, 1997). This new life form was so successful that it gave rise to multi-cellular organisms and most observable life on earth. This represents a higher order of cooperation—where two distinct entities cooperate so closely and effectively that they become one entity.

The above examples provide a glimpse of the range and depth of cooperative relationships that exist in nature. These relationships consist of passing interactions, such as the cleaner fish, which are referred to as facultative mutualisms. Such relationships exist at one end of a spectrum with obligate mutualisms, where the survival of one or both is dependent on the partners. Evolutionary theorists have developed a simple theory to explain the creation, maintenance, and dissolution of these cooperative relationships. This theory presents a significant opportunity to explain why alliances occur between firms—and perhaps why so many fail.

4.3 Clarification of Terminology

Basic Terminology

The biological terminology for cooperation is neither self-explanatory nor consistent (Bronstein, 1994; Maynard Smith & Szathmáry, 1997; West, Griffin & Gardner, 2007). In this regard, an effort must be made to clarify these terms and how they relate to each other in order to avoid reader confusion. This field contains many terms, including parasitism, commensalism, mutualism, and symbiosis. The first two are not the subject of this work, so more effort will be expended to clarify the confusion between

mutualism and symbiosis. The below definitions for symbiosis and mutualism are applied by leading theorists:

The term (symbiosis) is used to include all cases in which two or more different kinds of organism live in close association: thus it extends from parasitism to mutualism. Mutualism has been defined as a relationship from which both partners benefit (Maynard Smith & Szathmáry, 1997, p. 189).

Individuals of different species form persistent associations from which they all benefit. These relationships are symbioses (Douglas, 2010, p. 1).

A mutualism is an interaction between individual organisms in which the realized or potential genetic fitness of each participant is raised by the actions of the other (Janzen, 1985, p. 40).

...I use mutualism to refer to any interspecific interaction whose benefits usually exceed the costs for both partners... Symbiosis is frequently used to refer to particularly intimate mutualisms that persist for the participants' entire lifetimes... (Bronstein, 1994, p. 2).

As shown in the above examples, the definitions differ significantly enough that confusion can occur when operationalizing these important terms. As a result of reasons that will become apparent later, the last definitions offered by Bronstein will be applied. This decision was not made based on reputation or the breadth of use in the literature; rather, this definition is a better fit with the language of business and economics.

Is Cooperation Really Cooperative?

Now that the basic terminology of this field has been clarified, there remains one important term that creates a conundrum: *cooperation*. Theorists in this field have studied cooperative interactions and use terms such as *altruism*, *cheating*, *fidelity*, and *partnership*. All of these terms have certain emotional undertones and are at risk of anthropomorphism. These associations should not be seen as a human mirror. Cooperation in lichen certainly cannot contain an emotional attachment. Altruism should not enter the discussion, as "one partner performs some actions (a service) that benefits its associate, and receives some payoff (reward) for doing so' (Bronstein, 1994, p. 214). In fact, rewards can be costly to produce: "(U)p to 37% of the photosynthate that the milkweed Asclepias syriaca, assimilates during flowering is used to produce nectar" and is therefore "paid" to pollination mutualists to assist in pollination (Bronstein, 1994, p. 214). This is clearly not altruism. If a partner will not pay the cost in the "short term then it will not gain the benefit of cooperation in the long term" (West et al., 2007, p. 1). It is not surprising then that these relationships only "last as long as

the benefits of the interaction outweigh its costs to each partner" (Bronstein, 1994, p. 214). This led one prominent theorist to describe it not as cooperation but as "reciprocally exploitative interactions that provide net benefits to both" partners (Bronstein, 2001, p. 277).

4.4 Mechanisms of Evolving Cooperation

The revival of cooperation as being important within evolutionary studies came about by fitting together two distinct theories. W. D. Hamilton was the pioneer of a concept called *kin-based altruism*, which he developed to explain, from an evolutionary point of view, why organisms are more likely to take significant risks to help relatives (Hamilton, 1964). Hamilton was on the same campus (University of Michigan) as Robert Axelrod (Dawkins, 1976; Dugatkin, 1997), who developed research with game theory to explain how cooperation could evolve spontaneously over time—even between competitors or combatants—through reciprocity (Axelrod, 1984). The two came together to write a groundbreaking paper (Axelrod & Hamilton, 1981), which spurred the ensuing explosion of research into mutualisms and symbioses.

Although kin-based theories play a role in certain aspects of this theory and may have some interest for organizational theorists, these aspects will be ignored for the time being for two specific reasons. First, the application of concepts centered on genetic descent to firms is challenging. One must be able to ascertain, with some degree of accuracy, the probability that two organisms (or organizations) share a certain number of genes. In the previous section, it was clear that no consensus exists regarding the definition of genes in firms. The development of kin-based altruism for application to alliances should therefore wait until a connection can clearly be made between the concepts. Luckily, the fundamental mechanisms for the evolution of mutualisms can be applied independently of kin-based concepts.² This divisibility between the two concepts is the second reason why kin-based concepts do not need to be addressed here. Research on the reciprocity-based theory of how mutualisms evolve does not need the additional support of kin-based theory. Therefore, the remainder of this work will focus on reciprocity-based interactions. This theory is already part of the existing literature,

² Kin-based theory is most commonly applied to explain how virulent species can change to mutualist species and vice versa (Maynard Smith & Szathmáry, 1997).

and it will be used as a solid base from which to describe how such relationships can evolve in evolutionary time. The door then remains open for researchers to evaluate whether kin-based theory can be applied to firms and what effect it has on work at that time.

Formation of a Mutualism

As noted in the previous section, mutualism in nature occurs when the interaction benefits both partners (Bronstein, 1994). According to Douglas (2010, p. 46):

Organisms with no history of interaction can come together to their mutual benefit if each possesses a trait that, under particular circumstances, is advantageous to the other organism.

Frank (1997, p. 584) contended that such situations occur "when symbiont and partner have mutually beneficial effects on each other". This type of cooperative evolution can be clearly defined and is consistent in the literature (Maynard Smith & Szathmáry, 1997; Douglas, 2010; Frank, 1997; Bronstein, 1994). The above definitions leave room for interpretation; thus, Figure 3.1 (Douglas, 2010, p. 3) shows what is meant by a mutually beneficial relationship, or when cooperation has a net positive effect on both parties.



Figure 3.1: Illustration of mutual net benefit, from Douglas (2010, p. 3)

Partner X has a trait that, when expressed, has a cost of 10. The expression of this trait results in an advantageous outcome of Y carrying a higher value of 30. Partner Y also expresses a trait of its own, which has a cost of 10 but a higher benefit to X of 30. This way, the interaction has a net benefit of +20 for both partners. Again, Douglas (2010, p. 2) provided an illustration:

...the relationship between mycorrhizal fungi and plant roots is underpinned by the transfer of photosynthetic sugars from plant to fungus, and of phosphate in the reverse direction. Photosynthetic carbon is cheap for the plant to produce but a critical resource for the fungus, which cannot utilize the polymeric carbon sources in soil. Inorganic phosphate is relatively immobile in soils, and is acquired more readily by the fine, branching fungal hyphae than by the relatively massive plant roots with short, non-branching root hairs.

Each participant then specializes in producing a resource³ that is very valuable for the recipient but not as costly for the originator. The cleaner fish earns a meal from feeding on the ectoparasites and simultaneously provides a service to the "client" (Dawkins, 1976). Specific phenotypes of ants have been known to protect both aphids (Bronstein, 1994) and Acacia trees (Axelrod & Hamilton, 1981) with the aphids, and Acacias produce rewards of sugary secretions and food bodies for the ants. These are merely a few examples, but they clarify how 10 can be converted to 30 in each direction in Figure 3.1. The result is clearly a net positive for both partners involved in the relationship. What is critical from an evolutionary perspective is that the survival fitness of both partners is thereby improved through cooperative behavior. Consider a population of self-sufficient organisms. Within this population, a single phenotype develops, which has a mutualistic relationship with another organism outside of the population. This cooperative phenotype would have a clear advantage over free-living phenotypes, and its presence should then increase in ensuing generations. By cooperating, each partner selfishly improves its own competitive position against other competing phenotypes of the same organism. This action is clearly not altruistic. Although this is a simple and elegant model to describe why cooperation is formed, it is static and describes only one point in time. The critical dynamic elements needed to describe how such relationships can evolve are clearly missing. The story of how these collaborations develop over time is the most interesting portion of this theory. Unfortunately, there remains one serious issue that needs to be clarified before moving on to add dynamic elements to this theory.

Before the rest of the process is developed, there is one fundamental difficulty that needs to be addressed. It is time to re-examine Figure 3.1 and ask: what happens if Y takes the benefit worth 30 and costing X 10 and does not reciprocate? This is an

³ The literature often refers to the term "resource", even though this may take the form of many things. Some examples include transporting pollen or seeds (Janzen, 1985), removing parasites, providing protection from predators, or even delivering a necessary tangible substance.

important question because Y would clearly be better off having 30 than 20 (see Figure 3.2). Reciprocity must therefore be ensured because "it is advantageous to help another organism only if the favor is returned" (Douglas, 2010, p. 2). Returning to Figure 3.2, the payoffs from both scenarios happen to fit nicely into the structure of a Prisoner's Dilemma (Douglas, 2008, p. 851). Thus, cooperation is not as unlikely as it would appear. While the payoff is higher for a cheater (non-reciprocator) if the game is played once, the situation changes significantly if one starts to consider that the chances for future interactions are very high. Groundbreaking work was conducted by Trivers (1971), who showed that natural selection can work against the cheater. The mathematical aspects of game theory were then expanded by Axelrod (1984) and applied to mutualisms in biology (Axelrod & Hamilton, 1981). This body of work has shown that cooperating under certain circumstances⁴ can be an Evolutionarily Stable Strategy (ESS). It is now commonly accepted that this is one major reason why cooperative strategies used by animals remain so prominent despite the apparent advantages of defection (Maynard Smith & Szathmáry, 1997; Dawkins, 1976). According to Axelrod (1984), for cooperation to evolve, rewards should be given to partners who cooperate, and those who do not cooperate should be punished (Douglas, 2008). The literature contains many examples of how this is done in nature-for example, plants aborting fruit where pollinators have laid too many eggs (Douglas, 2008; Axelrod & Hamilton, 1981; Holland, DeAngelis & Schultz, 2004), plants withholding sugars from mycorrhizal fungi that do not supply phosphate (Douglas, 2008), and fish queuing for cleaner fish only after observing their behavior with a previous client (Dawkins, 1976; Douglas, 2008; Axelrod & Hamilton, 1981). Of course, the "carrot and stick" method is not the only way to ensure the evolution of cooperation.

⁴ For cooperation to evolve in an iterated prisoner's dilemma, the probability that the two partners will meet again must be high. In such a case, cooperating becomes stable (Axelrod, 1984).



Figure 3.2: Utilizing mutual benefit/cost to set up a Prisoner's Dilemma Douglas (2008, p. 851)

Recent works have added other strategies that assist to ensure reciprocity in mutualisms. One such strategy is known as either the ecological markets concept (Noë & Hammerstein, 1995) or partner choice (Sachs, Mueller, Wilcox & Bull, 2004; Bull & Rice, 1991). If the ratio of partners is heavily imbalanced and one partner has many choices and is therefore dominant, there is significant pressure on the less dominant partner to cooperate. Another way to ensure reciprocity is to structure the interaction to reduce the partner's opportunity to cheat (Douglas, 2008). Several cases have been described of arms races (Dawkins, 1976) between cheaters developing better ways to cheat and partners counter-adapting better defenses (Bronstein, 2001; Ferriere, Bronstein, Rinaldi, Law & Gauchon, 2002). Douglas (2008) described a scenario in

which Acacia ants castrate their tree to force it to produce more food bodies. The trees have evolved over time to shift flowering areas out of reach of the ants, which makes their behavior more difficult. Another approach to ensure reciprocity is to align the survival interests of the two partners so closely that cheating by either partner will directly reduce its own fitness (Douglas, 2008). This works in a similar way as rewarding and punishing in forming an ESS, but the response is an automatic feedback and requires no conscious decision-making or effort to discover cheating (Sachs et al., 2004; Bull & Rice, 1991). Nature has developed these and other strategies that facilitate reciprocity sufficiently to allow cooperation to be a prominent force in nature. Cheating unfortunately cannot be completely eliminated (Douglas, 2008; Ferriere et al., 2002; Bronstein, 2001). A significant portion of the literature strongly focuses on cheating by outlining how it has evolved and how partners of cheaters either react or evolve to prevent cheaters from being successful. Examining whether this part of the theory is interesting for application to firms in an alliance would be a large undertaking. Reciprocity will therefore be considered necessary for cooperation to begin and continue. If cooperation exists between two entities, reciprocity must be ensured using a particular strategy. Later sections will further develop a simplified explanation of what will happen if partners do not reciprocate. A more detailed examination of the evolutionary dynamics-red queen or otherwise-between a cheater and its partner will be left open for future research.

The Dynamic Element: Evolution

As mentioned in the previous section, the mutual net benefit model explaining why an organism should cooperate or defect does not provide a sufficient explanation for evolving structures. This concept can explain a transient mutualism, where two organisms provide one-off benefits for each other, but it cannot explain why two partners would develop a more long-term relationship. When the concept of evolution by natural selection is added to the theory presented and one acknowledges that an organism can improve its survival fitness by cooperating, the increased prominence of "cooperating" organisms within the larger population of organisms is also explained. The relationship is therefore no longer a transient one; it now resembles real cooperation. However, there remains a gap when considering how deep, obligate

relationships such as lichen and coral evolve. To make this next step, the principles of evolution by natural selection again play a prominent role.

The understanding of the next step involves returning to an examination of the traits expressed by individuals and how the expression of these traits will change in evolutionary time. The previous section explained how two organisms-each expressing its own trait, which in turn provides a survival advantage to the other—could cooperate with each other. As in all cases of evolution by natural selection, this process develops in the same way. Dawkins (1982) described this in his example of how ant lions evolved the ability to dig pits. Within the specific population of organisms expressing an advantageous trait, those with a stronger expression of a highly advantageous trait (large, positive numbers in Figure 1.1) were likely to be more successful than others. A stronger expression of this trait would then be expected in subsequent generations, and cooperation would be expected to deepen. In the same respect, if the trait is only marginally advantageous (small, positive numbers in Figure 1.1), the expression would be expected to continue. However, there would be no great advantage to an increased expression by one organism relative to the larger population; therefore, the expression would be expected to remain stable in the following generations. Lastly, if the expression of the trait is no longer advantageous (negative number in Figure 1.1), then it follows that there is a survival advantage to organisms that show a lower level of expression of this cooperative trait, or to those that do not cooperate at all. The expression of a non-advantageous trait would thus decrease. The relationship can then evolve in three different ways: escalation, stability, and decline.

When a relationship is in escalation, both partners realize additional survival fitness benefits from an increased expression of traits, which are beneficial to their partner and not to themselves. The increased fitness comes with a price. The organism is able to out-compete others; however, as these benefits increase, so does dependency on the partner. Therefore, in an escalating relationship, both partners climb a ladder of interdependency, which is further exacerbated by the possibility of trait erosion (Douglas, 2010). If the cooperating organism receives a significant benefit from a partner and slowly loses its own analogous trait over time, then it "may evolve through an irreversible stage, which leads to an obligate relationship in which neither partner can live alone" (Frank, 1997, p. S88). This process is best exemplified by the evolution

of eukaryotic cells (Maynard Smith & Szathmáry, 1997; Douglas, 2010; Frank, 1997). Modern cells contain organelles such as mitochondria and cytoplasts, which are essential for their metabolism. These organelles contain their own genetic material, and it is clear that they were once free-living bacteria that developed cooperation with ancient prokaryotic cells. This cooperation deepened to the point where they slowly melded into a single new type of organism that could metabolize elements from the environment on its own. This was such a significant advantage that eukaryotic cells became a dominant form of life on earth. This extreme example of escalation shows that the escalation of cooperation not only leads to temporary benefits for partners, but also to "(i)mportant transitions in the history of life" (Frank, 1997, p. S88). As interdependence increases, the beneficial aspects of cooperation then carry an everincreasing risk. The escalation of dependency makes the organism susceptible to a cheating or parasitic relationship from which there is no escape (Sachs & Simms, 2006). Another less common but more serious risk is when an environmental shift leads to the extinction of an obligate partner, which in turn threatens its partner with extinction.

A relationship shifts into decline when "selection reduces trait values from any starting point" (Frank, 1997, p. S87) when the costs of cooperating are higher than the benefits. This is logical when evolution by natural selection is considered. If trait values are such that cooperation leads to a net negative, then a cooperating organism's survival fitness is reduced from cooperation. Organisms expressing lower values of the trait would then have an advantage, and one would start to see a general decrease in the expression of the trait. The decrease in the benefit-cost ratio can occur when "mutualist partners are hard to find", "partners are a poor match", "third parties disrupt reciprocity by parasitizing the mutualism", or "if the benefits received from mutualists become accessible cheaply from the environment" (Sachs & Simms, 2006, p. 586). For example, the "plants that form nutritional root symbiosis with arbuscular mycorrhizal fungi can opt out of the symbiosis in rich soils" (Sachs & Simms, 2006, p. 586) where the nutrients provided by the fungus are readily available. This shift in the benefit-cost ratio can also occur if a partner shifts toward cheating or parasitic behavior (Sachs & Simms, 2006, p. 585). Whereas an obligate partner would be "trapped" in the relationship with this partner, a facultative partner would simply experience a shift in the benefit-cost ratio, leading to a decline in the partnership as mentioned above.

If the benefits of cooperation are only marginally beneficial and there is no significant shift in the environment that is altering the cost–benefit relationship, then it is not difficult to imagine that selection forces will not produce any changes in the expression of the trait. This leads to a stable relationship where cooperation continues until an environmental shift leads to a change in the cost–benefit nature of the trait. A shift in course could lead to either escalation or decline. The period of stability in between periods of escalation and decline may be long, short, or non-existent. Shifts in the fit between a particular organism and its environment will, as in all cases of evolution by natural selection, determine how the path proceeds in time. These three paths together can explain the dynamic evolution of a relationship over time.

4.5 Application

Cooperative relationships exist in nature, despite the emphasis that biologists have placed on competition over the course of history. These relationships are not static; they develop over evolutionary time following the principles of evolution by natural selection, which have primarily discounted cooperation as irrelevant compared to competition. The interaction is clearly not altruistic; it is best described as arising out of a selfish pursuit of increased survival fitness by the cooperating organism. It does not cooperate to "help" its partner. How the relationship develops is dependent on the survival benefit–cost ratio. The relationship between the benefit–cost ratio and the relationship can be distilled to three basic hypotheses:

- 1. A net positive benefit-cost ratio must be present for cooperation to be active.
- 2. A high benefit–cost ratio will result in deepening of the relationship.
- 3. A low benefit–cost ratio will result in divergence of the relationship.

High ratios will lead to an escalating relationship, whereas marginally beneficial or low ratios will lead to stability or decline respectively. As these ratios are largely affected by the environmental context, it is clear that cooperative structures are very fluid and are subject to rapid change to adapt to environmental conditions. The benefits of cooperation are offset by the risks associated with the increased dependency on a partner of a cooperating organism in an escalating relationship. These risks are not

trivial; they can threaten the survival of the organism. Despite the risks, escalating relationships can explain the evolution of ancient, highly robust life-forms such as lichen, coral, and eukaryotic cells, which have out-competed their free-living counterparts. Thus, cooperation is not only relevant in evolutionary theory, but it can also explain the additional development of novel, highly competitive life-forms.

If the existing theory in biology could be applied to alliances between firms, it could address all of the research questions. The theory describes why organisms cooperate instead of "going it alone". There is a clear process in which the relationship between two cooperating creatures evolves over time. The implications of non-cooperation or opportunism are addressed, and clear mechanisms for the mitigation of such risks are included, followed by why and how the collaboration ends. It could therefore represent the type of holistic framework that Parkhe (1993) argued was badly needed in the research of alliances and joint ventures.

As this theory already exists, proceeding to assess whether alliances between firms can be explained involves applying this theory in some way to firms. The fact that this theory is holistic and could address the entire phenomenon of alliances and joint ventures is positive; however, it produces a practical challenge. Such a holistic theory is difficult to develop or test due to the complexity of measuring and analyzing all aspects simultaneously. Instead, this work will focus on one distilled aspect of this theory and examine if and how it can be applied to alliances between firms.

Chapter 5: Methodology

5.1 Introduction

Chapter 4 presented a theory previously developed in biology that may offer significant insight into the behavior of firms in alliances. This theory has many aspects, and examining all of them would be in excess of what could be accomplished in this work. It is more logical to focus on its core concepts by distilling the theory into three hypotheses, as presented in the last chapter and listed again below:

- 1. A net positive benefit–cost ratio must be present for cooperation to be active.
- 2. A high benefit–cost ratio will result in deepening of the relationship.
- 3. A low benefit–cost ratio will result in divergence of the relationship.

Considering that this research begins with an existing theory, the task is clearly one of testing this theory. This contradicts Parkhe's (1993) recommendation that this field requires more exploratory research and less hypothesis testing. The biological theory in question may address nearly all aspects of alliance foundation and development. In this regard, presenting and testing this theory answers the call of Parkhe (1993) and others (Contractor, 2005; Beamish & Lupton, 2009) to seek out theory describing the entire phenomenon of alliances rather than focusing on one aspect. Methodological criticisms made of previous research in this field must be carefully considered to ensure that lessons can be learned in order to develop the quality of this work. Previous experience in this field can also shed light on significant challenges must also be addressed. Specifically, the complexities and sensitivities of alliances are expected to present challenges to appropriate research design and data collection. All of these issues are critical to the quality or validity of the research and therefore must be addressed in this chapter.

5.2 Ontological and Epistemological Positions

Before venturing into details of research design and methodology, it is important to reveal the ontological and epistemological positions of the author. As this work is intended to make a contribution to knowledge, a position on knowledge itself is important in order to lay bare any existing biases (Miles & Huberman, 1994). At the onset, it is important to state that this discussion will refrain as much as possible from the labels typically used in this discussion—such as positivism, realism, objectivism, and relativism-because they can carry unintended connotations (Patton, 2002). Instead, every effort will be made to examine these issues without using such jargon. As our ideas of reality are formed during our schooling (Hofer & Pintrich, 2004), this is the most logical place to start. The author was educated with an early emphasis on the sciences and completed a degree in chemical engineering. This educational background led to the conjecture of positivist ontology. The author's later experiences included studying an MBA and working in various countries. The experience of living and working overseas, including learning the languages of the host countries, had a significant effect on forming the author's epistemological views. Language, and therefore culture, was powerful in forming the views of individuals, norms between individual people, and therefore public discourse. For example, what is generally accepted as truth in the United States (US) is seen very differently in Germany and the People's Republic of China. Further education in management—essentially a social science-where the topic of study is the complex and messy relationships between individuals, only reinforced that attempting to empirically observe and explain a unified truth is an impossible task. This does not mean that a reality should be taken as purely relative and only considered valid within the narrow context of each individual observation. Generalized models that are developed to assist researchers and practitioners in understanding common, albeit non-uniform, phenomena are very useful.

This brings the discussion to the particulars of this specific research work. This work was conducted by an individual who is educated in science and business within a Western context (US and Australia). The observations and research have taken place in the Chinese business context. Despite having a Western education, the researcher had lived in China for more than eight years before the work was complete and therefore
should be considered as being immersed in this context. This means that the research will provide Western-based analytical insights into events that occurred in a Chinese business context. This position is laden with advantages as well as limitations. Being immersed in a foreign context allows one to more easily observe and question what could be considered the accepted norms in the foreign context. However, there are limitations of generalizability because those same norms may be more difficult to observe and question in one's own cultural context. This means that any theory derived or proposed from this work will only be taken as offering a fresh perspective and not proposing a proven fact.

The epistemological position of this research is in the form of a PhD thesis, requiring an attempt at a scientifically rigorous explanation of specific business phenomena, which must be described using business terminology rooted in the English language and within the construct of the PhD thesis. This is not an anthropological, psychological, or sociological study. Events have not been described or examined in the Chinese language. Instead, the examination of events occurring in China has been described and explained using business theories and evolutionary/biological theory. The English language and the use of business and scientific explanations of events can never claim to capture and explain everything. This is simply one attempt to clarify and understand the phenomenon of the joint venture within the Chinese context.

5.3 Building an Appropriate Design

A Shifting Methodological Orthodoxy

In Parkhe's (1993) extensive critique of existing research, he noted that there had been too much focus on positivist, quantitative research. He noted that the use of such methods, although highly accepted at the time, have significant shortcomings. As such studies use large database statistics from which correlations are developed between two variables, they lack sufficient depth to provide a causal explanation. This leads to research reporting "very thin descriptions of a large number of relationships, never touching the why of the correlations, dealing only with the fact that variable Y is related to variable Z, as if that constituted everything" (Parkhe, 1993, p. 295). His contention was echoed by Yan and Zeng (1999, p. 282): "Simply relying on second-hand data and sophisticated statistical packages, as many previous studies did, is no longer adequate...", as well as Contractor (2005), who criticized the focus on structural aspects to the detriment of understanding the process. The message was that alliances between firms are extremely complex in nature, and greater understanding is needed of the complex forces at work behind the scenes. In the words of Parkhe (1993, p. 291):

The formidable complexity of studying unobservable individual processes in organizational behavior, such as learning, social perception, motivation, and attribution, is exacerbated in IJVs by intrafirm group decision making, subtle interfirm phenomena such as trust, reciprocity, opportunism, and forbearance, and often sharp differences in the relevant actors' cultural, national, and organizational settings. Many researchers deal with this complexity by

following Ohm's Law (path of least resistance), that is, by simply ignoring it. However, this solution to the problem, acceptable in the well-established paradigm in economics, is hardly suitable for management scholars, inasmuch as these complexities are among the primary phenomena demanding concerted attention...

This strong and repeated recommendation for greater depth in alliance research has marginally improved the situation. The number of studies utilizing cross-sectional data from large databases has diminished in favor of studies utilizing other methodologies that make use of more in-depth information.

A second criticism targets how the dimension of time has not been sufficiently considered in the existing research. Some research designs—particularly cross-sectional designs—have no time dimension included. Examining the relationship between two variables in such a manner ignores the process of development and considers that the feedback of aspects such as successful performance and deficient performance is irrelevant (Yan & Zeng, 1999; Contractor, 2005). It is questionable whether it is legitimate to attempt conclusions concerning the causality of success or failure of any enterprise (alliance or wholly owned) without considering the process. Rich contextual information is therefore necessary in order to consider the causality of a given relationship under study. In this way, one can clarify causal direction or rule out spurious relationships. The complexity of firm behavior in alliances must therefore be understood together with the context, as described by Koza and Lewin (1998, p. 261):

...strategic partnerships—joint ventures and alliances—need to be understood and should be researched in the context of the adaptation choices of the firm over time. Strategic alliances, in this view, are embedded within the firm's history and strategic portfolio and co-evolve with the firm's strategy, the institutional, organizational, and competitive environment, and with management strategic intent for the alliance.

Therefore, time, or more specifically how things unfold over time, is a critical aspect of alliances, and research in this field must consider the process of development as a critical part of the whole. According to these theorists, the research designs that are chosen must take this aspect into account, along with other contextual factors.

A third criticism of the current literature concerns a lack of consistency in the treatment of the variables being studied. The literature investigating the instability or failure of alliances is one particular example. It has been noted that the key variables in this aspect of the literature have not been defined clearly and that many studies define the variable by *operationalizing* it (Yan & Zeng, 1999). As noted in Chapter 1, the results can be difficult to reconcile. If two studies appear to have conflicting results, it is a significant challenge to ascertain why this is. This issue is further exemplified by criticisms of the research on *trust*. Koza and Lewin (1998) were highly critical of this research for not correctly operationalizing this variable and only using a proxy instead:

Similarly, successful alliances have trust; unsuccessful alliances do not have trust. And, typically, trust is attributed ex post. For trust to be a useful concept, its principle components must be identified, operationalized, and measured (p. 285).

Such methodological considerations are essential components to ensure the validity of one's research. Care will be taken to not only ensure that all variables are developed in such a way that the results are meaningful, but also that the reader can understand how the variables have been developed. This will allow comparisons with existing or even future research.

Learning from Past Mistakes

The general methodological trend in alliance research has set some clear guidelines based on the constructive criticism of previous theory. Heeding this advice will allow this particular work to become a beneficial addition to the existing body of research. To develop further understanding of alliances, theorists have noted that positivist, quantitative research should be avoided in favor of realist, qualitative research, which seeks to gain a deeper and richer understanding of what lies behind the relationships involved (Yan & Zeng, 1999; Koza & Lewin, 1998; Parkhe, 1993; Stiles, 2003; Contractor, 2005; Beamish & Lupton, 2009). They also noted that time is a key dimension in the development of the alliance as a relationship and that methods ignoring time should be avoided (Contractor, 2005; Parkhe, 1993). Lastly, variables must be fully developed and clearly operationalized, and preferably aligned with the use of similar variables in previous works to ensure comparability within alliance work as a whole (Yan & Zeng, 1999; Koza & Lewin, 1998; Currall & Inkpen, 2002; Christoffersen, 2013; Reus & Rottig, 2009; Lowen & Pope, 2008).

These three points of guidance fit well with the overall objective of this research. As this work takes the evolution of the alliance relationship as its central tenet, the second point, which stresses that the process is of utmost importance, is in perfect alignment. Time must be accounted for and play a core role in the choice of methodology and the execution of the research. The variables, which were derived from the hypotheses at the end of Chapter 4, do not lend themselves easily to quantitative measurement. The concept of *net benefit* would be possible to quantify; however, simply measuring the net difference in profitability would fall short of the goal of trying to understand what both partners really receive from cooperating (Child & Yan, 2003; Beamish & Lupton, 2009). The measurement of benefits is similarly tricky in biology. What is considered a net benefit to survival fitness? Biologists have had to resist using simple quantifiable measurements. This work must therefore take a similar stance when applying this theory to firms. The net benefit must be a net benefit to survival fitness. This encompasses a much larger range of topics than simply profit. One must consider long-term strategic aspects that are difficult to measure. In countries where governments own and actively control some of their businesses, such as China, political gain for the key persons involved is a benefit worth considering, even at the expense of profit. It should also be considered that the future benefit of cooperation with a company involves possible synergies that cannot be measured or foreseen. For this reason, even the perception that Firm A would be better off working with Firm B may qualify as a net positive. Instead, the feelings, ideas, experiences, and frame of reference of the persons involved must be considered; for this reason, the variable of the *perceived net benefit* must be used.

Measurement therefore becomes complicated. *Perceived net benefit* could be measured by surveying key personnel; however, this would entail asking persons to assign numerical values to a rather nebulous concept. Another option is to use interviews, archival records, and documents to understand the time of alliance formation in detail and the prevailing context of the firms and key participants from both sides. The result of the second option would be more than a numerical assessment of the *perceived net benefits*; it would be a detailed understanding of the situation surrounding the venture formation.

The same analysis holds true for the other variable under scrutiny: *deepening* or *divergence* of the relationship. Again, participants could be asked to assign a value to represent the depth of the relationship between the partners at any given time. This measurement could be made repeatedly over an extended period so that the development could be observed in a longitudinal study. However, instead of trying to

measure a specific value for relationship depth or divergence, one could again use interviews, records, and archival data to describe how the alliance changed over time in full understanding of the context. The second option provides two advantages. The first is the same as in the previous case. A rich, contextual understanding of what happened in the alliance is more useful than a simple number assigned to describe the relationship. Second, cooperative ventures may last many years (possibly longer than the life of the researcher), and evolution is known to be an extremely slow phenomenon in nature. Conducting a longitudinal study over many years is impractical. The use of retrospective interviews with corroborating evidence could yield, at the minimum, a similar result with a much more pragmatic methodological execution.

The final criticism of past research was the development, operationalization, and communality of variables used. The two main variables in this study, which have already been mentioned above, will be developed and operationalized later in this chapter. Fortunately, this researcher has not found any previous alliance research that makes extensive use of these variables. This ensures that compatibility issues do not need to be heavily considered, but care must still be taken to ensure that the variables are fully operationalized.

Which design is best?

Before moving toward design choices, it is necessary to discuss the relationship between the variables:

- Variable 1: The *perceived net benefit* is a critical variable whose value is important in determining a) if the venture is formed and b) if the relationship is in convergence or divergence.
- Variable 2: The *deepening or diververgence of the relationship* between the partners.

The relationships between the variables proposed above are rather simple. There is one independent variable (the perceived net benefit or cost of cooperation) and one dependent variable (the depth of the relationship). A simple direct causal relationship has been proposed. As the benefit increases, evolution will exert a force to push the two partners together. A net cost for cooperation would result in a divergence. Such a simple relationship does not lend itself to a detailed conceptual framework. Despite a simple

proposed causal relationship, the research must also be open to the possibilities of intervening variables. The model has been borrowed from nature and contains no clear reference to such intervening variables, but they cannot be ruled out because these concepts are being applied to a new domain. Therefore, the research design must have the flexibility not only to examine the relationship as proposed, but also to actively seek possible intervening variables as well as alternative explanatory relationships. Although the task at hand is to examine the validity of a proposed causal relationship, simply looking for correlation between two variables will not suffice. The scales therefore tip a little further in the direction of qualitative research.

This throws additional weight behind recent criticisms laid upon this field and thus builds a strong case for an approach that delves deeper into understanding any relationship existing between variables rather than simply measuring statistical significance. According to de Vaus (2005, p. 173), cross-sectional studies have limitations:

...they face difficulties in unambiguously identifying the time sequence of events. Because of this they face the problem of identifying causal direction. Furthermore, because cross-sectional designs rely on existing differences rather than random allocation, any apparent effect of the independent variable may in fact be due to other, uncontrolled differences between the groups.

It is therefore very clear, even at this early point, that employing cross-sectional analysis of any type makes little sense unless it is paired with other methodologies that address the need for depth, as recommended by Harrigan (1983). Further, the application of cross-sectional analysis to evolutionary phenomena such as the one proposed here is not suitable because of the importance of time in the analysis. Experiments could be used; however, it is extremely difficult to develop a simple experimental design that is capable of testing the theory while using reasonable resources and time. If one only considers the time dimension, it is clear that the development of a design that mimics the lifetime of a well-developed alliance quickly becomes unwieldy. With this in mind, experimental design can momentarily be neglected in search of a more practical alternative.

Following the above analysis, the only two possible methodologies that remain are longitudinal and case study methodologies. As noted in the previous discussion, which focused on learning from feedback on past research, there are benefits and drawbacks for both options. A longitudinal study would allow the researcher to "witness" events as they occur because the data could be collected as close to the event as possible. This is the best way to avoid the pitfalls most commonly associated with retrospective studies. The significance of retrospective bias in influencing the statements of managers making strategic decisions is potentially destructive to research (Golden, 1992). There are several ways to collect data in longitudinal studies, and the problem being examined here predicates the use of a variant where rich data could be extracted. The "best" option therefore resembles a longitudinal case study rather than a classical longitudinal study that uses survey data. At first glance, this is far superior to all other options. Retrospective bias would be nearly eliminated and rich data would be made available for study. However, there are two drawbacks. The first point is a methodological challenge, where longitudinal studies must be wary of reactive effects because the researcher is in direct contact with the subjects who are involved in the activity under study. Thus, the researcher may influence the behavior of the subjects. This has been well documented in many studies, including the outcome of the Hawthorne Studies (Wren, 1994). The second point relates to the time periods involved. The desire is to study an alliance that has been in operation and that has had time for evolution to act upon it and shape it in an observable way. The theoretical framework being employed here is a sort of biomimicry, where the fundamental forces governing a phenomenon in nature are anticipated to hold true for a different field. The underlying forces in both cases are evolution-based adaptation. This process is notoriously slow in nature, and one should therefore not hope that measurable changes might show up in the relatively short period expected for the completion of such a research project. Considering that there are many long-lived joint ventures and alliances, a longitudinal study of such a venture is unrealistic.

Despite the strong case from a methodological perspective for using a longitudinal case study for this research project, practical limitations lead to the second-best methodological option. Using a retrospective case study would allow deep and rich data to be collected (de Vaus, 2005; Patton, 2002). The depth of the relationship could be ascertained not only through the measurement of a survey value, but it could also be inferred from evidence showing the context of the relationship. An understanding of the internal and external environments can be built, and this information can be put together in a narrative of how the relationship developed as high-profile changes occurred in the

environment (internal and external). Based on an understanding of the context of these changes, analysis can be made of the observable adaptations or lack thereof. The strategy of matching particular adaptations with simultaneously occurring environmental changes is common in biological research. After the environmental changes and adaptations have been matched, the task becomes one of assessing the likelihood of a causal relationship. An example of this strategy can be found in the analysis of how pit digging evolved in ant lions (Dawkins, 1982, p. 20). A case study format is therefore well suited to observe the process of development and adaptation of the target subjects over time in the form of a retrospective narrative. These raw data can then be analyzed appropriately to ascertain whether the model proposed is relevant.

If the best practical option for research design is a form of retrospective case study, the next decision to be made relates to which specific design of case study is the most appropriate. The objective of this research is deductive in nature, and the research design must be appropriate for this type of study. Authors have recommended several strategies to handle this type of research problem. Patton (2002) recommended using analytic induction, where hypotheses are stated and each case is used to test the hypotheses. Each positive case is considered evidence of a strengthening case for the hypotheses, whereas negative cases should be used to adapt and improve the hypotheses. Hyde (2000) and Yin (2003) recommended using pattern matching, where the cases are tested against both a pre-stated pattern developed from the hypotheses and against a rival pattern. Yin (2003) also proposed a similar strategy called a time–series design, which is similar to pattern matching except that the pattern must occur in a specific time order.

All of these options are theoretically applicable to this particular problem. Analytic induction could be taken as a specific name for a generalization strategy. Other authors (Yin, 2003; de Vaus, 2005) referred to this process in terms of replication logic, which is considered analogous to a researcher performing numerous experiments to strengthen the validity of his or her findings. Replication can be made in a similar case, or it can be applied to a very different case to stretch the validity boundary of the theory (Glaser & Strauss, 1967; Patton, 2002; Yin, 2003). Considering this design as simply a strategy for the generalization of findings, it could be applied together with another strategy such as pattern matching or time–series types. As noted previously, the process and associated

hypotheses are all heavily dependent on time as a key variable. This being the case, a variant of the time-series design was used to analyze each case. The analysis to determine the best experimental design for this work started with a review of the slowly evolving methodological orthodoxy in alliance research. There has been a consistent increase in idiographic, contextually grounded, process-oriented research. Although this study aims to test an existing theory, it should not be considered to argue against this prevailing trend. The theory being tested has sufficient depth to allow for analysis of the possible causal linkages; in this way, it does not simply seek correlation between two variables. In any case, a return to cross-sectional, number-crunching methods is unlikely to help in testing the theory presented in Chapter 4. After considering as many options as possible, it is clear that a retrospective case study is well suited to providing the rich data needed to understand not only the underlying relationships, but also the causal direction. The type of case study strategy that is best suited to ensuring the validity of the findings is a type of time-series analysis with replication over several cases to improve internal and external validity.

Starting with the Big Picture

The purpose of this study is to gain a more detailed understanding of how cooperative ventures develop over time. This leads back to the guiding questions posed in Chapter 1:

- Formation:
 - Why do firms decide to cooperate instead of choosing other organizational options?
 - Why do they choose a particular partner?
- Evolution of the relationship:
 - Why do firms continue to cooperate as time passes?
 - How does their relationship change as the external and internal environments within the alliance and parent organizations change?
 - How are the risks of opportunism or non-cooperation assessed and addressed?
 - How do these risks and the relationship change and evolve over time?
- Finality:
 - Why do firms discontinue their cooperation?

It is clear from these questions that this study is undertaking a formidable task and therefore the process under study should be analyzed as holistically as possible in order to understand what happens not only over time, but also spanning the entire environment (both internal and external). The theory presented in Chapter 4 cannot explain all aspects of alliance behavior. For example, it does not seek to explain how partners locate each other; instead, the basic requirement is that partners are in close enough proximity to ensure that contact can be made. This is an interesting aspect of the theory, but it is peripheral to the core concepts. Therefore, it is not necessary to extensively search for information on how the partners came into contact.

5.4 Chinese Business Context

Considering that the research setting is the People's Republic of China, it is important to elaborate on the business context of the country. There are several idiosyncrasies regarding how businesspeople interact with each other in China that will affect the research. Each point will be introduced using both references and the researcher's eight years of personal experience managing joint ventures in this setting. Chinese business culture is colored by several topics that are deeply ingrained in all aspects of organized action. The principles of guanxi (Lu, 1998; Börkman & Lu, 1999; Tian, 2007; Buderi & Huang, 2006), harmony (Börkmann & Lu, 1999; Tang, 2005), face (Börkmann & Lu, 1999), and group membership (Li, Xin, Tsui & Hambrick, 1999; Börkman & Lu, 1999) are familiar to every businessperson who has spent significant time in China.

The term guanxi literally means "connections" or "relationships" in Chinese. Li, Xin Tsui and Hambrick (1999, p. 36) stated that "guanxi is important for success" and that there must be some tie before any transaction can be discussed. All business in China is conducted through existing relationships. If there is no existing relationship with a party, one cannot expect to get very far in any transaction. This relationship is based on a commonality such as a family relationship, attending the same school or developing a deep relationship over many years. A Westerner expecting to cold call a top-level manager in China and quickly developing a personal relationship in an effort to close a deal would not be successful. Therefore, the relationships that one has can either facilitate or limit the success of a particular individual. This explains the perceptions of

Westerners who observe the pervasiveness of nepotism in Chinese business, where the children, grandchildren, nephews, and nieces of powerful people are often favored in business transactions. This perception is also mixed with the common confusion that guanxi is bought through bribery. While this system, which sets up a "market" for relationships, is prone to be abused for graft, this is not the true nature. Instead, guanxi is relied upon to provide trust in the transaction itself. Long-term relationships, where a businessperson can be assured that his or her partner cannot simply disappear, provide some security. Chinese businesspeople therefore rely on guanxi instead of impartial justice to secure their transactions (Lu, 1998). The importance of guanxi in building trust in the minds of Chinese businesspeople is expected to present an impediment to this research. Unless the researcher only interviews people within his personal network, frank and open participation of Chinese managers may be difficult to obtain.

Harmony is very important to Chinese groups. This term has a very pleasant sound to most Westerners because it carries a connotation of being very pleasant and positive. Harmony means that any situation creating group conflict will be avoided. Witnessing a vigorous debate between Chinese colleagues is uncommon because people do not want to create conflict by contradicting their colleagues. Thus, using focus groups can be immediately discounted from this research because such a setting that includes Chinese managers would be suspect. Individual interviews are therefore the best option. The other aspect of harmony is the possibility of "cleansed" data from not only Chinese, but also Western participants. The possibility that interviewees may say something that will offend their partner or colleagues is very serious for them. Therefore, they may avoid or omit certain facts that seem to paint their partner or colleagues in a negative light.

Face or mianzi, is a common aspect in many East Asian cultures, and it is very important in China. Face is an intangible asset that one possesses. One can have varying amounts of face. Wearing an expensive suit, carrying a designer bag, and having a coveted office or important title all give one more face. Embarrassing oneself in public, being contracted by a subordinate, or being associated with an unsuccessful venture cause one to lose face. Face creates situations that are very difficult for Westerners to understand. For example, it is common for a senior manager to tell a subordinate to do something a specific way. The subordinate cannot contradict the boss and will therefore concede and accept. Strangely, the worker will then proceed and do the work as he or

she sees fit and not as the boss had asked and the worker agreed. This creates an atmosphere of "apparent" infallibility on the part of senior managers, which is actually inaccurate. This context clearly creates problems for research. How can one be certain that the data received from interviews are not artificially polished to make the bosses look good? During analysis, care must be taken to note aspects of stories that seem "too good to be true".

Chinese business action is also strongly group-focused, with a clear "in group" and "out of group" divide between individuals. Li, Xin, Tsui and Hambrick (1999, p. 35) observed that individuals compartmentalize tasks to avoid interaction with others they perceived as "out" of their group. This atmosphere has a strong effect on joint ventures, where "in" and "out" can be mixed within a single management team trying to cooperate. This may also be present in interviews, where an "us" versus "them" theme may emerge. As both sides of the story will not be available in all cases, care must be taken not to simply accept this narrative; instead, consideration must be given to what the other side is really doing. Balance will be difficult to achieve in this context, but it is very important to the research quality that it does not become highly biased by simply relaying a cleansed story where the interviewee has done everything perfectly and all faults lie with the partner.

5.5 Case Selection

Based on the above analysis, sampling for this case considered all angles in an effort to uncover cases that really test the limits of the theory. De Vaus (2005, p. 245) recommended "that (the cases) have been selected for a purpose rather than simply because they happen to be available". The key questions then are: What type of cases are best for testing this theory? How many are needed?

In the case of quantitative studies, there are clear statistical rules for establishing whether the sample chosen can represent the intended population. Qualitative research has typically resided in a realist paradigm where statistical generalization to an absolute truth is an unachievable aim; instead, researchers strive to "construct various views of this reality and aim to comprehend phenomena in terms of which ones are relative in

place and time" (Riege, 2003, p. 77). This was taken one step further by Yin (2003, p. 37):

This analogy to samples and universes is incorrect when dealing with case studies. Survey research relies on statistical generalization, whereas case studies (as with experiments) rely on analytical generalization.

If statistical generalization is not a suitable guideline for deciding how many cases are needed, how can this be resolved?

...individual case studies are to be selected as a laboratory selects the topic of a new experiment. Multiple cases, in this sense, should be considered like multiple experiments. Under these circumstances, the mode of generalization is "analytical generalization," in which a previously developed theory is used as a template with which to compare the empirical results of the case study. If two or more cases are shown to support the same theory, replication may be claimed (ibid, p. 32).

The target of analytical generalization is therefore to "expand and generalise theories, not to establish the frequency with which a phenomenon is likely to occur in a population" (Hyde, 2000, p. 84). This is not to say that there is no benefit to having more cases. As noted by de Vaus (2005, p. 227):

Multiple cases, strategically selected, can provide a much tougher test of a theory and can help specify the different conditions under which a theory may or may not hold.

Hyde (2000) further recommended that generalizations should be made along a continuum to widen the theory. Yin (2003) concurred, referring to "literal replication" and "theoretical replication". Therefore, a researcher should not necessarily use cases that are all under similar conditions. Testing a wider range will provide strength to the theory being tested. In the words of de Vaus (2005, p. 238):

We can examine different types of cases under different conditions and maybe even using different methods. The more the cases behave in a way that is consistent with the way we would expect on the basis of our theory, the more confident we are about our theory. If we find that some cases do not behave in the way we would have predicted we need to modify our theory to accommodate that case in the same way that theories will be modified to account for the experiment that does not give the expected results.

Although the above advice does not indicate a specific number of cases that should be considered, it does provide some practical guidelines. These authors have all advocated using more cases to increase confidence in the theory being tested. However, they do not argue that an infinite number of cases, and testing very similar cases, would be best. Instead, they have advocated using many cases, and as wide a variety of cases as is practical, to provide a strong test of the theory in question.

Following the argumentation above, what would be the best case selection strategy for this specific study? It is clear that seeking only one "type" of case is not ideal. Examining only cases at one specific point in the life-cycle, such as collaborations that ended a long time ago, the validity of the theory in respect to the other aspects should be questioned. A mix of cases from different points in development allow different views of the lifecycle of cooperative ventures and a better and more robust test of the theory according to the replication logic mentioned previously. Therefore, several or many cases at each point in the development is the best approach.

In addition, the quality of the case must be considered. Yin (2003) suggested actively screening all potential participants to ensure that "rich" data would be obtained. Basing a potentially robust test of a new theory, or at least a newly applied theory, on a stale eventless case is unworthy. Care must be taken by the researcher to ensure that each cooperative venture chosen has seen the hand of evolutionary forces. The entity must have encountered crises and hardships that led to adaptation, otherwise there is no evolution to observe. Although such occurrences are more common in a long relationship, a short-lived but stormy relationship is also valuable in order to understand the usefulness of the presented theory. Searching for such alliances is a challenging task; however, one can again look to nature for guidance. Kropotkin (2005) observed that the most interesting and plentiful mutualisms were found in the most hostile environments. This may be a good place to start looking.

Following the logic developed above, the first strategy used was to contact the Chambers of Commerce for the US, Australian and various European bodies. They were told about the study and given a profile of the desired companies, which consisted of equity joint ventures at different stages of development and with an eventful development. It was decided to immediately focus on interesting companies rather than start a mass-mailing campaign to several hundred companies and risk ending up with unsuitable candidates. Several Chambers provided suitable candidates, background data and contact information. Of the 29 selected companies that were contacted, only three were willing to participate, and they not only demanded strict limits on who could be interviewed, but they also required that their companies be disguised. All companies shared similar concerns about the sensitivity of joint ventures—particularly in the

Chinese business context—during the telephone discussions. Although the three companies that agreed to participate had very interesting stories, more cases would stretch the theory. Consideration was given to the sensitivity of the topic and how best to gain acceptance by additional companies. As important contact in China is best conducted through connections, it was decided to use the author's personal network to search for additional candidates. Introductions through personal relationships carries a much higher level of initial trust than simply cold-calling top managers. However, this strategy is less likely to produce a large number of candidates, which was the case. Only five possibilities were found, but the quality of the stories was much higher and all were willing to participate. From these five companies, three cases were selected. A short introduction to the cases is presented in Figure 5.1.

Case	Company	Revenue US\$ Million	Equity ⁵ Structure	Year of Foundation	Partnership Background
1	Innomet	600	50%	2008	Formed <1 year; data on formation
	Chalko	4,000	50%		
2	ALN Material	2,000	50%	1989	Joint venture bought out by ALN; data on divergence to dissolution
	Huangpu TRUROD	N/A	50%		
3	Rolte	20,000	60%	1993	20-year-old joint venture; survived possible buyout and massive shifts in external environment
	SJDH	25,000	20%		
	Xiaogongju	1,500	10%		
	#1 IM Institute	83	10%		
4	Sortex	3,000	51%	1994	20-year-old joint venture with problematic start; later successful
	FaMing	13,000	49%		
5	Faulkner	6,000	75%		12-year-old joint venture that has always been successful; more than wholly owned
	Group			2004	
	Ruidi	5	25%		
6	Bosca	10	90%	1988, 1989, 1994 ⁶	Entrepreneurial firm went through two failures and adapted for success
	Furui, XZC,	1–15	10%		
	Taiguang				

 Table 5.1: Summary of Cases

⁵ The companies participating in this study were all equity joint ventures with two or more firms owning some part.

⁶ The year of formation represents the year of foundation in order of company listing respectively, i.e. XZC was founded in 1989.

As shown, these six cases fit the requirements of the approach listed above. Evolutionary forces have influenced all partnerships in a perceptible way, including the case of the newly formed joint venture, where the focus remained on the events leading to formation. Although these six detailed cases fit the requirements, questions can be asked of the sample size and statistical significance of any findings. This study is not striving for wide extrapolation of the findings. That is, as argued by de Vaus (2005, p. 233), the objective is not to examine a large number of cases to arrive at an overall clarification; rather, it is to seek a complete understanding of each individual case and how it fits with the bio-evolutionary theory and/or with existing theory. In this way, each case represents an individual experiment (Yin, 2003) where the findings relate to that experiment. Claims concerning the generalizability of the findings will not be made. The question of "how much is enough?" is ever-present and should be viewed in the context of the objective stated above. For example, Stamboulidis (2009), who studied the evolution of his own firm and two others, as well as Durden (2004), who studied only one firm (Hubbards), both contributed to our understanding of business success. In this regard, six cases that are rich in data and meaningful events is a significant contribution.

Unfortunately, finding enough quality participants was not the only difficulty encountered. The next serious issue was one of access. A personal visit by the researcher to the site is widely recommended (Patton, 2002; de Vaus, 2005), and it is widely acknowledged that access is extremely challenging to negotiate (Wright et al., 1988; Patton, 2002). Wright et al. (1988) pointed out that sensitive research topics will naturally face issues with access, and it cannot be refuted that research on alliances and joint ventures are inevitably sensitive. Two partners have decided to cooperate, but the risk and shadow of cheating from one side or both looms large. In such an atmosphere, and compounded by the Chinese business context, a researcher wishing to interview the management directly involved with the cooperative venture, as well as the key persons from the parent companies and all directly related persons from third parties, would meet with significant resistance. Obtaining Chinese participants would be more difficult than obtaining Western participants due to the differences in viewing academic research (Patton, 2002). Wright et al. (1988), in describing their personal experience in alliance research in developing countries, noted that many useful informants, such as key local

managers and government officials, would be interesting to interview; however, access is more difficult. The political angle is even more severe when one considers that a local partner in an alliance may be fully owned by a sovereign country, which may consider the events in the venture either extremely sensitive or a state secret. All of these problems occurred in this project. As noted previously, all companies severely limited who could be interviewed. Although this was not ideal (Patton, 2002), a strategy was used to ensure that the findings were reliable. The first step was to ensure that the correct people were interviewed. Therefore, all interviews were conducted with top managers, as outlined in Figure 5.2.

Case	Company	Participant		
1	Innomet	General Manager and Deputy General Manager		
	Chalko			
2	ALN Material	General Manager		
	Huangpu TRUROD			
3	Rolte	Managing Director		
	>2 Chinese Partners			
4	Sortex	CFO and Marketing Director		
	FaMing			
5	Faulkner Group	China Managing Director		
	Ruidi			
6	Bosca	Bosca Owner		
	Furui, XZC, Taiguang			

Table 5.2: Participants at Each Company

Although a limited number of people were interviewed, there are reasons to feel confident that the results are still reliable. The first is that care was taken to interview the specific people directly involved with the events of interest in as much detail as possible. This was not an easy task; as Wright et al. (1988, p. 68) noted, in such studies, the researcher "...may not be able to locate some vital people because they have either died, moved to Tibet, or retired". As the theory being developed is a bio-evolutionary theory that matches adaptations to events in the environment, critical data are in the form of events and environmental context. These will be triangulated using other data, as recommended by many theorists (Harrigan, 1983; Miles & Huberman, 1984; Golden, 1992; Parkhe, 1993; Patton, 2002; Gruenbaum, 2007). Lastly, in the past, such top

managers typically portray an impartial view of the joint ventures they are involved in (Geringer & Hebert, 1991; Peng & Luo, 2000).

Additionally complicating the difficulties of finding sufficient cases and access is retrospection (Golden, 1992; Miles & Huberman, 1994). De Vaus (2005, p. 228) succinctly explained this issue as follows:

(Any retrospective design)...has the obvious problems associated with loss of evidence, reconstruction of the past in the light of the present, and mistaking the sequence in which events occurred. However, in many situations there is little choice but to draw on people's ability to recall the past.

This issue has a serious effect from a methodological point of view. Naturally, concurrent verbalizations would be ideal (Gaglio & Katz, 2001). However, retrospective research has been shown to be a valid and reliable way to "get in close" and develop a full understanding of the case despite the known limitations (Mitchell, 1997; Hill & McGowan, 1999). The advice of many researchers (Glaser & Strauss, 1967; Miles & Huberman, 1994; Patton, 2002; Yin, 2003) was to deliberately seek to load the sample with "information-rich cases" (Patton, 2002, p. 230) and "critical incidents, crises, transitions, or organizational lessons learned" (Patton, 2002, p. 451). The previous section shows that this was achieved; however, observing evolution and organizational adaptation necessarily means that the venture under investigation must have met significant environmental challenges and survived through painful adaptation. As a result, there are several cases where the partnership has survived 20 years. Is it realistic to find first-hand informants with flawless recollections for such cases? Although every effort was made to do this, it is not a realistic expectation. Retrospective issues must be dealt with. Fortunately, there are also some advantages. Rae (2000) pointed out that retrospection can be used as a reflexive process for both the informant and the researcher to more fully develop an understanding of the phenomenon.

Offering a synopsis or summary of the findings has been recommended and was used in this work (Wright et al., 1988; Patton, 2002). Researchers' experiences have shown that it is an incentive that helps to improve participation. Another incentive, which turned out to be a demand, was anonymity for the informants. Not using the actual names of people or organizations detracts from the research somewhat, but "…because one would never be able to get in to do the research otherwise, this weakness is relatively insignificant…" (Wright et al., 1988, p. 63). Pseudonyms have been used for the firms

and the people in each case, and these were combined with a disguise in the narrative to make the target firms unidentifiable. This again presents a balance. The best results are obtained from "rich" data. Care has been taken that the layers of disguise added do not blur the story and disrupt the continuity of the data and the validity of the findings.

5.6 Data Collection

After decisions have been made about what type of alliances to study, the next topic concerns how the data will be collected. As noted in the first section, which outlined the criticism of previous research on alliances, fully and clearly operationalizing variables is very important as the first step, otherwise the entire following discussion concerning strategies for improving validity/confidence and reducing bias will be for naught. Fortunately, there are few variables appearing in this study. In essence, there are two variables and one is broken down into two subcomponents. As mentioned previously, there is some complication in defining and measuring the net benefit of cooperation. Much of the evolutionary economics literature would argue for the use of the pure monetary or profit advantage realized by any firm in cooperating compared to working alone. This variable is intended to be applied as it would be in a study of biological mutualisms. In biology, this variable is considered the net benefit to survival fitness, which has been a tricky variable for biological theorists to clearly define (Dawkins, 1982). They have forgone seemingly useful definitions of survival fitness, such as ensuing birth rate, because they all neglect possibly important aspects. Instead, survival fitness, as it will end up being here, will have to be a holistic concept where the researcher is forced to objectively examine the study target in the context of its environment and assess if the target would be better or worse off. It is hoped that participants will shed light on the perceptions of management concerning how cooperation might benefit them and what they might have to sacrifice. Statements made by any participant should be crosschecked. As noted by Golden (1992), retrospective bias is considerably stronger when a participant is being asked about previous intentions. Therefore, the net benefit to survival fitness for the firm cooperating will be assessed based on evidence found in the data of facts concerning the firm and the environment at the time. The triangulation of these facts was an integral part of developing the case study write-ups. More details will be presented later.

The challenges of measuring the net benefit of cooperation would also be present for the other main variable: depth of the relationship between the partners. This concept appears to be highly subjective and open to different interpretations. This being true, this variable is somewhat simpler to translate into concrete terms and to transform into something that is less subjective. The work on retrospective bias-most notably Golden (1992)-recommended using facts and actions in retrospective studies instead of aspirations and intentions. In fact, Miles and Huberman (1994, p. 10) argued that "qualitative data are not so much about 'behavior' as they are about actions (which carry with them intentions and meanings and lead to consequences)". Therefore, although the depth of the relationship cannot be ascertained, changes to the relationship will have measurable evidence. If two partners decide to widen their cooperation into new products or industries, this is evidence of deepening. Similarly, one partner in a technology alliance moving on to the next phase with the partner is a sign that the relationship may not be as it was. Changes in the ownership or management structure are also strong signs that things have changed. This strategy was used to ascertain changes to the depth of the relationship.

The method of analysis thus comes into focus. Significant events in the life of the venture were sought, and these events were embedded in significant environmental shifts occurring at the time involving the market, parent companies, or even internally. The next step in discovery involved delving into the details of these shifts and how they related to the event itself. Analysis is about a "string of coherently related events" (Miles & Huberman, 1994, p. 111). Timing is very important. For example, a significant change in the structure of a technology alliance that would appear to fit to the onset of a disruptive technology becomes more questionable if the adaptation takes place before the new technology can be released into the market. It is therefore a relatively clear time–series analysis.

To build a reliable chain of events from which analysis can be drawn, the triangulation of all data is necessary. In defining data, Patton (2002, p. 449) stated the following:

Case data consist of all the information one has about each case: interview data, observations, the documentary data (e.g., program records or files, newspaper clippings), impressions and statements of others about the case, and

contextual information—in effect, all the information one has accumulated about each particular case goes into that case study.

The purpose is to gather many sources of data together and re-create the history of this case. In the words of de Vaus (2005, p. 227):

A retrospective design involves collecting, on the one occasion, information relating to an extended period. This requires the reconstruction of the history of the case. This might be done through the use of archival records and documents, or interviews with people who participated in or observed past events.

Using multiple types of sources for data, triangulation is highly recommended by nearly

all researchers (Harrigan, 1983; Miles & Huberman, 1984; Golden, 1992; Patton, 2002).

Triangulation is a strong check against bias in retrospective interviews because:

...key informants always will be embedded in case layers that inevitable will influence their perception of reality, of what is important, why it is important, when it is important and so forth. Hence, the researcher needs to understand the case layers (i.e. the case) to be able to create a valuable knowledge transformation that is authentic and transferable (if that is the research goal) (Gruenbaum, 2007, p. 88).

Parkhe (1993) argued strongly for triangulation—particularly in studies of joint ventures—because of the high complexity involved.

Building the case studies in this work involved taking all notes from the interviews and pulling out any comments that appeared to be important or interesting. These comments were placed in a dedicated spreadsheet for that case and labeled as coming from the relevant informant. Next, all newspaper and magazine articles about the joint venture were collected, as well as those about the parent firms during the pertinent time window. In addition, articles about the market environment in which the joint venture operated were also collected. These included market studies, performance announcements from competitors and commentaries from industry analysts. All of this external information was then analyzed. Again, all commentary that appeared to affect this particular partnership was then collected and placed into the spreadsheet, along with the source for the particular comment. After all data had been placed into the spreadsheet, they were ready for analysis. Although the analysis will be described in more detail later, it is important to note that the comments from informants were matched against the external data not only to check the fit of the overall chain of events, but also to add depth and understanding to the story. The researcher was therefore immersed in the case events

and sought to understand the dynamics behind the events from clues provided by all sources.

One form of bias remains unaddressed, and this can be introduced simply due to language and culture differences between the researcher and the informants. Cultural differences are significant and must be taken into account:

One of the most pervasive problems in research is the problem of cultural bias. No researcher approaches his or her study with a tabula rasa: every researcher brings to it a set of values, beliefs, and assumptions molded by the culture he or she comes from. Most researchers do not realize that they have this baggage, or that it affects their research. Even when they are aware of this bias and try to guard against it, it is very hard to escape (Wright et al., 1988, p. 59).

Although this research is not focused on a specific cultural environment, there are two points that make this issue relevant. Alliances often involve firms from different nations and people from different cultures. The research was carried out in Asia because of the proximity to the researcher's home in Shanghai. However, there was no desire to focus exclusively on Chinese alliances, and one alliance involved no Chinese partners. As language is a window into any culture and linguistic comprehension is critical to understand a culture, this aspect must also be considered. All interviews were carried out in English to keep the questions and responses homogeneous for analysis purposes. The translation of the question, back translation of the answers, and analysis involving inter-case comparisons in different languages cannot be reliable. All interviewees have been active at the international strategic level and therefore have some mastery of the English language, but this was better than the alternative of working in many different languages. No documents were presented in a foreign language that required the researcher to seek translation.

5.7 Analysis

After all data are collected, they must be analyzed. It is typically suggested to take the data and construct a narrative history of the case (Glaser & Strauss, 1967; Patton, 2002). Patton (2002) suggested conducting this data reduction by using coding and classifying quotations taken from verbatim transcripts and documents. It is also suggested to focus on critical incidents. Although this strategy for data reduction is common in qualitative

research, a long narrative may be difficult to analyze. Instead, Miles and Huberman (1984) offered many options for displaying data visually. Reduction and display in a tabular format, clustered by specific critical incidents, and laying out data in chronological order was a strong fit with the objective of this research and aided in analysis. The case study narrative was then coupled with visual (tabular) methods of displaying data to allow logical and transparent analysis to take place. This process consisted of using the spreadsheet for each case and coding the quotations along several levels. Each level consisted of a column on the spreadsheet, and the codes were set based on the events and the context of the particular case. The quotations could then be clustered using the filter function on the spreadsheet. All quotations that were relevant to a specific event or action of environmental shift could then be examined together in a cluster. This allowed the researcher to view the case in depth and tell a single story.

After all of the raw data, including interview transcripts, documents, news articles, and observations, were reduced and transformed by the researcher into a case study narrative, it was time for another bias check. At this point, the first step of analysis has already taken place; the investigator has already decided to pay attention to some data and ignore others:

The researcher's conceptual lens acts as a filter; the emphasis placed on a huge range of observations made in the field (choosing to record some observations and not others, for example) is partially determined by this filter (Cepeda & Martin, 2005, p. 858).

There may be some gaps in the data or certain points that require interpretation. The skill and knowledge of the researcher is essential in transforming the raw data into a narrative, but this means that some inferences and interpretations will find their way into the case study narrative:

Interpretation, by definition, involves going beyond the descriptive data. Interpretation means attaching significance to what was found, making sense of findings, offering explanations, drawing conclusions, extrapolating lessons, making inferences, considering meanings, and otherwise imposing order on an unruly but surely patterned world (Patton, 2002, p. 480).

The action of inserting interpretations into the descriptive writing of the case study is therefore not necessarily negative, but it opens the door to adding bias to the study. It is therefore widely recommended that participants in the study are asked to review the case study narrative for accuracy (Harrigan, 1983; Miles & Huberman, 1984; Patton, 2002). This adds not only another check for bias by allowing the person who directly observed the events to comment on the narrative description, but it also presents an opportunity for incremental improvements on the concepts and findings of the study. In this case, all informants were asked to comment on their case, and various comments were received and incorporated. One particular informant—Ingram from the Faulkner Group—commented that he was impressed at the depth and accuracy of the analysis, which managed to highlight important points that were not stressed during his interview.

As noted above, the researcher is a potential source of bias at many points during the process; thus, a reflexive process is necessary to openly mention all possible areas of bias that may found in the research. Most of the common points concerning methodological rigor, cultural bias, and language have already been discussed, but there remains one significant point that must be brought to light. One principle prescribed by Patton (2002, p. 51) was that "the investigator does not set out to prove a particular perspective or manipulate the data to arrive at predisposed truths". A pre-stated theory for testing, coupled with qualitative methodologies, could prove a tempting scenario for such bias. It is expected that using rigorous data reduction processes and displaying the data in a transparent tabular format will prevent the possibility of the researcher manipulating the data to suit the theory.

The author of this work has extensive personal experience with managing and working within alliances and joint ventures throughout Asia. Although this experience is valuable for observing, analyzing, and understanding such structures, it is also a potential filter. This potential bias can be checked by the participants' reviews. Several authors (Cepeda & Martin, 2005; Eisenhardt, 1989) have strongly advocated using findings from previous studies to check the newly formed or tested theory. According to Eisenhardt (1989, p. 544), the advantages to internal validity are significant:

Examining literature which conflicts with the emergent theory is important for two reasons. --- 1)...if researchers ignore conflicting findings, then confidence in the findings is reduced. -- a)...assume that the results are incorrect (a challenge to internal validity) -- b)...if correct, are idiosyncratic to the specific cases of the study (a challenge to generalizability) -- 2)...conflicting literature presents an opportunity. --- the result can be a deeper insight into both the emergent theory and the conflicting literature, as well as sharpening of the limits to generalizability of the focal research.

It is expected that this additional check to validity will significantly reduce the chance of the researcher acting as an advocate of the theory as opposed to performing an objective test.

The previous sections have outlined what steps are necessary and have been undertaken to ensure that this work is credible and trustworthy. Although all recommendations have been followed, it is important to stress that flexibility of design was also important. Glaser and Straus (1967) mentioned that the researcher must be open to "emergent perspectives". Other authors have been more direct:

...design in the naturalistic sense...means planning for certain broad contingencies without, however, indicating exactly what will be done in relation to each... (Lincoln & Guba, 1985, p. 226).

...initial design decisions nearly always lead to redesign... (Miles & Huberman, 1984, p. 16).

Even if a researcher strives to begin with a rigorous research design with comparable research sites (companies, industries, etc.) and takes into consideration the potential cultural bias in concepts and instruments, he or she must face the uncontrollable real world of management practice, which we have found can decimate research designs (Wright et al., 1988, p. 62).

In the so-called real world, uncontrolled variables abound, predictor and criterion measures interact, alternative hypotheses cannot be ruled out, and standard statistical procedures cannot be applied without massive violation of assumptions (Parkhe, 1993, p. 256).

The design described in this section was therefore a game plan for standardizing processes, clarifying methods, and minimizing bias. It has been followed as closely as the real-world situation encountered by the researcher allowed. Some adaptations were necessary, and the final result has been described here. It is important to note that the researcher has ruled out the use of any alliance in which he has personally been involved. A flexible stance on this rule has not be taken.

Chapter 6: Case Study 1—Innomet and Chalko

6.1 Background

Operating in a Mild Climate

In June 1998, US product manufacturer Innomet invested in a greenfield operation in Guangzhou, China. This facility was to be in its highest-value business-alloy technical elements-which is a technology-driven business. Alloy is a common material for producing many different types of common products. Innomet produced a variety of different element products from alloy; however, the products were not as diversified as many of the firm's competitors, such as Chalko of Italy, which produced nearly everything made from alloy. Technical elements are a specialized product used for the production of highly engineered machinery. There are few customers and even fewer suppliers globally. Innomet was the first global competitor in the technical element business to make a move into China, which carried certain risks. For example, existing Chinese competitors would be interested in copying such know-how, and cases of intellectual property expropriation abound in China (Conley, 1997; Yang & Hermann, 2011; MacFadyen, 2008). Despite these risks, the investment represented a significant opportunity for Innomet to invest in a growing market where the downstream industries, ---that is, its customers and end users---were growing fast. This is in contrast with Innomet's home market, where it closed a facility with three times the number of employees in a related business. This case surrounds the development of the Guangzhou operations. A summary timeline with dates and key events is presented in Table 6.1, which forms an appendix at the end of this chapter.

The opportunities represented by the Guangzhou plant were quickly realized. The plant performed very well and quickly earned an ISO9002 certification. A second shift was added in 1999 to accommodate the growing demand for its products. In contrast to this exuberance for Asia, Innomet simultaneously announced the closure of its Jacksonville plant and a reduction of its American workforce in general by

about 15% in an effort to streamline and increase competitiveness in its home market. Production from Jacksonville was shifted to Innomet's plants in Mexico City and Calgary to better load those two operations.

The reduction in staff was not indicative of the expansionist aspirations lying at the core of statements made by management to media. If one looked beyond the chestbeating display for the media, a more realistic synopsis of its strategy was observed as having two main points. Innomet wanted to shore up and strengthen its home market to weather a difficult time while expanding abroad to increase its global market presence and decrease its dependence on the American market. This pattern was reinforced by the its next move, which was to form a joint venture with the only other local manufacturer in the Canadian market: Bison Ltd. This merger was to help Innomet solidify its position in Canada by allowing the company to consolidate its Mississauga operations with Bison's Toronto-based facilities. The resulting company—Innomet Bison Inc. (IBI)—would be the dominant player in Canada and would therefore help Innomet reinforce its position in North America. The new joint venture was also intended to be used as a material feeder plant for its Flagstaff element plant.

The success of the Guangzhou facility seemed to embolden the management of Innomet. The Reading, PA-based firm announced a program in 2000 to repurchase one million of its outstanding 14 million shares. In addition, it announced the acquisition of the alloy joining business from California's Hull Corp. The acquisition, which cost US\$40 million, was expected to bring the company nearly US\$50 million in additional revenue plus additional unspecified synergies. Cash appeared to be plentiful, and Innomet's future appeared to be bright. In 2001, its management openly announced the intention to expand and develop into a global supplier in every one of its businesses. They even stated the intention to build greenfield plants in the future in the far-off markets of South America and Japan. Innomet's optimism resulted from the success of its Guangzhou operations, which was operating seven days per week and three shifts per day in 2000. The capacity of this successful operation was expected to be expanded by 50% to meet the strong growth experienced in this market. Innomet continued to follow its stated path by announcing the consolidation of Bison Inc. production facilities in Newmarket into IBI's Mississauga plant. This realized the

second step in the consolidation of the North American competitors. Along with strengthening its position in North America, Innomet announced the intention to duplicate its Guangzhou success in Europe. Innomet intended to copy the Guangzhou facility and build the new plant in Malaga, Spain, with a desire to capture the market share in Europe from the entrenched European competitors. All arrows appeared to be pointing up for Innomet as it realized its strategy seemingly without problems.

Meanwhile, Palermo-based European competitor Chalko announced serious issues with its business. Its revenue shrank more than 8% and net profit decreased more than 23% from 1999 to 2000. The company believed that this was a temporary effect, with orders up 40% in the first few months of 2000 and strong demand in Italy and key export markets. Later in 2000, Chalko announced the formation of a joint development alliance with Chicago-based chemicals and materials leader Valhalla Products. Each partner agreed to jointly develop new materials and cross-license existing patented technologies. At the end of 2000, Mitsubishi Tanaka announced a technology transfer agreement for a new type of welded element to Chalko. Chalko was one of Europe's largest element manufacturers and Innomet was America's largest. Mitsubishi Tanaka, a major Asian competitor in the element business, believed that its new technology would displace existing technologies because element customers required smaller products to meet the same requirements. At the end of 2001, Chalko showed that it also realized the potential of the Asian, and in particular Chinese, market by setting up its first wholly owned subsidiary, also in Guangzhou. This plant did not produce highly technical alloy elements; rather, it focused on other products. Although this plant was not a direct threat to Innomet's facility, it shows that Chalko did not miss the potential of this market. Chalko's expansion appeared to signal that the market had recovered after a downturn at the beginning of 2000. In late 2001, Chalko announced that its sales as measured by weight, to negate the fluctuation in alloy price, dropped 10% worldwide, which showed that there were more deeply structural problems within this market. Chalko, which is not a publicly traded company, was not required to announce its profits. However, it announced that it would institute reductions in the hours of its workforce. This is another indication that profits had been affect by market conditions at the time.

The global market for alloy products was shifting into a phase of scarcity and hardship. Innomet's announcement that it would reduce guidance, delay its 2001 earnings report to the stock market, and pull out of the IBI joint venture in Canada was indicative of this change. Quickly pulling out of a new venture formed under such hype less than two years after formation showed that the competitive nature of the market had taken a drastic turn. The reason for pulling out of the joint venture was stated as an unspecified "shift in customer demand". When Innomet finally released its earnings statement in early 2002, it showed that its gross profit had decreased nearly 30% from 2000 to 2002. The company tried to put a positive spin on the situation by stating that the new plant in Spain had successfully started up ahead of schedule due to the efforts of the same start-up team used in Guangzhou. It publically announced that the earning problems were mostly due to financing costs from the reorganization that had begun in 1999 to strengthen Innomet in its home market. In mid 2003, Innomet announced that it had engaged the services of a financial advisor to help the company decide how to dispose of its majority-owned joint venture IBI in Canada. In addition to this news, Innomet announced that it would cut 6% of its global workforce and close its Texas industrial element plant. The company stated that although the drastic cuts would cost more than US\$1 million, it expected to save more than US\$7 million per year after one-off costs. The reasons cited for such drastic measures were "lackluster demand".

In 2002, Chalko was experiencing similar symptoms and announced a global 10% softening of demand. It had significantly undershot its targets in terms of order intake, revenue, and profitability for the first five months of 2002. The company stated that it intended to continue short working hours at all European facilities, but it announced no closures or layoffs, which is more typical of an American-based company such as Innomet. Short working hours are nonetheless clear indications of profit issues. In contrast to Innomet, which had been selling off businesses, Chalko formed a new joint venture in 2003 by agreeing with Taiwan-based Yieh Metals to combine Chalko's operations in Wheeling with Yieh's YAPI operations in Chagrin Falls into a single joint venture operation. Both operations produced technical alloy elements for various markets. The combination of these two competitors represented a consolidation of

two significant competitors against Innomet in its home market. This was likely a move to consolidate capacities and remain competitive in the difficult market conditions. As a further indication of the difficult market and environmental conditions, less than two months after Chalko announced a price increase on the base alloy price, it was slapped with a cartel finding in Europe, along with a German and Polish group. Although Chalko did not sell off companies like Innomet did, the conditions were more difficult. From the evidence available, it appears that either both players were unaware of what was changing, or they had chosen to hide the situation because they thought it would be temporary.

Harsh Climactic Conditions Set In

Although the environment had been difficult up until this point, the major shift was yet to come. As shown in Table 6.1, there was a spike in the price of alloy raw material from 2003 to 2007. The effect of this environmental change on Innomet was immediate and clear. Innomet announced to the public that it had lost customers due to a tightening of credit terms, which was a clear indication that it had a cash problem. It then reported to its customers that raw material costs had increased 60% in 60 days and that it had seen the material cost share of its total costs rise from 40% to 80% over this time. This immediate effect showed two things. First, Innomet was caught completely unaware of this shift. Second, it revealed just how weak Innomet had been. The bravado about global ambitions through aggressive expansion masked the fundamental weakness of Innomet's business in its home market.

In May 2006, Innomet revealed that its EBITDA had turned negative, confirming suspicion that it was expending cash from its continuing operations. The company was fighting for survival. Within four months, Innomet revealed that it had been looking for a merger partner to alleviate its cash problems. Innomet management openly revealed that it had been fighting off the effects of a three-month-long strike at one of its operations. In addition, the company's operating results had been poor, recording a US\$16.9 million loss from continuing operations for the second quarter. Innomet's second-quarter numbers also included assets and debts at about \$602 million each, thus revealing its highly leveraged position. A quarterly report issued in November 2006 noted that Innomet might need to seek bankruptcy protection if it

could not reduce its debt load. More jarring news was that the consulting firm Aurum Inc. had been retained to restructure the company's balance sheet. While bankruptcy had been a possibility, the company insisted that it had enough cash to meet operational needs and make debt payments in the near to medium term. Innomet claimed that, like other companies in its sector, it had struggled because of the high cost of raw materials, which had put a drain on the company's working capital. If these statements were not revealing enough about the internal issues Innomet was facing, the actions that followed brought the cash problems clearly into focus. Innomet immediately announced that it would reduce its retirement benefits by US\$24 million in the following five years and that it would immediately shut two factories. Innomet had been caught by surprise and was not strong enough to maintain its growth through this difficult time. Innomet followed these actions with an ultimatum to the stock market in late November. It proposed either a radical restructuring of its senior debt or a pre-packaged bankruptcy under US Chapter 11 laws. Either option would only be taken as a negative indication to shareholders. The mood and desperation within the company could be seen by the disappearance of the newly appointed Chief Executive Officer (CEO) and the emergence of the Chief Financial Officer (CFO) as the main company spokesperson. The CFO went public about the full extent of Innomet's problems and how they had developed. The rise in the cost of alloy raw materials had forced Innomet to raise its prices in all alloy product lines. This led to a mass substitution of alloy for another material in one of its main sources of revenue. The company had been hit with a sudden and unexpected rise in material costs followed by an abrupt decrease in demand. The double effect of a sudden reduction in margin followed immediately by a disappearance of orders was too much for Innomet. As a final blow, Innomet was delisted by the stock exchange at the end of 2006.

Considering the timeline and story unfolding for Innomet above, one would also expect Chalko to be in a desperate situation. This is particularly true considering that it had just been saddled with sanctions by the European Union (EU) for cartel activity. Luckily for Chalko, the effect of the rising price of alloy raw materials did not have the same effect on its business. Evidence of this can be seen through its announcement of a US\$10 million upgrade of its YAPI plant, which competed against Innomet in the US. The difference in stability of the two firms is further seen through Chalko's greenfield investment in early 2007 in a factory in Singapore, which cost \$100 million Singapore dollars. Chalko's balance sheet was clearly stronger than that of its American rival. Along with many other factors, this likely contributed to the company's stability; however, Chalko may have been spared due to a more favorable product portfolio. As it is not present in the particular market for alloy goods where the material price rise led to mass substitution, the damage to its results was much more benign. Chalko continued to operate all of its businesses, albeit with reduced margins. It was spared the hasty exodus of customers that Innomet had experienced.

Not only had Innomet been caught unprepared for the sharp increase in the price of alloy raw materials, but its product portfolio also put the company in a position to be the worst hit. Chalko was an industry rival and had not shown signs of the same devastation in its businesses because it was not involved in the market that shifted away from alloy when the price surged. This bad luck for Innomet was certainly part of the story, but the company had deeper problems. This can be seen in the above account, as well as in the timeline of Table 6.1. The signs of trouble were already present. Innomet's strong push to reorganize its businesses, its occasional plant closures or layoffs, and the openly stated issues with pension costs all indicated that its business had not been running in top condition. The swift change in raw material prices represented an environmental shift that Innomet was not strong enough to survive. Innomet had to face the fundamental problems in its business because the more profitable divisions could no longer conceal these problems.

Innomet Adapts for Survival

Innomet, which was then in a position where it had to fight for its life due to a significant decrease in sales, market capitalization, and liquidity, was looking for a way to survive. Innomet turned to private equity to solve its liquidity problems, which would have been a last resort for the standing management because it also meant forfeiting control of the company to the new investor. In February 2007, a combination of Northstar Funds and the Titus Group injected US\$75 million into the group by purchasing preferred stock with a plan to more than double this amount. They would then use the injected liquidity to restructure the debt of Innomet and thereby keep the company afloat. This first step must have been considered a positive

development for all involved in Innomet. The steps that followed were most likely necessary but very painful for the staff. Naturally, the private equity groups that were investing had negotiated control of the firm in return for their investment. The previous CEO was quickly dismissed and replaced with a key person from the equity firm. The new management quickly signaled that Innomet would be restructured to focus on high-value products, such as the technical elements produced in its Guangzhou plant. Capacity used to produce low-value products, such as those were alloy had been substituted by other materials, would be quickly jettisoned. It acted quickly on this promise by selling two factories in Canada—an operating unit for US\$42 million and a non-operating unit for only one Canadian dollar. In March 2008, both Innomet and Chalko announced the formation of a joint venture in Guangzhou. Innomet's Guangzhou plant, which was called ISC and the subject of so many positive press releases, would be partially sold to Chalko, which would initially invest to purchase 30% equity, with a later option to purchase 50% (this option was exercised in 2009).

6.2 How Did the Venture Form?

All of the information that has been presented provides the background of events leading to the formation of the joint venture. It is important to know the environment and the state of both companies in the time just before the venture formed in order to understand how it came into being. From this point, the data from the interviews with two informants—the Managing Director (MD) and the Deputy Managing Director (DMD)—will be mixed with data from other sources to assemble a complete picture of events. It is important to note that the MD is from Innomet and the DMD is from Chalko. The interviews took place on separate occasions.

When and How?

The extent of Innomet Guangzhou's success was noticeable from the point of view of both parents:

You know, the American company actually was in China many years and the business was very successful... (MD)

...their operation is very successful commercially and with regard to market share and that. So, I assume Innomet sold this [company] only and primarily, or even only because they're [Innomet's parent company] having a problem/difficulties financially. Let me put it his way—and Innomet is a public listed company so quite obvious; not telling any secrets—they're a loss making company. Their balance sheet doesn't look too good...Chalko was actually ready to pay a substantial amount of money for this [company] because of its success. So, that's what I personally assume why Innomet sold this part (DMD).

This success, which comprised roughly 10 years of profitable growth in Asia, can be contrasted with the decline of the parent company in the US. The previous outline of events leading to the joint venture shows that Innomet was far from healthy even before the destabilizing spike in alloy prices. It had closed at least four plants prior to 2006, when raw material prices sharply increased. The situation then quickly turned critical for Innomet. The 2006 events shown in the timeline in Table 6.1 show the cash shortage faced by Innomet. First, it tightened credit terms for clients. Second, its EBITDA turned negative. Third, it announced that it would either look for a merger partner or file for bankruptcy. This was capped by being delisted from the stock market. The need for cash was a driving force that was similar to an animal fighting for survival. The MD confirmed this by stating that "…the financial situation of my previous American company is getting very worse. The company closed about half factories. And they needed cash!" What could be more telling about the nature of the transaction from the Innomet side than how the cash was handled?

The money they provided is not for China operation and they give money to United States. So, we do not have any capital injection; no any cash injection... (MD).

The transaction was a pure share purchase agreement of a going concern. None of the cash used in the transaction was invested in the joint venture company itself. This is further evidence that the primary driving force for the sale was the parent's need for cash.

On first observation, the timing for the formation of the joint venture could be used as a counter-argument. As the venture was only formed after the injection of capital by Northstar and Titus in 2008, cash should not have been the driving concern. Perhaps it was sold for other reasons. The new owners may have made a decision that would be difficult for outsiders to understand. The following quotations clarify the timing of events: Actually the Italian company approached American company for a long time, many times. Before that they always say, "No, no, no." But year 2006 I remember they say, "Yes, we can" (MD).

[In] 2006 it started negotiations. And the joint venture start at 2008 (MD). This shows that the decision to move forward occurred precisely during the critical time in 2006 when the price of alloy spiked and Innomet was fighting to survive. If Innomet had survived until the cash injection by the asset firms, this joint venture might never have been formed. Innomet required immediate adaptation to survive. At this point, it decided to sell a share in the strongest part of the company to prevent the entire firm from collapsing. The injection occurred and the firm later transformed to one that was smaller, more agile, and fit for survival. The adaptations made by the asset firms would not have been possible in the cash-strapped state that Innomet was in when the joint venture deal was made. However, the decision had been made in that critical moment, and Innomet was now related to its rival, Chalko.

Chalko had been interested in this division of Innomet for a long time, as the following quotations will show:

...they want to enter China market, Asian market for years and they make progress in some degree but if you don't have the operation, production based in China, service base in China, it's difficult to expand your business in this region (MD).

...for many years there was a plan to invest into having a local manufacturing factory in Asia; specifically in China, specifically in Guangzhou, so that plan was for a long time. As a matter of fact they had the plan to set up their own factory, their own manufacturing until 2008 when was it announced the joint venture. I remember I came to Guangzhou summer 2007 and at that time the plan was still on; we're going to go ahead with local manufacturing ourselves; that was the story (DMD).

...because the majority of the market or a big portion of this specific market is in Asia; specifically in China. So far we're figuring about 40 percent of the world market is actually here, happening here and Chalko did not have a major share in this market without local manufacturing, so they wanted to do this (MD).

...my perspective is, it was very natural move. Chalko would have had with their local operation; they would have had to compete against those guys to get some share and some business, and if you have a chance to just get it easy with a buy in, I think it's a natural smart decision that time having this opportunity; of course they're going to scrap it and stop the plan for their own local manufacturing. Also because no harm was done; there was no major money spent for this project. Of course there was a lot of planning
activities but I think the so-called some cost here was very low; a few hundred thousand Euros I reckon in this area (DMD).

Thus, Chalko was intent on expanding in Asia and saw that Innomet was successful. The above statements about the strategic context show that Innomet Guangzhou (ISC) was a strategic asset to both firms. The key benefits from the transaction are then clear for both partners. The topic of the benefits and costs related to this point will be discussed in more detail later.

Organization

Innomet and Chalko are both diversified manufacturers of alloy products. Although they are fierce competitors in the alloy element business, there are other businesses where they do not compete. This introduces the first challenging aspect of forming this joint organization. How can the scope of the cooperative venture be defined in a reasonable way to allow both firms to invest only in the business they want and not others? At the same time, the focal activity of technical elements is one in which they are global competitors. How can such an organization be defined to allow it to own one company when it is actually in competition in the same product line outside of this cooperation? The partners made some simple choices regarding scope as it related to business and geography in order to alleviate these issues.

Innomet Guangzhou was involved in selling a wider range of products for Innomet. Following the joint venture formation, all business functions except the technical element business were separated into a newly formed company:

...the business scope change because previously our companies are already diversified and we have a lot of different products, and so the joint venture as you know, the scope is only for one product; so other products—the American company form a new entity. We set up new company special for these products (MD).

Although this appears to be a simple solution to the problem, it is not. The new company was put in a position to procure upstream materials for the joint venture, in addition, the joint venture also sold semi-finished goods to the new, fully owned Innomet company. The situation must have been uncomfortable for the people involved, as they were recently part of the same company making inter-company transactions, and they then had to undertake the same tasks at an arm's length.

Solving the problem of two competitors jointly owning one company but competing elsewhere is impossible to solve in a clean way:

And these two companies are very active, very important players in our industries and you can say they are competitors. So, this joint venture is competitors; they're two competitors but only...the joint venture—their scope is only for Asian market, so we have a territory well defined Asian market. So, in Asian market we will work together; so this is the situation—very complicated and very strange (MD).

The logical solution of making the joint venture exclusively responsible for one geographical area makes sense, but it also creates tensions as the firm develops. The issues that rise from this choice will be revisited in a later discussion. It is safe to assume that running an operation with a fierce competitor is very delicate and should not be taken lightly. The MD frequently mentioned the sensitivity of communication within the joint venture due to the strict legal atmosphere for collusive behavior in the US.

If the potential exists for massive tension at the corporate or company level because of a marriage in the families of two enemies, as this joint venture could be viewed, then the tension at the personal level within the joint venture company must also be significant. One could imagine an initial meeting between two employees of the joint venture being an affair of suspicious stares and controlled conversation. It is difficult to imagine a cooperative venture having open communication and teamwork from the first day. In truth, this is what has occurred. In fact, only two clearly negative points were uncovered during the interview process. One related to the management of the organization, which will be elaborated upon later, and the other is discussed below:

I just know it through third parties that there have been concerns with the joint venture; more concern being with some people have negative experiences with European companies; I heard that. Others had negative experience with joint ventures in general; I heard that. Others were a bit...seem to maybe [be] a bit (angry) why they were sold; this is just for organization—didn't understand this, and so on and so on (MD).

Other than these concerns, the collaboration within the team was positive. There may have been many reasons for the minimal disturbance. Perhaps Chalko seconded very few of their own people to ISC, thereby maintaining the continuity of a wellperforming team. It may also be due to the attitude of the people involved and the strong team atmosphere that had previously existed in the organization. The below quotations provide some clues in this direction:

(We) work very closely; our relationship and trust is built up and if I'm not in company I ask them to help, to take care of my responsibility (MD).

I don't see any problems in the working level. People, you know, ordinary people are all good. The problems are normally caused by the executive or the management (MD).

It's very good in my perspective considering the circumstances. I don't think it could be much better to be honest. The atmosphere is very good. In the beginning it was never bad from the day I joined. There was never a

person has a bad attitude or there's something wrong but it also got even better over the time when I came there. So now the atmosphere is very good, very harmonious. I like that very much, and of course I try to not disturb that. I try to not change anything in that respect because I think it's very good. I basically don't do anything that they wouldn't do; just sort of follow their style because I agree (with) it (DMD).

As these quotations show, the smooth transition from a high-performing wholly owned subsidiary to a high-performing joint venture was due to several factors. First, Chalko decided to nominate a minimal number of people who deliberately avoided causing disturbances. Second, a strong culture already existed in the company. It appears that ISC had an exceptional company culture forged through strong local leadership and a solutions-oriented independence borne through necessity due to receiving little support from a distant, weak parent:

(We) are really very independent because the weak parent company in USA so we have to self realize, help ourselves. So, this company, in past 10 years, became more and more independent. That's the unique, unique strengths we have that help us to be very success in transaction after joint venture (MD).

We do. We manage that quite well. I think so. I don't feel anymore obliged to Chalko than I do to Innomet. In fact, I don't feel obliged to any of the mother companies to be honest. I feel obliged to my staff, to the current situation, my responsibilities, so that's what I feel obliged to (DMD).

There's never a worrying style mode you know; it's just (our) style because the entity has always been very independent, also in the pre joint venture phase; it has been over the years—that's my understanding from what I hear and what I observe, has been made independent very early; also localized very early (MD).

We have our own kind of way how to manage control stock I believe that its very unique; we have our own way how to run the machines, how to organize the shifts, etcetera. Machines are also probably different like they... I mean there are certain things that are equal—tooling (for example) (MD).

I believe to a large extent, a significant extent it's a unique (ISC) way of doing things; not Chalko not Innomet, also in dealing with customers both aspects (DMD).

The organization had developed a very strong and independent culture over the years, which may be one reason for the minimal transitional issues. This is an important point that draws to mind the work of Killing (1983), whose findings showed that one-parent control was more effective than two-parent control. However, hidden in his findings with little explanation was the fact that the highest-performing alliances were independent ones where neither parent had strict control.

Although the positive company culture within ISC contributed to a relatively smooth transition from wholly owned to alliance, the organization of the top management and communication with and among the parents was not without issues. Despite the excellent interpersonal communication within ISC, the environment is not a completely comfortable one, and signs for future conflict exist. The head of ISC is the MD, who was hired by Innomet at the company's inception. He did not originally come from the Innomet parent company; he headed the subsidiary for more than 10 years as Innomet before the joint venture was formed. The MD reports directly to the Board of Directors. The company also has a DMD, who came from Chalko and also reports directly to the Board of Directors. This organizational structure—where two people manage the company by committee—can work when both are aligned in their visions, motivations, and objectives, but it can also cause significant internal conflict if things go in the wrong direction. While it appeared to be a positive environment at the time the interviews were conducted, there is potential for conflict if things change in the future:

We both report to the Board of the joint venture. If you formally consider that we are basically colleagues. However, he's the senior colleague obviously; he's the GM. He's my senior basically even though he's not my boss (DMD).

This is a strange organization. It starts from ancient Rome, 2000 years ago in Rome, every town has two governance; one represent the noble class; one represent the civil class! (MD).

Fortunately, the two partners had foreseen that this unusual organization might result in uncomfortable situations in the future. For this reason, they set up a safety valve for the build up of frustration. This is referred to as the "Management Committee":

...the Board is organizing that way that they have appointed one board member to be the managing counterpart for us, right? So, there's one—they call it the management committee and this person is actually the guy we are dealing with... (DMD).

This person meets with both key executives to ensure that things move smoothly and

to deal with day-to-day issues that might require guidance from the Board, as below:

But as I said we have the conference calls once a month, once every 3 weeks and then there's always a specific topic like budget or some investment request which we need to justify then calls us... (DMD).

Despite the existence of the Management Committee, its involvement in day-to-day operations was still limited at the time the interviews were conducted. Not only did it

have a culture of independent action, but it also took pride in being able to maintain the Board at arm's length:

They [the Board] are only getting involved when we want them to, to be honest. We know how to steer their involvement. (DMD).

Beyond the pride that ISC had for independent action, there were more practical reasons why it needed to be self-sufficient. The communication between the joint venture company and the two parents was limited by legal constraints. The two are fierce competitors; therefore, the child company was described as a one-way information funnel; that is, information was permitted to enter from either side, but nothing would leak out the other end, as described below:

This is a liability of our joint venture; we're not supposed to exchange information; technical information between two companies; this is not allowed (MD).

They travel to Guangzhou and we have technical meeting and they give us formal documents, technical sheets, and these technical sheets only stay in the joint venture; we cannot give copy to another party (MD).

[We] cannot use joint venture as an information exchange platform... so we can accept help and the information and the input from those companies but we cannot exchange pass this information to other party (MD).

This means that although both parents transfer know-how to ISC, there will always be some consideration of what may leak out the other end. It was mentioned on several occasions that this created operational challenges for ISC, but that it also resulted in a stronger organization. An example of this can be seen in how a new piece of equipment might be commissioned at ISC. The drawings for the equipment are transferred, and there is a possibility of supervision assistance from either parent. However, it was more likely that ISC would have to set up and optimize the performance of the new equipment without additional support. Thus, although it would operate and manufacture the same equipment as its American or Italian parents, ISC might use different settings. Although this might appear to be inefficient, this activity forced ISC to develop a self-sufficient problem-solving culture within the company. Such independence can only be won under unique conditions. In the case of ISC, it has full control over all functional activities such as sales, operations, and finance; there are few interdependencies with its parent companies. This places ISC relatively early in the maturation cycle proposed by Franko (1971). If either Innomet or Chalko evolve toward a tighter global structure, the independence that ISC

considers imperative to its survival would transfer into a liability for a global parent seeking to standardize operative processes on a global basis.

6.3 Analysis

Biologists have offered a framework that has potential explanatory power for joint ventures and alliances in business. This theory revolves around a careful examination of the *perceived net benefits* of the collaboration in question. Any viable analysis must begin with this accounting exercise. Table 6.2 presents a summary of the benefit–cost trade-off for ISC at its formation. All comments listed below are supported by quotations that are referenced by number and appear within the text below the table.

Innomet	Benefit	Chalko	Benefit
B1.	Parent company needs CASH	B1.	Want to enter China/Asia market;
			ISC is ready-made profitable
			operation
B2.	Larger economies of scale on	B2.	Larger economies of scale on
	existing operations		existing operations
		ВЗ.	Do not have to fight entrenched
			competitor for market share
Innomet	Cost	Chalko	Cost
C1.	None perceived at onset	C1.	None perceived at onset

Table 6.2 – Initial Benefit/Cost analysis of the Innomet – Chalko partnership

This table shows the balance of benefits against costs as derived from comments made during the interviews that directly referred to the positive effects of this venture on the companies' global business. Some examples of these quotations are listed below:

Innomet

B1. One thing that happened is the financial situation of my previous American company is getting very worse. The company closed about half factories and they needed cash! (MD).

The money they provided is not for the China operation and they give money to United States. So, we do not have any capital injection; no any cash injection (MD). B2. Yeah. And something good because both companies put their products in our company (MD).Producing for both companies is a competitive advantage; that's a good result after integration (MD).

Chalko

B1. So, for many years there was a plan to invest into having a local manufacturing factory in Asia; specifically in China, specifically in Guangzhou, so that plan was for a long time. As a matter of fact they had the plan to set up their own factory, their own manufacturing...I remember I came to Guangzhou summer 2007 and at that time the plan was still on; we're going to go ahead with local manufacturing ourselves; that was the story (DMD).

...because the majority of the market or a big portion of this specific market...is in Asia; specifically in China. So far we're seeing about 40 percent of the world market is actually here, happening here and Chalko did not have a major share in this market without local manufacturing, so they wanted to do this. Oh, I know, obviously, all of a sudden it was announced, "No, we don't do our own local manufacturing; we're going to do the joint venture with Innomet (DMD).

- B2. Same as above for Innomet.
- B3. So, for Chalko, my opinion is, it was very natural move. If you have the chance to do this because with the local manufacturing they had already a very significant share of the market and Chalko would have had with their local operation; they would have had to compete against those guys to get some share and some business, and if you have a chance to just get it easy with a buy in, I think it's a natural smart decision (DMD).

The above quotations show the clarity of the points listed in Table 6.2. The two companies knew these advantages going into the venture. It is also interesting to note that one of the advantages—scale economies—was realized in the short period between forming the venture and conducting the interviews. This particular benefit could not have been accurately measured *ex ante* and is therefore a pure perception; however, it is fortunate for both players that it was realized so quickly.

Although these points are advantages for the partners going into the cooperation, this is not the only dataset available for consideration. There are additional benefits and costs that could either be inferred through comments made or via the background data. These points are manifested in the form of several critical comments about operational problems that have arisen in the day-to-day operation of the company. Such points should not be considered in Table 6.2 because they have only been perceived after the set-up of the venture. If one considers the two partners examining the possibility of the joint venture, this would be *Time 0* on the timeline (see Figure 6.1). After the venture has been formed, *Time 1* has passed. These new considerations would occur at *Time 1* + *X*. The partners could not have foreseen these considerations; therefore, they were not accounted for in the decision of whether to cooperate or go alone. They will be considered later when examining the development of the venture over time.



Figure 6.1 – Illustration of benefit/cost development over time

The balance in Table 6.2 shows that both partners should strongly be in favor of such an alliance. This particular framework is very simple and draws from only a few comments. As with all simple frameworks, it is worthwhile to step back and see whether the data fit the situation. As a detailed description of the situation for both companies is available from the data, such an examination is possible. For Innomet, 2006 was an eventful year in many negative ways. Its raw material price tripled (likely killing its margin) and its EBITDA turned negative. It searched for a white knight to save it with financing, turned to bankruptcy, and was delisted from the stock exchange. This was the same time that Chalko approached Innomet to form a joint venture in Guangzhou (according to the informants), which was perfect timing. There was no question that Innomet needed the money badly, and there were much higher ramifications for the company than giving up 50% of one of its businesses. Innomet faced the prospect of losing everything, and it arguably did, eventually. The fact that all of the cash paid by Chalko for the shares of ISC went directly back to the US parent was further evidence that the transaction was intended to pull cash back to the US parent and not further develop ISC. In this case, the strong positive perception of joining the joint venture from the Innomet side fits with the data in Table 6.2. It was worth the loss of half of its most profitable factories because the survival of the company depended on every dollar.

As two partners must join to form a joint venture, the same exercise must be made for Chalko, whose background is not as clear. Chalko was in the process of investing in Asia, as evidenced by the large greenfield investment in Singapore, which took place in 2007. However, a technical elements plant in Guangzhou did not show up as clearly on the radar. This does not mean that it does not fit. If a large portion of the market lies in Asia—the DMD stated this as 40%—then a production facility is needed in that region. Innomet Guangzhou is profitable, as seen throughout the data. Therefore, the possibility of buying into a company that: a) holds a significant market share of an important region such as Asia, and b) is very profitable and successful, would be more attractive than the prospect of investing in Chalko's own facility and fighting to gain market share in a profitable manner. The outcome of Table 6.2 is also credible, if not as clear as from the Innomet perspective.

Considering that this particular joint venture had only recently been put into operation at the time of data collection, any outcome relative to the development or evolution of this venture should be considered fortunate. Evolution is a notoriously slow process, and any large changes probably could not be observed. Nevertheless, there were some interesting observations in the interviews, where new perceptions of the benefits or costs of cooperation have occurred since the inception of the cooperation. Although it is too early to affect real evolutionary adaptation, analysis of these observations should be considered. Although clear conclusions might not be available, they might have pertinent contributions to make toward understanding how this model fits the phenomenon under observation. The addition of these new points to the previous balance is shown in Table 6.3.

Innomet	Benefit	Chalko	Benefit
B1.	Parent company needs CASH	B1.	Want to enter China/Asia market; ISC is ready-made profitable operation
B2.	Larger economies of scale on existing operations	B2.	Larger economies of scale on existing operations
		В3.	Do not have to fight entrenched competitor for market share
	Cost		Cost
C1.	Loss of existing business to global clients of Innomet		

Table 6.4 – Revised Benefit/Cost analysis after operation had begun.

This is one additional cost that, based on the data, manifested in the venture after the cooperation began. There is much that lies behind this simple new cost, as demonstrated by the quotations below, which require some elaboration:

...both parent companies are competing against each other quite hard. And those companies, their product line categories are identical, almost identical ...So, whenever you have product A, I have product A. You have product B, I have product B. So, when it goes to the customers, especially to the international customers, and they are global operation, it's very difficult for our company to say which product you should use. These are the very political things (MD).

And then the customer, because they are the global customers; anything you recommend from China will feedback to the corporate, to the US, and then it will influence the US businesses, especially now this global company set up that China is uncensored; China development center already sent in China. This global project if they use one partners product and then very soon in the United States... (MD).

Both Innomet and Chalko have nearly identical product lines in the alloy technical element business. They compete globally, but both companies must not only produce and deliver, but also sell their products through ISC in Asia. Therefore, some hazards

exist. For example, an Innomet client from the US sets up a plant in China. The ISC salesperson meets the client and must propose a product. If he or she proposes the Chalko product and this client feeds back the results to the US parent, it will create large issues within the joint venture:

We follow. And then the rest of the product accommodation and you have to basically consider what is the best interest for joint venture because some product we know the profitability of each product very well so we have to consider what is the best to our long term success in Asia market (MD).

The ISC operates very independently. At the point of data gathering, it follows a simple process. If the client is a long-term client of one parent, ISC will sell that product because it is the path of least resistance. If there were any doubts, ISC would offer the product that resulted in the highest margin for ISC. Although this is a very pragmatic strategy and no unbiased observers would fault ISC for this *modus operandi*, a risk still exists of negative consequences. If one parent perceives in the long term that it is too often on the losing end of ISC's decisions, this would be a significant cost to cooperation:

The relationship has been grown between joint venture and the Italian company and they have more and more influence and that influence is a positive influence, and help us to upgrade technology... (MD).

And US feel, "You not listen to me. Now you want to give business. Give it away; give it away!" (MD).

Based on the above two quotations, it can be observed that the course of evolution has begun. Both partners set up the venture based on the positive benefit–cost balance observed at *Time 0*. Since setting up the joint venture (*Time 1*), it has become clear that there are additional operational consequences regarding cooperation. In this case, Innomet sees that it is losing its influence and that ISC is opting for Chalko technology more often, which it considers more advanced. If this continues for a significant period, Innomet must consider this cost in how it runs its operation. If this significantly reduces the benefit of cooperating, Innomet will adapt how it works within the venture.

The evidence shows that the benefit-cost model to evaluate the motivation to cooperate has merit. Unfortunately, other models have proposed such a relationship. The important part of the biology model relates to evolution. Fortunately, the ISC case contains evidence that alliances are the result of evolutionary adaptation. This conclusion can be derived from the timing of the venture itself. It is significant that

Innomet had been asked by Chalko for a long time to sell part of its Guangzhou operation.

This shift goes hand in hand with a large change in the benefit-cost balance from the Innomet side. If Table 6.2 is again referred to, one can see that Chalko has a strong positive. This explains why it had wanted to buy part of Innomet. The largest benefit for Innomet was the cash, which only showed up in the balance in 2006—just in time to tip the balance in favor of cooperation. Indeed, it shows that cooperation in the case of Innomet can be considered an evolutionary adaptation to the more hostile environment. Further, it is interesting to note that Kropotkin (2005) predicted that cooperation is more likely to be found in the most hostile environments. When survival is at risk, working together to survive may be the only winning strategy.

6.4 Conclusion

The case of the Innomet–Chalko joint venture has provided some interesting lessons. First, significant benefits are required for cooperating in comparison with costs. This lends support to the benefit–cost balance part of the model borrowed from nature, but it does not make a strong case that this model has more explanatory power than other available models. This is particularly true because it is the evolutionary nature of this new model. The nature of the timing of the formation is evidence for adaptation. The fact that Innomet refused to cooperate with Chalko for many years, only to agree precisely at the time when survival was at stake, shows that this action was an evolutionary adaptation. The shift in behavior of the two companies also lends support to the model. Chalko's position was in favor of cooperation, as the model predicts. Innomet shifted from opposing cooperation to agreeing, but only after one benefit—the cash—became into a critical commodity. This shows that there is a need to pass a threshold in the benefit—cost balance in order to form any alliance, as predicted by biological theory.

Another important observation from this case is that the timing for the formation of this joint venture was critical. If Chalko had approached earlier or later, the venture might never have been formed. Innomet had refused many times in the past when its cash situation was not as critical, so it is reasonable to assume that it would have refused after the cash injection by the investment firm. This is despite the success of ISC as a standing concern. Therefore, the success or failure of this joint venture is not necessarily in the hands of those who are operating it. ISC management had no influence on the opportunity to form the joint venture; rather, it was determined by the external environment and the parent companies. This temporal nature is presented in Table 6.1, and although it has been alluded to by theorists, empirical evidence of this situation is not common in the literature.

Table 6.1 – Timeline of events leading up to the Innomet Chalko partnership.

Alloy price is listed for each period to show the environmental pressure exhibited

Innomet Headlines	Alloy Price	Chalko Headlines
June 1998: Innomet's Guangzhou facility was opened. September 1998: Pocatello plant closed. It was "underperforming".	42	
 April 1999: Performance in Guangzhou exceeds expectations. A second shift is added. July 1999: Innomet and competitor Bison form joint venture in Canadian market. December 1999: Innomet announces restructuring program. Will close Jacksonville and shift business. 	46	
 April 2000: Innomet Board approves share repurchase program of about 10% of outstanding shares. October 2000: Innomet acquires the joining products business of California- based Hull Corp for US\$41.75 million in October. 	57	March 2000: Chalko announces revenue down 8.3% and net profit down 28% from the previous year. August 2000: Chalko announces technical JV with Valhalla Products to develop new high-performance alloys. November 2000: Mitsubishi Tanaka announces technical transfer agreement with Chalko for special welded element technical technology.
 January 2001: Innomet announces aggressive expansion plans and cites success in Guangzhou as a template. April 2001: Innomet and Bison consolidate their operations in Canada. July 2001: Innomet builds a grassroots plant in Spain. Will use same team to start up as in Guangzhou. October 2001: Innomet, Inc. lowers Q4 Guidance and announces loss. 	54	November 2001: Chalko founds fully owned subsidiary and factory in Guangzhou. December 2001: Chalko announces reduction in production quantity and short- time work for its European subsidiaries.

by an external force (material prices).

Table	6.1	(cont.)	
I abic	0.1	(come)	

		March 2002 : Chalko
February 2002: Innomet announces that		announces a further reduction
it will pull out of Canadian joint venture.		in production and questions
		plant utilization.
March 2002: Innomet announces a 27%		
decrease in gross prom.	43	
April 2002 : Spanish plant successfully started.	-т-3	
November 2002: Innomet claims that		November 2002: Chalko and
lower profit is due to higher-than-forecast		Yieh Steel form a joint venture
interest charges.		the US.
June 2003: Innomet announces		
liquidation of the Canadian joint venture		October 2003: Chalko
and announces that a financial advisor		announces that it will raise its
has been hired to dispose of the business.	45	alloy premiums.
October 2003 : Innomet announces that it	-т.	December 2003: European
will cut 6% of its workforce and close the		Commission finds Chalko and
Texas plant.		two other competitors guilty of
A mail 2006. Language tightens and it tomas		cartel activity.
due to excessive balance sheet leverage		between Yieh Steel and Chalko
due to excessive balance sheet leverage and announces loss of customers. It is		between Yieh Steel and Chalko in US announces an investment
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue.		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months long search for a merger partner		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling		between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling match. Bankruptcy is still considered an	133	between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling match. Bankruptcy is still considered an alternative.	133	between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
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due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling match. Bankruptcy is still considered an alternative. November 2006 : Innomet announces plan for restructuring debt. If the plan is not approved, bankruptcy is considered an option. Management expects that cash flow is sufficient to service debt in the	133	between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling match. Bankruptcy is still considered an alternative. November 2006 : Innomet announces plan for restructuring debt. If the plan is not approved, bankruptcy is considered an option. Management expects that cash flow is sufficient to service debt in the short term	133	between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.
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due to excessive balance sheet leverage and announces loss of customers. It is additionally announced that the alloy price rise has contributed to the issue. May 2006 : Twelve months EBITDA turns negative for Innomet September 2006 : Alloy producer Innomet Inc. said that it has abandoned a months-long search for a merger partner because it did not find a compelling match. Bankruptcy is still considered an alternative. November 2006 : Innomet announces plan for restructuring debt. If the plan is not approved, bankruptcy is considered an option. Management expects that cash flow is sufficient to service debt in the short term. December 2006 : Innomet is delisted from the stock exchange and moves to	133	between Yieh Steel and Chalko in US announces an investment of US\$10 million to upgrade production equipment.

February 2007 : Innomet is taken over by asset management companies Northstar and Titus Group. They immediately replace the standing CEO.	210	October 2007: Chalko announces greenfield investment for a new production facility in Singapore.
 March 2008: Innomet sells its Small Element Products business to Open Capital and announces that it is forming a joint venture with Chalko by selling 30% stake in Guangzhou plant. April 2008: Innomet Inc., Reading, PA, plunges deeper into the red in the fourth quarter due to restructuring costs as it coped with a slowdown in the US housing market, but it saw better performance from its global element products. 	190	March 2008: Innomet sells its Small Element Products business to Open Capital and announces that it is forming a joint venture with Chalko by selling 30% stake in Guangzhou plant.
 July 2008: Innomet sells its Canadian consumer element unit to Canadian private equity firm Canuc Capital Corp. October 2008: Innomet sells its non-producing Vancouver plant for Canadian \$1 (84 cents) to Canada's Alloy Industries Inc. 		December 2008 : Chalko announces a further fall in production and resulting short- time work of nearly 30% of its Italy-based employees.
January 2009: Innoment announces that it has granted European manufacturer Chalko the right to purchase an additional 20% equity interest (on top of the 30% it already owns) in subsidiary Innomet Guangzhou Co. Ltd. for \$10.1 million. November 2009: Dumping case brought before the US Department of Commerce against alloy pipe manufacturers in China and Mexico.	83	

Chapter 7: Case 2—ALN Material and Huangpu Trurod

7.1 Background

ALN Material

ALN Material began operating in 1885. It was founded by a group of industrialists from the east coast of the USA and entrepreneurs who were all experts in their field. The company continued for more than 100 years, largely in the field of manufacturing trurods, where it began. A trurod is a device that is critical for the operation of many simple machines. A more detailed description of trurods and their market can be found later. Some diversification occurred, but the company's focus remained largely intact. It remained privately owned by the original five families until 1969. During this period, the original owners expanded the business in both scale and reach. They had operations in Europe, South America, Australia, and joint ventures in both Japan and India. The owners were described by Marc Buckholtz , former General Manager of this joint venture, as being "classical East Coast industrialists" who "sat around the club and smoked cigars and made decisions about what to do". The culture of ALN Material had largely been formed by the company's direction at that time.

ALN Material went public and listed on the New York Stock exchange in 1969. This was a big change for the company, and it resulted in slower international development. Buckholtz thought that this was the result of "having to justify everything to shareholders" instead of the owners making immediate decisions. The most significant changes within ALN Material at that time was to shift many operations from the northeast of the US to the south following growth in southern cities and improved working conditions being promoted by these developing areas. Despite more than a decade without major growth abroad, ALN Material management realized in the late 1980s that the potential represented by development in China could not be ignored.

At that time, ALN Material was a medium-sized US firm with sales of US\$1.5–2 billion. Its earnings were roughly 6% of sales, and the company returned more than one dollar per share to its shareholders in the early 1990s. It employed more than 16,000 people in more than 90 locations in 20 countries. Although the founders had given ALN Material an international presence, the company remained a largely American company with its critical mass in the US. This was to be its first experience in China.

Setting Foot in the PRC

After ALN Material management had met with several large state-owned companies in China, it decided that a small enterprise would be better suited to its business. At the end of its search was a small state-held enterprise called Huangpu TRUROD. The key personnel from Huangpu TRUROD had visited ALN Material headquarters in Waterford four times. The relationship was described as "reasonable" between the partners, and Buckholtz described Huangpu TRUROD as "a classic state owned enterprise run by a guy that had come up through the ranks as a laborer".

In 1989, the two parties signed a joint venture agreement to start a new greenfield operation in Guangzhou to produce trurods. Although Huangpu TRUROD had its own factory that produced trurods, the quality of the product was different to what the joint venture would produce. The decision was therefore made to set up a completely separate operation rather than buy into and modernize the partner's current operations. This meant that an entirely new factory was to be erected, and a new organization had to be built from the ground up. The basis for this decision had not been clear in the data; however, it turned out to be important in the development of the new company. The new factory was built in Minhang, which was a development area on the opposite side of the Huangpu River from Huangpu TRUROD. At that time, it was nearly a half-day drive to get from one operation to the other. No state-owned assets were transferred into the operation; all equipment was to be procured externally. However, Huangpu TRUROD contributed 10 people to the organization at the beginning. The factory capacity was to be rated at 2,500 tons of trurod products. This would have been considered a moderately sized trurod factory.

Huangpu TRUROD had been situated within the Chinese state-owned enterprise bureaucracy. The Ministry of Mechanical Industry in Beijing sat on top of the Guangzhou Bureau of Mechanical and Electrical Industry. Huangpu TRUROD reported to the Guangzhou Bureau. ALN Material and Huangpu agreed on a total initial investment of just over US\$5 million. ALN Material invested 50%, whereas Huangpu TRUROD invested only 30%. The remaining 20% was invested directly by the Industrial and Commercial Bank of China (ICBC). Why one of China's largest banks decided to invest directly into a small joint venture instead of loaning the money to Huangpu TRUROD was never clearly explained. In any case, the Chinese parties had 50% and ALN Material had the other 50%. The Board of Directors comprised six people. The Chairman came from Huangpu TRUROD, along with a person who specialized in finance. ICBC sent one person and ALN Material had three, including the General Manager of the operation. It was the responsibility of the GM to present the figures and prepare for Board Meetings, among other things.

The potential market for trurods in China had not been precisely studied, but the new ALN Material joint venture would at least start with the benefit of a famous name:

[The new joint venture] had absolutely no sales yet everybody in this country knew who ALN Material was. I called on a company that had been here since 1947; that guy could turn around and take the ALN Material bible off his book shelf, even though it had been written 40 years ago for the ALN Material Company (Buckholtz).

A famous name in China was unfortunately not enough to start a new factory; customers had to be willing to buy the products. A third-party consultant later conducted an investigation of the market by gathering all demand for similar products from the existing factories in China and presenting it as the joint venture's target market. The market study that had been utilized had made very simplistic assumptions and therefore predicted only large-scale volume estimates. Moreover, other than volume estimates, the business plan lacked many specifics. There was no production plan outlining how the facility was to reach the capacities estimated, and no details of profitability or affiliate transfer prices had been clarified.

However, the joint venture management had managed to set up an organization. There was a GM from ALN Material and a DGM from Huangpu TRUROD. They had an Engineering Department consisting of four transfers from Huangpu TRUROD. The

Human Resources Manager was the Communist Party representative for the company. They also had a Finance Department consisting of one person. As was their customary practice, ALN Material had sent a plant-engineering expert named John Duffy as the GM, as his primary job at the beginning was to build the factory and acquire production equipment. He was alone in the organization and isolated from the parent company. Sending a single person to China for such a task at that point in time had questionable effectiveness. Buckholtz described it as follows:

(H)e was here by himself which is always a no-no in that kind of a situation. Two people will give you the productivity before one person gives you the productivity for about a third. You need a couple of guys to reinforce each other to do things and things of that nature. And by the time I got here, he was just exhausted; he looked like he had been through eight years as the President of the United States and had aged accordingly during that period of time. There was an ex-patriot area called Gubei—it was out by the zoo, and I think his whole knowledge of Guangzhou was from Minhang factory to Gubei…

The joint venture started slowly. Little had changed over several years because the factory was being built and machines were being purchased. Duffy was alone and forgotten in Guangzhou, as ALN Material had bigger issues to deal with at the time.

ALN Material vs. Transvaal

During the time that the new joint venture factory was being built in Guangzhou, a dramatic event was unfolding in Waterford, which monopolized the attention of not only top management, but also the media and the public. The following is an excerpt from a news report:

The Transvaal group [construction, aeronautics, energy] is launching a public takeover bid totalling \$1.64 billion on all shares of the American group ALN Material (devices). ALN Material's profits after taxes are \$83.8 million, with \$1.43 billion recorded in sales in 1989. The bid will expire on 20 May 1990 and will be unconditional once two-thirds of the capital has been acquired. If ALN Material's management does not accept the bid by the end of March, Transvaal will endeavour to have a majority of South African representatives elected to its board at ALN Material's general assembly in May... (BTR takeover bid on Norton, 1990, p. 18).

This takeover bid was immediately labeled as "hostile", and the management of ALN Material and much of the public in Waterford sought to fight it. Transvaal—a large global group well accustomed to takeovers and the many reactions of their targets— immediately set out to counteract this bid by moving to plan B:

Transvaal, which owned 326,000 shares, or 1.6 percent of ALN Material, threatened a proxy fight to win control of ALN Material's board of directors. The South African conglomerate fielded its own slate of nine nominees to take over control of the 11-member board. To buy time, ALN Material countered by delaying the stockholders' meeting, but lawyers for Transvaal quickly filed suit to have the meeting held as previously scheduled. The court sided with Transvaal... (Donker, 1990, p. C1).

ALN Material had failed to delay the meeting and counter the threat of a proxy fight. The clock was ticking and ALN Material was running short on options. Fortunately, the story had created public outrage toward Transvaal. There were demonstrations in Waterford, which included burning the flag of South Africa, where Transvaal is headquartered.

With ALN Material, a large local employer, in serious danger of a buyout by a foreign entity, the state government in New York became active and intervened to obtain more time for ALN Material management at the end of April 1990. The state governor managed to push through legislation that inhibited a proxy fight scenario. The threat of a proxy fight had now been put aside through political intervention, but Transvaal's desire had not diminished. Although the option of a proxy fight to shorten the battle was no longer available, Transvaal's takeover bid remained in place and could be extended if needed. ALN Material had bought more time, but it was not safe yet.

Only a few options remained for ALN Material. It could find a third party to purchase a large-enough block of shares, thus blocking Transvaal from acquiring control of ALN Material, or they would need another bidder to enter the game. ALN management hoped for the blocking scenario rather than a new buyer; however, two new bidders came forward. One was a group of employees headed by a former board chairman who wanted to conduct a leveraged buyout. Although a local buyer would undoubtedly be popular with the local public and media, ALN Material management doubted the financing and business plan of this group. Therefore, it opted for the other bidder who was ready to face Transvaal. On April 28 1990, ALN Material announced to the Securities and Exchange Commission that an unnamed firm had placed a bid of \$US1.98 billion for ALN Material. This amount was significantly higher than the \$US1.64 billion offer by Transvaal. This alternative bidder—another large foreign company called Mokster—was portrayed in a different light than Transvaal.

Mokster did everything possible to project an image that was the opposite of Transvaal. It campaigned heavily in the media (many press releases were made about its management style) to convince the public that it would not threaten the "home town" company that ALN Material had represented. Taking it one step further, Mokster deliberately set out to co-opt the existing management of ALN Material by extending its contracts so it would strongly support Mokster's bid.

Post-Merger Shakeup

Mokster paid a large sum of money for ALN Material. It should be surprising that it would pay so much money but commit to operating the company as it had been operating since its float in 1969. One reason why Mokster was favored was that it operated in similar businesses. Some synergies must have been present for Mokster. It acquired ALN Material and immediately asked the existing Chairman to leave. Considering the story until this point and the manner in which Mokster had sold itself to the public, this action led to an uproar, including accusations from Transvaal management that the public, management, and shareholders of ALN Material had been duped. This did not deter Mokster, which continued with high-profile changes while simultaneously embarking on another charm campaign in the press.

7.2 Back to the Long-Forgotten Joint Venture in China

Where am I?

Considering the drama that had unfolded, it is not surprising that the joint venture company only began real operations in 1993. The new incoming General Manager, Marc Buckholtz, described the situation as follows:

So the focus within the corporation on our side really was lost in this whole thing and meanwhile we had the partners over here building a building; very Chinese building, you know, sleeping room in the general manager's office and all this type of stuff; no quality assurance in the construction. [Everything was] price orientated when it came to buying stuff so there was sub-standard everything in the building; roof leaked for two years before we finally got the roof leaking to stop; plaster would fall out of the ceiling.

That first day I walked in the plant a piece of plaster about 12 feet long fell on the floor beside me! "What am I doing here?" But organization, yeah, we then set up a very normal factory organization, a GM, with a Manufacturing Manager, Engineering Manager, quality assurance guy...

Well into 1993, the construction of the new factory had not been finished. The construction company had been paid \$10 million of the \$14 million construction cost. When Buckholtz arrived and the operation was due to start, the construction company was asked to exit the operation. The joint venture negotiated a settlement with the construction company of \$12 million. Huangpu TRUROD recommended the legal counsel that facilitated this action.

The building was only one of many challenges that were encountered at the start of the operation. One large specialized piece of equipment is required to manufacture trurods. The original intent had been to purchase this equipment abroad and import it to China. By 1992, when the joint venture had been ready to purchase the equipment, it was already short on cash, so it searched for a press from a local manufacturer. However, presses from specialized local manufacturers were also well above the budget, so a shipbuilding company was contracted to design and build the press for the operations. Although a press was delivered, it had difficulty performing to requirements because a high, stable pressure is required to produce high-quality products. The press was reinforced afterward by one of the joint venture engineers. It was far from an optimal factory set-up. With the help of conscientious operators and a

good preventative maintenance program, it ran 365 days per year to make a product of sufficient quality.

Overcoming the deficiencies in the building and machinery was only the beginning. A far greater challenge was building a competent, high-performing organization. The advisors from Huangpu TRUROD suggested that the joint venture should compensate its personnel at the same level as the Guangzhou-based parent company. Factory workers received 300 Chinese Yuan per month and managers received 800 Chinese Yuan per month. The joint venture management quickly realized that this was not going to work. After people were trained, they left for a significantly higher salary elsewhere. After trying to recruit a number of people, the management realized that they should be paying the factory workers 800 Chinese Yuan per month. This put them in an uncomfortable situation. They then had to correct the salaries of previously hired workers so that new colleagues were not earning nearly three times as much as those working next to them. It was described by Buckholtz as "a very difficult, stressful time to go through".

This was only one of many personnel issues that had to be dealt with. The next issue involved a former employee of Huangpu TRUROD, who ALN Material had hired in the US:

The relationship started out strange. We found a guy in the United States. I don't know how ALN Material found him but it turned out the guy was more or less a defector from Huangpu TRUROD. Somehow he had got out of China, I would say in the mid 80's, and went and got his MBA at SUNY in New York and was basically supported by the company to do that, and then he never came back. And somehow ALN Material found this guy and hired him with the expectation that he was going to come over and become the general manager in the startup company, and the minute the Chinese partners found out about it, they went crazy because they thought the guy was still worked for them... (Buckholtz)

ALN Material paid this person US\$80,000 per year, whereas he should have been earning 800 Chinese Yuan per month (US\$1,200 per year) at Huangpu TRUROD. This was a very serious issue and, as described by Buckholtz, "drove a spike right through the whole thing from the beginning". The cooperation and involvement of the partner was necessary, but it was difficult to manage due to this personnel issue. Buckholtz would drive over to the Huangpu TRUROD facility to meet with the Chairman of the Board twice per week. He claimed that he could not begin to talk about business in his first several meetings because they got stuck on the topic of this "defector". The situation improved after ALN Material Headquarters was told to keep the "defector" on the payroll because his background was very strong, but that he must be deployed elsewhere. He would never be successful in this particular joint venture.

Building an Organization

After Buckholtz arrived in Guangzhou to take the operational helm from Duffy, the latter's assignment should have ended. Instead, he stayed on for some time and was assigned responsibility for plant and manufacturing engineering personnel with the title of Deputy GM of Engineering. Wu Luqun, the most senior of the workers assigned to the joint venture by Huangpu TRUROD, was named Deputy GM of Manufacturing and assigned the task of managing the factory. The Communist Party Representative in the company, Zhao Huibin, was named as Director of Human Resources, and Gan Jing was Director of Finance.

After six months, Wu's performance was not meeting expectations. He had difficulty managing operations and had difficulty understanding the context of product quality expected of ALN products. Trurods have different formulations and measure performance parameters such as density depending on the grade of that particular product. For example, instead of setting the production parameters and formulations to make grade A, Wu would manufacture products and allocate them to grades A, B, or C based on which grade fit best in relation to the actual performance parameters. ALN had been expecting that the factory would work according to globally accepted quality processes, and this type of behavior was not acceptable. Wu was 53 years old and had worked his way up through the ranks. ALN could not fire him, so Buckholtz found another solution:

I left him in that spot but I told him to come into work every day and to go into his office and close the door and to come out every night and get on the bus and go home and never to show his face and I told him I'd pay him. He was about 53; he had another two years to go before he became eligible for retirement; turned out to be a very good deal for him because during that period of time they had introduced the social security law...

Zhao Huibin, the Communist Party Representative and HR Manager, had been the only other senior Chinese staff member who had any experience operating machines. Buckholtz asked him to take on the role of factory manager without the title held by Wu. Zhao said that he had done the role before and was not interested. However, after less than one hour of discussion, Zhao went down to the production floor and took charge. Buckholtz considered him the best factory manager he had ever worked with.

Surfacing of a Fundamental Issue

The entire business plan had been built on the work of an outside consultant. Based on the consultant's figures, the plant was expected to run at 50% capacity (1,250 tons) in the first year and 100% in the second year. Of this volume, 30% was to be exported and the remaining 70% was to be sold domestically. One of the founding principles of the joint venture was that Huangpu TRUROD would use its existing market connections to develop sales on behalf of the joint venture. Although Huangpu TRUROD had portrayed itself as a trurod company, its focus was on lowerspecification products and not the industrial products manufactured by the joint venture. This meant that it did not have any market penetration in the joint venture's target market segment. Further, its sales force did not have the background and experience required to sell the joint venture's technical products. ALN Material had brought products, manufacturing technology, and knowhow into the joint venture. Huangpu TRUROD was primarily responsible for bringing sales, but it was not fulfilling its part of the bargain. Buckholtz then hired three salespeople to work directly for the joint venture and sent them to Waterford for a condensed product training course. Selling trurods to industrial clients is highly technical, and clients expect suppliers to have enough knowledge to recommend the right product. Following the hiring and training of an internal sales force, the joint venture now had direct contact with the market.

Early into the sales campaign, ALN Material encountered the next barrier. Many of the clients had known ALN Material's products; its reputation was built long before the People's Republic, when its trurods were imported into China. Its name and product designs were in Chinese textbooks, and customers had been very positive about the products and their quality. However, they all reported that they would not be able the pay for the products. The reason for this was twofold. The largest part of the volume calculated by the market consultant had been the demand of state-owned enterprises. At the time, these enterprises did not have cash to pay for any products. Most products moved between companies with relatively little real cash flow. Payments were made with a promissory note, which had been taken out by one company, who agreed to pay six months later. This promissory note was then passed to the next company, which endorsed it and used it to pay its suppliers. Therefore, there was no real cash flow. This system was unworkable for the joint venture because it had real raw materials to import and real salaries to pay. It could not survive without cash flow.

The other important target segment for the joint venture should have been foreign transplants to China. This group consisted of the same clients that ALN Material sold to in overseas markets and that had built new operations in China. In 2010, this was a very lucrative market segment for ALN Material. Unfortunately, its joint venture needed sales in 1994, and most foreign companies had not yet set up full operations in China. Most were importing only semi-finished products and stocking them or doing some small finishing work. It turned out that ALN Material had invested far in advance of the demand curve. The marketing consultant had forecast significant demand, which occurred more than four years later, but there were few options open to the joint venture in 1994. Buckholtz made the following comment about the data provided by the marketing consultant:

So in and of itself it was a good thing but the expectations...it was four years so it took a long time to get to where they said they thought we should be. In hindsight it was the right thing to do. If lying to the Board of Directors to get your way is the right thing to do, it was the right thing to do and in the end the Board of Directors benefitted from it too...

Despite having no sales, the joint venture had to do something to generate revenues. It had invested in bringing people from the US to train 150 people in the factory. The cost of labor was not high, so it made no sense to lay them off, but at the same time, the staff could not simply sit in the factory with no work. Knut Hamsun found the solution.

Knut Hamsun was the President of Mokster USA and held the position of a Regional Delegate reporting directly to the CEO. Mokster had Country Delegates and Regional Delegates in nearly all countries and regions globally. These delegates reported outside of the normal operating structure and had significant influence; the Regional Delegates reported directly to the CEO of Mokster. This was a rather complex reporting structure and meant that the reporting lines for Buckholtz were as follows. Buckholtz reported to the Board of Directors as the GM of the joint venture. At the same time, as part of the Trurod Division, he reported this business to Waterford HQ and finally Knut Hamsun. There was a third reporting line to the China Delegate in Beijing, who also reported to the Asian Delegate in Tokyo. This created a rather confusing reporting situation:

...trurods, even today is less than six percent of total revenue for Mokster. So these lesser businesses that don't have at least two digit percentages of the contribution; they tend to leave to the country delegate even though those businesses might be multinational businesses (doesn't make sense). So it is a bit confusing because while I was over here the China delegate was a guy in Beijing who reported to the Asian delegate who was a guy in Japan and on some things I was talking to them about it; on other things I was talking back to the president of the trurod branch about... (Buckholtz)

Hamsun was the American Delegate and President of the US companies, including ALN Material. He was also more influential than even these two lofty positions entailed. He had a close relationship with the CEO, Alek Aukrust, and had been considered for the top job at one point. For this reason, Hamsun intervened in the operation of two Asian sites.

ALN Material had another joint venture for manufacturing and selling trurods in Japan. ALN Material, and therefore Mokster, owned only a 40% share of this company. Due to legal constraints in Japan, a foreign company in ALN Material's field could not fully own a legal Japanese entity. Mokster therefore could not buy out the partner. According to Buckholtz, this did not please the Mokster management, and they wanted to separate themselves from this business but still have access to the Japanese market. At this point, Hamsun stepped forward with a solution. At the time, property prices in Tokyo were increasing rapidly, and the ALN Material joint venture in Japan rested on valuable real estate. Hamsun proposed to sell ALN Material's share

of the Japanese firm but to continue the relationship. His proposal included shifting production to the new facility in Guangzhou and selling the end products through the partner in Japan. The result was a benefit for all. The Guangzhou joint venture was then loaded with production, and the Japanese partner could still have revenue and profit from the trurod business. However, this decision had wider ramifications for the partners.

...we were going to take anything we could get that was going to fill that plant up because we were starting to get hungry... (Buckholtz).

We had two Board meetings over a three month period and remember now, everybody's frustrated because this factory's not filling up like it's supposed to and in comes ALN Material company and they say, "Well, we can consume 1200 to 1400 tons of this stuff by selling it to our operation in Japan, but to do that we have to put another \$1.5m investment into the business". And the first reaction from the partners was, "No, we can't do that. We're not going to put any money into this thing". And then over those three months my job was to go over and slowly get them turned and to recognize that by doing this it was the right thing... (Buckholtz).

After many rounds of discussion, neither Huangpu TRUROD nor ICBC would commit to investing their share of the \$US1.5 million required to set up the plant to meet quality requirements in Japan. At the same time, they would not agree to allow their share of the company to be diluted. This resulted in an impasse. The following compromise was offered:

When we put the \$1.5m into it neither the bank nor the Chinese partner wanted to put any money in so we put it in as a loan to them, and the other snag was that if they didn't pay the loan back in a year then it would revert to stock; a change in the stock ownership in the company. Basically it took it from a 50–50 joint venture to a 75–25 joint venture... (Buckholtz).

I mean they could have come up with the money. You know ICBC has more money than God and they could have lent it to the partner but I think what they were doing is they were saying, "Alright, we'll let you give us this loan for a year and then we'll stand back and see if this really bears fruit. If this selling into Japan starts making good profits, yeah, we'll jump on the bandwagon and do it" (Buckholtz).

The compromise was successful, and the decision to invest was agreed unanimously as required by the joint venture rules. With all of the parties agreeing to utilize the Guangzhou factory to produce for Japan, work began on preparing the factory to meet this challenge. Around \$1.5 million needed to be invested, and the quality of the product had to meet the stringent specifications of Japanese clients:

The Japanese trurod plant moved five guys full time into china and I worked with those guys for almost two and a half years. That was two and a half

years of hell and in reality it was the best thing that ever happened to us because the technology that had been transferred to the joint venture by ALN Material in the United States was very poor. It wasn't bad technology; it was the documentation of the technology was poorly done and we tried for about three months to make the US technology's products just fit the Japanese market, and finally we threw it all out and just went with the Japanese technology (Buckholtz).

And that really was what made the company in China. We had almost a better trurod product than we had in the United States. We had lower rejection rates; we had better appearance; we had better everything and we had five Japanese guys working here full time. In the United States we would have never thought of putting anybody other than GM and maybe one or two other guys over here. And you know, in defense, the Japanese lived very differently as expatriates in China than the Americans did, so they can afford to do that (Buckholtz).

The entire production setup was to be rapidly improved. ALN Material implemented

Japanese technology and Japanese quality systems. This was not a simple process:

I used to collect all rejects in a month. The first month I had a full month of trurod production as rejects. We had probably a five-meter high factory; we had a big warehouse area. We just piled these things up. It was a cone of trurods that was... I'll bet you the base was 20 meters wide and the height was 20 meters high and I would have my company meeting in front of the pile... (Buckholtz).

All of the work eventually paid off. Within a two-year period, the pile had more or less disappeared. The factory was successful and things were looking positive. The sales for the joint venture grew, profitability grew, and people's salaries increased. The atmosphere within the joint venture had improved significantly compared to the end of the first year.

As the business began to improve, the relationship between the partners began to sour. Although Buckholtz insisted in interviews that the partner was helpful and that there was no serious internal fighting, several examples of conflict came to light. The first related to perceived competitive behavior by Huangpu TRUROD toward the joint venture, of which it still owned 50%:

...we would go to the machine tool show in Beijing. We'd have an exhibition there; the first year we had a TV/DVD running about the company and we had a very Americanized/Westernized display booth in the trade show. And then the next year the Chinese partner would have the same display, same colors, changed his branding colors to the same as ALN Material; had his own TV program. It was kind of like he was now trying to develop his own tool product market to compete against this joint venture (Buckholtz).

We would do something in the company and then we'd find them doing something similar over in Huangpu TRUROD even though nobody from [Huangpu TRUROD] had been here except the 10 spies that were assigned here in the first place (Buckholtz).

When asked whether Huangpu TRUROD was actively involved in stealing technology, Buckholtz answered "no". The underlying technology used by Huangpu TRUROD had not changed, showing that it did not take valuable production technology. However, the tendency to imitate the joint venture continued to cause friction. Aside from imitating the joint venture, Huangpu TRUROD representatives on the Board would resist implementing new initiatives that were considered essential operational topics by joint venture management:

I would say it was a negativism that would come out of the people that were working in the business most of the time. We'd say, "Okay, let's put a quality control system in", and then you'd hear grumblings from people about, "Well, what do we need to do this for? We don't do that over at Huangpu TRUROD", that type of thing; nothing overt though. In many ways he was helpful (Buckholtz).

Interference in the daily operational duties of management could have escalated tensions within the joint venture because it would make the job of management much more difficult (Killing, 1982; Barden, Steensma & Lyles 2005). This behavior was perceived by management to be increasing:

I would terminate somebody in the company and I'd get a phone call the next day from the chairman of the Board asking me why. It wasn't one of his people; it was a different person. So, no matter what I did in the company the chairman of the Board knew about it within two days. It was just one of those things where it was getting harder and harder (Buckholtz).

It is difficult to ascertain whether the Chairman was interfering in operational matters more frequently, or whether the perception of management toward this behavior became more sensitized. Joint venture management heeded much of the advice from the partner at the beginning—for example, when setting salaries—only to later realize that a different approach was needed. This perception of increased interference may have been the result of the building success of joint venture management's initiatives against the perceived failures of the partner's advice. Unfortunately, there was no clear evidence to confirm whether the "meddling" behavior of the partner was truly increasing or whether it was only a perception.

There was one significant issue lurking in the joint venture operation. ALN Material and Mokster executives began to ask themselves internally what the partner was contributing to the joint venture:

...we were starting to make money and we were sharing it with this guy who wasn't adding any value to the proposition (Buckholtz).

Huangpu TRUROD brought its local knowledge and local market and sales knowhow to the venture. ALN Material brought everything else. After operations started, the joint venture found that the partner could not bring sales. It had started to earn money but only because Mokster and ALN Material had arranged for the joint venture to sell its products internally to Japan. They were sharing this profit 50% with the partners. Was the local knowledge provided by Huangpu TRUROD really worth this amount? In addition, they were reluctant to even invest the required amount needed to prevent the losses that accompanied an extended period without sales. ALN Material and Mokster decided that it was time to buy out their partners.

Negotiations then began with the joint venture partners. This was more complicated than it sounded because ALN Material needed to negotiate with both Huangpu TRUROD and ICBC. It was difficult to predict how these parties would receive such a proposition. In hindsight, joint venture management had a good idea how they would react:

We've got ICBC headquartered in Guangzhou with their money invested in a trurod manufacturing company that probably in its best day can only make about a seven percent return on investment anyhow. And they're looking at all the buildings and roads going up saying, "We'd really like to get our money back to do that". So they wanted to get out (Buckholtz).

The Chinese partner, I don't think, cared anymore. He was probably more frustrated because we were going head to head on stuff (Buckholtz).

Before the negotiations started, ALN Material's management believed that both minority partners would be interested in selling their shares. This ended up being more complex than anticipated.

The Huangpu TRUROD delegates ended up agreeing with the buyout, although they were not particularly happy with it. As predicted, ICBC was more than happy to get its money out of the investment. The difficulty came from the necessary approvals. First, they needed the board of Huangpu TRUROD to approve an \$US8 million investment, and thereafter the approval of the electrical mechanical bureau of Guangzhou was required. These parties were not happy to hear about a buyout of the joint venture because foreign companies were still required to form a joint venture if they wanted to invest in China at that time:

[The Huangpu TRUROD board] were adamant it wasn't going to happen because they had joint ventures with other large famous companies. They didn't want to be seen setting a negative trend (Buckholtz).

And then when it got to the mechanical electrical bureau that guy was just adamant that it was not going to happen (Buckholtz).

So we were getting, "Yes" on the bank side, "It's okay with me if it's okay with my dad" on the Chinese side and then dad and granddad saying, "No" (Buckholtz).

This created an awkward situation. The Board of the ALN Material joint venture had therefore voted unanimously to execute the transaction and allow ALN Material to buy out its partner; however, higher authorities were refusing to allow it.

ALN Material did not accept this response and examined how this could be changed. The reporting structure of the joint venture within the Chinese bureaucracy is shown in Figure 7.1.



Figure 7.1 – Chinese ownership structure ALN Material JV

There still remained one hope. If ALN Material could convince the Ministry of Mechanical Industry (MMI) in Beijing to agree to the sale, it could overturn the decisions of the two parties. ALN Material opened discussions with key people in MMI and invited them to Waterford HQ to discuss the future of the joint venture. One might expect a lavish visit with entertaining, but this was not how events unfolded:

You know we didn't really do anything other than bring them back to the United States for a visit and discussions. I think we paid the bill on that and as I recall they didn't even get the side trip to Las Vegas or anything like that. We just brought them back in to New York for a couple days for meetings and then they got on a plane and went back to China (Buckholtz).

When the delegation from MMI returned to China, they did not issue a public decision to overturn the others. Instead, something was done behind the scenes. Huangpu TRUROD and the Guangzhou Bureau of Mechanical and Electrical Industry both suddenly changed their minds and allowed the sale to proceed.

The buyout then proceeded as desired by ALN Material. Its business continued to grow in China, and the market eventually developed. Several press releases showed a number of China-specific products being launched for its Trurod Division. This, coupled with the expansion of its production capacity in a new factory in nearby Jiangsu Province, is evidence that the business ended up being successful for ALN Material and Mokster. Regarding Huangpu TRUROD, the company no longer exists.
It should not be said that the breakup was happy, because setting up and running a joint venture with a foreign company was a badge of honor for Chinese bureaucrats. The breakup may have had negative career consequences for the Chairman from Huangpu TRUROD; however, details were not available in this regard.

7.3 Analysis

This joint venture traveled through the entire lifecycle from formation through to a buyout. Considering that data were available for analysis over this entire period, the starting point is the benefit–cost trade-off at the time of formation from a retrospective account.

ALN	Benefit	Huangpu	Benefit
Material			
B1.	Required joint venture by China	B1.	Communist party recognition for
	(prior to January 1, 2002)		forming joint venture with foreign
			company
B2.	Sales connections and market	B2.	Bringing foreign currency to China
	access		PR
B3	Local knowledge	ВЗ.	Connection with famous brand
			name
ALN	Cost	Huangpu	Cost
Material			
C1.	None perceived at onset	C1.	None perceived at onset

Figure 7.2 – Benefit/Cost analysis of the ALN partnership

The information in Table 7.2 must have some support from the interviews or research data. This support can be found in the below quotations and statements, which are listed according to the heading number.

ALN Material

B1. On January 1, 2002, the government of the People's Republic of China loosened regulations allowing foreign companies to form a Wholly Foreign

Owned Enterprise (WFOE) in China. Prior to this date, the law required a joint venture with a local shareholder.

- B2. Huangpu TRUROD had positioned itself as a local manufacturer of trurods. Its local market and product knowledge was expected to be a benefit. It later became clear that its technology was not comparable and its local knowledge was not valuable for various reasons.
- B3. There is strong evidence that ALN Material relied heavily on the advice of its partner at the beginning. A valid example of this can be seen from the setting of workers' salaries. Again, the value of this advice was questionable; however, this knowledge was only *ex post*.

Huangpu TRUROD

B1. Buckholtz stated:

I think it was clear, I get to put a tattoo on my chest that says, "I started a foreign owned joint venture..." I don't think they ever had any intention of really even participating in the joint venture.

B2. China needed foreign investment to privatize and modernize its outdated production assets. It therefore looked highly on cadres who could bring in foreign capital:

It was a prestige thing for this guy to say, "I'm a state owned entity in China and I brought foreign capital investment into the city of Shanghai" (Buckholtz).

B3. There is evidence that ALN Material's name was very valuable in the Chinese market. The story quoted earlier about the visit to the client who showed Buckholtz that he had an old book published by ALN Material is one example. The other example is the fact that the Chinese partner tried to copy the *image* of ALN Material. Thus, the ALN Material name and image must have a positive value.

The above points provide evidence of the benefits foreseen by both partners going into the venture. It is important to note that these benefits are perceived benefits and not actual, measurable benefits. One might say that B2 for ALN Material was not a benefit because Huangpu TRUROD was never in a position to bring the sales expected. How can this be considered a benefit if it is an illusion? This is a valid

question in an *ex post* sense only. At *Time 0*, ALN Material did not know that Huangpu TRUROD was not capable of providing these sales (see Figure 7.3). This only became clear to ALN Material at *Time 1* + X. The shift in the balance of the benefit–cost equation must be considered a probable reason for the later breakup of this partnership. ALN Material expected the partner to bring some value but discovered well into the operation that it was shouldering the full load.



Figure 7.3 – Illustration of changes in benefits/costs over time.

Two key events occurred during the lifetime of this collaborative venture that were relevant from a Darwinian adaptation perspective. One key event was the early *starvation* of the newly formed company. With no revenue to pay costs, the company faced death (from poor liquidity) from the beginning. Adaptation was necessary for survival. The second key event was the shift in the benefit–cost balance, which occurred between *Time 0* and *Time 1* + *X*. Although this does not appear to be cause for adaptation at first glance, biologists have observed surprisingly similar behavior between plants and mychorrhizal fungi. Each of these events, along with their ramifications, will be discussed below.

Darwinian Adaptation

When the newly formed company was faced with the prospect of no liquidity due to a dearth of sales, something had to change. Both companies—ALN Material and its

parent, Mokster—had significant means. A solution had to be found and Mokster presented it. If customers were not buying in China because the market had not yet developed, then they would use the capacity for the Japanese market as sustenance while waiting for local clients to be in a position to buy their products.

This particular example is illuminating. The newly formed joint venture company had adapted in order to survive. The Chinese market could not supply sufficient revenue, so it shifted its sights despite the fact that the partnership was originally set up exclusively to develop a business in China. Japan had never been in the discussion. This is similar to animals living in a particular habitat for millions of years, only to see that habitat slowly disappearing. As this happens, the animals adapt and shift to a new habitat. Coyotes have seen their traditional habitat and food sources dwindle in North America over time. The fact that they are now starting to move into cities to find new food sources is a valid example of this type of adaptation (Timm, Baker, Bennett & Coolahan, 2004). Although this is a clear example of the potential benefits of using existing biological analogies as a reference point for companies, this behavior is not isolated to joint ventures and alliances. Any subsidiary could evolve through similar events in a similar way.

One of the earliest known mutualisms in nature exists between land plants and mycorrhizal fungi (Sachs & Simms, 2006; Douglas, 2008, 2010). Nearly 75% of all land plant taxa are involved in this mutualism, and researchers believe that this cooperation evolved 400 million years ago, when plants first started to develop on land (Douglas, 2010). Plant roots have tiny root hairs, but they are still not small and numerous enough to efficiently extract nutrients from the soil. This is where the fungus takes over. It can efficiently extract more nutrients and then pass them on to the plant. The plant in return then passes on photosynthetically generated carbon (Sachs & Simms, 2006). The fungus therefore acts as a partner to assist plants to move into a new habitat: land.

The fact that this mutualism is so old and pervasive may lead one to conclude that the fungus can be found universally within the 75% of taxa involved in this cooperation. This is not the case. In soils that are particularly rich in nutrients, plants do not cooperate with the fungus even when present. This means that despite being such a successful collaboration, plants will not cooperate unless *needed*—that is, unless there is a clear benefit to doing so. If the fungus cannot provide a benefit, the plant will happily revert to mutualism-free life, because cooperating with the fungus has a cost. The plant must supply carbon. If the plant cannot receive highly needed nutrients in return, why should it cooperate?

This is a strong analogy. The fungus acts as a partner to assist the plant to survive in an alien habitat. Huangpu TRUROD acted as a local partner to assist ALN Material to bring its successful business to China. Before the formation of the venture, both companies believed they would bring value. As the operation began, the new company found that its habitat was far more hostile that anticipated and that Huangpu TRUROD could not bring the nutrients needed for survival. The parent company then adapted to supply more nutrients to the joint venture. In doing so, it led to the inevitable question of whether cooperation was valuable. The following quotations from Buckholtz reinforce this point: Our joint venture partner was contributing nothing...He became nothing but a financial investor is what it boiled down to.

...we were starting to make money and we were sharing it with this guy who wasn't adding any value to the proposition.

Of course everybody on our side was looking at it saying, "Yeah, but you're not doing anything to help us make those profits so we don't care whether you come in or not".

We just knew that...the end result was going to be the partners were going to leave. It was kind of like we can't get it by growing sales in China. So it turned out to be the only solution was to convince the Japanese to shut the factory down, sell to them, get this plant running at 40 or 50 percent capacity, gradually grow in the Chinese market as the opportunities come along, and if that meant sacrificing the partner in the end, so be it.

This analogy holds not only for this particular case, but also for most cases of market entry joint ventures where the local partner is providing local knowledge exclusively to the partnership. Studies investigating this type of joint venture are not scarce. Exceptional examples include the Uppsala School of foreign market entry (Johansson & Vahlne, 1977), as well as theorists focusing on how learning alters this relationship (Inkpen, 1995). These existing theories are beneficial toward understanding market entry alliances and joint ventures; however, the biological analogy could provide an alternate view. Both learning models previously referenced could reasonably explain this particular case. Although capable of explaining the events in this case, the biological analogy does not necessarily provide a deeper or richer understanding. However, the biological theory may have a wider span of application than the learning theory. For example, it could explain a case where the foreign partner buys out the joint venture solely because the host country changes a law requiring the foreign parent to find a partner at market entry. Such a case would not be dependent on learning. However, the biological analogy remains valid.

Control

Investigative rigor requires discussion about control theory and its possible application to this case. As commonly presented by Killing (1982, 1983, 1988) and Ding (1997), control theory states that joint ventures are unstable if control is shared. Ventures with dominant control can adapt quickly to the environment by grasping opportunities and avoiding pitfalls. As argued in this theory, those with shared control suffer due to slow decisions and their inability to act or react quickly. In addition,

Barden, Steensma and Lyles (2005) found that local partners who try to wrestle control angered foreign partners when they had contributed significant technical resources. The below quotations by Buckholtz insinuate that the Chinese partner increasingly tried to become involved in the daily operation of the business:

I would terminate somebody in the company and I'd get a phone call the next day from the chairman of the Board asking me why...So, no matter what I did in the company the chairman of the Board knew about it within two days. It was just one of those things where it was getting harder and harder.

So it made it easier to go about doing the day to day business and if we needed a new piece of equipment, we'd just buy it and we didn't have to worry about the chairman of the Board coming over and whining and scuffing his feet on the floor because we had to buy another \$10,000 battery charger or something like that. They were the classic guys that never saw the big picture and always whined and complained about little things. Got to go over and eat in the cafeteria and come back and say, "You know what, I think you spend too much money feeding these employees. There was too much meat".

...it was like a mosquito in your tent. It was kind of how I'd liken it. It was always there and every night before you went to bed you had one more thing to do to just explain to this guy that there was just nonsense. It just wasn't a partnership made in heaven right from day one. Nothing turned around like it wasn't like, somebody turned the lights on because the partner was gone; it just basically gave us the freedom to begin to move at a faster pace forward towards doing the right thing without this little annoyance all the time, whining about everything that was going on.

These statements provide sufficient evidence that the Chinese Chairman's increasing meddling in the daily business caused friction in the company. ALN Material was happy to have full control. It could act or react quickly and did not have to waste time convincing someone whose opinion had not brought value. In this way, the conclusions drawn by the control literature can provide explanatory value for this particular case.

If control theory provides a suitable explanation, does it provide a better explanation than either learning or the biological analogy? This is difficult to assess. The three quotations above suggest that control has some application in this case. The timing of real events, such as the buyout of the venture coinciding with the realization by ALN Material that Huangpu TRUROD was not providing any value, shows that both learning and the biological analogy fit well. Which set of evidence is stronger? Which can, in a valid manner, assess causality? This cannot be objectively investigated based on the available data.

Conclusion

The case of the ALN Material–Huangpu TRUROD joint venture has provided some important lessons. The first is in the form of support for the use of Darwinian evolution to observe and analyze firm behavior. The early times for this joint venture represent the epitome of a harsh environment. The new company came into being when there were insufficient resources for survival, so adaptation was necessary. The parent company adapted its structure to shift more resources to the new joint venture. The changes, coupled with the timing of events, demonstrate adaptation.

In doing do, the foreign parent provided additional resources from within to compensate for the inability of the local partner to provide resources from the local environment. This was the founding principle of the partnership. Huangpu TRUROD was expected to provide specialized assets that could extract resources from the local environment. Either the assets did not exist or the resources were not there. In either case, the local partner could not live up to its side of the bargain. This led to a situation where ALN Material reverted to independent operation by setting up a buyout scenario. The pattern where a local partner provides specialized assets for extracting resources from that particular environment to the benefit of both partners is similar to a biological partnership between plants and mycorrhizal fungi. Not only does this mutualism resemble the pattern for how Huangpu TRUROD and ALN Material were supposed to work together, but it also demonstrates what happens if the local partner cannot provide the promised value. Plants have been shown to exit partnerships with fungi in soils where the plant can extract sufficient resources on its own. The analogy is therefore a useful one and provides novel explanatory value. It would be interesting to calculate at what point the fungal partnership becomes crucial to survival and at what point it is resisted. Could this calculation provide a useful similarity in business?

Two existing models—learning and control—also provide explanatory value for this case. It was argued that the data do not favorably support any one of the three models

over the others. All three provide explanatory power and are useful in the analysis of this case.

Chapter 8: Case 3—Im-Rol Guangzhou

8.1 Rolte in China

Rolte and IM Technology

Rolte is a French technology conglomerate that was founded in the early nineteenth century. Throughout its long history, it has developed and grown into many diverse industries—one of which is IM technology. This type of technology consists of two main components that are manufactured and supplied by Rolte to its clients globally. The technology is not new, but it is relatively complex and quickly evolving. The two main components of the system are the IM-Cell and the IM-Verter. The former is purchased mainly by large companies offering services directly to consumers. The purchasers of IM-Cell equipment mostly comprise large national service providers competing side by side with several global firms. The IM-Verter is installed directly into consumer products and translates the functioning of the IM-Cell into a service that is useful to consumers.

Although the technology in itself is not new, maintaining competitiveness involves heavy investment into research along with the rapid development and commercialization of new features. New models with vastly different capabilities are put onto the market every year or two, and each phase of new technology involves a cut-throat battle for position. The fastest to develop the best-performing products for each round has a chance to improve its market share position. By the 1990s, the industry was consolidated to the point where four or five large European companies dominated, with the addition of a few players in the US and Asia. The competitive intensity in the business from a technology point of view was high, with clients for the IM-Cell and IM-Verter technologies constantly searching for increased capabilities and features. There was a second important aspect of technological development in the industry. Each new phase of technological development brought more compact and less expensive equipment that could significantly outperform the previously established technology. This trend in development meant that market prices were very competitive, which placed constant pressure on margins and costs. These pressures had been forcing a steady trend of mergers between global competitors. Consolidation in the industry managed to offset continual pressure on margins so that the industry as a whole was still quite lucrative at the beginning of the 1990s.

Big New Market in China

As demand for IM-related technology is a function of consumer demand for the services associated with these products, the opening of the market in the People's Republic of China represented a significant opportunity for all market players. With more than one billion consumers and a government that was promoting development, the potential for future sales of IM technology-related equipment was too large to ignore. All of the top players made significant investments at this time in an effort to gain a dominant position in this new playing field. Rolte was the first, but the other players were not far behind in investing in a presence in China in the late 1990s. The ways in which they invested and the partners they chose took on various configurations, but the legal requirements in China at that time limited the choices. Investment rules set by the Chinese government dictated the amount of ownership share that a foreign investor was allowed to have in any company based within its borders. This share varied depending on the industry and how the government classified it. IM technology-related companies were allowed to own the majority of any venture they set up, but the total shareholding was limited to 60%. Although the sector allowed for dominant foreign ownership of firms operating in China, government intervention and expectations of technology transfer were high. One particular North American firm had difficulties meeting expectations for market share in the Chinese market throughout the late 1990s before finally succumbing to establishing a manufacturing company in China and transferring technology by 2000. The political nature of the IM business in China should not be underestimated.

In 1993, Rolte decided to set up a company focused on IM technology for the Chinese market. However, this was not its first presence in China. Rolte had many different companies operating in various industries. Its local China management was therefore already experienced in setting up joint ventures in China. Rolte set up a joint venture with several other Chinese partners. Rolte owned the majority at 60%, with the

Chinese partners dividing up the remaining 40%. The largest local shareholder at 20% was SJDH, a large local supplier of services for IM verter products. The other two shareholders, both at 10% equity, were an electronics components supplier named Xiaogongju and the #1 IM Technology Design Institute.

IM Rol Guangzhou Ltd. was set up at the beginning to be a fully functioning company, including research, product development, manufacturing, sales, and service. The company was therefore capable of supplying all services, products, and support required by users of IM technology directly from its Guangzhou location. The structure of the company at that time involved a Board Chairman from the Chinese partner, a Vice Chairman from Rolte, and seven other board members (four from Rolte and three from the various Chinese partners). In the joint venture company itself, there was a CEO from Rolte, a CFO from Rolte and two Executive Vice Presidents (EVP) from the Chinese side. The two EVPs were in charge of administration, security, and sales. The company was a greenfield investment; it was not founded upon an existing operation from one of the partners. Therefore, other than the two EVPs, the Chinese joint venture partners did not provide any other personnel to the company. All staff members were either from Rolte or hired from the local labor market at the founding of the company.

The details surrounding the founding of the venture are nebulous, and the informants interviewed at this company could not shed light on why these particular partners were chosen. Considering the business scope of each of the partners, some conjecture could be made as to why these companies may have been chosen. The partners all had a possible connection with IM technology. For instance, there was a purchaser of IM-Cell equipment, a manufacturer of components for consumer products, and others with specific know-how in IM-related fields. From this perspective, the partners could each bring benefits to the cooperation. Based on the nature of their businesses, they should have been able to provide market knowledge, technology, and contact with local Chinese authorities. As mentioned, the details of the early years of this venture were not available; however, one point is clear: these partners were never actively involved in this joint venture company. Despite the appearance that they could have provided some benefits to the cooperation, they were only involved on the Board level as investors. IM Rol Guangzhou therefore operated as a de-facto 100% Rolte

subsidiary that was fully integrated into the global supply chain and business processes. This operational mode continued throughout the life of the collaboration, although the events, reasons, or purposes that might have led to this operation are not clear.

Turning Point in the Chinese Market

Very few personnel from the early time of the joint venture could be contacted during the interviews, so written documents provide the only clues about how the company operated at that time. From a business point of view, IM Rol Guangzhou was successful during this early phase. Rolte was an early entrant into the Chinese market for IM technology. Chinese consumers were hungry for the services that IM provided. Thus, the early years ran smoothly. Rolte had a strong market share and aimed to become one of the top three IM-Verter manufacturers in the world in early 2000. Role was third in Europe and was poised to be number one in China, where its market share had grown from 8% to 15% in 1998.

IM technology suppliers viewed Asia as the biggest growth opportunity for its business. As an example of its potential, Beijing residents were signing up for IM services at the rate of 20,000 per day. This explosion in demand led IM Rol Guangzhou to expand its operations in order to cope. In 2000, the company expected to double its capacity just to keep pace. By the end of 2000, turnover at IM Rol had continued to increase, and profit margins saw a six-fold increase. These results led the company to push for continued increases, although its market share for IM-Verter products was already 30% in China, making it second only to its largest European rival.

The global manufacturers of IM technology had a dominant position in the Chinese market—for example, foreign IM-Verter products accounted for 95% of the market share in 1999, while Rolte had 15%. The Chinese government noticed this deficiency and established efforts to develop domestic technologies and provide support for local firms wishing to enter this business. By the early 2000s, the local companies had high

ambitions, which included taking 50% of the market back from foreign players within two years.

The year 2000 saw a major shift in the market for IM technology in China. Up until this point, the global manufacturers of IM technology equipment had a very lucrative market tied up for themselves. Local firms had nearly no market share in this exploding business. Although foreign firms such as Rolte had hoped to maintain this dominant position, there was a strong push from the Chinese government to support the development of local manufacturers. This effort by the Chinese government had set up an imminent showdown with the top firms, including Rolte. This major shift in the external environment continued to accelerate, leading to massive changes in the business models of global firms and tough decisions for Rolte.

IM Rol Reorganizes China Businesses

March 2004 marked the beginning of the changes. Like many conglomerates in China, the structure of Rolte was complicated. As it manufactured a highly diverse range of products, it had formed a new company for every business at the time of entry into China because, until 2002, all foreign companies intending to operate in China had to form joint ventures. As a conglomerate that manufactures many products, finding one partner with a fully matching product palette and technical competence was an unrealistic expectation. Therefore, most of these companies were joint ventures with unrelated partners. All companies then reported to one umbrella company. It was obvious to Rolte that this structure had some disadvantages—particularly when similar businesses were housed within different joint venture companies with different partners.

This constellation had not been a liability for the company because all competitors that were active in China at the time had similar organizations. In 2002, China altered the legal requirements for many foreign firms wishing to operate in China. The new legal structure allowed companies operating in certain classes of industries to form fully owned operating subsidiaries. This change allowed laggards that had not formed joint ventures early enough in China to open their own companies. Having a fully owned subsidiary in the IM-related businesses was not a pure advantage. A joint venture with a partner that had strong connections in the industry also carried some advantages. Unfortunately, a highly fragmented organization like that of Rolte, which contained many companies such as IM Rol Guangzhou, was a competitive liability compared to more streamlined operations. Rolte's competitors reacted to the change in the legal environment, and one particular European competitor consolidated all former joint venture companies into one fully owned subsidiary. Rolte realized that it must also change, and it announced that it would restructure all joint ventures as well as its overall structure in China. The company added that it would not shift to wholly owned subsidiaries; instead, it would continue to invest in its existing partnerships. This statement was likely targeted directly toward nervous partners.

The decision from Rolte's top management therefore involved a compromise between giving up the advantages of having a well-networked partner and keeping its highly fragmented structure. IM Rol Guangzhou, which had been a fully independent company containing all functions, gave up certain parts of its organization that were then consolidated into another company. This meant that all functions other than product manufacturing and service were transferred to a different legal entity that offered Rolte products to similar end users.

By pulling mainly sales and research and development (R&D) functions out of IM Rol Guangzhou and consolidating them elsewhere in a different company, Rolte had foreseen that its partners might not readily accept this. Pulling these functions out of the joint venture scope would represent a loss for the partners in the Guangzhou joint venture. Loss of sales meant that IM Rol Guangzhou would then manufacture products and another Rolte company would sell and distribute them. This other company would need to earn a margin on such transactions. Loss of R&D led to additional license fees and additional technology transfer costs on new products that the joint venture company wanted to incorporate. To get the partner to agree to its plan, Rolte was aware that it needed to make a compromise. The option of buying out the partner for full ownership of the venture was not seriously entertained, and the reasons for this will be discussed at length later on. With a buyout off the table, removing functions, margin, and value from the joint venture meant that IM Rol needed to find a way to compensate the partner. The solution, which was readily agreed upon by the joint venture partners, was to remove these functions but expand the scope of the joint venture products geographically. Previously, the company had only been responsible for delivering its products within the PRC. By expanding the geographic scope of IM Rol Guangzhou, the volume produced by the company increased. By increasing the volume, the margin and profit also increased. In theory, this increase would compensate the loss as seen by the joint venture partners for removing the other functions. It is not clear how this was negotiated, but there were no guarantees for the volume increase that would ensue. IM Rol Guangzhou would be integrated into Rolte's global production network, where the rules of operation were set up in a transparent but competitive structure. Rolte divided its IM technology products into *regional* and *global* products. Volume for global products was allocated among the production sites based solely on competition for the lowest cost and best quality. Therefore, the most volume went to the best-performing plant, representing no guarantee that IM Rol Guangzhou would receive significant volumes. In contrast, regional products were allocated to regional sites. Therefore, they would definitely benefit from these additional sales.

In the end, all partners agreed to this new organization within the joint venture. As there were no remaining informants who were directly involved in the talks between the partners, the details of the negotiation were not available. There are several points that make the timing of this transition very interesting. The first is that China's rules on joint ventures had changed. After 2002, foreign companies could fully own locally operating companies. The specter of a buyout therefore loomed in the background, although this option was not likely to be taken. Secondly, Rolte's main competitors made similar changes to their Chinese organizations. One close rival made a more drastic move by consolidating all IM-related business into one wholly owned company at the same time in 2004. Seeing such changes occurring in the industry around them might have made the partners of Rolte more pliable concerning the proposed changes because other local partners where getting treated perceptibly more harshly by Rolte's competitors. The next interesting point was that IM Rol Guangzhou was very successful from a cost and quality point of view. The more flexible working arrangements and high productivity in the IM Rol Guangzhou plant made it the pinnacle of Rolte's global production. It is unclear whether the joint venture partners were aware of this beforehand. In any case, IM Rol Guangzhou

received a significant boost in volume, which resulted in an *additional* reduction in cost due to scale volumes. The partners saw an increase in volume that could be considered positive compensation, but the scale economies represented an additional benefit to Rolte on a global basis. The higher loading in IM Rol Guangzhou meant lower costs for Rolte products around the world. These lower-cost products could also be used in other countries and increased the competitiveness of Rolte against its competitors everywhere. This meant that although the increased scope could be considered compensation to the partners for removing functions from the joint venture, there was a large side benefit for Rolte.

This shift is very interesting when examined under an evolutionary lens. The change in the regulatory environment meant that IM Rol Guangzhou would have been facing a highly competitive industry with an organizational structure that was not as effective as its competitors. The result would have been a loss of market share, revenues, and profit, meaning that its business was threatened. The regulatory change brought selection pressure upon IM Rol Guangzhou. Faced with this pressure, IM Rol needed to adapt to survive. Thus, it shifted from being an independent operating entity to a captive production site. This change is significant and has clear parallels in nature, where many organisms live freely in nature only to be "captured" at some point in their lives and become an endosymbiont (Douglas, 2008; Frank, 1997; Axelrod & Hamilton, 1981). Examples of such relationships include a type of bacteria called Buchnera, which lives inside the digestive system of aphids (Sachs & Simms, 2006; Douglas, 2008) or a type of algae that permanently lives in Chlorohydra viridissima (Axelrod & Hamilton, 1981). These creatures live out their existence within their partner, where they find shelter and food and in return provide the partner with a beneficial substance or service. Some organisms can be born into this type of arrangement (Douglas, 2008; Frank, 1997; Axelrod & Hamilton, 1981; Sachs & Simms, 2006) and can even evolve over generations to the point where they can no longer survive independently (Sachs & Simms, 2006). The survival of these internalized symbionts is then heavily dependent on the survival of the partner or host. If the host dies, the symbiont often dies as well. Although IM Rol Guangzhou was never fully independent of its parents, this change in the organization pulled it deeper into Rolte. It could no longer influence the amount of sales that came in, and it could not develop or improve its products in response to competition; it could only adapt to

what came in. This situation is similar to the situation of Buchnera, whose survival is dependent on the survival of the aphid. The implications of this will be seen as further environmental changes come into play.

IM Verter Business Goes South

A significant part of IM Rol Guangzhou's business involves the IM Verter business, where its products are sold into the quickly shifting consumer market. The business involves selling high volumes of small components, which are used in products purchased by consumers. As mentioned previously, foreign suppliers had been dominant in the business from the time that China opened up; however, the balance of power was slowly shifting, and the local partners were catching up. In 2003, the head of Rolte China publically announced that it aimed to maintain a 5% market share, down from a peak of 15% in 2000, in the face of mounting competition in the business. The need to cut costs was overwhelming. In the same press release as mentioned above, Rolte intended to increase the level of outsourced products and components in its IM Verter production from 30% to 50%. It maintained faith in this business "(i)n spite of the suggestion that IM Rol exit the China IM Verter market by Mckinsey & Company, Inc". The pressure was mounting. One analyst observed that the local IM Verter companies alone had capacities far exceeding the existing demand in China.

Although IM Rol Guangzhou is no longer directly involved in the sales and distribution of this business, the increasing competitiveness placed significant pressure on its operation. Continued requirements for improved products, coupled with lower costs, placed a burden on the facility. Rolte made several moves to improve the situation in China, including setting up a manufacturing, sales, and distribution partnership with a local Chinese competitor that had "China's best distribution network, which reaches down even to fourth tier cities". This move, whether successful or not, would have done little to help the captive manufacturing at IM Rol Guangzhou because the production volumes would have been headed for other production sites. The move did not impress analysts regarding the overall health of Rolte's IM Verter business. They continued to question "the margins from IM Verter sales last quarter, where IM Rol made about 1 pct, they are obviously going to

have to figure out how to make more money". It was clear to the media that Rolte would not be able to turn the IM Verter business into a positive contributor despite the fact that the Guangzhou joint venture plant had performed very well. Unfortunately, from 2002 to 2005, Rolte's share of the Chinese market further slipped from 7.1 per cent to 2.6 per cent as local competitors increased their market share. Thus, although the factory in Guangzhou was performing well, the majority of its production was being shipped to overseas markets.

Again, IM Rol Guangzhou had little involvement in these events. It was simply a manufacturing plant for a highly competitive, high-volume, low-margin business. Its performance was exemplary, but there was little to show for it because the total volume Rolte produced continued to decrease, which affected the joint venture. However, the affect on the shareholders and their interest in the venture was minimal. They may have even been happy with the decrease in volume if the business was not profitable. However, the workforce was affected; in June 2005, IM Rol Guangzhou was forced to lay off 80% of its workforce in the face of this declining business. This was a sign of what was to come. Exactly one year later, Rolte globally sold the IM Verter business to one of its Asian competitors due to a loss of market share and low profitability in the IM Verter business globally. This sale included the IM Verter production in the Guangzhou joint venture. Thus, the largest-volume business was removed completely from the scope of IM Rol Guangzhou. Like a captive endosymbiont, IM Rol Guangzhou could not influence this change; it could only adapt to the new situation.

Stiffening Competition in IM Cell

In the time following 2006 and the divestment of the IM Verter business, IM Rol Guangzhou focused on production and service for the then profitable IM Cell business. These products were much lower-volume products that were sold to large service providers. In the early stages, several European suppliers in China dominated the field. Local rivals had little to offer in terms of technology. For this reason, price pressure was low and profits were acceptable. Unfortunately for Rolte, starting in 2007, the strategic environment for this product started to shift as well. Figure 8.2 presents a timeline that contains parts of press releases and analyses concerning Rolte

and this market. It is clear that the rivalry in IM Rol Guangzhou's remaining business was also on the rise from the start of 2007. One local competitor in particular— Liangguang—managed to aggressively expand its business in overseas markets, which directly affected the profits of its major European and American rivals. Its technology was comparable and its prices were extremely attractive. As a result, Rolte's revenues in the IM Cell business shrank 20 per cent year on year from 2008 to 2009. Rolte's IM business was in serious financial difficulties. In 2011, a private equity company was consulted about purchasing this business from Rolte. It seemed that the situation could not get any worse.

Although the IM Rol Guangzhou joint venture was not directly responsible for this market share decline, the environmental shift placed significant pressure on the partnership. Rolte lost the fight in the IM Verter business to other rivals; then, after divesting this unprofitable business, rivalry in the IM Cell business accelerated and Rolte found itself in a similar situation in another previously profitable business. This new shift was more drastic than the last because exiting from the IM Cell business would mean the end of IM Rol Guangzhou. However, as a large conglomerate, Rolte would survive. As mentioned earlier, the situation resembles that of a symbiont. IM Rol Guangzhou could not directly influence its own survival other than to continue to produce the best-quality products and services at the lowest costs. Most endosymbionts live under similar conditions. They cannot directly prevent their host from dying; they can only serve their purpose the best they can.

8.2 Analysis

Benefit-Cost Framework

The starting point for the analysis of this case will be the benefit–cost analysis as outlined in Chapter 3 and as used for biological systems. Table 8.1 shows a summary of the benefit–cost trade-off for IM Rol at its formation from a retrospective account. As there were many Chinese partners involved in the joint venture, they have been grouped together in the analysis as *China*. This may appear to be an unacceptable short-cut at first glance; however, as outlined earlier, the Chinese partners individually did not have a significant effect on the venture. It would be interesting to

find out why someone originally thought it necessary to involve each partner; however, such information was not available, so the earliest data point was taken.

IM Rol	Benefit	China	Benefit
B1.	Required joint venture by China	B1.	No data
IM Rol	Cost	China	Cost
C1.		C1.	

Table 8.1: Summary of Benefit–Cost Trade-Off from IM Rol

The data in the above table must have some support from the interviews or the research data. This support can be found in the quotations and statements below, which are listed by heading number.

IM Rol

B1. On April 12th, 2001 the government of the People's Republic of China loosened regulations allowing foreign companies to form what is referred to as WOFE (Wholly-Owned Foreign Enterprise) in China. Prior to this date a joint venture with a local shareholder was required by law. (PRC Ministry of Foreign Economic Relations & Trade, 2001, para. 3)

China

B1. There was no clear statement from any informant stating the benefit from the partners at the beginning; therefore, no conclusion can be drawn about formation.

The dearth of available data concerning the situation at the founding of this venture is not an ideal scenario. A clear conclusion can be drawn from statements and from the legal record that the law limiting the extent of foreign shareholding was a significant contributor to the formation of the venture. It is likely that this was the single largest driving force for the IM Rol Guangzhou partnership. However, the structure of the venture hints that there was more involved. There were many different partners involved, and each had a different business focus. One was a supplier of electronic consumer products; it may have been intended as a possible supplier of parts and components to IM Rol. Another was a large purchaser of IM Cell products; its interest may have been in backward integration, creating a stable supply situation for the equipment, or simply being involved in the development of this important technology for China.

Although this is a rationale for the local investment constellation, it is only based on inductive reasoning from external, *ex post* observations. It cannot be relied upon to draw any important conclusions. The only fact that can be relied upon is that the involvement of these Chinese partners was never realized. They had no active involvement in the company, and they became even more distant after the sales activity had been removed. In addition, as the IM Rol Guangzhou joint venture was a dependent production and service facility only, the partners had no real chance to influence the greater business. Rolte global was responsible for delivering revenue to the joint venture, and the joint venture operation needed to manage the changes in volume the same as any other production facility would have to. For this reason, it is useful to think of the Chinese partners as investors and shareholders only.

The first big change in the relationship occurs when the functional responsibility is split and some responsibilities, including sales, were integrated into Rolte's other Chinese operations. As the quotations corroborating this change were supplied in the above text, they will not be repeated. However, it was interesting to note what was going on behind the scenes:

Since sales and marketing has some margin and business value, some compensation had to be given to the partners. This company had the sales function taken away so in return we were allowed to export products globally thereby increasing our scale. This change kept the financial benefits for all partners the same (Managing Director—IM Rol).

Rolte gained some additional benefit from this move due to scale. This operation became more cost effective and therefore allowed them to lower their global costs... (Managing Director—IM Rol).

The reorganization was made primarily for the benefit of Rolte in response to the changing competitive environment. Increasing the production volume, and thereby the total margin earned, was clearly framed by Rolte as compensation to the Chinese partners. As the Guangzhou factory was so successful from the cost and quality points of view within the global Rolte production network, the compensation was realized. It

is therefore reasonable to conclude that this change was neutral to the Chinese partners. Although the net result of the benefit–cost balance since inception cannot be analyzed without the starting situation, we can see that this change would not have had an effect from their side. If the Chinese partners had seen a value in this partnership at the beginning, the above bargain would not have changed it.

By the time Rolte opted for this change in organization, the legal environment had changed. Rolte would have been able to own 100% of the company; therefore, a buyout would have been legally possible. A reasonable outside observer would naturally ask, "Why didn't Rolte buy out its partners instead of going through the effort to strike such a complicated bargain?" This question was posed to the Managing Director of IM Rol, and one statement in particular exemplifies what the thinking was from the foreign side of the equation:

What is cheaper, continue and keep the balance or go through expensive separation... It is like a rich guy who finds that it is too expensive to divorce his wife, so he must share his wealth with her to keep the balance and not pay the high price of divorce.

This statement is very interesting. It shows that Rolte would have been happy to be the sole owner of this plant at that time; however, the *costs* of breaking up the partnership were seen as an exit barrier. This rules out the possibility that remaining in the partnership was an altruistic act. This should not insinuate that this was a case of pure financial maximization, as other factors were involved. During conversations with the people involved in this change, several statements were made that financial costs were not the only costs associated with such a break-up. There would have been significant political fallout that needed to be considered. In any case, Rolte stuck with the arrangement as it was and tried to make it work.

This hints at how the relationship had evolved at that time. If IM Rol had been willing to exit the partnership given lower financial and political exit costs, then there would have been a distinct shift from the foundation of the venture. If the law had not required them to form a joint venture in 1993, they would have chosen the fully owned option. The law changed in 2002, and they were free to exit the joint venture. However, they did not exit at that time because the process of forming and operating in a relationship from 1993 to 2002 must have produced minimal interdependence, as shown in Figure 8.3. It is not clear whether this type of interdependence was based on

social capital (Ring & Van de Ven, 1994; Hitt & Ireland, 2002; Abador, 2005) or another type of evolved interdependence.

By 2004, IM Rol Guangzhou was forced to change in response to the environment. As noted above, the interdependence was strong enough that full consolidation was ruled out due to costs. The organizational shift that ensued addressed the competitive liability of its fragmented structure and expanded the scope of delivery for the joint venture. Both actions improved the fundamental survival fitness of the joint venture itself, but they additionally changed the benefit–cost ratio enjoyed by the parents. There was a net balance (no gain and no loss) from the point of view of the Chinese partner, but there were strong benefits for Rolte on a global basis. It not only gained the synergies from the consolidation of those key functions in China, but there was also significant cost reduction on its global business through the increased loading of its most productive factory. This resulted in an overall net positive result from the point of view of Rolte. The development is shown in Figure 8.1.



Figure 8.1 – Development of net mutual benefit

Throughout these changes, the relationship remained stable overall. There was a decrease in the incentive to cooperate from the Rolte side after the legal change, but

this was at least offset by the benefits of the re-organization accepted by the partnership in 2004.

From the benefit–cost perspective, the changes increased the value of the Guangzhou joint venture to Rolte. IM Rol Guangzhou was now responsible for supplying products that had a globally competitive cost and quality to the global IM operation. This made it a key piece in the global organization. Rolte was therefore more dependent on the joint venture after this change than it previously was. This dependence was naturally tempered by the existence of other Rolte plants in other countries. If IM Rol Guangzhou could not produce at a competitive price or quality, Rolte would have sourced the product elsewhere. The dependence also shifted heavily from the perspective of IM Rol Guangzhou. It could only sell its products to Rolte. The existing demand was larger than what IM Rol Guangzhou had in China at the time; however, the ability to control that demand was sacrificed. As mentioned previously, shifting responsibilities within a partnership, where one partner is completely dependent on the other, is similar to cases where a smaller partner is internalized to become a endosymbiont. Living within the larger partner makes the smaller one completely dependent on that partner for survival. Dependence on the larger partner side is predicated on the choices it has to receive benefits from the endosymbiont. If it has multiple sources, its dependence is low. An aphid is not dependent on one single Buchnera bacterium for survival. If one does not produce sufficient amino acids, others will. Differences in dependence marked by differences in the availability of partners for switching have been studied previously in biology (Noë & Hammerstein, 1995). Although the value of the Guangzhou joint venture increased for Rolte, the dependence of the joint venture on Rolte also increased.

Within one year of the change of structure, Rolte divested the IM Verter business. This was disappointing to the people involved, but it appears that there was no serious effect on the partnership:

One challenge was the IM Verter business went very badly for us. We basically closed the business and sold it to another company. This was a change in business and the joint venture company had to reduce its workforce and assets but this is no different than any other business. There was no impact on the joint venture relationship (Managing Directory—IM Rol).

As stated above, the business environment had changed. Rolte was affected globally and had to adapt by divesting this business to benefit the organization as a whole. The joint venture also adapted, but it appeared that no significant rift formed between the partners due to this action. No detailed financial data were made available for this research; however, the picture of the business presented in the section above is grim. IM Rol had a very small market share and, on top of that, it earned a margin of as little as 1%. It is not difficult to believe that all partners in the joint venture were happy to exit this business at the end. Therefore, although the environmental shift and ensuing adaptation were severe for both Rolte and the Guangzhou joint venture, it was considered a survival move for all involved. The result was not the death of the partnership. Instead, only one rather unhealthy part was amputated for the survival of the whole. The joint venture organism continued to exist and operate as a partnership.

However, if the tone of the last quotation is considered in more detail, the new situation of dependence can be observed. The informant stated that the business situation had changed and that the assets and personnel must be changed. This shows that IM Rol knew that it was not in control of the situation. It was reacting rather than acting. It simply had to adapt to changes in revenue and margin. This point of view fits the analogy of an endosymbiont living within a larger organism upon which it is dependent for survival. If the environment changes and the aphid is exposed to a food shortage, Buchnera can only adapt to the new situation. It cannot escape its host and forage for food on its own.

After the IM Verter business had been removed, the remaining business was expected to be relatively stable and profitable. As time progressed from 2007 (as shown in Figure 8.1), the core IM Cell business had a steadily increasing competitive rivalry. Rolte's global business came continuously under threat. First, the Chinese competitors took a market share in Europe, Rolte's home territory. Then they began to win the market share at home. Rolte and therefore the IM Rol Guangzhou joint venture saw steadily increasing pressure on costs amid a steadily declining market share and therefore economies of scale in the factory. This put the last remaining part of the IM Rol Guangzhou organism under threat. It could not cut back any further. It had to be successful in the IM Cell business or perish. This was not the case for Rolte overall in China and on a global basis. As it is a diversified conglomerate, it could fall

back on many other businesses. Unfortunately, the joint venture also has no direct way to control its destiny other than to focus on lowest costs and best quality. As mentioned during the interview:

We face many challenges and a difficult market in our core IM Cell business. The market demand for technology, features, quantities and capabilities changes very quickly. We are a production company and have to be ready for what comes. This is our challenge but we cannot influence it other than to make the best products we can (Managing Director—IM Rol).

Again, the tone of this quotation shows a strong slant toward a reactionary stance. Being similar to the endosymbionts in nature, IM Rol Guangzhou cannot act in a proactive way to improve its own situation; it had to accept what came.

Of course, this is only from the point of view of the Guangzhou joint venture. From the perspective of the parent company, Rolte, the situation has also evolved. The global IM Cell business is now under threat. Competition has intensified, margins have eroded, and overall business risk has increased. This change has again shifted the benefit–cost balance for Rolte in a surprising way:

Business has success and risk. No business is 100% successful. Partners share success and share risk. In good and bad we stay together. The other shareholders might be very happy to sell now that the risk is high. The major shareholder will not ask this, of course... (Managing Director—IM Rol).

In 93 we came to China and knew nothing. We needed a partner. Now we are happy to have them. If you look at it from another angle...If we had started here with a 100% entity, we would probably still have it. Our business has become more challenging and has changed very fast and has high risk. We would also have 100% of the business risk. If we looked for partners in that case, they would be hard to find for such a business proposal. Therefore we are happy to still have partners (Managing Director—IM Rol).

These quotations show that the environment has shifted to the point where the business risk in the IM Cell business outweighs the long-term expectation for profitability. The opportunity to share this risk with the partners represents a notable increase in the value of cooperation in the eyes of IM Rol. This is in contrast to the situation that existed in 2002–2004, where the high exit cost prevented Rolte from completely buying out the venture. This value has been documented previously as *Real Options* theory (Chi & McGuire, 1996; Chi, 2000), where the share that a firm owns in a joint venture was modeled as a put or call option. Theorists argued that firms would form joint ventures in inherently risky industries such as resource

exploration. In this case, Rolte did not deliberately enter into this joint venture for the purpose of shared risk; however, the value of this *option* is apparent in the above quotations. It is intriguing that this value has evolved on its own due to changes in the environment. Rolte did not act in a manner to develop them.

The overall development since the formation of the joint venture in 1993 can be seen in Figure 8.2. The events leading up to 2004 remain as outlined in Figure 8.1, but now the two additional events related to the divestment of the IM Verter business and the increasing pressure on the IM Cell business can be seen in the two arrows to the right of the figure. The figure shows that such a collaborative venture can be expected to *evolve* over its lifetime and as the environment changes.



Figure 8.2 – Continued co-evolution of partnership showing the increased dependency coming from survival necessity in an increasingly harsh environment.

The pattern is very interesting and exhibits how significantly the complete context of the partnership can be expected to evolve from the time the venture is formed. It would be difficult for an outsider to predict that the complete partnership would evolve in such a pattern, especially considering the many examples in the literature describing the tendency of foreign partners to value the contributions of local partners over time in market entry joint ventures (Franko, 1971; Johansson & Vahlne, 1977; Hedlund, 1984; Inkpen, 1995; Luo, 2002b). In this case, the value of the local partner to Rolte has increased over time.

8.3 Conclusion and Lessons Learned

The changes that have occurred in this collaboration since inception are significant and have provided several valuable observations. The first and most important is that these relationships definitely evolve over time. Any managers considering entering into a joint venture or alliance should strongly consider the ramifications of such shifts in the business environment not only directly affecting the partnership, but also affecting the greater environment of the partner. In the case of Rolte, their managers are happier having a joint venture now than they were when the legal structure was changed in 2002 to allow full ownership. At that time, the exit costs prevented the buyout option. Now the partners are happy not to own the entire venture. In contrast, the Chinese partners might not have invested in the venture at all if they had known how the environment would develop. Managers should carefully consider shifts in the environment either before entering into a collaborative operation or while operating it. Businesses that develop and change at a fast pace can result in significant challenges when adaptation for survival becomes necessary. Many parties are involved and joint ventures are notorious for being slow to react due to the many parties involved (Killing, 1982, 1983, 1988; Belderbos & Zou, 2007); thus, it should be considered in such industries whether an alliance or joint venture is the correct structure.

The next interesting observation involved the change in structure of the joint venture in 2004. As previously noted, this shift resembled the situation where an endosymbiont is *captured* by a host. Although the relationship has a net benefit for both parties in such a situation, there is a significant difference in dependence. The larger host is definitely less dependent on the endosymbiont than vice versa. This was noted and observed in excerpts from interviews. The IM Rol Guangzhou joint venture was fully dependent on Rolte for its survival. It had no opportunity to change its own situation other than to continue to provide low-cost and high-quality benefits to its host. Although compliance and cooperation were not major issues in this incidence, the implications of such an analogy are important. Biologists have affirmed that hosts domesticate such organisms by aligning their reproductive interests with that of the host (Douglas, 2008; Frank, 1997; Axelrod & Hamilton, 1981).

Discussing reproductive interest and business at the same time may not sound reasonable, but the analogy is quite useful. In a study of interactions between freshwater animals called hydra and algae (Axelrod & Hamilton, 1981), researchers observed different cooperative behaviors from algae depending on how they interacted with the hydra. In one type, *Chlorohydra viridissima*, the algae live permanently within the tissues of the animal and are passed on from generation to generation via the egg. The cooperation between the algae and hydra is positive. Another hydra species interacts with the same type of algae, but in this case, the algae are free living and attach themselves to the hydra. In this case, the interaction is considered parasitic. That is, the algae benefits from the interaction but the hydra is damaged. This pattern is known to be consistent in biology.

Again, cooperation was not an issue in this case; however, the implications of the analogy are interesting. IM Rol Guangzhou confirmed that it was dependent on Rolte for survival. Therefore, it is more similar to the more cooperative endosymbiont living within a larger host. Given this confirmation, it would be interesting to observe whether such a structure—where the cooperative entity is completely dependent on one parent—promotes greater cooperative tendencies from the alliance. This should be the subject of further research, where many subsidiaries in this structure could be observed. In any case, the analogy was powerful when used to understand the implications of the change in structure for the joint venture company.

The benefit-cost balance framework that incorporated a table showing all benefits, costs, and the net result was not as useful in this case because the situation at *Time 0* was not known in enough detail. Despite missing this critical information, analysis under this framework was still powerful when considering only the changes in benefits and costs that occurred at different times. Thus, this framework has promise as a tool for understanding the developments within such a relationship over time.

The incorporation of other theories is possible, such as the real options framework, in order to explain the changes in benefits and costs.

Chapter 9: Case 4—Sortex

9.1 Sortex and FaMing

Sortex

Sortex began operations in the late nineteenth century in France. They specialize in building complex machines and then marketing and selling them to a wide range of other organizations, including businesses and municipal departments. These machines range from very simple and standardized to highly engineered and specialized designs. The key buyers are mostly engineers who are concerned about the performance of the machine, its reliability, and its price. The simpler, standard machines are sold with lower prices, and large or specially engineered machines sell at very high prices. Competition varies, and the margins for machines with lower specified requirements tend to be lower than for those with higher requirements. Sortex has developed due to its innovations, which have been both technical in nature, thereby making its products renowned in the industry for high performance, and by adapting its product offering based on clients' needs. It was one of the leaders in its industry because it not only offered one single machine to a client, but also all related equipment together to form a complete system. This system was valuable to clients because they could place one single order for the whole function, with the risk and responsibility for the overall performance falling to Sortex. The clients did not need to engineer this system themselves and take this risk. Business had developed well over a period of over 130 years; Soltex currently employees more than 15,000 people globally and generates more than €2 billion in yearly revenue.

China

Throughout its history, Sortex has been very conservative with cash and has opted for organic growth financed internally rather than large, externally funded growth. Its

entrance into the Chinese market was no different. A joint venture was formed with FaMing, a large Chinese conglomerate that had a division building machines similar to those of Sortex. In 1994, Sortex "bought into" that FaMing subsidiary with minimal cash and brought its technology and management expertise. By combining the small amount of cash with its technology and management expertise, Sortex could acquire 51% of the subsidiary with FaMing still owning the remaining 49%. The shareholding ratio was not really indicative of the value of Sortex's investment; rather, it represented the maximum allowed by law at that time for the industry. Therefore, Sortex could only have 51% of the joint venture company, so it negotiated for that amount. FaMing would supply the existing company and its products, employees, and assets. This arrangement suited the general investment pattern of Sortex in trying to avoid large cash investments.

The existing division of FaMing, which was renamed Sortex Shanghai, was a large organization. The revenue earned was paltry by global standards at the time, but there were 1,700 employees at the time of the joint venture formation. The factory was situated on a large plot of land on the wide outskirts of Shanghai. It had many buildings—some of which were not actively used when Sortex stepped in. The company had been producing outdated, low-tech machines by using manual techniques that had not been used at Western firms for generations. As a division of a large Chinese state-owned conglomerate, the primary labor philosophy had been that of the "iron rice bowl", or guaranteed lifetime employment. Both Sortex and FaMing expected that the partnership could turn the old-style manufacturing plant into a company capable of manufacturing world-class products and a leader in the Chinese market. To accomplish the enormous task of reforming this company, Sortex sent one Managing Director and one Finance Manager.

Tough Early Years

The new management team was expected to enter the plant in China and re-shape the entire organization. It needed to set up all new equipment and production methods suited to the modern Sortex products. The plant and equipment from the previous company were incapable of doing this, so newer and more precise equipment was needed. The operation of this new equipment meant that the labor force needed to be educated on the use of advanced machinery and the methods needed to build highprecision products. In addition, the new equipment and production methods used by Sortex meant that the company had too many people. The joint venture had just been formed, but it already had to reduce the workforce. In a company where lifetime employment had been the norm, this would not have been a popular decision. The expectations were high, to the point of being nearly unrealistic:

The changes that were required were not so easy to make. There was a significant amount of resistance to the changes that needed to be made. The Sortex management knew that they needed to modernize both their products and processes but the culture of the existing company was that of a large, state-owned, company where the idea of increasing productivity meant only fewer workers and less work. This didn't sit well with the workers who were there at the time. The resistance was not originating from the joint venture partner nor did they espouse it. This was inertia from within the existing company... (CFO—Sortex Shanghai).

I believe that the first MD was likely just overwhelmed with making the day to day operations work at this old-style company and lost focus on the many changes that were required. We are only now getting to the point where we are really modernizing our company (CFO—Sortex Shanghai).

Modernizing and developing the company was not a source of conflict between the employees and their new management because they all wanted a modern, successful company. However, the fact that the number of employees was reduced from 1,700 to 800 during the early years of operation was a problem. During the process of negotiating the joint venture contract, FaMing management developed a strong affinity with a Sortex manager named Mr Dufour. After the venture had been formed, FaMing asked Mr Dufour to be the new MD. Unfortunately, he was unable to relocate to China at that time and had to refuse. Sortex did not have any internal candidates available at that time and needed to recruit someone externally, so Mr Leblanc was found and hired.

Upon entering Sortex Shanghai, Mr Leblanc immediately faced an imposing situation. Not only did he need to orchestrate the turnaround visualized by the two partners, but he also had to do it with two handicaps. The first handicap was that he came from outside of the Sortex organization. The French partner had a large but conservative organization, and having a strong internal network to support your decisions in Europe was extremely important. This support was needed for difficult decisions, such as those facing Mr Leblanc. The second handicap was that he was not Mr Dufour, who had been so popular that the employees were unlikely to accept anybody else, independent of the other person's capability. In this context, it is not difficult to imagine the scale of the ensuing internal fighting. Mr Leblanc also displayed "poor cultural understanding", as the Head of Marketing and Sales described it. His behavior probably did not help his situation:

I think that reducing the personnel was really not a popular action and certainly led to some issues for the MD, but to be honest, I think that the biggest issue was just a personal problem. We are both French and I found it difficult to work with him sometimes (Head of Marketing & Sales—Sortex Shanghai).

The origin of the internal fighting related to the layoff of personnel; however, it escalated and permeated into every aspect of work. In the interviews, many stories were related about the situation at that time. In one example, just after a significant reduction of the workforce, Mr Leblanc purchased an expensive company car for himself. This was obviously not a popular decision; after parking the car in the company lot, he returned to find the workers destroying it. The company security guards did nothing to help, and the police had to be called. Another story involved the Deputy MD, who was a FaMing appointee:

The MD outlawed smoking in the office and the DMD was a heavy smoker. He would come into my office and light his cigarette and wait for the MD to come just to start a conflict... (Head of Marketing & Sales—Sortex Shanghai).

The conflict steadily increased to the point where working was difficult. Sortex HQ brought in experts to perform time and motion studies to improve productivity, but they were chased from the company. FaMing, as a large state-owned conglomerate, was highly networked politically within the target client industries of Sortex. In these early years, a suspicion existed that it had lobbied against clients placing orders to the Shanghai joint venture, of which it owned 49%. FaMing did this to spite Mr Leblanc. It appeared that Sortex Shanghai had devolved to the point of breaking up.

Dufour and the Turnaround

Sortex Shanghai was in terrible shape. In 1998 and 1999, the company had still not developed significant success on the market, and the revenue was far below expectations. Even after reducing the personnel from 1,700 to 800, the revenue was still not high enough to cover fixed costs. The company operated at a loss in the range

of -15% in 1998 and 1999. As 2000 approached, Mr Dufour's situation changed; it was possible for him to relocate to China in June of 2000. At the same time, Mr Leblanc had growing health issues and was ready to step down from his position. Again, FaMing requested to have Mr Dufour lead Sortex Shanghai. Sortex HQ now obliged them; however, it had a request of its own. It asked that the Deputy Managing Director also leave Sortex Shanghai and that the company have a fresh start.

The situation had developed such that Leblanc had done all of the dirty work. He absorbed all of the hatred from FaMing and the workers in the Shanghai joint venture, and he became a convenient scapegoat. Dufour could then play the part of the white knight riding in to save the company. This is a superficial simplification of the scenario; however, this is largely events developed. The timing was too complex for Sortex to orchestrate deliberately. The miraculous turnaround was driven mainly by the market in China for one specific type of monstrous machine. Chinese firms urgently needed this machine as the country's infrastructure developed. Considering its size and reliability requirements, local firms were not capable of supplying it, and most international rivals had not yet entered China. Sortex happened to have a highly respected product for performing in this particular application. Not only was Sortex suddenly in a quasi monopoly situation for this one product line, but Dufour was also an expert for this particular technology. Suddenly, everything shifted from negative to positive. In 2000, Sortex Shanghai finished the year with three times the revenue of the previous two years, and most of that had been generated in the final six months, just after the arrival of Dufour. He truly seemed to be the right person at the right time for Sortex Shanghai:

He rode this wave and built the company up by selling these large, high value machines where the capabilities were limited in China at the time. He was so successful that Sortex at one time had 60–70% market share in this sector... (CFO—Sortex Shanghai).

Sortex Shanghai was now developing in a positive situation. The company's success became meteoric. This one product, coupled with the booming market, created a situation where business grew at a pace that would be the envy of any machinery manufacturing company. It had been growing at an average rate of 25% every year for many years. By 2005, the revenue of Sortex Shanghai was double what had been achieved in the landmark 2000 turnaround year. Just as quickly as the Shanghai joint venture had fallen into the depths, it was now flying high.

Development of Chinese Competitors

In the early 1990s, just before Sortex Shanghai was set up, small local companies began manufacturing the simplest of these machines in the small city of Baozhou. At the start, a few private companies began to manufacture these machines and found that they could be successful. As word of success spread throughout town, more people entered the business. By early 2000, the city had 3,000 companies manufacturing these machines and employing 80,000 workers.

Nearly every enterprising person in Baozhou entered this business individually, focusing on the simplest and least technically advanced of the machines. The outcome of this development was easy to foresee. As the products were relatively low-tech and could be easily built by anyone, new entrants needed to gain business by offering a lower price than the existing suppliers. This pattern continued driving the pricing in the market lower until saturation point was reached. With so many enterprises in such close proximity manufacturing identical products, the profit margins decreased to 1%. As margins have dwindled and many small, privately owned companies have been driven to the brink, companies in Baozhou began to realize that their survival was questionable if they continued manufacturing only the simplest of machines. They therefore looked toward larger international producers such as Sortex. The more complex machines sold by international competitors were sold at near international prices, whereas the simple ones built in Baozhou were sold at a 40% discount. This realization drove many small companies in Baozhou to develop capabilities to manufacture machines that could be sold into these higher-margin applications. However, the precise machines driving the success of Sortex Shanghai were also in the sights of these local companies.

When Dufour arrived in Sortex Shanghai, it was the first company that was able to deliver such products to the hungry Chinese market. Only one product had driven the growth of the company, and Sortex had a quasi monopoly in the market. Since then, foreign rivals have moved in and, as seen above, Chinese competitors have also developed such products. Sortex needed to adapt in order to continue the success it had experienced thus far.
From Big to Small

Sortex Shanghai's sales continued growing. By 2005, its sales were nearly 10 times what they had been in 1999. Although this growth was a significant success for the group, the joint venture management realized that its dominance in the large engineered machine market was on the wane and it needed to find a remedy. As mentioned previously, Sortex is a very old company and has had a broad but focused product range throughout its history. Although the core know-how is the same for all lines, the end clients can be vastly different. Therefore, the best way to counter the decline in the large machine business was to start diversifying into other machine products. That is, Sortex intended to bring its successful global products to the Shanghai joint venture. Sortex would therefore develop its product lines down from large, high-value and highly engineered to small, high-volume and standardized. One can think of its product palette as a continuum with the largest, most complex machines on one side and the simplest, low-tech, cheap machines on the other side. Sortex sat on one side of the continuum and the local Baozhou companies sat on the other. They were both developing in opposite directions toward each other. The management of Sortex Shanghai understood the market and competitive environment well enough to know that it would not help its survival by shifting directly to the far end and competing with the locals. They therefore shifted toward the center but stayed in areas where the products had to meet a minimum technical specification requirement. Prices in these areas are still near international levels, and Sortex can compete.

Profitably manufacturing standardized machines at a high performance level meant manufacturing with the newest production technologies and methods. Setting up such a line involved a significant investment in both cash and technology. As Sortex management considered this next step in the development of Sortex Shanghai, several options needed to be considered. Sortex had set up the joint venture with a 51% share, as that was the maximum allowed by law. The law changed in 2002, and foreign companies in the machine building industry were allowed to have wholly owned companies. Many of Sortex's international rivals had since entered and built fully owned facilities. Sortex was competing with these companies and realized that its products, knowhow, and management skill had been driving Sortex Shanghai up to that point. Why not consider buying FaMing's shares? If this was not possible, then it should consider building the standardized machine operation on a greenfield basis under the ownership of a fully owned Sortex operation in China. The last possibility would be to build this business into the existing Sortex Shanghai joint venture.

It appeared to Sortex management at the time that FaMing had little interest in the Sortex Shanghai joint venture. Although it was involved, it let Sortex run everything. Sortex decided to try to buy the remaining 49% of the shares from FaMing, but the partner flatly refused. The Chinese partners argued that they had supported Sortex Shanghai in the rough times at the beginning. They had given bank guarantees for the joint venture at the time to keep it liquid. FaMing did not consider the arrangement a fair and reasonable way to treat a partner. The negative reaction to the proposal must have been severe. Sortex was concerned about pursuing this option too heavily because FaMing had market clout in many client industries. Next, Sortex discussed with FaMing its desire to set up the standard machine operation in a separate, fully owned entity. Again, the partner was not pleased. Eventually, after a long discussion and behind-the-scenes tinkering of a high-level Sortex HQ employee who was of Chinese origin, the partners agreed to keep the standard machine line in the joint venture and to keep the joint venture. The value of the future business represented by including the new machine business would be taken into account in the shareholding ratio of the partners. Sortex would increase its share to 80%, with FaMing holding the remainder.

Sortex went through with the development of an entirely new production line for its standardized machine line on the joint venture site at Shanghai. The new site has a modern, computer-controlled operation, and there are signs of all of the latest production techniques. There was visual queuing before production steps could be observed, along with kanban materials for managing inventory. This was not the end for Sortex. Once the negotiation was behind it and the joint venture was reaffirmed as being under the primary management of Sortex, the process of development continued. It continued unabated and has modernized the production line of other machines that the joint venture had previously manufactured. Sortex was following through on its drive to develop a competitive business outside of large products.

Back to the Partner

The Sortex Shanghai joint venture was successful for both partners. The company has operated with roughly a 20% annual growth rate since its inception. The sales had grown to more than 10 times the original volume, but the number of employees had remained stable after being reduced from 1,700 to 800. The growth had been driven mostly through the products and management skill of Sortex. Recently, this pattern had begun to shift.

FaMing had previously operated at a distance from the joint venture. As a very large conglomerate, it had a large portfolio of businesses. Sortex Shanghai had been in a group where FaMing housed its *non-core* activities. This business was therefore not a high-profile one for FaMing. Just after setting up the standard machine line, Sortex Shanghai was moved into the *core* group due to its consistent performance and impressive development. Following this change, FaMing actively contributed to the development of further products. One particular machine line is typically sold to clients who utilize extremely hazardous substances. In China, these operations are nearly all state-owned, and politics runs hand in hand with business. Although the license for these products had been given to Sortex Shanghai at its inception, the company had never been successful in developing much business:

Around 2009, FaMing mentioned to the joint venture management that they may not be getting any business for these machines because supplying to these clients was a "closed shop" where only Chinese-owned companies could realistically get business. They then spent from 2009–2011 splitting this business off into another joint venture company where FaMing owned 55% [the majority]. This move has been quite successful and this business has been developing well since the change (CFO—Sortex Shanghai).

In addition to this example, there are additional collaborative activities underway between FaMing and the Shanghai joint venture. As a very large company, FaMing has a shared purchasing portal where it can receive extremely advantageous prices and terms due to the massive volume it procures. Sortex Shanghai will be hooked up to this portal and enjoy these prices. Credit terms and cash management are concerns for all companies. FaMing has its own credit arm, which allows the joint venture to offer competitive financing terms to clients without having to directly bear the cash burden. These are only a few examples of how the joint venture has shifted its attention for development from Sortex HQ toward FaMing. Based on the informants' comments, the relationship has reached a balance where positive contributions are being received from both partners, which bodes well for the future of the company. Since 2000, it has had a very impressive record of performance.

9.2 Analysis

Benefit-Cost Framework

In the case of Sortex Shanghai, there is more than enough information about the early years to fill in the benefit-cost table and account for all possible aspects. In this case, comments by the informants made it clear that there were two main benefits driving the collaboration—one from each side. Sortex legally needed a partner to enter the Chinese market. It saw the potential of this market and felt that it needed to start operations. One could also say that the possibility of setting up a new company with minimal capital could be considered a benefit in the eyes of Sortex, but this was vastly overshadowed by the legal requirement. FaMing also had a clear objective. As a large state-owned company, the primary function of its various child companies had been to provide work for the people. As China began to open up its economic system, companies such as FaMing had to transform its old-style companies into ones that would have a chance of surviving the competitive environment developing at that time. Although FaMing was a large company, it did not have sufficient technical and managerial expertise to manage the changes in its various subsidiaries at the same time. It therefore wanted Sortex to take the lead in providing both technology and management skill to this venture so that it could develop into a competitive entity capable of survival. The possible benefits related to technology acquisition or the personal political benefits commonly associated with forming a joint venture did not seem to be a significant factor.

Sanctions and Rewards

The conflict seen in the early years of this company can be viewed from various angles. The interplay of the people involved stands out as extremely important. Leblanc was completely foreign to both parent organizations. He had no connections with Sortex HQ and therefore very little support. FaMing wanted Dufour and did not

support this second option. Leblanc's job was nearly impossible to achieve, and its complexity increased due to the lack of support. He had to reduce the workforce at a factory where employment was seen as an obligation of the employer to the local people. These reductions were destined to make him unpopular with the Sortex Shanghai employees as well as FaMing management. He was placed in a situation where he had to do the "dirty work", and he was therefore a convenient scapegoat. Evidence exists that he did not help his situation because of how he implemented these changes. Showing off an expensive new car in the factory after ending the employment of a large number of people caused a drastic response from the workforce.

All of these interpersonal difficulties can be analyzed under the existing theory. For instance, it has been argued that a manager's personality and actions are the most critical indicators of survival and success in a joint venture (Pansiri, 2005). Others have studied the effect of cultural and organizational culture on success (Meschi, 1997; Steensma & Lyles, 2000). Significant theory is based on trust and the buildup of social capital (Ring & Van de Ven, 1992, 1994; Ariño & de la Torre, 1998). This aspect could be considered significant because Dufour had been involved in the negotiations from the beginning, so he would have built a large amount of social capital. This is evident from FaMing's continual request for his presence. In contrast, Leblanc was hired from outside and had no social capital with either parent. Lastly, conflict within joint venture management teams has been shown to lead to inertia, poor decisions, and therefore poor performance (Pearce, 1997). Although all of these humanistic aspects have merit, the biological framework offers an alternate view.

Before discussing this view, some observations from the case must be brought to the fore. First, FaMing had expected Sortex to bring technology and management to its subsidiary in order to modernize it and bring it into a state where it could continue and avoid the social disruption of closing. The Chinese partner had also developed a strong relationship with Dufour, who it considered the right person for the job. Instead of bringing Dufour, Sortex brought Leblanc, who came from outside and did not have any particular expertise in Sortex products. In addition, he could be seen as implementing a heavy-handed approach to reducing the number of staff. His appointment did not satisfy the conditions needed to provide the main benefit that

FaMing had anticipated from Sortex. Basically, Sortex was not delivering its end of the bargain.

When two organisms are in a mutualistic interaction, both are anticipated to provide some benefit. The cost of this benefit must be less than the benefit received from the partner in return in order to result in a net positive interaction (Frank, 1997). Of course, the possibility exists that one partner may decide that it will take the benefit but not provide anything in return, thereby saving the cost to produce the reciprocal benefit. Such behavior exists in nature. However, interestingly, it does not necessarily result in an end to the relationship and an exit by the partner who has been cheated (Douglas, 2008; Bronstein, 2001; Noë & Hammerstein, 1995). In many cases, partners in nature will offer rewards in a conditional manner or impose sanctions on their partner to ensure cooperation. As biological cooperation is said to have evolved over time through repeated interactions (Axelrod & Hamilton, 1981) as modeled by game theory (Axelrod, 1984), it is reasonable to expect that this has evolved. Partners are often difficult to find, and partnerships take time and energy to form. Rather than simply exiting a partnership in which one has invested so much, collaborators must have a way to punish partners who do not provide the agreed benefit.

The majority of land plants live in close cooperation with mycorrhizal fungi, where the fungus provide nutrients from the soil to the plants and the plants in return provide carbon. Many plants offer conditional amounts of carbon to the fungus (Douglas, 2008). The more nutrients provided by the fungus, the more carbon is reciprocated, thus ensuring cooperation. Other organisms actively sanction their partners. Legumes live in a similar interaction with rhizobia bacteria. The bacterium fixes nitrogen for the legume. If the bacterium is suppressed from fixing nitrogen, the plant has been shown to depress oxygen in the soil, resulting in the death of the bacterium (Douglas, 2008). Lastly, there is an intimate relationship between figs and a type of wasp. The fig is only pollinated by this wasp, and the wasp will only lay its eggs in the fig plants (Douglas, 2008). The two organisms have evolved to be completely dependent on each other. Both rely on the other for the reproduction and survival of the species. It is interesting to note that the wasp has an incentive to lay as many eggs as possible in a single fig plant, thereby increasing its own survival chances. The larvae of the wasps would therefore feed on too many seeds and lower the survival of the figs. Surprisingly, this close mutualism has not ended due to cheating. Wasps cheat; however, the figs impose a harsh sanction to minimize this activity. If the wasp lays too many eggs, the fig will abort that fruit, thereby killing both offspring.

Considering the situation as outlined previously, and taking into account how biological organisms react to partners who withhold the promised benefit, the actions of FaMing can be seen in a different light. The DMD deliberately set in motion events that caused problems for Leblanc and reduced his effectiveness. It is also not unlikely that he was instigating the labor problems experienced at Sortex Shanghai. Even more telling is the suspicion that FaMing was actively using its political connections to prevent Sortex Shanghai from winning orders, thereby deliberately undermining the performance of its child company. This behavior is similar to what the fig does to the wasp.

When all actions are put together, sufficient evidence exists to consider that FaMing was actively sanctioning Sortex. However, this cannot be ascertained because no one from FaMing would admit to such activity. There is additional evidence that the early situation of this company was the result of sanctioning. In nature, if a cheating partner then turns to cooperation, the sanctions or conditional outcomes immediately stop, just as predicted in game theory (Axelrod, 1984). The bad performance of 1998 and 1999 suddenly changed halfway through 2000, immediately after the arrival of Dufour. In fact, everything has run smoothly since then. This would be expected under the biological model. Sortex suddenly changed and provided FaMing with the desired benefits requested, and therefore the sanctions ended abruptly. The intention of this line of argumentation is not to question the abilities of Dufour, who was an expert in his field and very capable. Rather, this is an alternate view that should be considered. Can one man so quickly turn around such a large organization with so many problems? The explanation that FaMing ceased sanctioning Sortex is just as likely.

Development Over Time

Sortex Shanghai did not become the success it is today immediately after founding. It has slowly evolved and improved as a partnership. The first phase of the cooperation

developed slowly over time and allowed the partners to become acquainted enough to see the net benefit of collaborating. A clear accounting of all benefits and costs was not made, but it is clear that two main aspects were driving both partners. This first period of conflict was described earlier as being a time when FaMing imposed sanctions on Sortex for not providing the agreed benefit. The evolution of the relationship from the point of view of the Chinese partner must have been negative. From the Sortex point of view, there was no evidence of dissatisfaction from that period. This is not to say that Sortex was happy with the way things were developing; it may only be a case of limited options. Sortex wanted to be in China but could not form its own 100% company, and finding another partner would have incurred a very high cost with little reward. Such behavior is also observed in biology, where alternative partners are scarce (Noë & Hammerstein, 1995). For these reasons, the development from the Sortex side was shown as neutral at this time (see Figure 9.1).

During the second phase in development, Dufour had arrived and the performance of Sortex Shanghai suddenly turned positive. This phase is marked by a heavy investment from the Sortex side in terms of technology and management expertise. Although not outwardly stated, the actions of Sortex strongly suggest that it perceived that it was investing much more into the relationship than it was receiving. The result of this is a net negative on the benefit–cost balance and general evolution away from cooperation. Evidence of this can be seen by the options considered by Sortex when deciding on the investment of the new standard machine line. It considered not only a full buyout, which was possible after 2002, but also an investment in a new company without the partner. Only after FaMing disagreed did Sortex consider adding this business to the joint venture. Clearly, Sortex considered itself better off alone that in the joint venture. This development is also shown in Figure 9.1.

The process of negotiation for the standard machine line had an interesting effect on the partnership. Evidence shows that Sortex entered this discussion under the consideration that this particular joint venture was not important to FaMing. It was housed together with other *non-core* businesses, and from its point of view, Sortex had invested the majority of effort in turning the business around. The reaction from FaMing was severe, showing that the company placed importance on the partnership. The actions that followed in the next phase show that Sortex, by questioning whether FaMing had any part in the future of the collaboration, had shaken the Chinese partner and seemingly woken them up. This action had a similar effect on FaMing as the sanctions had on Sortex. Although ending the joint venture would appear to be a negative topic from a cooperation point of view, the effect of this negotiation on the partnership—both overall and from the Sortex side—was positive. FaMing allowed Sortex to have the majority—80% instead of 51%—and additionally renewed its dedication to the alliance.

The last phase is clearly positive. FaMing renewed its interest in the joint venture and increased its efforts to create value. A partnership where both parents invest in the venture to create value is a nearly ideal scenario. This can also be observed by the continued impressive growth that this company has achieved. Even after international rivals entered China with wholly owned companies and the local suppliers worked to develop competitive products, Sortex Shanghai continued to be the market leader in its field. There must be something special about the combination of what FaMing and Sortex have invested in Shanghai. The partners have fought through hard times and emerged as a stronger cooperation. The CFO of the joint venture summed up the current state of the relationship as follows:

We [the joint venture partners] are like an old married couple who realize that working closer together will help them both improve.

Overall, this case could be considered an observation of positive coevolution. The environment shifted continuously over the lifetime of this venture, and both the Shanghai joint venture and the parents had to adapt. At each occurrence, adaptation could have led to divergence, but it did not happen. Instead, every adaption placed the partners on an ever-converging path. In nature, such pathways lead to the strongest of mutualisms, where the two individual organisms are no longer even discernible—for example, in the case of lichen and coral (Sachs & Simms, 2006; Douglas, 2008).

Even in a situation where the collaboration could be taken as ideal, some still ask, "what if?"

I wonder if it would have been better for us to start with a greenfield project instead of going the way we did with this joint venture. It seems maybe like we should have done better considering how early we were present in China. If we had made changes faster, implemented lean processes, set up the standardized machine business correctly all from the start, how good it might have been! (CFO—Sortex Shanghai).

The above question can never be answered definitively. In any case, Sortex Shanghai is in a position where the partnership will be able to successfully adapt to any new environment that is presented.



Figure 9.1 – Development of Sortex/FaMing JV over time showing the both coevolutionary stages as well as divergent stages.

9.3 Conclusion and Lessons Learned

This partnership has been through many shifts. The economic, regulatory, and market environments have all changed dramatically since the company was first founded. Sortex was the first overseas manufacturer of its class of products to set up in China; therefore, it had a near captive market at first. However, taking advantage of that market involved completely transforming the existing company inherited from FaMing. After the company was headed in the right direction, foreign rivals entered the market and local companies developed, thereby increasing competitive rivalry. Sortex Shanghai adapted by bringing other products to the joint venture and returning the company to its growth trajectory. Sortex Shanghai actively adapted not only in a minimal sense, but it also appeared to adapt more successfully than its rivals. Not only has the development of this company run counter to the assertion in the literature that joint ventures adapt slowly (Killing, 1982, 1983, 1988), but it also shows that the value of the local partner does not need to degrade over time and lead to the inevitable takeover by the foreign parent (Franko, 1971; Johansson & Vahlne, 1977; Hedlund, 1984; Inkpen, 1995; Luo, 2002b). Both parents actually coevolved over time, with each adapting to the next change in a way that suited the partnership. This is a clear example of coevolution, and it supports studies claiming that joint ventures adapt better than wholly owned ventures (Beamish & Lupton 2009; del Mar Benavides-Espinosa, 2012).

Observing issues with cooperation between partners and active responses can be very difficult, as occurrences of non-cooperation are covert by nature (Das, 2004, 2005; Park & Ungson, 1997; Luo, 2002a, 2007). The expectation that an informant would openly discuss the company's covert activity is unrealistic. Further, as in biology, non-cooperation as defined here does not necessarily involve malicious intent (Bronstein, 2001). If sanctions from FaMing were indeed observed in the early stages of this venture, this does not implicate Sortex or suggest that Sortex was deliberately withholding the technical and management expertise that FaMing sought in the form of Dufour. It may simply have been Sortex's best option available at the time. In any case, observing strong evidence that sanctions can be applied in a situation where dissatisfaction exists with the contribution of a partner is important. FaMing appeared to apply sanctions, which resulted in the outcome desired.

Chapter 10: Case 5—The Faulkner Group

10.1 The Faulkner Group

The Faulkner Group

The Faulkner Group is an extremely old and very large family owned company. Two friends from the UK started the company in 1850. Their beginnings were humble, with the business making textile-like materials. The company diversified significantly during both world wars because material shortages were common; therefore, it developed many new products. The company today has diversified into nearly every industry, including textiles, construction materials, automotive parts and components, and telecommunications. The company is well known for its extremely decentralized operating structure. It has more than 400 independent operating companies in more than 40 different countries. The Faulkner Group employs more than 30,000 people and has yearly revenue in the order of £5 billion. The company has been very successful throughout its history for a number of reasons. It has developed its business by seeking niche opportunities in growth segments. As a company whose focus had previously been squarely on Europe, the growth markets found in Asia served as an additional point of interest for management.

Faulkner in China

Despite being a large global firm, the Faulkner Group has always operated with a unique philosophy and structure. Rather than forming global or regional structures, it has characteristically formed individual operating companies and given full responsibility and accountability to the local management. In addition, it has used partnerships and joint ventures extensively throughout its history to generate diversification. In the beginning, partnerships were formed with business friends of the owners. They were extremely deep, trusting relationships. This is not the case at present; however, the philosophy of working within partnerships and treating a partner in a respectful manner has been preserved and remains active today.

Having relied on developing value through partnerships, it is not surprising that the Faulkner Group has extensive joint ventures all over Asia and particularly in China. Group companies in China currently employ 6,000 people in more than 25 factories, generating sales of nearly £600 million. The company has been extremely successful in China, often reporting yearly increases in sales of between 25% and 45%. One of the pillars of the group's success has been the empowerment of its local workforce.

One particular product, called an oriband, is used in the automotive market. It is a small part that, despite its critical function, would likely be unknown to most car consumers. The Faulker Group is one of the world leaders in the development and production of oribands. The growth in demand for automobiles in China accelerated at the end of the 1990s, and the group knew that this growth opportunity could not be ignored. The automotive business in China is very political, and it became apparent to group management that localization would be the only option to grow. They therefore set up a local oriband factory in 2000 on the site of its main campus in Hangzhou.

Opportunity to Partner

By 2003, the Faulkner Group had grown its oriband business significantly through its main operation in Hangzhou; however, the growth figures remained well behind expectations. It could not keep pace with what was being seen in the auto industry overall. During a visit to Renault in Dalian, one of the sales managers for the Faulkner Group, Mr Li, stumbled onto an opportunity. The client expressed familiarity with the technology offered by the group in terms of oriband products. The difficulty was that Renault really needed a local partner; delivering products from Hangzhou was not sufficient. Li was well known within the group for having a "nose for business", and he had the attention of the country General Manager at the time, James Ingram, who was interviewed. Therefore, when Li approached Ingram about this opportunity and the solution he had found to the local service challenge, his boss agreed to travel to Dalian to have a look.

Renault had put Li in touch with a local Chinese company in Dalian called Ruidi, which manufactures a different and simple version of an oriband for use in trucks. This is in contrast to Faulkner's products, which were used primarily in the car market.

The Bureau of Light Industry in Dalian had owned the company, meaning that it was essentially owned by the city. The condition of the factory was appalling. It had nearly 500 employees but used very old machines and basically no cash. Ruidi's manufacturing used the most basic techniques. Most process steps were completed either through manual labor or with antiquated metal stamping machines. The most sophisticated machine Ruidi owned was one injection-molding machine used to make a single part on one particular product. The employees of Ruidi had no real concept of quality management or safety, let alone more modern manufacturing techniques.

On the surface, Ruidi was not a good fit for a global leader in manufacturing. Fortunately, both Ingram and Li were interested enough to take a closer look. It turned out that, although Ruidi did not have very attractive manufacturing assets, it had some interesting intangibles to offer Faulkner. It had close ties with the entire auto industry in the Dalian area, including Renault. Despite the low-tech production facility, its brand was well known in China. Its own oriband, which it sold in the truck industry, was a product that Faulkner could add to its portfolio.

Ruidi was owned by the city of Dalian, but the city could not afford to keep it. Like many cities in China, Dalian had been methodically privatizing all state-owned firms. Ruidi was so deeply in need of privatization that the city sent an expert, Mr Zhang, to force the process through. The company would either be forced to privatize or face liquidation. Zhang was empowered by the city to make all decisions needed to privatize the company. He had a vision that the best way to move forward was to find a partner that had the wherewithal to bring the latest technology, manufacturing methods, and products in order to move Ruidi into the modern era. From the moment Ingram and Zhang met, there was chemistry between them. Zhang spoke no English and Ingram was unable to communicate in Chinese, but somehow they felt that there was clear and open communication between each other. It appeared that Li's sense of opportunity was indeed correct.

Setting Up

Things seemed so good that both partners were ready to dive in and start at a rapid pace. As talks got underway at the end of 2002, the severe acute respiratory syndrome

(SARS) scare struck in China and caused the entire process to halt for more than six months. In hindsight, the Faulkner Group appreciated this time because it allowed the company to check all details and ensure that it was truly ready for the negotiation that was to follow.

After the process of setting up the venture began, the Faulkner Group had a clear plan. It knew that it could never take the existing company, modernize it, reduce the number of employees, and manage it as it would a typical subsidiary of the group. Many issues prevented the group from simply acquiring part of Ruidi, but the most significant issue was the sourcing of parts, which were produced in China under questionable safety practices. Faulkner could not find another suitable vendor in the area, and investing in a safe modern production for these parts was well outside the scope of Faulkner's business. It was therefore decided to form a new company called FR Tec, and that both Faulkner and Ruidi would buy into it. Ruidi would own 25% and Faulkner would own 75%. FR Tec would take all manufacturing and business assets from Ruidi that it considered valuable. In addition, the best employees were to be taken by FR Tec. Ruidi was to keep everything else and continue to operate as a subcontractor for FR Tec. Faulkner would in turn supply cash to buy new land and build a new factory and upgrade machines. It would also provide manufacturing know-how and its existing products:

The joint venture contract and the deal as a whole was definitely in favor of Faulkner. It gave Faulkner what it wanted, but the survival of Ruidi definitely depended on it... (Ingram).

The positions of the partners were completely different. Faulkner had been looking for a way to accelerate its oriband business to meet expectations. Management had applied pressure to improve this business in China, and the partnership was a benefit in this regard. However, Ruidi's existence depended on this deal. It either accepted the deal or perished. This imbalance of dependence was evident in the joint venture contract, which was very advantageous for Faulkner. One aspect of the contract allowed Faulkner a three to five year option to buy Ruidi shares at net equity value.

There were two complications to this seemingly ideal scenario for Faulkner. The first involved the number of employees who would continue to remain employed at Ruidi following the formation of FR Tec. Faulkner considered this point carefully when negotiating the contract. After the contract was signed, Ruidi and therefore Zhang would need to reduce the number of employees to the level that would be required for day-to-day operation. The transfer of the foreign partner's funds into FR Tec was predicated upon the successful completion of this task. FR Tec needed 280 of the 480 people working at Ruidi. Ruidi would need 60 employees to continue to operate as a supplier of components to FR Tec. Therefore, 140 people had to leave Ruidi before the founding of FR Tec. The task of managing this process fell to Zhang. He did this in parallel to forming the new company. All employees who were retrenched received a payout, and the Dalian government provided assistance to help find them new work. No significant problems such as lawsuits or protests occurred.

The other difficulty involved the ongoing structure and ownership of Ruidi. The city of Dalian was desperate to privatize the company in order to prevent liquidity problems for itself ("Capitalism Confined", 2011). Dalian did this by transferring the ownership of the company to its employees. This change created uncertainty about how the joint venture should be structured. Unfortunately, there was no realistic alternative. According to Ingram, Ruidi was a "sinking ship and the only people willing or interested to take responsibility for it were the people on it". Dealing with the uncertainty of ownership was therefore a necessary reality. As the foundation time approached, it became clear what sort of ownership structure Ruidi would have. The main shareholder, with 50%, would in fact be Zhang. Each level of management below him would own an ever-decreasing share of the company. Even the laborers in the plant would have a share. As the major shareholder of Ruidi, Zhang would also become the main representative of the Ruidi ownership after a joint venture company was formed.

The structure of FR Tec needed to be built and clarified, considering the ownership situation of Ruidi. As Faulkner owned 75% and Ruidi owned 25%, the Board of Directors comprised four people. Faulkner sent three and Ruidi sent one. As the major shareholder of Ruidi, Zhang would therefore be the Board representative from Ruidi. Faulkner was faced with a conundrum. The foreign partner had confidence in Zhang and wanted him to be the GM of FR Tec. It was not reasonable to have Zhang as the GM of Ruidi as well as both the Director and GM of FR Tec. This issue led to some debate on the Faulkner side. The eventual outcome was that Zhang was the right

person to lead FR Tec, making him the perfect fit for GM. However, he would not give up his position as a representative on the newly formed company's Board of Directors. They therefore agreed that he would take both positions of GM and the single representative of Ruidi on the Board of Directors, thereby giving up his position as GM of Ruidi.

Being the GM of the newly formed joint venture and a member of the Board placed Zhang in a relatively powerful position. As he was an active member of the Board and reported to the board as the GM, he somehow reported to himself. Faulkner was conscious of this and placed some checks on his power. The first was a part-time CFO who the foreign partner designated to take responsibility for the company. The CFO was based in Hangzhou but would travel to Dalian two days per week. The CFO also reported directly to the Board, and his signature was required in addition to Zhang's if FR Tec needed to dispose of any funds.

FR Tec started business in 2003, and its performance was impressive from the start. Growth was steady and profitability was high, with a CAGR of 123% from 2004 to 2012 (see Figure 10.1).



Figure 10.1 – Performance development of FR Tec JV

This new company was so successful that it generated pride throughout the company, and in particular within FR Tec. Faulkner had dedicated relatively few resources to the company compared to the many other partnerships it had been involved in. It supplied some cash, a part-time CFO, and a full-time engineer in charge of technology transfer, its brand, and know-how. Other than these additions, all personnel and effort had come from the former Ruidi side.

Operational Realities

The structure of the company gave Zhang a strong position, and Faulkner gave him free reign to deal with operational issues at FR Tec as long as its performance met expectations. He had few limitations other than the check on funds, as mentioned earlier. This dominant, near military-style position in the company was very different at the Board level. He may have been like a general in FR Tec, but he was still forced to justify his actions to the Board. As the lone member from the Ruidi side, he could not force anything through the Board; instead, he had to ask for approval. This led to many conflicts in Board meetings. Zhang had a habit of actively fighting for the benefit of the Ruidi shareholders, and sometimes at the expense of the venture as a whole. This habit produced constant friction with the other Board members, who did not consider that the Board's function should be to fight for the individual rights of the shareholders it represented. Instead, they saw their position as being responsible for advising the profitable growth of FR Tec overall.

These conflicts were a sample of the clash of business cultures. Western companies operate with fixed structures and standardized processes, whereas Chinese companies operate with a different philosophy. FR Tec had been set up and run like a Chinese company. Strict guidelines and policies were not the norm, and Zhang had difficulty understanding their value and why they applied to him. He would argue that they were only impediments to making the business run properly. On the other side, Faulkner's senior management did not know how to deal with these *grey* issues. However, the management had full faith in Ingram and gave him exceptional freedom to coordinate the situation in such a way that FR Tec had a chance to grow but also to avoid undue risk for Faulkner.

One particular example was related to the manufacturing environment within FR Tec at the beginning of operation. Ingram noticed that the factory lacked the safety awareness and consciousness that are considered minimum requirements in Western factories. He also realized that it was impossible for Zhang to realize the need to change and then to ingrain it in the minds of the workforce in less than three years. In Faulkner, safety is normally a non-compromised aspect of business. According to policy, Ingram should have shut the factory down until the proper safe work environment could be assured. However, Ingram refrained from formally forcing the issues through. Instead, he had many personal discussions with Zhang and explained safety philosophy, why it is important, and what benefits it has. The Chinese partner's first reaction was to say that the rules were nonsense, and Ingram sensed that such bureaucracy drove Zhang crazy. After the first reaction had passed, Zhang would always cool down and become curious about the policy and its benefits. In the end, Ingram would give him a specific time limit to solve the issue quietly, but if the limit passed, a report would have to be made.

Handling sensitive issues quietly deepened the relationship between the two men. Ingram handled all similarly sensitive events the same way. Instead of immediately telling Zhang to stop doing whatever was causing the concern, the Englishman would explain to his Chinese counterpart how things should be handled in a Faulkner company and then give him time to make changes. Operating in this manner—where he actively hid sensitive topics—carried significant personal risk for Ingram. His consistency in giving his colleague time to manage problems clearly motivated Zhang to continue communicating. He was always very forthcoming and extensively shared any risky topics openly with Ingram. For his part, Zhang always performed as promised and cleaned up whatever mess existed prior to the deadline.

The working relationship between the two men developed extremely well. This does not mean that Ingram was never suspicious of Zhang's motives or his actions. Some events had taken place where, at the time, the Englishman thought that the partner had cheated the company. However, time and again, when such things surfaced within FR Tec, Zhang was confronted at the Board level. He always managed to justify that his actions had been in the best interest of the whole venture. The continued exceptional growth and profitability additionally sent the message to the other shareholders that he was actively working to grow the business and not to line his own pockets.

Exercising Options

As mentioned previously, the joint venture contract had been drafted in favor of Faulkner. Among other points, Faulkner added an advantageous option to purchase Ruidi's remaining 25% shares between years three and five of the operation. The terms of this agreement were very good; Faulkner could buy the remaining shares at a fixed price—specifically the net asset value in FR Tec—at the time of purchase. The company had developed very well, and the foreign partner had limited time to exercise this option. Given the time limitations, the decision was make at Faulkner Group HQ to exercise this option. When this news was received by the representatives of Ruidi, the response was not as expected.

Zhang responded on behalf of Ruidi that it would agree to sell its shares, but in no way would it respect the terms of the contract. Instead, Ruidi would name the price. It rejected the contractual valuation principle out of hand and complained that the concept was unfair. Zhang acknowledged that Faulkner supplied cash and know-how to FR Tec, but argued that his sweat had built the record of success shown by the company. Considering his contribution, he insisted that a multiple of earnings be used to decide what price he would sell at.

Management in Faulkner HQ did not receive this response well. They fumed at the audacity of this small-town businessman refusing to follow the contract. Management wanted to enforce its legal rights. Unfortunately for the foreign partner, the contract did not mention what would happen if the stipulated period expired during a negotiation over price. This meant that Ruidi could simply stall in negotiations and Faulkner would eventually be forced to negotiate without the contractual valuation principle. As Faulkner had no effective way to force Ruidi back to the negotiating table without risking the future of the business it intended to buy, a deadlock ensued. Finally, both partners mutually agreed to extend the operation under the existing contract for another two years without discussing the share purchase. Thereafter, the

partners could once again approach each other about purchasing shares. Any purchase would have to be negotiated based on a multiple of earnings method rather than net asset value. The amount was not fixed, but it appeared that Zhang had won the battle.

Operation then continued successfully for another two years, and the team at FR Tec produced consistent growth. Then the partners again discussed the price at which Ruidi would consider selling its 25%. This time the argument did not revolve around what method should be used to calculate the price; it was about the price itself. It should be no surprise at this point that a large gap existed between what Faulkner considered reasonable and what Ruidi would sell for. In this instance, time was on the foreign partner's side because Zhang was nearing retirement. Ingram had been involved in this whole process, but as the local country GM, he could not steer it; instead, he could only influence the process. When he realized that again there was a stalemate, he knew that he should do something. He therefore contacted HQ and explained that because things were running so well and Faulkner had control of this valuable business, why not let things continue running as they were?

Next Phase in Development

Faulkner senior management reluctantly agreed to the proposal that FR Tec continue without change in ownership. The business continued to develop as it had and sales continued to increase. FR Tec performance had not changed. At the time that the interviews with both firms began, Zhang had just retired. As Ruidi had not sold its shares, he remained on the Board of Directors as the company's representative. As a Board member without operational responsibility, he could only influence what was happening at FR Tec. He could not really drive performance as he had in the past as the GM. Although he had no direct authority over the employees in Dalian, he could influence the situation for better or worse. His successor happened to be Mr Li, who had founded Ruidi and convinced Ingram to visit Dalian.

This represents a significant change in the business from how it had been run in the past. Zhang had run the company differently from other Faulkner subsidiaries and joint ventures. According to Ingram, his "challenges were very healthy from an entrepreneurial point of view. Instead of HQ simply imposing its will it gave some

opposition and food for thought". Despite being a controversial figure in the company, the stories of Zhang's accomplishments and achievements are nearly legendary. In one case, he fought a monumental battle with Faulkner HQ over the implementation of SAP. All of the group's companies ran SAP as a requirement. Zhang did not see the benefit as outweighing the cost effect. He dug his heels in and refused. SAP was therefore not implemented until late into his tenure. Zhang also used his influence within FR Tec and Dalian to keep the wages in the company low and well below comparable group companies in China. Ingram referred to him as a "hero".

Li represented a big change to FR Tec. As a long-time Faulkner employee, he is not in a position to challenge HQ the way Zhang did. In addition, he is an outsider in Dalian and lacks the authority that his predecessor had wielded. These aspects will moderate the exemplary performance shown by FR Tec. In addition to these aspects, the market has shifted. The automotive market had been exploding in China, and suppliers such as FR Tec had enjoyed this wave. Sales of cars have since slowed; therefore, the demand for oriband products will not increase at the rate previously seen. The company culture at this joint venture will definitely change. While it had previously been focused on growth and short-term maximization, the new GM will focus on more of a stable operational growth. This is not necessarily a bad thing, but it is different.

10.2 Analysis

Benefit–Cost Framework

The company was founded after 2002, making it possible to have a fully owned company set up in Dalian. Faulkner had already localized its production for oribands in Hangzhou under a fully owned Faulkner company, so this option must have had advantages. Forming a partnership with Ruidi was then not a political necessity as was often the case in China. This choice was only made because both partners brought value to the collaboration. For this reason, making a clear analysis of the benefit–cost balance is a useful exercise.

Ruidi	Benefit	Faulkner	Benefit
B1.	Survival dependent on cash and	B1.	Local site with qualified staff to set up
	technology from partner		operation to develop sales with Renault
		B2.	Access to Ruidi ties to Dalian auto
			makers
		ВЗ.	Truck oriband product and brand
	Cost		Cost
C1.	Undervaluation of assets		Navigating compliance grey zones

Table 10.1 – Benefit/cost analysis FR Tec

Many of these points cannot be validated by individual quotations; thus, in such cases they will be validated using examples from the case history above.

Ruidi

B1. The survival of the company depended on finding a strong partner. It has been mentioned several times that when the environment is tough, mutualistic tendencies increase in nature (Douglas, 2010; Dugatkin, 1999; Kropotkin, 2005; Janzen, 1985). They really had no choice; therefore, this benefit outweighs any possible cost.

Faulkner

- B1. Faulkner needed to find a way to increase sales for oribands. Renault was a good option, but it did not accept delivery from Faulkner's existing production facility in Hangzhou; therefore, a local presence was needed. A partnership with Ruidi promised a simpler and faster startup than a standalone venture.
- B2. Ruidi had strong ties to automotive manufacturing companies in Dalian.Chinese business is very relationship-driven, and its existing relationships would help accelerate the development of the oriband business.
- B3. Ruidi had an oriband product developed for the local truck market. It had a strong brand and the product was well received. As Faulkner was interested in developing this product, this addition was beneficial to Faulkner.

C1. Like many foreign companies, Faulkner had a strong focus on compliance. Having a joint venture partner that operated the company outside of the foreign partner's comfort zone would represent risk and therefore cost to the partnership.

The balance leads to a clear net benefit for both parties. What is interesting about this case and the analysis of benefits and costs is the issue of magnitude. Establishing a valid estimate of magnitude for any of these benefits or costs in comparison to the others is a complex task. The simplest method results from making a count of each. One benefit is equal to +1 and one cost is equal to -1. This has been the assumption thus far. In this case, a verifiable example is present where a comparison can be made.

Ruidi entered the joint venture out of sheer necessity. Its survival was at risk and thus finding a partner was better than the alternative. In the case of Faulkner, there were several benefits to the partnership and one cost. Using a simple count on each side would result in +1 for Ruidi in favor of partnering and +2 for Faulkner. This can be taken one step further and used to analyze differences in interdependence. As Faulkner had +2 in favor of working with Ruidi, this insinuates that its dependence on the Chinese partner should be stronger. However, this was not the case in reality. One can reach this conclusion in two ways. The first is simple logic; Ruidi's survival depended on forming a partnership with a strong partner like Faulkner. This is a far stronger need than any benefit presented to the foreign side. Simplifying the local company start-up, having strong ties to the clients, and the homegrown oriband product are all far weaker needs than sheer survival. Faulker could have set up a fully owned company in Dalian. In contrast, Ruidi could not have continued without Faulkner. The second piece of evidence is in the form of the joint venture contract, which was written heavily in favor of the foreign company. This would not normally be expected unless there was a strong difference in dependence between the parties. This shows that one must be cautious about magnitude assumptions when using the benefit-cost balance for analysis.

Mr Zhang: Hero or Cheat?

One benefit of the joint venture has not previously been discussed. Zhang had significantly affected the company. He had organized and run the company with a culture that was not typical of Faulkner. FR Tec was focused on maximizing short-term success. It achieved this target, but not due to Faulkner's contribution alone. The products and technology brought by Faulkner were well suited to succeed in this market; however, it was the culture created by Zhang that paved the way. Ingram attributes the achievements to Zhang:

Looking back after 8 years, the cooperation has been very successful. One of the keys to success has been that he was given full responsibility for this venture...

Zhang appears to be a hero for his accomplishments. However, despite this, the relationship was not without suspicion. Looking back at the performance of FR Tec, evidence shows that he put his energy into maximizing the value of the partnership as a whole rather than looking for ways to siphon money for his own benefit. Although Ingram described numerous conflicts that had occurred, and despite the fact that Faulkner top management often had suspicions about the arm's length relationship between Ruidi and FR Tec, time has justified Zhang's actions.

There are several important observations nested within this topic. The first relates to trust. There is significant discussion in the literature concerning trust and its effect on joint venture performance. Some researchers argue strongly for trust, such as Hitt and Ireland (2002), who expected strong trust between partners to reduce governance costs. Others, such as Das (2005), considered it better to implement the proper safeguards against opportunism:

In China there is inherent sensitivity to being cheated by partners. This makes things even more challenging since the foreign partner then adds observation; control and implements clear processes to restrict action. This creates residual suspicion between both parties (Ingram).

This quotation is useful because it is a general perception made by an informant about typical interactions between Chinese joint venture partners and its counterparts. The context of the quotation, which is not apparent to the reader, was reflected by the informant about the behavior of Zhang and whether he had acted in an opportunistic manner. The most interesting aspect of the comments on trust from the interviews is

that the opinion of how deep trust had developed is different now compared to the time of operation. As noted in the previous paragraph, Faulkner management was suspicious at the time. Considering that one of the key aspects of FR Tec's success was the operational freedom given to Zhang in running the company, this change in perception over time brings up some questions. It is plausible that the discomfort felt by Faulkner management was unjustified and that concrete evidence surfaced over time to vindicate Zhang of any accusations. However, the fact that there had been doubts tends to undermine the theory on the power of trust. This case could be a good example of how trust contributes to success. The problem is that there is no way to clearly establish causality in the relationship between trust in this joint venture and success. It could only be an example of Faulkner's good fortune in this case. Koza and Lewin (1998) make the same point when criticizing the trust literature:

Similarly, successful alliances have trust; unsuccessful alliances do not have trust. And, typically, trust is attributed *ex post*. For trust to be a useful concept, its principle components must be identified, operationalized, and measured.

This does not mean that trust did not play a prominent role in the success of FR Tec. The comments made by informants about the strong relationship between Ingram and Zhang were made with conviction. They truly believed that the trust between the two managers formed the foundation of the partnership's success. The point being made here is not that the trust they had built up was unimportant; rather, that the relationship between trust and the venture's success was likely not one of direct causality.

The details of this case also have a bearing on the control literature. Much of this literature has argued strongly for dominant control by one party (Killing, 1982, 1982, 1988) or for split control (Geringer & Hebert, 1989; Hambrick, Li, Xin & Tsui, 2001). The dominant partner in the theoretical sense is not defined in terms of equity ownership, but in terms of which partner controls the majority of operational functions in the joint venture or alliance organization. This case is rare in the literature because the dominant partner from an equity ownership point of view (the Faulkner Group) turned over nearly full operational control to the minority partner, Ruidi. It is even more unusual that it was so successful. The story of FR Tec lends support to the theory on dominant control. Zhang was given full operational control of the company, and Faulkner implemented only minimal controls on his authority. FR Tec was

therefore in a position to quickly adapt and develop as it came upon challenges. Does this mean that dominant control is, in general, in the best interest of alliance partners? This conclusion must be questioned. Evidence for this can be found in the developments that occurred after the departure of Zhang. Control shifted from Ruidi to Faulkner when Li became the successor as FR Tec GM. The company was expected to continue to be successful, but the pace of growth was anticipated to moderate. Dominant control by the different partners is therefore not equal. This then also calls into question the path of causality between dominant control and success. If FR Tec is more successful with Ruidi (Zhang) in control than Faulkner (Li), then this high level of performance must have more to do with Zhang than with dominant control.

If FR Tec was most successful when Zhang had dominant control and the trust between he and Ingram was what allowed this dominant control to exist, then the two are related to each other. As both trust and dominant control existed when the company had peaked in performance, both are likely to be related to success in some causal manner. Zhang's management or leadership style is a plausible candidate for a direct causal link to success, with the other two being indirect (see Figure 10.2).



Figure 10.2 – possible causal chain between trust and success for FR Tec

As shown, trust and control were important aspects contributing to the success of FR Tec. The trust between Ingram and Zhang was critical in this instance; without it, Faulkner would have added controls and interfered to the detriment of the company. Control, like trust, cannot be ignored. Had Faulkner implemented a manager at an equivalent level to Zhang to co-manage, instead of a part-time CFO who was present only intermittently, then the situation would have changed. This additional Faulkner manager would have shifted the dynamic and caused conflict within the FR Tec management team (Hambrick, Li, Xin & Tsui, 2001). Mr. Zhang therefore brought

something intangible to the business, which accounted for the exceptionally high performance level observed during his tenure.

Lichen and FR Tec—Similarities?

The causality chain shown in Figure 10.2 shows a possible explanation for the success of this collaboration based on existing theory. This causal chain is also not without flaws. Zhang may have brought something special to the joint venture, but it is not reasonable to assume that he was the sole reason for the success of the company. Ruidi was not successful prior to finding Faulkner, and FR Tec continued to be moderately successful after Zhang's departure. The British company must have contributed some critical components to this business. Zhang seemed to know this, as evidenced by his desire to find a strong partner for Ruidi. Faulkner's contribution must have been significant. Its power in the joint venture contract negotiation was clear from the one-sided nature of the ensuing agreement. Ruidi needed Faulkner; the Chinese company would not have survived without such a partner. The foreign partner provided products and know-how that was necessary for success. The contribution of the local partner was also significant. At the time of the joint venture's founding, its contributions consisted of business connections to the auto industry, a local site, and its oriband product for trucks. This was important to Faulkner, but it was more dependent on the foreign partner than vice versa. This clearly changed as the joint venture developed and success ensued. Zhang brought something valuable to the venture, and Faulkner's recognition of this was apparent during the interviews. What Zhang contributed to the joint venture was powerful enough to shift the level of interdependence between the partners. Faulkner had written a very advantageous buyout price into the joint venture contract. The only explanation why Faulkner simply did not seek to enforce this clause in the contract was that it also realized that success was dependent on Zhang's cooperation and that acting harshly would jeopardize what had been built. FR Tec had therefore been so successful because of the combination of Ruidi and FR Tec. Neither would have succeeded to the same extent without the other. As Ingram stated:

This was a true joint venture. Both sides were happy and both definitely benefited from each other. Isn't that the point of a joint venture?

The fact that both partners contributed tangibly to the survival and success of the venture supports the similarities between mutualisms in nature and alliances in the business world. In this case, the similarities to a symbiotic relationship are clear. Symbiosis is defined in the biology literature as a particularly deeply evolved mutualism. The circumstances in this case bear some resemblance to the relationship, which gives rise to one of the more robust organisms on earth, lichen. Lichen consists of two distinct organisms living in such close collaboration that they appear to be a single organism to the naked eye. A fungus forms the main body and exterior of the lichen, providing protection and gathering resources from the environment (Sachs & Simms, 2006; Kranner, Beckett, Hochman & Nash, 2008), whereas the photobiont consists of green algae, cyanobacteria, or both. The photobiont is in most cases completely encased in the fungus and contributes to the success of the collaboration through its photosynthetic capabilities. Fungus, algae, and cyanobacteria can all be found as free-living variants; however, the exceptional abilities of the combined animal are significant. Lichens are among the most robust organisms on earth; they can survive in extreme environments. Researchers have deliberately desiccated these animals in the laboratory for more than one month, and they have survived (Kranner, Beckett, Hochman & Nash, 2008). No higher plant could survive under such conditions. This leads to the connection between FR Tec and lichen. In a simplistic sense, they are both examples of two distinct parties that are stronger together than in isolation. However, there is more to the similarity.

FR Tec operates within the greater structure of the Faulkner Group, which provides products, technology, and a certain level of expertise. Zhang and his group were given freedom to operate the business and bring as much value as they could. Despite what was characterized as "entrepreneurial" prowess, the success of this joint venture was highly dependent on being embedded within the larger structure of the foreign parent. Faulkner provided the protective structure and Zhang brought his management style and drive. Faulker was like the fungus providing protection from the harsh environment and stability. Zhang and the others from Ruidi brought something extra, like the algae's ability to convert sunlight to energy. Like lichen, both partners of FR Tec could have survived in isolation. Faulkner certainly would have survived and may have been able to develop a fully owned business in Dalian over time. Ruidi may

have been able to continue its operation as a privatized entity, albeit not without difficulty. However, they were much stronger together.

The parallel between FR Tec and a symbiotic relationship such as lichen is enlightening because it highlights that both partners contributed essential elements to the success of the venture. Cooperating had a higher payoff than going alone, thereby providing evidence that cooperation is founded upon having a net benefit after accounting for costs. The visualization of lichen (see Figure 10.3) and how the two partners together are stronger than in isolation provides a strong model for understanding what happens in collaborative relationships such as FR Tec, where the partners' cooperation paid off for both partners. There is another component of this parallel that is important to discuss.



Figure 10.3 ("Lichens are Fungi", 1998) – Illustration of physical construction of lichen

Much is made of trust in the alliance literature. As mentioned in the previous section, theorists are highly polarized when considering the contribution of trust to the success of collaborative ventures. Trust is a difficult concept to correctly apply when considering two firms. Currall and Inkpen (2002) made this point when reviewing the literature on trust in alliances. They notef that levels of trust are often mixed in studies; that is, trust between two persons is taken as trust between two companies. If this is not necessarily valid, how does this affect FR Tec and the personal relationship between Ingram and Zhang? Did trust exist between Faulkner and Ruidi? The comparison with lichen can be enlightening in this regard.

It is difficult to imagine algae and fungus trusting each other. The word "trust" does not seem to fit when discussing such simple organisms; however, the relationship between the two animals is founded on reciprocity. Reciprocity is an important aspect of trust, not only between people, but also between organizations (Lane, 1998). Both organisms within the lichen must do their part to augment the survival of the whole. Both parties in FR Tec also needed to do their part to maximize the survival of the company. Ingram often gave Zhang and FR Tec management freedom to deal with sensitive issues that would not normally be acceptable for a Faulkner Group company. Zhang did his part by dealing with the issue in time and by driving a very high level of performance for the company. It is not difficult to imagine how the situation within FR Tec could have differed if the financial performance of the joint venture had been poor or even adequate. Reciprocity was therefore important in this relationship. Zhang needed operational control and freedom to produce success, which ensured that operational freedom remained intact.

10.3 Conclusion and Lessons Learned

FR Tec has been a successful collaboration since its founding, and it has faced no real environmental challenges to date other than a latent suspicion of the Chinese partner and his motives. It therefore did not need to adapt to changes in the environment because it remained on a successful trajectory. The only significant changes in the company were represented by Faulkner's buy-out attempt and the changes resulting from Zhang's retirement. Although these events resulted in some interesting observations about the nature of this joint venture, their true significance can only be seen when considering the story of FR Tec in its entirety.

It is significant that the founding of FR Tec brought exceptional success for Faulkner in the Dalian auto market and that this success continued unabated throughout Zhang's tenure. By cooperating, the success of the joint venture amounted to more than the partners would have achieved if acting alone. As noted by one informant, this is the underlying purpose for most cooperative ventures. Comparing this company to a highly successful symbiosis—lichens—facilitates understanding of the dynamics that contribute to the company's success. This can be exemplified by the examination of trust between the partners.

Trust is a prominent subject in the alliance literature, but support for the power of trust is not universal. The criticisms of the importance of trust are valid considering that the concept is difficult to apply in practice. The trust between Ingram and Zhang played an important role in FR Tec. This was clear from how often it was mentioned during the interviews. The contribution of trust to FR Tec's success was analyzed, and it was shown that although trust was critical, the relationship was not considered one of direct causality. Instead, trust could only be considered as having an indirect causal relationship to the success of the venture. Biological theory offers an alternative view. A type of trust—reciprocity—is a fundamental aspect of mutualisms and symbioses. It must exist for mutualisms to be successful, but it is not the reason why cooperation exists; instead, it is an enabler of success. The situation of FR Tec follows the same pattern. The similarity between FR Tec and a biological symbiosis therefore allows researchers and practitioners to place the importance of trust into perspective. Reciprocity is a necessary component of the relationship. Without it, the two partners cannot cooperate successfully. Discounting reciprocity is therefore an error. It cannot be considered the reason why joint ventures are successful. Trust and reciprocity enable two partners with complementary resources to cooperate successfully, but they cannot make successful cooperation out of two companies that do not have complementary resources.

Chapter 11: Case 6—Bosca

11.1 Bosca Develops in China

Bosca was founded in Macau in 1980 by an entrepreneurial Portuguese couple named Eduardo and Maria Abreu. Having spent most of their lives in the garment business, they knew how the business worked and decided to set up their own company, sourcing garments and selling them overseas. Their products passed through various channels but eventually ended up with retailers. Their business involved soliciting orders for specific garments from designers and retailers in Europe and then sourcing garments from various factories on the China mainland. Throughout the 1980s, Bosca developed some strong connections in the industry and slowly built its business. As time passed, Bosca developed a particular expertise in silk garments. At the same time, the nature of the textile and garment business in China was changing. These changes brought both challenges and new opportunities to Bosca.

Garment Industry in China

The business of manufacturing textiles and clothing is a low-margin business where comparative advantage of low labor costs can make the difference between profitability and entering liquidation. This section is intended to give the reader some background on this industry, with a specific focus on the opening of mainland China. This major change in history brought about significant changes for people around the world. Some had to face challenges resulting from competing with Chinese factories and the ensuing threat to their livelihoods, while others saw opportunities. Bosca represents one of those opportunities.

Clothing and textiles formed a significant role in the modernization of the People's Republic of China. These industries were in the focus of leadership as early as the mid 1980s. In 1984, the government announced that it would undertake "more than 1,000 technical modernization projects" worth more than "1,000,000 Yuan of

investment" ("Modernization of textile industry", 1984). This may not seem like a large sum in today's monetary terms; however, "Clothing is second only to crude oil as China's top export" ("Need for flexible trade arrangements to boost clothing exports", 1986). From 1986, at which point clothing surpassed crude oil as the largest export, the foreign currency it brought into China was essential for development. Growth in the industry has been rapid since the start. Xinhua News Agency press releases cited yearly growth rates for clothing exports of 12% in 1984 and 34% in 1987. A market report (Marketline, 2012) stated that between 2007 and 2011, the industry experienced a CAGR of 12%, with a total value of US\$230 billion in 2011. The growth and scale of this industry meant that manufacturers had significant opportunities; however, they also had to manage through many political shifts as time passed.

The political environment in the Chinese clothing and textile industry is complex. Not only must the company navigate the lack of transparency in the Chinese legal structure itself, but it must also consider the reactions of other countries to the growth in exports from China. As the PRC opened to trade, it was very successful in exporting products in order to build up the foreign exchange necessary for the modernization of the country. The success brought about political problems in other countries. Below are some quotations taken from the press, which show the general reaction in Western countries to the growth in China's garment and textile exports:

Last year saw some of the UK's most modern textile plants close down because of an alien environment based on a policy of liberal imports...Let us hope that it rouses our sleepy Whitehall mandarins from their slumbers before Britain's fourth largest industry disappears forever (Bridge, 1982, p. 17).

Their [China PR] products are made and sold with absolutely no relationship to actual cost. Thus, it is not surprising, but rather to be expected, that U.S. imports of textiles and apparel from China are rising precipitately (Feinberg, 1983).

The Administration [United States] said the move would affect imports from 36 countries, but there was little doubt among observers that it was aimed principally at mollifying industry complaints about China. A coalition of textile groups had formally complained that Peking was illegally subsidizing textile exports (Wright, Herron & Douglas, 1983).

Bosca sold nearly all of its goods in the European market. Although the reaction from the EC was not as severe as from the US and UK, the industry can be characterized as

having a high degree of political risk. If the EC or a key member country were to suddenly enact punitive tariffs on clothing, Bosca could face an insurmountable challenge to its survival. As the following quotation made in response to the tariffs enacted in the US demonstrates:

"In this business we always walk a thin line", said Peter Sullivan, operations manager for Diane Freis Ltd., a local (Hong Kong) clothing manufacturer. "There is no way they can just change the rules like that and expect us to survive" ("Textile rules jolt Hong Kong", 1984).

Garment production involves 16 basic steps. Of these steps, about half can be partially automated. The remaining work is manual labor performed on specialized machines. Labor costs are therefore a large factor in overall production costs. This was the driving force behind the shift of manufacturing from Western countries to Asia and particularly China. Another noteworthy point is that the purchaser supplies the design. This being the case, the only differentiation factors available to the manufacturer are speed, price, quality, and reliability. There are no factors that lock purchasers to specific suppliers. Purchasers can therefore shop around for what they perceive to be the best deal. The significant investment in specialized machines required for production ensures that exit costs are high for competitors. Given all of these factors, it is not difficult to imagine that margins are thin in the garment manufacturing industry. Negative press focusing on the poor working conditions employed by some unscrupulous parties reinforces this image.

The Chinese government gave every indication of being fully aware of the competitiveness of the garment industry. It also seemed to grasp that the manufacturing side would never be the most profitable part of the business. Additionally, it seemed to observe that within the overall textile and garment value chain, the only way to earn reasonable margins in manufacturing was to excel in quality and to seek a niche market. The first problem tackled by the PRC was quality. As the government still controlled pricing in 1984, it instituted a system that rewarded premium producers. Next, the government realized that an upgrade was needed overall in the manufacturing value chain. It went about improving this through a combination of importing, buying the most modern equipment, and enlisting foreign help, which came in different ways:

For the first time Tianjin will have a foreigner to run one of its factories, according to an agreement signed on 22nd November which obliges the

Huashak Co, USA, to hire a foreign expert to work as deputy director for the Tianjin Xinhua garment factory...To improve the quality of exports, the Tianjin factory asked the American company to choose a foreign expert to control the production and quality of garments it produced. The expert will serve for three years beginning in January. ("International relations USA—Company to appoint foreign factory director", 1986).

A garment-making joint venture between Hangzhou and Japan has made a profit of 612,000 Yuan since it started operation seven months ago. ("International relations Japan—Profit from joint venture", 1986).

In addition to improving quality, incentives were set up to shift ever-larger sections of the value chain onto the mainland. The government enacted this wish by setting up a clothing design institute in Beijing in 1988:

The Peking Institute of Clothing Technology, the first of its kind in China, was founded in Peking on 10th May. The institute aims to train professionals for the growing garment industry. China has 2.30m garment industry employees, but less than 1% of that number have received technical training ("Society and environment: establishment of clothing technology institute", 1988).

Another policy to promote an increased local share of the value chain was to set up a monopoly for the export of raw textiles and then manage pricing as an incentive to increase the local production of finished goods. This action was most recognizable in the silk industry, which nationalized export trade. The central government raised prices to international trading partners:

Silk importers in Switzerland have protested to China at what they claim is a breach of contract following an announcement by the Peking-based China National Silk Import/Export Corporation of a 30 per cent price increase ("China's silk price rise provokes protest", 1988).

They enacted export duties on raw products:

PEKING, Oct 26, Reuter—China will levy export duty on silk products as from today, the New China News Agency said. It said the duty on silkworm cocoon, raw silk, waste silk, silk yarn and spun silk yarn will be 100 pct and on silk, silk noil and fabrics made of waste silk 80 pct ("China imposes export duty on silk", 1988).

China had been one of the largest and best-known producers of silk for thousands of years (in 1987 China accounted for 90% and 40% of the world's total output of raw silk and silk products (International relations: textile exports, 1987) respectively), it not surprising that they quickly developed and leveraged its market power in this area.

Bosca started its business in this working environment acting as a high-value sourcing company where it would take the orders from purchasers and find factories to act as
partners for manufacturing the bulk garments. It bought these garments from the factory and then sold them to the overseas purchaser. Some of the more know-how-intensive process steps were performed directly by Bosca personnel. The founders of the company had extensive knowledge of the business and contacts at various state-owned production facilities. They had developed a reasonable business during the beginning of the 1980s, but realized, as described in detail above, that things were changing at the end of the decade.

Partnerships in China

Bosca formed two joint ventures: one in 1988 and one in 1989. The first partner, Furui, manufactured woven silk products in the area of Nantong. The second partner, XZC, produced knitted cotton products and was located in a small city in the Jiangsu Province not far from Shanghai. Both partner factories had been long-term suppliers of Bosca. The personal relationship between people on the working level at the two companies had developed over many years. Although both suppliers had provided adequate products to Bosca previous to forming any shared equity arrangement, improvement in its quality and delivery reliability was needed for the foreign partner to reach its long-term goals. The local partners were actively looking for assistance in improving their quality as prescribed by the central government directive. Although nothing was specifically stated in the interviews, the timing of joint venture formation followed very closely with the policies implemented by the Chinese government to coerce foreign companies to assist in the modernization of the local clothing industry. It may be that Bosca was simply moving with the megatrends or that these policies provided real incentives to either (foreign or local) partner to form partnerships.

Furui

Bosca leveraged its expertise in its first foray into a Chinese partnership. Furui had been a silk factory and a supplier to Bosca. Both partners were interested in deepening the relationship. Bosca wanted to help improve the quality of the Chinese partner and also secure supply arrangements. The opening of the Chinese industry to foreign investment in the form of joint ventures presented both opportunities and threats. The company from Macau now had the chance to form a relationship with one partner. This would help to secure its supply and give it a chance to offer a better product to its clients. The risk of not forming a joint venture may have been greater. With the heavy push for privatization from the Chinese government and the large number of companies involved in garment manufacturing, many companies must have been in the same position as Bosca. The foreign partner felt a competitive impulse in the direction of forming a joint venture. If the best suppliers were to tie up with other partners, Bosca may be cut off from supply. As mentioned previously, Furui was directed by central policy to seek external partners to help it improve its quality and competitiveness. The timing of the venture fits perfectly with the legal changes described previously at the end of the 1980s.

The structure of these ventures was unusual due to the ownership configuration of Mainland textile companies at that time. The local government owned the firms through various ministerial bodies. In order to form a joint venture, Bosca found that it needed to partner not only with Furui but also with the local government. The foreign partner had only a 33.33% share, as did the other two. This structure made things difficult at times:

Having 3 parties in the company was a mistake. Getting 2 parties agreeing on the direction is difficult enough. Getting 3 parties to agree is nearly impossible... (Eduardo Abreu)

The new venture was formed in 1988. This consisted of Bosca essentially purchasing shares in a small part of this state-owned enterprise. The joint venture contract had prescribed management to be on a rotational basis where each partner had the right to assign a MD for two years. Bosca therefore appointed one of its founders to be the first MD. Business for the new venture developed well at the beginning and grew to between \notin 5 million and \notin 10 million per year of profitable sales.

The success during the first two years continued into moderate performance for the next two. The sales from the venture did not drop, but the business was less profitable as the previous two-year span. Despite the fact that the venture had some semblance of success, the internal squabbling began just after the change of operational management (MD) from Bosca to the local partner in 1990. As stated previously, the management of the foreign partner and the management of the local partner had known each other for many years. They had developed significant social capital. Most

difficulties with the venture had little to do with operational performance; instead, they revolved around perceived imbalances in public versus private benefits (Khanna, Gulati & Nohria, 2000). After the management shifted from Bosca to the local partner, people who were unrelated to the venture itself began to appear:

These people didn't take active involvement in the business of the company but instead they would use the joint venture assets for personal gain. One example is that the joint venture had 2 cars on the books that were for company use. When investigating car use, we found out that these cars were then 100% used by the families of the top management of the partner. They weren't even involved in the joint venture at all! (Abreu).

As an example, I was jogging through our factory once and the cook saw me. He lived in the factory and invited me for a cup of tea. It was a generous offer by him but not very smart. I went to his place and found that all of his cushions on his furnishings were silk. Now silk is a very expensive raw material. He had been taking the products from the factory and using them in his home. (Abreu).

The private use of company assets was a serious issue for Bosca and having had no experience in running an enterprise in China, Bosca found this unacceptable. The constant bickering about similar peripheral issues continued to drive a wedge between the partners, and the management of Bosca quickly became frustrated that they were not able to stop this from happening. With only 33.33% shares and no operational control, it was powerless to stop it. The only option was to buy the majority outright from the partners. Bosca proposed to purchase enough shares to hold 51% at the end of the fourth year. The other partners refused. Instead of continuing with the frustration of having to constantly manage these non-productive side issues, Bosca management decided to pull out of the Furui venture. Unfortunately, Bosca realized that it would lose its investment because the partners would not buy the shares for any reasonable value. The shares in this company were then simply written off.

Bosca had been working with XZC, a knitted cotton factory, as a supplier. In 1989, only one year after forming its partnership with Furui, Bosca decided to form a second partnership in China. The first collaboration had been operating well at the time with the founder of Bosca at the head. Therefore, the venture into the second likely did not seem like a significant additional risk. The reasons for entering the venture were exactly the same. Bosca wanted to deepen the relationship, help the partner strengthen its quality and stabilize supply for its clients. XZC wanted to improve its quality and wanted to comply with the directive from Beijing to partner.

The structure of the company was set up exactly the same as the Furui enterprise. There were three partners: the factory, the local city and Bosca. Each owned 33.33% of the company. In this case, the foreign company had no available management capacity to take direct lead for the company. The partner was therefore left to run it. During the operation, the founders of Bosca came for an inspection to see how the company was running. Considering that labor was a significant factor in garment manufacturing, such companies typically hired migrant workers from neighboring villages and provinces. Well-run organizations provided workers with basic dormitory-style accommodation. In this case, the foreign company found that workers were living in temporary hovels built from waste construction materials. These hovels only had a dirt floor. Bosca, although a small-sized private company, believed strongly in the welfare of its employees. It stated this aspect of its company philosophy in many places of its present-day office and its website. After the partners continually refused to implement basic suitable housing, Bosca decided that it would not continue. The only option was to simply write off that investment because there was little chance of recovering any of its invested capital.

Taiguang—Rising up Again

By 1993, Bosca had exited both of its first partnerships in China and had lost all of its capital that had been invested. The Furui venture had been profitable enough to recoup some of the losses, but the sting of this experience may have left many entrepreneurs reluctant to consider working in China again. However, the owners of

Bosca were undaunted. They saw the booming Chinese market and the growth of the industry and were determined that the problem was not China but how they had gone about things. They wasted little time in looking for options, considering what had happened in its previous experiences.

After looking around and considering all options, Bosca decided to form its next joint venture in 1994 with a government-owned silk import–export trading company. This venture was vastly different from its previous ventures in many obvious ways. This company Taiguang, located in Hangzhou, was not a manufacturer of textiles or garments. It was only a trading company. It had no manufacturing assets or existing facilities. Taiguang was a government agency and therefore had excellent connections to get land, buildings and loans, but it had neither experience nor interest in the details of manufacturing. Bosca therefore had a free hand in setting up a new greenfield site as it would prefer to set it up. There would be no discussions about the style and suitability of the housing for the workers, whether the equipment was sufficient to meet quality levels, or who should manage the factory. Taiguang had no interest. It only used its connections to assist the new venture in getting appropriate land and loans. Bosca had to manage the rest.

The next difference had to do with ownership structure. In the previous two circumstances, Bosca was forced to accept and keep only 33.33% of the venture. It thereafter had many issues trying to implement what it considered was essential policies because it had to convince the two partners to agree before anything could happen. When forming the partnership with Taiguang, it negotiated up front for a strong majority ownership. The initial contract stated that Bosca should have 80% and Taiguang 20%. It was intended that the local partner inject the first 10% at formation followed by 10% within six months of joint venture formation. It never made the second capital injection so the final ownership ended up as 90–10. In this case, both the significant majority from an equity point of view but also full operational control was with Bosca.

Superficially, one could easily ask what benefit the foreign partner got from the local partner. They had only 10% equity, which is only enough to wield power on the board on items requiring unanimous votes. In addition, it did not appoint any persons in the company to impose any control from an operational point of view. It also did not provide any specialized technology or machines to the venture. This reduces the company to what seems to be a financial investor. However, the part it played in the success of this new company was actually much more significant:

I was very happy that we had a joint venture partner even though they held only a small part of the investment. Their network allowed us to very quickly integrate into the local surroundings and this is very important (Abreu).

He [the MD of Taiguang] really helped us in return. He found us the right place to set up our factory. We are still at this location, since it has worked so well. He helped us with financing and his network. He just helped us get things done smoother than we could have done ourselves (Abreu).

In this case, their investment was worth very little at 10% but their network was invaluable. Although our business value didn't mean much we brought the prestige of having a successfully running international joint venture and we built a very modern factory at that time (Abreu).

These statements are strong evidence of what value the partner brought to the partnership. Its value was much higher than the small cash investment. It had helped to navigate through what can be a murky regulatory and social system in China.

Another key difference in the way Bosca approached this venture had to do with the contact level. Instead of having social capital with people on the working level, it leveraged and further built its capital on higher levels. The founder of Bosca had, over the course of the late 1980s, developed a close relationship with the GM of Taiguang. Again, the approach to this venture was significantly different than the previous two:

We were very generous at the beginning of the relationship with the importexport company and their management. We had developed a strong personal relationship. I think that this is important in China and just a normal part of the local business culture (Abreu).

There was significant personal exchange used to build the relationship. For example, I financed his son's study in Australia. He repaid me several years later since as China opened he built his career quite well (Abreu).

From the onset, Bosca was very generous and open with the management of Taiguang. It felt that by investing in this friendship, it could avert the behavior it had

observed in the Furui partnership where the partner extracted personal benefits from the partnership. It felt that a friendship would act as a deterrent:

You must have developed a friendship in their eyes and according to their rules or else they will look to cheat you from the beginning (Abreu).

It had invested in its relationships to avoid repeats of its past experiences, but the situation changed in China between 1985 and 1994. Early on, the GM of Taiguang had accepted help financing his son's education in Australia. However, by the time the joint venture was formed, he had already become a very wealthy man:

By the time we formed the joint venture, the GM also had no need to use our joint venture for personal benefit. He had his own cars, drivers, etc. (Abreu).

He appears to have had little need to siphon off benefits from the venture with Bosca. The turnover of the business also seemed to be of little consequence to Taiguang. Moreover, the earnings represented by 10% of such a small company were inconsequential for the local partner. Deeper analysis into the specific functions both partners played may shed some light on how this curious partnership operated. This will be carried out during the case analysis.

Break-up of the Joint Venture

As 1996 began, the Bosca and Taiguang joint venture was operating very well. The foreign partner ran the business and kept it profitable, and the local partner continued to fill its function of helping the company steer safely through the rapidly shifting and often opaque Chinese regulatory system. Just when everything seemed to be working perfectly for Bosca, the government decided to introduce new reforms into the system. This time, the target turned out to be the import–export houses. They had been set up to manage and control the trade of raw materials—in Taiguang's case, silk. Beijing decided that this was no longer necessary and set them on the privatization path. As the process began, a key person in Taiguang contacted Bosca management. He explained that during this process, the remaining 10% share in the company could end up with any number of different companies, which were to be born out of the breakup of this bureau. He offered Bosca a chance to buy it. It is important to note that this joint venture ended its existence as a cooperative venture but not because of any difficulties between the partners:

We would have been happy to continue the joint venture. All was working fine. There was no reason for us to buy out the partner but since everything was changing and there was a possibility that we didn't know who the partner would be in the future, it made sense (Abreu).

Despite the fact that the various companies that succeeded the Taiguang importexport company no longer have any ownership in the Bosca venture, they still keep in close contact with the management of Bosca and assist them if they face problems. The former GM of Taiguang has long since retired, but the founder of Bosca still arranges to meet him on significant dates such as holidays.

11.2 Analysis

Cost-Benefit Framework

The first two partnerships were formed under nearly identical circumstances. The Chinese central government had just recently set a mandate that all textile and clothing manufacturers must seek foreign assistance to improve its quality and expertise. Both Furui and XZC had two objectives. The first was to gain knowledge from Bosca by complying with the mandate. The second was to gain political favor within the government ranks by complying with the mandate, whether or not they really gained any know-how. Bosca sought to improve the quality, which it received from China, but also to secure supply. These were the benefits expected from both sides. The costs only became apparent after the business went into operational mode. In the case of Furui, Bosca management could not control the use of company assets for personal gain after the operational control switched to the local partner. XZC presented a clear risk to violate the small company's ethical guidelines. These are symptoms of the greater issue, which was Bosca's inability to control the situation should the partnership head in a direction unsuitable to the foreign partner.

The benefit–cost analysis in the case of the Taiguang venture is important. The local partner ended up with only a very small stake in the company; however, the foreign partner was disappointed to have to buy them out.

Taiguang	Benefit	Bosca	Benefit
B1.	Improve garment production technologies?	B1.	Guidance for navigating opaque system
B2.	Political benefits 1: forming international joint venture?	B2.	
B3.	Political benefits 2: model factory	В3.	
	Cost		Cost
C1.			

Table 11.1 – Cost/benefit analysis Bosca

The explanations below will support the points listed in Table 11.1. Quotations and data support all explanations.

Taiguang

- B1. The section describing the industry background in garment production made it clear that the central government had been coercing its textile companies to form joint ventures in order to improve its production technologies. This was the case for Furui and XZC. It could also be expected of Taiguang, but it cannot be assumed without a doubt. Taiguang was not a manufacturing company and therefore may have had no pressure to form this alliance.
- B2. Most state-owned companies in China had to go through some sort of privatization process. The local governments had typically owned these companies but wanted to turn the ownership over to private groups. As the managers and local politicians involved in these deals could gain significant recognition for bringing in large foreign investments, it stands to reason that this is a benefit. In the case of Taiguang specifically, this should also not be assumed since it formed the joint venture before the privatization process started.
- B3. The new venture with Bosca was typically exceptional in how they managed its worker relationships. It was one of the few factory companies that always

hired the required number of employees.⁷ It was one of the first (certainly in that area) to set up cashless payments to its workers. The founder of Bosca recalls a large battle with the bank to set up this system in order to avoid the security issues of having to pay all salaries in cash.

Bosca

B1. As previously noted, the assistance given by Taiguang in acquiring the best land for the factory, getting reasonable financing from the banks, and generally using its connections for the benefit of the collaboration was important to the success of the joint venture:

You know, if you are a midsized company and not a huge company like...you have to learn to work in a grey zone in China. You simply cannot afford to implement everything requested. This is one important function of the joint venture partner. They can help you understand what is important and what is not (Abreu).

Despite knowing that frequency of occurrence should not be taken as an absolute measure of how much value should be assigned to one of these benefits, it indicates relative importance. If the help provided by Taiguang through its connections was not important, why should it show up so often in discussions with a complete stranger? If the progressive social policies implemented by the joint venture did not help the management of Taiguang politically, why did its GM so often bring politicians to visit the factory? Why was it labeled a "model" factory? These two benefits were not only perceived by a single person in discussion, but they also seemed to be based on real value brought by each partner. This is evidence that both partners actively contributed to improve the survival fitness of the joint venture beyond what could be achieved as a single entity.

⁷ The Chinese government requires that a certain percentage of a firm's workforce be persons who the government has labeled as "disabled". If a company does not fulfill this requirement, it must pay an additional tax.

Detailed Benefit-Cost Analysis Using Bio-Evolutionary Theory

In nature, organisms cooperate with each other in a large number of ways (Douglas, 2010; Dugatkin, 1997). There is varying depth to the nature of the relationship. Some of these collaborations have evolved so deeply that the individual animal is no longer apparent. Lichen and most coral are excellent examples. Even human cells comprise what were once individual entities, now solely dedicated to the greater good. The mitochondrion within each cell provides the cell's energy but still maintains its own DNA. Some partners are loosely associated with the other partner. Examples of these include seed-dispersal mutualisms, where an animal will eat fruit carrying the plant's seeds, move them to a more suitable area, and help the plant by depositing the seed with some fertilizer. In such a case, there is no deeply evolved relationship between the plant and animal. Any passerby is acceptable, as long as it can complete the task. There is very little specificity. These two examples exist on two ends of a continuum, with many various configurations in between. If the cooperative relationship is highly evolved, the two partners typically have a relatively high dependence on the other. Biologists call this an obligate mutualism. In the case of seed dispersal mutualisms, there is no dependence on any specific organism. This case is termed a facultative mutualism (Douglas, 2010).

This particular case is well suited to examining the depth aspect of the relationship. There are two main benefits being exchanged between the partners—one from each. Examining two in detail therefore simplifies the analysis significantly. In this case, the benefits as well as the associated costs to provide them are also transparent.

By taking part in the collaboration, Bosca benefits from the business and personal network brought by Taiguang and its highest-level managers. It can secure better financing from banks and can better understand which initiatives and policies handed down by Beijing must be implemented and which will not be enforced. It can more quickly navigate the complicated bureaucracy in China. In general, it is a foreign company, but the joint venture with Taiguang allows it to operate like a local company. This offers a significant advantage to Bosca, which could even be measured monetarily if access to sufficient information were available. An example can be seen in this quotation:

When the stronger labor law was implemented, it demanded that companies were not allowed to have overtime. I tried to implement the law but lost 20% of my labor force because few companies in the area implemented it! My employees left to go to jobs where they could get this extra income which they needed to send home to their families in the countryside (Abreu).

Therefore, the implementation of this new requirement caused Bosca to have a higher employee turnover. Taiguang's network helped Bosca management get in touch with the local mayor in Hangzhou. During the meeting, the mayor advised that he implement only what the neighbors have done. As long as Bosca had not been the worst offender, there would be no implications. He also advised that he would give Bosca warning should the enforcement policy change. Therefore, there is a clear monetary advantage to working as a local company in China. The implementation of the above labor law would have had a high cost for Bosca.

If the benefit of using Taiguang's local ties is large, what is the cost for supplying this to Taiguang? It cannot be said to have no cost. Management of the local partner has invested a great deal to develop this network. The question is: what is the *incremental* cost of allowing Bosca to piggyback on this network? Again, it cannot be dismissed as cost free. Taiguang certainly does not need to build specific contacts for Bosca because they are both active in the same geographical area and in similar businesses. There are no incremental costs to building the network, but it can be argued that using it has costs. If Taiguang were to ask for an audience with the local mayor in order to assist Bosca in solving an issue, it has used their network to help their partner. This audience does not have a direct cost because Taiguang has invested in these relationships for general use. However, the audience has opportunity cost. Taiguang cannot have unlimited time with the mayor and must use its chances sparingly. This mayoral audience may then cost Taiguang an opportunity to meet the mayor about another issue for its own needs. The cost therefore cannot be clearly quantified in this work due to specific information limitations. To fully quantify the cost, the researcher would need to find out how often Taiguang's network was used by Bosca and for what issues. On top of this, the missed opportunities the local partner had to pass up for the benefit of Bosca would also have to be known. The full extent of information was not known in this case, but in general it is reasonable to say that the cost of providing Bosca with assistance should not be extremely high. There were no dedicated resources or investments made by Taiguang.

In return for use of its network, Bosca helped its partner earn political clout, which is critical when operating in China. Having formed and maintained a successful operating joint venture in the garment industry brings some political benefit to Taiguang. As noted previously, Beijing had issued a mandate to Chinese textile companies to partner with foreign firms to bring the best new technology to the mainland. In addition, Bosca seems to have brought even more political benefit to its partner by acting as a responsible employer in an industry infamous for poor employment practices. The positive political effect can be demonstrated by the frequent tours of Chinese politicians visiting Bosca. The benefit to Taiguang can be seen by the fact that the GM of the local partner always personally accompanied them. Gaining this political clout was important to Taiguang and its management; however, assigning a specific value to it is extremely difficult.

The cost for Bosca to provide this benefit to its partner is relatively small. It must accommodate politicians visiting its plant, but this also has a positive effect on public relations for the company. It needs to focus on being a responsible employer, but this also does not seem to be a dedicated investment. It display its employment philosophy prominently on its website and in its offices. This is evidence that Bosca is simply treating its workers as it normally would, even absent Taiguang as a partner. Providing this benefit has no real cost to Bosca. In nature, if an organism provides a benefit to a partner with no cost to itself, this is called a by-product mutualism. There are some differences, which should be noted between such a mutualism and the Bosca case. Bosca perceives investing heavily into the relationship with their partner. In the case of a by-product mutualism, this type of investment is not present. The benefit provided is part of what an animal would do in the partner's absence; therefore, there is no specific investment. Although the two appear to be similar, there must also be differences.

Evolved Behavior?

Another unusual aspect of this case is that Bosca formed three distinct joint ventures in China in the same business. This presents the opportunity to observe any evolved behavior, such as experiential learning, following the negative experiences with Furui and XZC. This can be observed by examining the differences between the Taiguang joint venture and the other two. This will provide strong clues about the changes in the behavior of Bosca toward joint ventures.

XZC / Furui	Taiguang
3 Shareholders	2 Shareholders
33.33% for Bosca	80% (90%) for Bosca
Little operational control	Full operational control
Relationship with middle management	Relationship with top management
Highly concerned with side benefits	Generous from onset. Less concern.
Partner is manufacturer	Partner is trader

Table 11.2 – Cross comparison of 3 Bosca JVs

The differences between the first set of joint ventures and the final one are listed in Table 11.2. These are the only differences that could be ascertained from the data available. Although there are six differences listed, these seemingly individual differences can be distilled down to two main changes. In the partnership with Taiguang, Bosca management went to great lengths to ensure that it would, in all cases, have operational control of the company. It ensured that it only had one partner with a small minority stake. The partner it chose had no assets, expertise, or even interest in garment manufacturing. This left little risk that it would force its way into the business at a later date.

The other change was related to how Bosca reacted toward employees' and partners' use of company assets for their personal benefit. This was a debilitating problem in the venture with Furui, and is considered, based on the data, the largest single reason for the destruction of the venture. The contextual differences of how this behavior was perceived by Bosca management are extreme. In the past, it was considered a clear offense. However, when this same behavior was discussed in present terms, the

tone was different. Bosca management openly accepts that this is part of running a company in China and that it cannot stop it. Bosca also stated in interviews that it provides company assets such as vehicles and mobile phones with the intent that the personal use of these assets will be considered part of the employees' compensation. Bosca therefore has a lower cash compensation package than many foreign joint ventures; however, management is convinced that its open acceptance of these additional side benefits has played a large part in its low turnover of employees.

Bosca made two significant changes in how it approached the Taiguang joint venture compared to the previous two joint ventures. The common label for this in the current literature would be that there was *learning* (Barkema, Bell & Pennings, 1996; Inkpen, 1996). The organizational learning aspects of this case will be discussed later. This label has merit; however, this does not mean that analysis under the biological lens in terms of adaptation should be ignored (although learning could also be construed as an adaptation).

In nature, many varieties of plants have evolved to cooperate with ants (Douglas, 2008). The plants provide nesting sites and food bodies on their branches to attract the ants. The ants in turn protect the plants from herbivores. This relationship is stable, and some ant species have evolved specific relationships with specific plants, such as the Acacia ant. Some ants (Douglas, 2008) have been known to castrate the plant flowering sites. This induces the plant to produce more nesting sites. Plants have evolved their own defenses against this behavior. They have evolved flowering locations that are extremely difficult for the ants to reach, thereby minimizing the opportunity for the ants to cheat.

Considering the case of Bosca once more, some important lessons come to light. Bosca made two significant adaptations between the two joint ventures. The first is that the attitude and approach to personal use of company assets shifted. This is an adaptation to the environment. Bosca saw that the behavior was part of normal business in China and therefore adapted. It was accepted and made part of the exchange with employees for the value they brought to the company. This change fits the pattern of a Darwinian adaptation, where the organism adapts to its environment. This change unfortunately is not specific to cooperation, and any company could have experienced such a shift. The second adaptation is more intriguing. Bosca appeared to go to great lengths to configure the Taiguang joint venture in such a way that it was assured full operational control at all costs. First, its partner had no ability or interest to operate a manufacturing facility. Second, it negotiated for a very dominant majority that ensures that the partner could not change its mind at a later date. This shift is an adaptation based on the experiences in the venture with Furui. Bosca was intent on the full control and running of the venture. It was not going accept any risk that this would not be the case. The joint venture was deliberately structured so that the partner had less opportunity to cheat. The opportunity for Taiguang to wrestle operational control was in essence minimized, not unlike the manner in which the plant managed the ants.

11.3 Other Models

During the course of interviews, Bosca management frequently offered general advice concerning joint ventures. These quotations contain significant findings because they reflect the attitude and understanding of Bosca management about their experiences. These statements fit comfortably into various existing theoretical frameworks in the alliance literature. It is therefore convenient to use these points as anchors for the investigation about the applicability of other theories.

Partner Choice

I think that neither [Furui & XZC] was successful only because I picked the wrong partners (Abreu).

Considering that Bosca was not successful with Furui and XZC but was successful with Taiguang, the topic of partner choice will surface. A logical, albeit simplistic, conclusion would be that Bosca had simply not found the right partner. Had it found and partnered with Taiguang from the beginning, would everything have worked? Of course, this is far too simple. Many factors changed between the first round of joint ventures and Taiguang. Isolating only the choice of the partner as the cause of the problems in the early ventures is unlikely to provide the full picture. Unfortunately, it is also difficult to prove incorrect. However, it does suggest that Bosca's ability to

choose partners had significantly improved. It now understood the criteria for a successful joint venture.

Social Capital

Never form a joint venture with someone who you don't have long experience working with. Why not work with them first and learn how they are structured? Who the key people are? How they work? Then decide if you want to partner with them (Abreu).

This statement advocates the development of social capital prior to the formation of a joint venture. The advice fits very well with the theory (Ring & Van de Ven, 1994) and makes logical sense. If examined more deeply in light of this specific example, some useful observations can be made. The first is that Bosca had taken the time to develop relationships with all partners, including Furui and XZC. It could be argued that it had not developed close enough relationships with high-level people in Furui. This point can be distilled down to mean that Bosca had failed to develop social capital with the "right" people. As pointed out by Currall and Inkpen (2002), interpersonal trust and trust between organizations are often mixed. In this case, is it reasonable to discuss whether or not certain people at Bosca had developed relationships with the "right" people at Furui? Unfortunately, whether or not they are the "right" people can only be attributed *ex post*. This unfortunately fits with the criticisms of Koza and Lewin (1998) of the trust theory in general.

Opportunism

There is a general issue in China at that time but also today that there is no separation in the local workers' minds between work and private. They are connected and they are the same (Abreu).

In China there is no split between business and private (Abreu).

The above quotations were made in the context of the partnership with Furui. Therefore, they are referring to specific actions by the management and employees of that partner; however, the wording is general and refers to the business behavior of a nation of people. Although opportunism was a significant aspect of the issues with the Furui partnership, this contains an additional aspect of cultural understanding.

Culture

You have to give the Chinese the freedom to work according to their culture. They are not accustomed to acting, rather they like to react. We Europeans like to plan ahead and work deliberately on a problem for months before it gets difficult. A Chinese will throw a massive amount of energy at the problem during the critical stage and solve it in 24 hours. Who says that the second way is not as good as the first? (Abreu).

Big companies are process oriented and cannot accept the business culture here. You cannot dictate every movement to Chinese people (Abreu).

The reason that big companies survive here is because they are protected politically due to their size and political connections in their home countries. They are attractive to young people looking for work but they have a high turnover due to their restrictive process orientation. We don't have such turnover (Abreu).

Bosca had adapted to the local culture in China. The first evidence of this was the shift in perception regarding the use of company assets for personal gain. These quotations exhibit more examples of the changes made by this company. They are explaining, in essence, why Western company culture is a misfit in China. The last quotation argues that Bosca has adapted more than many large multinational enterprises, thereby explaining its success. The observation that a foreign company will adapt over time to local culture is well accepted (Meschi, 1997). Evidence from this case corroborates this. Learning may be considered less important for larger companies, as their sheer size allows them to succeed without the need to adapt. Smaller firms must adapt more rapidly, as the costs of failing to do so may be more critical to their ability to survive.

Learning

I consider whatever we lost in the first 2 joint ventures as the cost of learning how to operate in China. The investments were small and I gained a lot of experience. I often advise others to do the same thing. First make a small investment which is not critical to you, but make sure it is large enough that you can send the lead manager or GM. Consider it an investment in learning in China. Once you gain the experience and understand how things work, then you can make a larger, more critical investment. If the first partner turns out to be OK, then great. If not, then you have lost a little money and gained experience (Abreu)

Companies shouldn't be afraid to fail and learn lessons. Consider it an investment in the future just as I have experienced (Abreu).

This case exhibits strong corroboration for organizational learning theory in respect to joint ventures. Bosca invested in two ventures, learned some hard lessons, and then tried again. The third time, it succeeded. The quotations also testify that the foreign partner's management had been aware that it had made some questionable choices in the first foray and that it deliberately needed to change the approach with Taiguang. This is clearly learning.

Control

Having 3 parties in the company was a mistake. Getting 2 parties agreeing on the direction is difficult enough. Getting 3 parties to agree is nearly impossible (Abreu).

One must consider the purpose of the joint venture. If you only want to politically show cooperation, make a small investment for minority share that you are not scared to lose and stay out of it. If the business is critical, you must take the majority and RULE IT (Abreu).

Control is the key determinant here. The argument is that Bosca's control of the joint venture organization was important for its success. This is the stance taken by Killing (1982, 1983, 1988). The evidence seems to agree. In the first two years of Furui and the full venture of Taiguang, Bosca had operational control and felt that the joint ventures were successful. The second two years of Furui and all five months of XZC were unsuccessful largely because Bosca was not in control.

An examination of the case through the lens of existing theory results in the conclusion that some theory is supported by this case and some is not. There is no

single universal theory to accurately and holistically explain the events. Instead, each is useful to understand only certain aspects. It cannot be argued that control, learning, culture, or opportunism were the driving factors for success in this case. Instead, only by considering all aspects can a clear understanding of the case be formed. This leads to an important comparison with the biological theory on mutualism. The biological theory is multifaceted. It takes control, interdependence, opportunism, reciprocity, and adaptation into account. This presents an important lead for the alliance literature. Each singular case cannot be explained with any one of the existing theoretical frameworks. A more holistic approach is required, and evolutionary theory makes a significant contribution to make to this approach.

11.4 Conclusion and Lessons Learned

Bosca had difficulties in its first two attempts to form joint ventures in China. This case example is important because it allows us to examine how one company adapted over the course of three distinct attempts to form joint ventures with local Chinese companies. An examination of the data from this case yielded several important findings.

The nature of the benefits and costs exchanged in the successful Taiguang venture were relatively clear compared with other case examples. This facilitated the analysis of what each partner provided in detail along with what each had to invest to provide these benefits. The result showed that although the venture was successful, there was no deeply evolved dependence on either side. The act of cooperation benefited both parties. This would be analogous to a facultative as opposed to an obligate mutualism in the biological literature. This aspect of biological cooperation has been extensively researched, providing opportunities for cross-comparison.

Bosca changed the approach between the first two and the third attempts. This change can be examined under the lens of organizational learning; however, it can also be examined as evidence of Darwinian adaptation. The company had negative experiences in the case of the first two and had to pay a relatively high price. Continuing with the same approach would have resulted in a survival threat to this company. The change in approach also resulted in structuring of the new venture in such a way that the partner could not, in practicality, do what Furui had done. This behavior is similar to some organisms that evolve defenses against opportunism.

Lastly, this case was cross-examined in respect to existing literature. Some theory was useful in explaining the events of this case and some was not. This case is too small as a sample to make any valid claims about any particular theory. However, taken together, the observation that no single framework in isolation could provide a clear explanation for the case is important. Several of the theories, taken together, provide a more balanced view of the case. This is one advantage of the biological framework; it is multifaceted, and a more holistic view can be assembled from the different aspects.

Chapter 12: Discussion and Analysis

12.1 Introduction

The case studies found in the previous chapter not only provided the raw data for this project, but they also included analysis of each case in isolation. The next step is to take the data and the analysis from all cases and assemble the important observations and lessons together for the entire data set. After this information has been synthesized for all cases, additional observations and lessons can be drawn. A summary table can be found in Figure 12.1, where all key observations from each individual case have been collated to aid the reader.

	Benefit / Cost Formation	Evolutionary Development	Mutual Benefit?	Biomimicry Analogy	Aspect of Analogy
Innomet Chalko	Yes, Innomet needed cash badly and Chalko wanted a China operation.	N/A	Yes, the venture was extremely profitable for both.	N/A	N/A
ALN Material Huangpu TRUROD	Yes, seemed to be before formation but later changed.	Divergence and then eventually buy-out of Chinese partner	No. ALN was stronger without the partner.	Plants – mycorrhizal fungi	Old mutualisms helped plants colonize land. Plants abandon partner if nutrients in soil enough to servive alone.
IM Rol 3 Others	No data	Unplanned convergence. As environment became harsh, interdependence grew.	Yes, but only evidence was that nobody wanted to exit	Aphid – Buchnera	Organisms can be "captured" by a larger organism as endosymbiont. This ensures cooperation.
Sortex FaMing	Yes. Sortex was legally obliged and FaMing needed help to modernize	Initial divergence followed by coevolution as Sortex realized what the partner could provide	Yes. JV company very successful and FaMing provided more later	Plants-mycorrhizal fungi Legumes-rhizobia Fig-wap	One way to react to non- cooperation is to exit. Other is sanction/reward partner for behavior.
Faulkner		Co-evoution. Faulkner	Yes. Evidence shows		Two organizations, each with
Ruidi	Yes, benefit for both but Ruidi survival depended on formation.	dependence on Ruidi increased as they saw what Zhang was providing to the JV.	that the JV performed best with both contributing.	Lichen	different strength can be stronger together than individually.
Bosca	Yes. Both had	Evolution occurred but	Yes. Bosca ended up		Acacia tree evolves defenses
Taiguang	perceived net positive for all 3 JVs	was focused on Bosca and how they approached future JVs	buying-out the partner but didn't want to.	Ant-acacia tree	which prevent ants from cheating in the partnership.

Figure 12.1

12.2 Formation: A Win–Win Interaction Must be Present

According to the biological model applied here, the first requirement for an alliance to develop is simple. The overall survival fitness of *both* partners must be enhanced from this interaction. The prerequisite for mutual need is logical and carries immediate rational appeal. What else could lead to cooperation? Although trust is a prominent aspect discussed in the alliance literature (Inkpen & Currall, 2004; Luo, 2007; Abador, 2005; Das, 2004; Currall & Inkpen, 2002; Ring & Van de Ven, 1994), two firms would not form such a structure solely due to trust. There must be some advantage over doing things themselves.

An examination of the full dataset shows a clear trend, made clear by Table 12.1. Of the six cases analyzed, all contained clear data about the time of formation, with the exception of IM Rol (case number 3). The motivation for Rolte to form the joint venture could have been multifaceted; however, the formation of a cooperative venture was mandated by law. The assumption could be made that this legal mandate was motivation enough for Rolte as the foreign partner. The difficulty in ascertaining the motivations of the numerous other partners in the Rolte joint venture is the main hindrance to using these data. If this case is rightfully ignored for analysis purposes, then five useful cases remain.

Case	Partner A	Partner B		
1	Innomet	Chalko		
	SURVIVAL	OPPORTUNITY		
	Cash for survival of parent	Simplified entry in China		
2	ALN Material	Huangpu TRUROD		
	OPPORTUNITY	OPPORTUNITY		
	Legally required joint venture	Political recognition for joint venture		
3	Rolte	Various Chinese		
	N/A	N/A		
4	Sortex	FaMing		
	OPPORTUNITY	OPPORTUNITY		
	Legal requirement	Social stability		
5	Faulkner Group	Ruidi		
	OPPORTUNITY	SURVIVAL		
	Simplified market expansion	Investment and technology		
6	Bosca	Taiguang		
	OPPORTUNITY	OPPORTUNITY		
	Stable quality, supply	Political accolades		

Table 12.1 – Comparison of real need exhibited by each partner in all cases atthe time of formation.

In all five cases, neglecting case number 3, both partners had clear motivations for cooperating. In three of the five cases (2, 4 and 6), setting up a business in China at that time carried the legal requirement of forming a joint venture. If these companies wished to participate in the market in China, they had no choice. Two companies, Ruidi and Innomet, had no real choice at all. Innomet simply needed the cash due to its strained position, and Ruidi needed a good partner to make it through privatization and avoid bankruptcy. Their motivations were therefore clear: survival. Many of the ventures were founded during China's push for privatization of their state-owned enterprises. In such cases, these state-run enterprises needed to tap Western companies to bring management knowledge. Huangpu TRUROD, FaMing, Ruidi, and Bosca's first two partners all must be considered in this group. Taiguang, Faulkner, and Chalko were presented with partners that could bring some advantage over a fully owned option. In all five cases, mutual need was observed.

Clarifying the Concept

The pattern of mutual need, as observed in the data, can be explained readily using the biological theory explaining why mutualisms evolve. The concept will be shown graphically in the same way as biological theorists (Douglas, 2008, 2010; Bronstein, 1994), with slight adaptation, as shown in Figure 12.2.



Figure 12.2 – Illustration of the exchange of benefits for costs where each partner must face a cost to cooperate but also receives a benefit in return.

Each firm has a trait, T. This trait carries a cost, X, to the partner applying T but results in a beneficial outcome Y to the other partner. The benefit must exceed the cost. This means that for each particular partner exercising trait T, the relationship below must be true:

Y-X > 0

Although biological theorists often show the net benefits of both partners as being equal, it should not be assumed that this situation is common. As improvements to survival fitness are best considered in a qualitative manner, it makes little sense to have any discussion about balanced benefits from the point of view of both partners. It is realistic to gauge whether the benefits outweigh the costs from a qualitative point of view, but attempting to assign a dimension to compare the magnitude of the two net benefits is a stretch. It was not clarified in the literature why biological theorists insist on showing the net benefits as being equal. The objective values for these quantities are seemingly no less onerous to ascertain. Fortunately, cooperation only depends on the net benefit being positive for both partners involved. Magnitude is only really important in noting the driving force toward co-evolution and to evaluate the effect of imbalances in interdependence. These topics will be discussed later.

So far, this is pretty straightforward, logical, and easy to accept. It is also not a novel concept to the study of alliances. Such an idea has been proposed at least twice before. Contractor and Lorange (1988, p. 20) proposed the relationship shown in Figure 12.3.



Figure 12.3 – Purely economic theory for cooperation in JVs

They have expressed a similar requirement in terms of profit. The "share of the other partner's profit" simply refers to profit sharing in a joint venture arrangement. They have chosen to put this on the right side of the inequality, but this need not be the case. Sharing the profit could simply be considered a cost of cooperation and be transferred to the left. The above then transforms into nearly the same relationship as proposed. Root (1988, p. 77) clarified his ideas with a description and a diagram. Both follow below:

A firm enters an international cooperative arrangement when it concludes that (1) its incremental net benefits of cooperation exceed its incremental costs and (2) these incremental net benefits exceed those of open-market transactions or of intrafirm cooperative arrangements that would accomplish the same mission.

Root (1988) then continued this line of thought with a decision model showing what each firm would be likely to do given the specific structure of the transaction.



Figure 12.4: Adapted from Root (1988, p. 78) – Concept of net benefit/cost placed into framework similar to a Prisoner's Dilemma.

Careful examination of what these theorists propose leads to a simple conclusion. Although postulating that a mutual net benefit is required for cooperation to take place may indeed fit the data, it is not a novel concept. Luckily, it is also not the end of the story. Such a digital decision rule as stated above (positive net benefit = cooperate; negative net benefit = withdraw) cannot constitute a dynamic, evolving construct. It also does not fit with the observations of Inkpen and Ross (2001) that joint ventures live beyond their useful lives. The creation of an evolving construct therefore requires returning to Darwinian concepts.

12.3 Addition of the Dynamic Element—Evolution

To now develop this process into an evolving structure, one must take the concept of positive net benefits above and consider the effects of Darwinian Adaptation on both partners. If only the additional effects of cooperation are considered, then the result is a simple process based on the standard principles of evolution by natural selection. If a trait, when expressed, bestows a significant survival advantage on the expresser, then: a) that trait will become more common in the population over time and/or b) the expression of that trait by the expresser will increase. When this is considered in light of cooperation, the following process can be considered (adapted from Frank, 1997):

- 1. If Y-X > 0, cooperation is stable
- 2. If Y-X >>> 0, expression of the cooperative trait will increase
- 3. If Y-X < 0, cooperation will decline and the partner may exit (if it can).

All of this is logical. If the cooperative trait bestows a large survival benefit onto the expresser, it follows that the expression of this trait would increase as the organization seeks further survival advantages. Assuming the same situation exists for the partner, the partners will coevolve because each can significantly increase its chances of survival through collaboration. The positive evolutionary path of coevolution is not the only one. If one considers that cooperation could lead to a negative effect on survival, a decline in collaboration would be expected. This negative evolutionary path may even lead to one partner exiting the alliance. If one partner is highly dependent on the other, it may not be able to exit and may be "trapped". This case will receive special attention later. It is important to focus on the core principle. As a highly beneficial relationship will lead to positive coevolution and a negative relationship will lead to decline or exit, what happens in the case of a slightly positive outcome? In a slightly positive relationship, it would still be advantageous for the partners to cooperate. However, it would likely not be sufficient to increase the expression of the trait in question. The relationship would thus be relatively stable. Collaboration would continue to provide survival benefits to both partners; however, further co-evolution would not be expected. The three evolutionary pathways are expressed below in Figure 12.5.



Figure 12.5 – General map of adaptations resulting from changes in benefits/costs over time.

Examples Found in the Data

Other than case 1, all other cases provide illustrations of this adaptive behavior. Figure 12.6 contains a summary of all of the cases including the stimulus and the resulting adaption for all cases. The timing and the magnitude of each stimulus were not controlled and therefore were highly varied both between and within cases. As the development of individual stimulus and resulting adaptation has been discussed in detail within each case, it adds no value to repeat this analysis here. Instead, the focus will be on overall patterns within the full data set and the conclusions that result from these patterns.

Parent Share Δ net Shift Time 1 Product Status Time 0 Analogy Time 0 benefit HO Shanghai plant operating successfully. Had 1st mover 2006: Main material price increased fourfold in single year A minimum threshold of net benefit is USA 100% Innomet $\mathbf{\Lambda}$ advantage in China and not interested in cooperation. impacting largest revenue source for Innomet. Pushed firm to needed to promote cooperation. This is Semiedge of bankruptcy. Need for cash additional benefit. Shifts net finished why plants need to expend so much Saw potential of China market and wanted local benefits to positive. Price change had only minor impact on energy in the form of nectar to attract component EU production site. Wanted cooperation, could buy into 0% () Chalko Chalko. pollinators. successful operation. 1993-2002: Local partner couldn't bring sales. Once desperate, Land plants exit their very common 1989: China market attractive. Required to form JV J USA ALN corporate changed their organization to use the products in mutualism with mycorrhizal fungi when 50% Material Semiby law. Japan. ALN then questioned partner contribution and legal nutrient availability in the soil is high finished change in 2002 allowed 100% ownership. Political fallout for enough that the plant no needs Drive to privatization in 1990s in China provided big component Huangpu Chinese partner grave if they are one of first to have a JV fall ←→ assistance from the fungus to extract CN benefits to managers who brought in foreign 50% TRUROD apart. They didn't want exit. sufficient materials. investment of cash and technology in the form of JVs. 1993: China market attractive. Law required "capture" Organisms sometimes EU formation of a JV with max foreign ownership of 60% $\mathbf{\Lambda}$ 2002: Legal change allowing full ownership. Rolte considered partners internally as endosymbionts to 60%. exiting but decided instead to restructure partnership to improve Technology align their motivations to the larger their position. Fully functional JV responsible for China was Products housing partner. Once internalized, the >2 Chinese Rolte huge company with cutting-edge technology. changed to a captive manufacturing plant exporting worldwide. CN 40% ←→ endosymbiont can only improve its Partner accepted since net benefits for them was same. Political benefits alone were significant. Partners survival chances by cooperating. 1994: China market attractive. Required to form JV Plants commonly santion their fungal or EU () 51% Sortex 1998-2002: FaMing wanted specific person for JV GM, Sortex by law. rhyzobial partners by withholding the hired unpopular external person. Instead of improving business, carbon they provide to their partners if Machines this GM worked to reduce personnel. FaMing uses connections the nutrients coming to the plant are not Large division with 1700 people making outdated to undermine sales for JV, forces Sortex to acquiesce. Ł FaMing CN products competing with Sortex. Chance to privative 49% sufficient and upgrade. 2004: Has successful 100% owned business in China Faulkner EU but has difficulty in one city with one large client 75% 2004-2008: Performance extremely high for years 1-5, exceeding $\mathbf{\Lambda}$ Group Semiwhere Ruidi can help. Faulkner's expectations. Despite this, UK partner proceeds with Balance of benefits versus costs has buyout of remaining 25% shares. Ruidi refuses to accept net shifted interdependence to increased finished Ruidi is nearly bankrupt and management must component asset value as agreed in JV contract. Faulkner agrees to 2-year Faulkner's dependence on Ruidi. privatize. JV with Faulkner is the only survival extension and to pay premium for growth. ←→ CN 25% option. Sign a JV contract with unfavorable buyout clause. 1989: Bosca sourced garments from suppliers in Ł mainland China but sought improved quality and Bosca EU 33% 1989: XZC a failure from the start. The JV management treated reliable supply. the migrant workers horribly. The factory conditions were bad The cost of cooperating was too high, and the living quarters provided were shanties build of scraps shifting the net balance to negative and Clothing

67%

Chinese garment industry was under a mandate from

Beijing to privatize using JVs and to acquire overseas

technology. XZC did partner with Bosca.

with dirt floors. Bosca can't accept unethical treatment of

employees and exits. They get nothing back.

Figure 12.6 – Summary of all cases.

Firm

ALN

Rolte

Ruidi

XZC.

Furui,

Taiguang

CN

directing Bosca to exit.

←→

Figure 12.6 continued – Summary of all cases.

Firm	Share 1	Shift 2	Δ net benefit	Share 2	Shift 3	Δ net benefit	Analogy
Innomet	50%	2008: Chalko bought into Shanghai plant					
Chalko	50%	and formed JV.					
ALN Material	100%						
Huangpu TRUROD	0%	2003: Buyout by ALN					
Rolte	60%			60%		1	Tendency to cooperate increases in nature when
>2 Chinese Partners	40%	2004 : Change in structure allowed Rolte to reposition JV plant as global production site. Scale economies improved and Rolte global costs sank.	{ }	40%	2005-2010 : Competitors enter the main businesses of the JV. Margin drops and risk increases and the global business in jeopardy. Value of partners as partners for <i>sharing risk</i> increases.	0: Competitors enter the main businesses . Margin drops and risk increases and the usiness in jeopardy. Value of partners as for <i>sharing risk</i> increases. ←→ the environment is tube worms living n thriving in the tundra symbiotic relationsl challenging environment	the environment is particularly hostile. Giant tube worms living near deep sea vents or lichen thriving in the tundra are examples of animals in symbiotic relationships thriving in the most challenging environments.
Sortex	51%	2002-2005 : After change in GM, Sortex invests heavily in JV success and the business grows in excess of 20% CAGR with little involvement of FaMing. Sortex not happy with one-sided investment wants to buy out FaMing. Compromise to inject new business to the JV in exchange for changed shareholding.	≯	80%	2005-2008 : Continuation of 20% CAGR growth increases importance of JV in parent portfolios.	↑	
FaMing	49%		≁	20%		↑	
Faulkner Group	75%	2008-2010 : Performance continues for the next 2 years and the negotiation again turns into a stalemate with Ruidi asking more than Faulkner wants to pay. Faulkner is concerned that pushing partner too much will cost them the JV success	1	75%	2012 : JV GM from Ruidi retires and performance	1	Like lichen, one of the most robust organisms on earth, the JV would not have been as strong without one partner. Faulkner provided the
Ruidi	25%		than Faulkner wants to pay. Faulkner is concerned that pushing partner too much will cost them the JV success	↑	25%	of JV reduced.	↑
Bosca	33%	1988-1992 : Bosca forms and operates JV with Furui. Similar set-up except that Bosca manages the JV for first 2 years of successful, profitable operation before the partner takes over. Next 2 years, partner pilfers as much from the JV as possible. Bosca again exits	→	90%	1994-2012: Bosca forms next JV with Taiguang.	¥	Organisms have been shown to adapt in response to opportunistic partners. The acacia tree has a partnership with anti-where it provides feed and
XZC, Furui, Taiguang	67%		< 	10%	Takes large majority share and builds greenfield instead of buying into existing. Taiguang is trading house, not interested in operation.	↔	shelter in exchange for protection. The trees have evolved flowering locations that are inaccessible to the ants in response to opportunistic behavior.

The first obvious pattern is that all adapting joint ventures (numbers 2–6) adapted divergently in relation to the partner after the first significant stimulus. This is not a large-scale sample and therefore cannot be generalized in the sense of application to all joint ventures. Nevertheless, the result is striking. Many theorists have measured a steep rise in the failure or termination rate of joint ventures in the early years (Park & Russo, 1996; Lunnan & Haughland, 2008). Perhaps these results are merely evidence of this "honeymoon period" coming to an end. It may be that the first adaptation in every joint venture is a divergent one, and where some partnerships are strong enough to survive, others are not. In cases 3–5 (Rolte, Sortex and Faulkner), an initial divergent adaptation at the end of the honeymoon period was followed by successive convergent adaptations that solidified the long-term partnership. These cases are in contrast to case 2 (ALN Material), where the initial divergent adaptation resulted in the eventual termination of the partnership.

Examining this pattern more deeply for cases 3–5 reinforced this concept. Rolte entered the joint venture largely due to legal requirements. The multiple local Chinese partners were never directly involved in the business and therefore could not have added significant value due to its actions. The first shift was therefore the change in legal requirements allowing Rolte to have a fully owned legal entity. As the partner contribution was minimal, divergence followed. As the competitive rivalry in the market for IM products increased and the risk for Rolte as a company grew, the value of the partners increased in the sense of spreading and sharing risk. As the risk grew, the importance of the partners grew, even though no change in behavior from their side was evident. The pattern was similar in cases 4 and 5 (Sortex and Faulkner), with one significant difference. In both of these cases, the foreign partner hit a point where an evaluation resulted in the conclusion that a fully owned option was better than cooperation. In the case of Sortex, the change in legal structure was the stimulus. In the Faulkner case, the expiry of the buyout option brought about the reflection. In both cases, the result was divergence. Both foreign partners had actively considered, even approached the partner for, a buyout of the shares. What followed was surprisingly similar. The local partner refused and then proceeded to increase its value to the partnership. They were in a position where their partners no longer saw a value in working together, which resulted in a massive shift in behavior. This is similar to the biological markets phenomenon (Noë & Hammerstein, 1995), where having a second option ensured partner cooperation. If a partner does not provide the agreed benefits, the threat of exit in favor of other options will change their behavior.

Another pattern that emerges when considering all cases together is that different stimuli can bring about adaptation. In case 3, all adaptations (A through D) were in response to external changes in the competitive situation. As the market became more hostile for Rolte, changes were required for survival. These changes affected the partnership but were not a result of changes occurring within the partnership. An example of this can be seen in the case of 3B. The legal structure in China changed, allowing fully owned subsidiaries. The competitors of Rolte begin to consolidate their operations in order to increase competitiveness. Faced with this change in the environment, Rolte decided to implement a change in the structure of the IM Rol joint venture. This action had a direct effect on the relationship (i.e. an internal outcome). However, the source was clearly external. In cases 5 and 6 (Faulkner and Bosca respectively) adaptations occurred in response to the partner. In case 5, for example, Ruidi was fighting to keep its position in the partnership. By bringing exceptional returns, Ruidi brought about a shift in the relative dependence between the two partners. This adaptation was in response to the relative imbalance at the time of joint venture contract negotiation. Evidence exists in the form of a highly favorable buyout clause for Faulkner. Bosca's adaptations toward the need for full control and against the private use of company assets are other examples. The company had been "hurt" by specific actions taken by previous partners Furui and XZC. In response, defenses had evolved in their third joint venture to prevent a repeat. In the case of Bosca, the response could be argued as conscious and an example of learning. The evidence is not as clear for Ruidi. Its exceptional performance may not have been a deliberate response to shift dependence. Zhang and his team may not have been so acutely aware of the dependency balance or that they could shift it solely through their performance. This represents a strength of the biological model in that conscious action can be present but is not necessary. In biology, some organisms involved in mutualism have conscious actions, but others do not.

The case of Bosca stands out as exceptional due to the manner in which the company developed. One company formed three different joint ventures in the garment business in China. Over the course of operating these three entities, Bosca adapted its approach toward both business in China in general and the operation of joint ventures in particular. This adaptation is very different from the other cases because the parent underwent significant adaption toward cooperative ventures in general rather than toward a specific partner. In other cases, one single partnership was observed and therefore adaptation could only be seen in that frame of reference. Bosca adapted after the first two ventures. The behavior in the joint venture with Taiguang, although very successful, was colored by its previously bad experiences with Furui and XZC. Firms can therefore be influenced in the long term by previous experiences with joint ventures and partnerships. Delios and Beamish (2001) found that previous experience with joint ventures had a positive effect on profitability.

A deeper investigation of IM Rol also presents an important point. As can be seen from the previous sections, the local partners did not play an important role in the operation of this joint venture from the start. As the environmental situation placed more pressure on the business, the role of the partners in sharing risk increased in value. This is an important finding. It shows that an alliance of joint venture can coevolve due to the external environment. What makes this finding even more important is that the opposite must then also be possible. If convergent development can occur solely due to external environmental shifts, then divergent development must also be possible. This aspect of partnerships has received surprisingly little attention (Makino, Chan, Isobe & Beamish, 2007). Many theorists focus on how the actions of one partner affect the other (Inkpen, 1995, 1998, 2000; Inkpen & Beamish, 1997; Yan & Gray, 1994; Hamel, 1991; Habib & Mella-Barral, 2007; Khanna, Gulati & Nohria, 1998, 2000; Dussauge, Garrette & Mitchell, 2000; Guillen, 2003; Harrigan, 1987b). The concept that environmental forces can drive a wedge between two partners independent of their own actions presents another potential addition to this field.

12.4 Biomimicry—A Useful Analogy

Within the six case studies presented, the events of five cases strongly resembled the behavior of specific mutualistic organisms in nature. The use of an analogous biological system to visualize what was occurring within each case was found to be extremely useful. Many of the biological mutualisms and symbioses have been studied extensively. The system is therefore deeply understood and offers an alternative opportunity to visualize what is happening in the collaborative business venture. The most important point is that these examples are not idiosyncratic. These events are typical in the field of alliances and could be applied in many applicable cases.

Market-Entry Partnerships

ALN Material formed a joint venture with Huangpu TRUROD. As stated frequently, the law mandated the joint venture. The local partner was expected to bring more value than just a legal compliance; it was expected to bring local market know-how. After the joint venture started, ALN Material learned that Huangpu TRUROD had no real market knowledge or special access. It then proceeded to terminate the partnership after the law requiring a joint venture was changed. Multiple existing theories, such as learning (Inkpen, 1995, 2000; Inkpen & Beamish, 1997; Hamel, 1991; Habib & Mella-Barral, 2007; Cimon, 2004; Khanna, Gulati & Nohria, 1998, 2000) and staged entry (Johanson & Vahlne, 1997; Guillen, 2003; Johanson & Vahlne, 2006) would have correctly predicted this chain of events.

The case of partnering to enter a hostile foreign domain is very common. The same situation can be found in cases 4 and 5 (Sortex and Faulkner). In both cases, a partnership was set up to enter a new market. In the case of Sortex, a legal mandate was also present. In both cases, the foreign partner came to a point where it considered that it preferred to end the partnership and operate a fully owned company. Faced with the end of the joint venture, both FaMing and Ruidi increased the value they contributed to the partnership, changing the perception of the foreign partner.

The chain of events in these cases do not run counter to the theories mentioned above; however, learning and staged entry are typically presented as a one-way phenomenon.

In the ALN Material case, a biological analogy-the symbiosis of land plants and mycorrhizal fungi—was used to illustrate what occurred. The symbiosis is considered to have developed when plants first started to inhabit inland habitats (Sachs & Simms, 2006; Douglas, 2008). Cooperation was necessary to assist the root systems of plants to more efficiently extract nutrients that root hairs cannot reach. The presence of the fungus therefore helped plants move to a new, alien habitat. This is very similar to market entry partnerships. This same ancient collaboration changes significantly in cases where the nutrients in the soil are plentiful enough for the plant to survive on its own or where the fungus does not provide sufficient nutrients to the plant. If the fungus cannot provide value to the partnership, the plant does not provide the carbon necessary for survival. This means that when the plant can obtain enough nutrients from the soil, it abandons the fungus. This is precisely what happened for ALN Material. Once it was clear that it could survive just as well with no partner, it ended the joint venture. In this case, the biological analogy like existing theory fits the outcome. In some cases, where the fungus can provide nutrients but not enough, the plant will decrease the carbon provided back to the fungus. The fungus then increases nutrients to gain access to more carbon. FaMing and Ruidi significantly shifted their behavior when they realized that their partners considered abandoning them. They increased the value they brought to the venture in various ways, and the partnerships strengthened. The biological analogy therefore illustrates an alternative outcome where the local partner does not need to be abandoned and can continue to be part of the relationship.

Production Joint Venture

In case 3, IM Rol changed its structure drastically in response to changes in market conditions. After the law requiring joint ventures in China was altered, the competitive landscape changed significantly. Rolte competitors who previously had refused to enter the Chinese market suddenly set up fully owned subsidiaries. Competitors with joint ventures began to buy out their partners. In response, Rolte adapted its structure. Rather than buying out its partner, Rolte took a fully functional
company, which autonomously operated in China, reduced its business scope to exclusively production and service, and expanded its geographical responsibility globally. Rolte was therefore able to adapt its structure without exiting the collaborative venture. The change altered the nature of that venture significantly.

IM Rol had previously been responsible for marketing, selling, producing, and servicing its own products on the Chinese market. It had even been involved in the development of some products specialized for China. After the structure changed, it morphed into a captive production plant. This is not necessarily negative. Im Rol had a very efficient production, and adding more possible production volume to its plant allowed it to lower its costs and likely ensure its survival. As a case in point, it may not have survived the sell-off of the IM Verter business without the extra volume from other countries. The addition of this greater geographical expose came with a trade-off. IM Rol, as a standalone company, was no longer able to decide its own destiny. It then became a captive production entity that relied on others to provide volume.

Again, this development was not necessarily negative for IM Rol in terms of survival. However, it was placed in a position where it could only observe and react to Rolte's success or failure in the market. It could not act or change its strategy other than to ensure that it manufactured with the shortest delivery times and lowest possible costs. This was the only way it could influence its own survival. As noted in the case study, this situation is very similar to life for the bacteria Buchnera. This bacterium is believed to be a close relative of *E. Coli* that had been *captured* by aphids (Douglas, 1998). Buchnera now lives exclusively within the host aphid; unlike its relative, it lacks the capabilities to aggressively infect its host. This demonstrates the power of capturing an organism as an endosymbiont. Its survival is then completely dependent on its host (Maynard Smith & Szathmáry, 1997; Douglas, 2010). Their survival motivations are completely aligned.

This has been observed in the case of IM Rol. As the market degraded, it had little freedom to alter its destiny. It could only focus on speed and cost. Innomet Shanghai, on the other hand, continued to grow and thrive, even as its parent struggled for survival. It was completely independent from the parent, while IM Rol was completely dependent. Innomet Shanghai was a short-lived partnership in comparison to IM Rol, so it is not reasonable to take the cases here as evidence that the captive production facility is less successful. In fact, there is no reason to believe that Innomet and Chalko could not have set up their partnership in the same manner, where both independently sold products from the same factory. This solution would have dealt with complaints by one parent that the joint venture was not focusing enough on its products.

The more important implication for this situation is that by capturing this organism or joint venture, the larger host ensures cooperation from its partner. IM Rol could not have looked elsewhere for business; it needed to follow the lead of Rolte to survive. This exemplifies an alternate means of control not often cited in the literature. Studies on control have often focused on which partner holds how many leadership positions within the organization (Killing, 1982, 1983, 1988; Geringer & Hebert, 1989; Ding, 1997; Hambrick, Li, Xin & Tsui, 2001; Choi & Beamish, 2004). By capturing a production company as Rolte did with IM Rol, the larger parent can control the other company even in cases of little ownership and no management participation. This outcome is not novel; it was proposed by Resource Dependence Theory (Pfeffer & Nowak, 1976; Pfeffer & Salancik, 1978). The biological analogy brings a new frame of reference showing how this sort of structure could be used effectively to ensure cooperation from partners.

Trust and Strategies Against Non-Cooperation

Within the literature, a large volume of work can be found on trust (Hitt & Ireland, 2002; Ring & Van de Ven, 1992, 1994; Adobor, 2005; Dollinger, Golden & Saxton, 1997; Inkpen & Currall, 2004; Luo, 2002a; Currall & Inkpen, 2002; Arend, 2009; Zineldin & Dodourova, 2005; Baughn, Neupert, Anh & Hang, 2011), opportunism (Luo, 2004, 2007; Das, 2004, 2005; Park & Ungson, 1997; Delerue-Vidot, 2006; Qiu, 2005; Zhang & Rajagopalan, 2002; Khanna, 1998), and non-cooperation (Suen, 2005). The cases in this work and the biological analogies offer a new lens from which to view these topics. Opportunism is a necessarily covert activity and therefore it is challenging to observe (Buckley & Casson, 1998; Das, 2004, 2005); however, Bosca was faced with opportunistic behavior in its joint venture with Furui. The effects of

reciprocity were observed in the cases of ALN Material, Sortex and Faulkner (cases 2, 4 & 5). Interpersonal trust and its effect were discussed in detail in the Faulkner case. There is sufficient data therefore to delve into these topics in greater detail.

Proponents of trust in the literature (Hitt & Ireland, 2002; Madhok, 2006; Nooteboom, Berger & Noorderhaven, 1997) cite that if trust is present, governance costs will decrease. The depth of research on cheating in biological mutualisms is significant (Ferriere, Bronstein, Rinaldi, Law & Gauduchon, 2002; Jones, Ferriere & Bronstein, 2009; West, Griffin & Gardner, 2007; Bronstein, 1994; Douglas, 2010; Bronstein, 2001). Some aspects of this research reinforce existing theory on alliances, and others present new possibilities. However, before delving into specifics, it is imperative to make one point clear. Cooperative biological systems often can consist of one or more partners with no cognitive ability. The possibility of altruistic motives can then be discounted. Even in higher animals, biologists take the same hard stance. Mutualisms are "reciprocally exploitative interactions that provide net benefits to both partner species" (Bronstein, 2001). According to the biological model, both parties are pursuing their own self-interest. This places the topic of interpersonal trust on uncertain ground.

Luckily, one component of trust is reciprocity (Lane, 1998). This happens to be one of the fundamental components in the survival of mutualisms in nature (Douglas, 2010; Frank, 1997; Axelrod & Hamilton, 1981). Reciprocity must therefore be the focal point of this investigation into the data. There were a few examples of this rule breaking down. ALN Material expected that Huangpu TRUROD would provide the market knowledge, access, and sales. ALN delivered on its part of the bargain but sales only came about due to ALN Material's internal actions. Sortex was supposed to supply technical know-how and management talent to modernize FaMing's old company. Instead, it brought in an outsider who proceeded to focus on the reduction of personnel. These are two examples of one partner not living up to the other's expectations. The actions taken by the partners in the above cases were different, but the general pattern was the same. Non-reciprocal behavior leads to serious consequences. ALN Material bought out Huangpu TRUROD and FaMing used its influence to damage its own joint venture in an attempt to force Sortex into meeting its requirements. These cases were compared against similar behavior in nature.

Plants either abandon their fungal partners if they cannot bring any value, or they sanction them by providing diminished quantities of life-giving carbon (Sachs & Simms, 2006; Douglas, 2008). The extreme behavior of FaMing in damaging its own joint venture to coerce Sortex into following was surprisingly similar to a fig that aborts its fruit after a wasp has laid too many eggs inside, thereby killing both the fruit seeds and the wasp brood (Sachs & Simms, 2006; Douglas, 2008).

The Faulkner case provided evidence for reciprocity. It also provided important evidence concerning the importance of interpersonal trust. The relationship between Ingram and Zhang was an important topic in the interviews. Although their trusting relationship was often mentioned, Ingram openly admitted that he was suspicious of Zhang's actions on many occasions. Later, after the situation became clear, he saw that the partner's actions had been in the best interest of the joint venture. This was a case of trust built upon reciprocity. Faulkner management would take some risk in providing atypical flexibility to FR-Tech in return for exceptional performance and the promise of eventual conformity to requirements. FR-Tech always delivered and therefore the suspicion was unwarranted. However, this trust was not blind. Faulkner investigated circumstances where Zhang appeared to be acting in his own personal benefit against the joint venture. In all cases, he was later vindicated. Reciprocity represented the foundation of this successful partnership. Lichen could not be the extreme survivor it is known to be without both partners providing their share (Kranner, Beckett, Hochman & Nash, 2008).

The case of Bosca provides a rare and important glimpse into evident opportunism and its effects on not only that particular partnership, but also the ensuing behavior of the victim in future relationships. Personnel from Bosca's first joint venture partner, Furui, had used joint venture-owned assets for personal gain. This not only led to the demise of that particular partnership after several years of successful operation, but it also changed Bosca. In its third attempt, it took an extreme position on the need to control the venture. This was compared to acacia trees that have evolved defenses against opportunism in their ant partners (Bronstein, 1998). The set-up of the joint venture with Furui was evidence that Bosca had evolved similar defenses. The biological analogy presents one essential point. Symbioses, the most closely evolved of mutualisms, are often found surviving in extreme conditions (Maynard Smith & Szathmáry, 1997; Dugatkin, 1997; Janzen, 1985). Examples include lichen (Kranner, Beckett, Hochman & Nash, 2008) and worms living near volcanic vents (Minic & Hervé, 2004). Their partnership improves their survival fitness to the point that they can live where no free-living organism can. Faulkner demonstrated this potential with the change of leadership from Zhang to Li. FR-Tech began to evolve toward a fully owned subsidiary. With this change, the performance changed. The partnership brought something exceptional that a standalone Faulkner company could not have. This exceptional synergistic potential has received little attention in the literature. Some theorists have touted the advantages of alliances (Hamel, Doz & Prahalad, 1989; Bleeke & Ernst, 1993; Nalebuff & Brandenburger, 1996; Pekár & Margulis, 2003) and a few studies comparing joint ventures against wholly owned subsidiaries in large-scale studies (Hennart, Kim & Zeng, 1998; Chowdhury, 1992; Beamish & Banks, 1987; Chang, Chung & Moon, 2013). It is surprising that this topic does not receive the most attention in the literature. Perhaps this is due to the difficulty in assessing the performance of an alliance or joint venture (Geringer & Hebert, 1991; Child & Yan, 2003). Maybe it is due to the possibility that such partnership successes are so rare that few observe that they exist.

One unforeseen advantage of the biological model for evolution of cooperative relationships is its potential as an overall framework for alliance behavior analysis. Parke (1993) argued that although much of alliance theory is important, it is done largely on a piecemeal basis. He challenged theorists to synthesize the various concepts into a whole, and offered his own conceptual framework. This is not an easy task to manage because there have been many topics where pertinent research has been presented. Many have studied learning and knowledge acquisition (Inkpen & Beamish, 1997; Das & Kumar, 2007; Ratten & Suseno, 2006; Inkpen, 1996; 1998; 2000; Habib & Mella-Barral, 2007; Khanna, Gulati, Nohria, 1998; 2000; Lyles & Salk, 1996; Hennart, Roehl & Zietlow, 1999; Tsang, 2002; Rodriguez, Perez & del Var, 2003; del Mar Benavides-Espinosa, 2012; Cimon, 2004; Puck, Holtbruegge & Mohr, 2009), control and bargaining power (Killing, 1983; Yan & Gray, 1994; Choi & Beamish, 2004; Luo, Shendar & Nyaw, 2001; Luo & Park, 2005; Hambrick, Li, Xin & Tsui, 2001; Johnson, Korsgaard & Sapienza, 2002; Schillaci, 2007; Julian, 2008), culture (Lee & Beamish, 1995; Barkema, Bell & Pennings, 1996; Meschi, 1997; Salk & Shenkar, 2001; Chan, Luk & Wang, 2005; Danis & Parkhe, 2002), leadership (Pansiri, 2005; Petrovic & Kakabadse, 2003; Adobor, 2004), partner selection (Hitt, Dacin, Levitas, Arregle & Borza, 2000; Luo, 1997; Islam, Ali & Sandhu, 2011), reason for existing (Kogut, 1988; Buckley & Casson, 1996; Harrigan & Newman, 1990; Parkhe, 1993a; 1993b), trust (Ring & Van de Ven, 1995; Dollinger, Golden & Saxton, 1997; Madhok, 2006; Nooteboom, Berger & Noorderhaven, 1997; Baughn, Neupert, Anh & Hang, 2011; Parkhe & Miller, 2000), and opportunism (Das, 2004; 2005; Delerue-Vidot, 2006; Suen, 2005; Qiu, 2005; Zhang & Rajagopalan, 2002; Carrol, 2012; Cooper & Ross, 2007). These studies can be added to many more that measure specific topics and the relationship with survival, or the performance of joint ventures. In an effort to isolate variables and perform robust research, the studies mentioned above focus only on one aspect. Unfortunately, as noted by Parkhe, it is difficult to stitch all concepts into a coherent whole.

Some studies have taken one step closer by synthesizing a framework by taking multiple aspects into account in one study (Luo, 2004, 2007; Inkpen, 1995; Park & Ungson, 2001; Barden, Steensma & Lyles, 2005; Delios & Beamish, 2001; Parkhe,

1991; Child & Yan, 2003). Taking multiple aspects into account in one study allows researchers to understand how these different aspects may be interrelated, but it does not pull the various concepts together into a clear framework. Some have tried to fill this gap by proposing various frameworks (Inkpen & Currall, 2004; Doz, 1996; Hennart & Reddy, 2000; Harrigan & Newman, 1990; Ariño & de la Torre, 1998; Parkhe, 1993a; Büchel, 2000). All of these frameworks have various advantages and focal points. The biological framework offers potential as an overall theory for alliance behavior not because any particular aspects of the above theories are necessarily incorrect or incomplete. As this was not the objective of this work, a detailed comparison was not done. It is impossible to present the biological concept as a better alternative. Instead, it is being offered as a viable alternative, which due to its development in another area of science, brings a refined synthesis of most of the important concepts in the literature (see Figure 12.7).



Figure 12.7 – A possible model explaining the overall process with mutual need as the central key. Both reciprocity and convergent evolution benefit whereas opportunism and divergent evolution are a detriment.

Use of the biological theory as an overall framework has many advantages. It takes into account a large number of aspects found in the literature. Examples of learning, control, bargaining power, trust, opportunism, reason for cooperation, and even partner selection could all be accounted for within the framework. Many of these aspects were critical in the case study analyses. Learning came into play in the role of adaption in the cases of Bosca and ALN Material. Control and bargaining power were incorporated through imbalanced interdependence and capture as an endosymbiont in the cases of Sortex, Faulkner and Rolte respectively. Trust and opportunism played important roles in the Faulkner and Bosca cases. All cases made use of these concepts under the biological framework and found no significant contradiction with the concepts currently applied in the field. Learning can describe a specific form of adaptation and mutual need is in striking agreement with TCE theory. Only the significance of trust is not congruent because the only important component in the biological theory is reciprocity. This in some ways is not in agreement with all trust literature. Of course, not all trust literature is in agreement about the significance of trust and how to apply it. The purpose here is not to present and prove that biological

theory is the best overall synergy of alliance concepts; instead, it is to propose it as a viable alternative for future study and development.

12.5 Key Lessons

Each case study offered its own opportunities for drawing new conclusions. This discussion section expands the view to bring the whole dataset together for examination. The use of biological mutualisms was useful as a tool to examine the patterns of behavior for the various partners in their collaborative ventures. There were several enlightening points in the data, which fall into three categories.

Firstly, analyzing a partnership based on the benefit–cost balance seen by each partner is a useful exercise. In five of the six cases clear data was available from which the motives of each partner could be established. This is an important finding. Mutual need is mentioned in some classic works (Schaan, 1983; Beamish, 1984). TCE-based models were presented by Root (1988) and Contractor and Lorange (1988). Despite the theoretical development, these models received little empirical development. The underlying motives for partners in entering any type of alliance should be a critical point of interest. This point is the core of the biological model, the point of origin. It is important to reiterate that the biological balance of benefits and costs is strikingly similar to the models previously developed in the literature. It may not be a new concept, but applying it in such a way is novel.

Some important observations were also made concerning these motives. In two cases, one partner was in much more desperate need of cooperating than the other. Such circumstances must have implications on the long-term operation of the venture. In one case, Innomet, the joint venture had not existed long enough to observe the interaction between the partners. In the other, Faulkner, the local partner aggressively sought to remove this differential in dependence, as predicted by RD theory (Pfeffer & Salancik, 1978). Another important observation was that four of the six were formed primarily for the foreign partner to conform to the legal requirement to form a joint venture when entering the Chinese market. This law did, in fact, change. The fact that the most important motive for the foreign partner was sure to disappear, the

implications for the survival fitness of the venture are clear. One would expect that all four joint ventures would have ceased to be partnerships after this legal change. Such a result did not happen. Two of the four are still operating as joint ventures today. This would be even more surprising considering that Rolte's local partners never really seemed to add any value to the partnership other than their investment. Nevertheless their value in the partnership climbed over time despite their inactivity. In the case of Bosca, they would have been happy to still have a partner, yet the environment forced the collapse of their partner.

If one were to examine only the starting point of these cases by measuring the benefit versus cost for each, many predictions of the outcomes would be surprising. This highlights the importance of the dynamic elements of the biological theory, Darwinian adaptation and evolution. Many aspects of the cooperation can change. The external environment can shift like in the cases of Rolte or Taiguang or the partners can change how and what they contribute to the partnership as FaMing and Ruidi had. Many of these changes can have seemingly predictable outcomes for a joint venture, yet the complexity of many shifting elements acting together makes prediction exceedingly difficult. Though complex, increased understanding and predictability of how such shifts can impact partnerships is an essential aspect of research moving forward. Practitioners would value guidance on specific observable elements that could allow them to better approach, understand and extract value from their partnerships.

The biological model unfortunately does not offer predictive outcomes, but it does offer a strong explanatory framework for analyzing what has happened ex-post. If the benefits of cooperating were at least as high as the costs, the partnership would continue without major changes. The occurrence of a shift somewhere in the environment could result in diminished benefits for one or more partners. If the benefits are too low, then the partner(s) will consider the situation. Cooperating means continuing to contribute the same yet receive less than they contribute. They would surely ask if it makes sense to continue. Importantly, this precise chain of events occurred twice in the data. Both ALN Materials and Sortex came to the point where the value of the partnership was questioned. In both cases, a buyout attempt occurred. This is clear evidence of divergence in the relationship. Nothing could be

more concrete than a move to buyout the partner. Sortex did not succeed with the buyout and FaMing later adapted to bring more value to the partnership. This did not change the fact that at one time, Sortex clearly saw the costs as higher than the benefits.

When benefits soar above costs, then a convergent evolutionary path is expected. Partners would see that the benefits they receive are very high and would therefore shift their behavior to extract more benefits. As these shifts occur, the partners would grow more and more dependent on each other. Such shifts in dependence with changes in value brought by the partner were observed twice. The local partner in both the Sortex and Faulkner cases increased what they contributed to the partnership. In both cases a clearly observable shift was observable in the approach of the foreign partner to the joint venture. Faulkner forfeited their very lucrative buyout clause to enjoy a few more years of high performance and Sortex began to actively look for opportunities to work more closely with FaMing. These examples show that the pattern fits not only for divergence but also for convergence.

The case of Faulkner brought one additional lesson. The performance of the joint venture operation with Zhang heading it was much higher than after his retirement. FR-Tech would change into a more typical Faulkner subsidiary. This decrease in performance shows clearly that the joint venture with both partners bringing their full potential of benefits is better than a stand-alone option for Faulkner. This was a very important observation. It was not directly observed in any of the other cases since a comparison of the performance with and without partners was not always available or transparent. In this case it was. This observation brings up an important aspect of the biological model. In biology, a mutualism where the net benefits are positive from both sides should have higher survival fitness than the same organism living without a partner. This is the entire purpose of the partnership. This point is important and deserves more detailed study. In addition, the biological theory is built upon the central tenet of mutual exploitation for mutual gain (Bronstein, 2001). This frame changes the tone significantly from much of the joint venture literature. It is important to re-frame business partnerships as constructs built to serve each participants own self-interest.

Lastly, biologists have studied many of these partnerships extensively. They also have the luxury of studying many different partnerships having the same characteristics. If one extensively studies many different lichen partnerships, patterns will become clear since all lichen function similarly. This is one big advantage biologists have had in developing a theory for how cooperation evolves. Management theorists have a much more difficult time since taxa for firms has not been (maybe even cannot be) developed so clearly. Use of the biological partnerships offers a way to visualize what is happening within a joint venture or alliance between two firms. The interplay in the biological case is well documented and therefore provides a ready pattern for analyzing the firms in a given case. Use of this strategy was found to be extremely beneficial in understanding the cases under the microscope and specifically to see what parts of the biological theory could be applied. An excellent example of this is the Bosca case where the changes in a firm's behavior over the course of three different joint ventures in the same business could be observed. The writer, during analysis of the data, immediately noticed the similarity with the adaptation of trees in response to opportunism by their ant partners. Although this is one example, such illustrative examples played an important part in every case. The convenience of this framework in visualizing how many diverse aspects such as adaptation, reciprocity, mutual need, interdependence and opportunism can all apply to the same venture was extremely useful. Further development of the biological framework as a general synthesis of alliance theory carries significant opportunity.

Chapter 13: Findings and Conclusion

13.1 Summary of Findings

A prerequisite for all mutualisms in nature is a mutually beneficial relationship. Each partner must contribute something to the partnership. The value of what is received by each partner must be higher than the costs of what he has provided. In other words, such a partnership is only valid if it satisfies the selfish motives of both partners and results in a win-win. In five of the six cases, detailed information was available about the time of joint venture formation. In all cases the benefits of cooperating were higher than the costs. In four cases legal requirements mandated formation of a joint venture in order to enter the Chinese market. The partners in these cases had little choice at the time unless they wished to wait and hope that China would change the law. The motivation to partner was therefore high. Many of the local partners in the study were given a mandate by the government to privatize. Considering that foreign partners brought cash to invest as well as modern technology and management skill, these companies also had strong motives. In two cases one partner was in desperate need since they were both on the verge of collapse without a strong partner. The two remaining companies were simply presented with an opportunity to achieve their strategic target with less effort than going alone. The data therefore confirms that a net positive existed for all partners where data was present. There were no cases of altruism or partnerships formed due to friendships or personal relationships.

Establishing a net benefit was only the beginning. After the ventures formed, things began to change. Changes in the environment such as the changing market for IM products in the Rolte case exhibited clear changes in the benefit–cost relationship. Changes in the parent company such as strategic motives, behavior and approach to the joint venture can also result in changes to the benefit–cost relationship. FaMing, Sortex's partner, repositioned the joint venture within its portfolio of subsidiaries and began supporting the business much more after Sortex approached them for a buyout. The additional contributions from this local partner definitely shifted the benefit–cost balance in a positive way. ALN Material, on the other hand, learned quickly after

joint venture formation that their partner could not live up to the promised contributions agreed during courtship. This changed the benefit-cost balance to negative once the law requiring joint ventures was changed and the partnership was dissolved. The evidence clearly showed that alliances and joint ventures cannot be considered in a static manner.

The entire system, including external environment, is constantly in shift. Companies with a high net benefit level will adapt to seek more of this valuable benefit, thereby deepening the cooperation and their dependence on the partner. Negative net benefits would result in divergent adaptations where reliance on the partner is reduced, possibly to the point of exit. This shifting level of dependence contingent on net benefit levels was observed in the data. Rolte became more dependent on their partner as the competitive rivalry in their market increased. The interdependence between Sortex and FaMing shifted back and forth depending on what contributions were made by each partner. By maintaining such exceptional performance in FR-Tech, Ruidi deepened Faulkner's need to cooperate thereby closing the large dependence differential existing at the onset of the venture. ALN Material found that they had to fend for themselves to bring sales to the venture instead of relying on Huangpu TRUROD. Once the law requiring a joint venture was changed, ALN didn't need their partner at all. This resulted in the buyout of the joint venture. Cooperation was a net negative in the first two ventures for Bosca due to non-cooperative and opportunistic behavior from those partners. Innomet was too new of a venture to observe any real adaptation. Darwinian adaptation therefore provided a useful explanatory framework for the development in five of the six cases.

The Bosca case offered a unique chance to observe the adaptations of one company over the course of several different joint ventures in the same field. The first two attempts resulted in losses and difficulties for Bosca. This included partners extracting personal gains from the joint venture. In response to these difficulties, Bosca adapted how they approached their third joint venture. The adaptations included fixing a structure that ensured that they had full operational control, finding a partner with no knowledge or interest in operations of the company and proactively addressing the personal needs of key managers in their partner company. These adaptations all focused on setting up preventative defenses against the behavior Bosca had observed from previous partners. Such building up of defenses against non-cooperation or opportunism is similar to what organisms do when faced with similar behavior from partners. They evolve specialized defenses to prevent such occurrences. One example was presented of how acacia trees have evolved to prevent their partner ants from accessing flowering areas.

The similarities between how Bosca and the acacia trees adapted when faced with opportunism from partners was strikingly similar. This analogy was useful in visualizing the interaction and its development over time. Similar analogies were used in other cases. The interaction between plants and mycorrhizal fungi was used to demonstrate how one partner could sanction or abandon a non-cooperative partner or a partner providing no value. This analogy was found to be useful in the cases of ALN Material, Sortex, and Rolte. The ability of some biological organisms to coerce partners into dependency by changing the physical structure of the relationship was also observed. Aphids have captured Buchnera as an endosymbiont. It now lives its entire lifecycle within the partner, aligning its survival motives completely with its host. The ability to grow and spread via infection, which its free-living close relatives have, no longer exists. Its survival is solely dependent on the survival of the aphid. This analogy was very useful in illuminating what subtle changes had taken place for IM Rol as it shifted from a fully functional joint venture to a captive production company. It, like Buchnera, no longer had the ability to decide its own destiny. It could only survive by providing what Rolte needed. Rolte's survival decided IM Rol's survival. This is in stark contrast to Innomet Shanghai, which thrived as its parent was in its death throes.

The management of FR-Tech, initially from Ruidi, had achieved stellar results for the partners. Their contribution was their entrepreneurial spirit, drive and knowledge of how to drive a company in China. When Zhang retired and the company started to more closely resemble a typical Faulkner subsidiary, the performance level decreased. This clearly demonstrates the concept that a partnership can achieve what a sole Faulkner company could not. This is a credible example of how a partnership can be more than the sum of its parts. The survival fitness of a well suited and functioning collaboration can be higher than that of a single firm operating on its own. This is analogous to lichen, a highly evolved symbiosis between fungi and algae. These

organisms are so robust they survive in conditions land plants cannot. This biological analogy provides a vivid picture of the potential of collaborative ventures such as joint ventures and alliances.

Lastly, it was observed that the biological framework is highly compatible with many aspects of existing theory. Rather than contradict previous concepts, it presents a possibility of incorporating these ideas into a synthesis. The objective of this work was not to develop a grand theory for collaborative ventures so this was not investigated in detail, however the potential was obvious. During the course of analysis concepts such as learning, bargaining power, control, interdependence, trust and opportunism all were used seamlessly. Further development of various aspects of the biological theory presents the advantage of a theory capable of explaining collaborative ventures in both breadth and depth.

13.2 Comparison of Findings with the Literature

The conclusions drawn from the data have been compared with existing theory both within each case study and the discussion section. Since the biological theory is multifaceted, there was not one existing rival theory. Instead it was compared with the relevant rival theory. For example, in the cases discussing opportunism and reciprocity rival concepts of trust have been mentioned and discussed. This is a necessary action for ensuring research credibility (Yin, 2003; Patton, 2002). Other theorists have recommended that a comparison with existing research findings be done as a second check to ensure the quality of qualitative research findings (Eisenhardt, 1989; Cepeda & Martin, 2005). This section will take the results from this work and compare them with a cross-section of findings from the literature. Considering the quantity of work in the field of alliances, comparison with every single study is certainly not possible. For that reason selective groups of publications will be clumped together for discussion.

Internationalization

Starting with the groundbreaking research of Johanson and Vahlne (1977), the Uppsala school has continued to develop (Pan & Tse, 2000; Guillen, 2003). This stream of work has found that firms follow a path of increasing commitment when developing in a new country. They start small with a small commitment, like an agent or distributor, and then slowly increase commitment until they reach a satisfactory level of presence. These studies have not only presented theory but also have evidence to substantiate these ideas; therefore it must be questioned if the biological mutualism theory or the evidence presented in this work is in any way contradicting these findings.

The first noteworthy observation is that the theories themselves are not in any way contradictory, instead they are more complimentary. The Uppsala theory advocates a process of continuous escalation of commitment. As the foreign parent develops experience working in the new country, they will increase their commitment. Such an evolutionary path would also be observable using the biological mutualism theory. As the foreign parent gains knowledge of the local market, the value of a local partner would certainly decrease assuming that they are only providing local know-how. For this specific case, both theories would predict the very same outcome. In this regard, they are well in agreement. The main difference, when examining possibilities in the internationalization process of firms, is that biological mutualism theory could predict different outcomes in addition to the one advocated by Uppsala. In other words, firms may not strictly follow the escalation process described. The theories are therefore not contradictory; instead they are in full agreement for one specific case.

The data is not clearly in support of Uppsala, but at the same time there is no strongly conflicting evidence. The cases of ALN Material and Bosca both follow this path in different degrees. ALN formed a joint venture for their first entry into China and expected that the partner bring value in the form of local knowledge. Once they discovered that they were receiving no benefit from the local partner, they moved to acquire the partner's shares and shift to a fully owned subsidiary. This development fully supports Uppsala. The case of Bosca is also indicative of a path of escalation. They began with a purchasing relationship as a trader. This is a small commitment.

They moved on to form minority joint ventures with small amounts of capital, which entails an escalation. They formed a majority joint venture where they supplied much more capital to build a greenfield plant according to their requirements. Finally they bought out their partner. This is a very clear path of escalation. The other cases are not so clearly in support of the theory; neither do they present clearly conflicting evidence. Faulkner formed a joint venture in Dalian despite having many years of experience China including a fully owned subsidiary manufacturing the same products. This does not represent an escalation into China. Of course the general path of the relationship with Ruidi seems to be a phased acquisition, which would be escalation of commitment. Lastly, Rolte and Sortex moved toward acquisition early on in the relationship only to find out later that reliance on the partner actually increased. This is not a path of escalation. Of course it is not proof that Uppsala is not valid. Instead it only demonstrates what was mentioned in the previous paragraph. The two theories are compatible but not necessary examining precisely the same phenomenon.

Skill Transfer

The theory on skill transfer must be divided into theory discussing the "how" and theory discussing the "why". How a company learns from their joint venture partner (Das & Kumar, 2007; Ratten & Suseno, 2006; Inkpen, 1996; 1998; Tsang, 2002; del Mar Benavides-Espinosa, 2012; Inkpen & Dinur, 1998) is certainly important but it does not directly address why partners cooperate and how long their partnership will last. There is, therefore, no comparison possible. The theory considering what impacts skill transfer has on a partnership is extremely relevant. The base topic is that if two firms have complementary skills, i.e. firm A can do something that firm B values and vice versa, then they have a reason to cooperate. Furthermore if one partner, say firm B, learns for itself how to make what firm A had been providing, then there is no more reason to cooperate. These events would be predicted by both the learning studies (Inkpen, 1995; 1998, 2000; Hamel, Doz, and Prahalad, 1989; Inkpen & Beamish, 1997; Hamel, 1991; Habib & Mella-Barral, 2007; Khanna, Gulati & Nohria, 1998; Hennart, Roehl & Zietlow, 1999; Cimon, 2004) and biological mutualism theory. They mutually beneficial skills represent one type of mutual need producing a net benefit for both parties. The act of learning the skill from the partner is an

evolutionary step or adaptation where the result is a diminished dependency on the partner and therefore reduced incentive to cooperate. Again, both theories are perfectly in alignment. The biological mutualism theory is broader however and accounts for a wider variety of benefits. A clear example in this study can be found in the form of legislation requiring the formation of a joint venture to enter China. This situation creates an artificial value being brought by the presence of the partner; however there is no skill associated with their mere presence.

Despite the fact that the overall predictions of both theories are the same, the skill transfer theory itself is divided on the topic of intent. Some theorists have argued that partners may have a strong intent to acquire the partner's value added knowledge for themselves, thereby initiating a race-to-learn (Hamel, Doz & Prahalad, 1989; Hamel, 1991; Khanna, Gulati & Nohria, 1998). Others have looked in detail at similar data and although the events are the same, the intent to learn from the partners was not present (Inkpen, 1995; 1998, 2000; Inkpen & Beamish, 1997; Habib & Mella-Barral, 2007; Hennart, Roehl & Zietlow, 1999; Cimon, 2004). As noted in previous chapters, the biological mutualism theory is valid for both higher and lower organisms in nature. Therefore, it cannot really address the question of intent. It makes no sense to discuss what the intentions of a bacterium are. It does, however, make a clear statement about tendencies to evolve in a specific direction. Referring back to Figure 12.3 for Firm 1, leads to the following analysis. Firm 1 is interested in cooperating if the benefit Y1 received from Firm 2 is higher than the cost of what Firm 1 provides to Firm 2 X1. Again, the net benefit is Y1 less the cost X1. If the cost to acquire the knowledge Firm 1 needs to produce Y1 for itself is less than the stream of costs X1 over time, then the tendency to acquire this knowledge would certainly exist. In pure economic terms the comparison would be between the net present value of all flows of X1 over time, compared with the costs to acquire the skills needed to produce Y1. The biological theory therefore predicts that a general tendency would exist, in cases where the cost to acquire the beneficial skill is not high, to evolve away from cooperation over time. Since there are no clear cases of skill transfer in the study where intent could be examined, no specific conclusion could be made about the question of intent.

Learning

Outside of skill transfer, other types of learning have been proposed to impact joint venture relationships. Delios and Beamish (2001) have found that joint ventures survive better if the foreign partner has significant host country experience. In addition, they find that firms with more experience operating joint ventures tend to have more profitable collaborations. Faulkner, Rolte and Chalko have more than one joint venture. Faulkner operates numerous joint ventures all over the world in their many businesses. Rolte set up more than 10 different joint ventures when they entered China. Therefore both are experienced in cooperating with other firms. Both joint ventures are still operating. IM Rol, Rolte's joint venture is still operating some 15 years after formation. Bosca gained experience over time and the operation of their partnerships did improve, however the survival did not. Even though the cooperation with Taiguang was very smooth, the partnership ended due to exogenous changes in the environment. Experience was positive but this would not have been measured by the above authors since they considered only delisting from a database as the measurement. The case for Soltex was their first venture in China and also their first joint venture. Despite the lack of experience this partnership has been both long-lived and profitable. ALN Materials on the other hand fully supports the above study with the swift end to their first joint venture in their first entry to China. This only shows that comparisons between such a large sample study and this case-oriented approach are difficult and not necessarily fruitful.

Two other studies have developed theory proposing that partners need to learn about each other (Inkpen & Currall, 2004) and how to work with each other (Doz, 1996) in order to be effective. There is nothing in the dataset, which would refute this claim. The Sortex case does demonstrate some mutual sense making between the partners leading to their eventual success. The Faulkner case very strongly supports the view of Inkpen and Currall (2004) that learning about the partner builds trust and rapport. Enveloping the conflict and suspicion between the two partners was always a strong desire to understand the other party and work together. The Rolte case doesn't follow the pattern described and respresents an interesting exception. The relationship deepened despite the fact that the partners were not even actively involved. Of course there is really nothing fundamentally contradictory between the biological mutualism theory and the idea that two partners must learn to effectively cooperate. The two theories could be applied together since they address fundamentally different topics.

Culture

Some studies have proposed that culture distance has a significant impact on survival (Lee & Beamish, 1995; Barkema, Bell & Pennings, 1996; Makino & Beamish, 1998). The topic of culture distance is extremely hard to address in this study, however. With the exception of the Chalko joint venture (between European and USA partners), all others are between European and Chinese partners. Cultural understanding problems did not stand out in the data. Sortex had a bit of difficulty in reducing the workforce at an old state-run enterprise. There were cultural conflicts between Faulkner and Ruidi, such as the value of SAP. Lastly Bosco had to learn how to deal with the differences in understanding concerning the use of company assets. These cases do demonstrate that some cultural conflict did occur and that some cultural learning took place. Unfortunately, the uniformity of the dataset from a cultural point of view makes it impossible to assess the differences between a European–Chinese joint venture and a European–European joint venture. In any case, the findings concerning the relationship between culture distance and joint venture survival have some conflicts internally.

Control/Power

Control, interdependence and power between the parties played a role in several of the cases. As stated in the cases documentation, the development of FR-Tech was exceptional for several reasons. First of all, occurrences where the parent with dominant ownership gives the minority partner dominant control are rarely mentioned. Moreover, the fact that this venture had outstanding performance was even more important. Considering that Ruidi had dominant control on the basis used by Killing (1982; 1983; 1988), this case would support his claims as well as others (Ding, 1997; Makino & Beamish, 1998) who feel that dominant control improves survival chances. In fact, all cases were dominant for one partner or the other with the exception of Innomet and Chalko. This case didn't seem to have any troubles at the time of the interview but the venture had only been in existence for a short time. Considering the

others were all dominant however and two of the five total dominant control ventures did not survive the generalized conclusion must be questioned. Unfortunately, there is no frame of reference from which to build a comparison since only one venture had shared control.

The dominant control hypothesis therefore does not have a strong fit with data; however the development of Bosca shows that increasing dominant control can be used as an adaptation to prevent opportunism. Luo (2004) describes the existence of public and private control, which is used for the benefit of the full venture or one partner respectively. The case of Bosca does exemplify that use of private control by Furui against Bosca led to the end of the first joint venture. The connection between control and opportunism is difficult to quantify. Inkpen and Currall (2004) have hypothesized that increasing control will lead to a higher tendency of the partner toward cheating. This was not the pattern observed in the Bosca case. On the contrary, Bosca adapted the structure of the Taiguang joint venture to increase control. The presence of many other factors in the Bosca case certainly makes isolation of control as the causal factor for improved cooperation difficult. For instance Bosca deliberately sought out a partner who had no interest and knowledge of the operation. This made it very difficult for Taiguang to meddle in the venture. This may have been a stronger factor than the control.

Some other theorists have proposed that bargaining power must be balanced between the two parties (Harrigan, 1988; Yan & Gray, 1994). Evidence from the data certainly seems to hint that a balance of bargaining power or at least interdependence is a *neutral state* for the partnership. The evidence of this can be seen in the way that both FaMing and Ruidi adapted to shift the balance back toward a balance from Sortex and Faulkner. Unfortunately, the data is not specific concerning the point of bargaining power. In fact, measurement of bargaining power was found to be problematic. Each partner brought some value to the cooperative venture. Observation of the net benefit or loss was possible. Establishing large gaps in the value brought by each partner was observed, like in the two cases mentioned above. These gaps led to differentials in interdependence which could be observed through products of bargaining power such as Faulkner's one-sided buyout clause and Sortex's successful push for a higher shareholding ratio. As noted the same path ensued: 1) differential in interdependence leads to differential in bargaining power, 2) differential in bargaining power leads to one partner consolidating favorable gain, 3) other partner tries to regain bargaining power to bring the alliance into balance. These two cases, in isolation, do support this argument. The need for balanced interdependence is not clearly addressed in the biological mutualism theory. The two concepts are therefore not mutually exclusive. They may be complimentary and should be considered as an avenue for further study.

Lastly, various relationships between control and conflict have been proposed. Some have claimed that the joint venture management team is susceptible to internal fighting for control of the venture (Hambrick, Li, Xin & Tsui, 2001; Pearce, 1997). Internal fighting was only observed in the Sortex case and this was not indicative of being a control topic since control did not change and the fighting came to an end when the managing director was changed. Others have argued that fighting between the joint venture and parent can be a significant issue (Johnson, Korsgaard & Sapienza, 2002; Luo & Park, 2005). This pattern was only observed in the Innomet case where Innomet was angry with the joint venture deciding against use of their products in favor of Chalko even though the decision was made to maximize the benefit of the joint venture overall. Julian (2008) found that need; commitment and control were all-important factors in managing conflict. These findings are not in any way contradictory to the theory presented here.

Trust

The building of trust through the development of social capital (Ring & Van de Ven, 1994) leads to a reduction in governance costs (Hitt & Ireland, 2002; Nooteboom, Berger & Noorderhaven, 1997). This path should require a long development of the venture where both partners get to know each other before formation. This is the path followed by Bosca in all three ventures however the first two did not seem to have trust. Other aspects of the trust literature such as the need for reciprocal behavior (Chung, Singh & Lee, 2000; Luo, 2004) as well as the use of sanctions (Suen, 2005; Zhang & Rajagopalan, 2002; Cooper & Ross, 2007) not only were readily observable in the data, they are well aligned with the biological mutualism framework. The strong influence of reputation based on embeddedness within networks (Gulati, 1998; 1999; Gulati & Gargiulo, 1999; Geringer & Hebert, 1991) actually is one aspect of

the biological model that was not touched on in this work. The ideas presented in the literature fit strongly with the biological theory and therefore a comparison is not needed here. This does, however, represent a good opportunity for future study.

Transaction Cost Economics

As noted in the previous chapter, the models proposed by both Contractor and Lorange (1988) and Root (1988) are extremely similar to the benefit–cost analysis used by biological theorists when observing mutualisms in nature. For this reason, the data in this study showed a strong fit with this principle and therefore such a fit would also be expected of the TCE theory. The main difference between the two concepts is that biological mutualism takes mutual net benefit as a starting point from which a dynamic relationship is built. TCE, on the other hand, stops there. Therefore this theory should not be seen as contradictory, instead as agreeing with one component of the biological model.

The conclusion of the analysis is that many of the *rival* theories currently found in the literature are actually compatible with the biological mutualism framework. Skill transfer, control, interdependence and bargaining power, trust and reciprocity as well as transaction cost economics all form components of the biological framework. Much of this theoretical work should therefore not be discussed in terms of contradiction or agreement with the biological theory rather how they can be combined together to the benefit of both.

13.3 Contributions of the Research

This research can be considered to contribute to current knowledge from a number of perspectives. Existing theory benefits from this model by the addition of a holistic evolutionary model addressing why joint ventures and alliances form as well as how they adapt and change over time. The concepts used have been constructed upon widely accepted Darwinian principles tested rigorously by biologists. They can explain why these ventures survive, thrive or perish. Although the framework has not been shown to be successful in predicting the outcomes for collaborations, it certainly

has been shown to be a valuable tool for analysis. The multifaceted nature of the model enables it to incorporate many different aspect of alliance behavior. In addition, many components such as the impact of skill transfer and the importance of reciprocity are in agreement with prevailing literature. The model, therefore, presents a viable overarching framework from which other research could be assimilated and further developed into a more holistic view of alliance behavior. This work re-established the importance of mutual need in analyzing alliances and joint ventures. Aside from all other contributions, the direct application of biological theory, terms and ideas to alliances is novel.

Researchers benefit from this research from a number of angles. The direct use of Darwinian principles in development of explanatory theory in firm behavior is not common. A consensus appears to be developing based on work presented in the literature that alliances not only do but also must evolve. The context leading to the formation of these ventures is clearly fleeting. Things can and will change. This work adds significant weigh to the existing body of work redirecting theory from a static view of alliances. Further development of theory allowing researchers to analyze the dynamics of firm behavior in such collaborations is imperative. Several theorists have presented various theories describing how such collaborations evolve over time (Ring & Van de Ven, 1994; Yan & Gray, 1994; Hamel, 1991; Doz, 1996; Ariño & de la Torre, 1998; Kogut & Zander, 2003; Koza & Lewin, 1998). These models all focused on various aspects of firm behavior in alliance activity. Use of models, language and concepts from biological collaborations offer a ready-made model that has a much wider breadth than previous models. In addition, much existing theory was found to be in agreement with these concepts allowing the significant body of work in the literature today to be incorporated and further developed. This theory additionally takes a clear stance on one contentious topic. The biological theory clearly advocates the importance of reciprocity between the partner firms in lieu of personal trust between specific participants. It views the partners as not helping each other because they like each other and have a relationship; instead it is a self-serving action. Lastly, biological examples displaying similar characteristics can be used to visualize how all of the various aspects of the theory fit together to explain adaptation. These examples have been observed in large, repeatable quantities in biology. They lend some stability to the model when applied to the diverse world of joint ventures.

Managers at parent companies with joint ventures as subsidiaries would benefit immensely from this research. Using this framework, they would immediately observe and focus on the mutual need and what benefits are transferred between the partners. They would also acknowledge the costs. It was surprising to the researcher that many of the informants needed to pause and consider when asked why the partner decided to work with them. Knowing what one's own firm receives from the transaction is naturally important however knowing what the partner receives is no less critical. Application of this biological model stresses the temporal nature of this balance of benefits and costs. Managers would be sensitized to the fact a partnership serves a purpose and may not last forever. They would to scan for macro shifts in the external environment, in the partner and in the joint venture itself. These changes could alter the balance of benefits and costs on either side. They would be aware that changes in the market could mean that within X years, their now happy partner could realize that the partnership no longer brings value. They model clarifies the position of reciprocity and even offers some strategies to minimize opportunism. Nature offers many examples of how cooperation can result in a more competitive configuration for the organism, with one similar case being observed in the data. Although joint ventures may be temporal, some may be stronger and higher performing than any wholly owned subsidiary.

13.4 Limitations

After presenting the contributions this research makes, the next logical step is to consider what its limitations are. A robust, well-tested model has been taken from biology and applied to joint ventures. Due to the complexity of the model together with the phenomenon under study, a case study approach was deemed the best option to deeply understand the development of these ventures over time and then match them against the theory. Using such an approach to test a theory with six cases brings up the important question of external validity. As argued by Yin (2003), case studies should be viewed as single experiments where each case validates the theory under different conditions. Although this strategy was employed with the additional step of a detailed comparison with existing findings, it should not be assumed that this theory

is valid for all joint ventures. The explanatory strength of the model together with the exception fit with much of existing theory exemplifies the potential of this model; however care must be taken when generalizing the findings over the entire population of joint ventures.

The biological model views firms and subsidiaries in terms of individual organisms that adapt according to environmental shifts in order to ensure their own survival. This view will likely be questioned by some who prefer to see a firm or subsidiary as governed by the decisions of the individual humans running them. Evolution has been shown to be a valuable lens through which to observe firms for a great many years (please refer back to the literature review). Such a track record could not exist without providing value. It is important, therefore, to acknowledge that the evolutionary lens may decrease the attention placed on the actions of individuals but also accept the valuable knowledge thereby produced. No simplifying model is without trade-offs.

Here it is important to note that biologists have made similar compromises in the application of evolution in nature. Dawkins (1982; p. 23) description of the evolution of pit digging in ant lions is an exemplary illustration. He states openly that biologists are not capable of tracing the evolution of a significant trait, such as pit digging, from the DNA level though the actual trait. The process of DNA to RNA to the synthesis of amino acids is known. How this translates into a complex trait is not. Despite lacking the detail, Darwinian adaption of traits has been observed so often in nature that the macroscopic process is well accepted. The process was developed long before humans knew that DNA existed. Biologists therefore accept that they cannot connect the macroscopic phenomenon to the individual molecules of DNA. A similar argument could be made with firms. If the macroscopic phenomenon is useful, not knowing the underlying role of individual actors does not diminish its usefulness.

Use of Darwinian adaption as a cornerstone of this research will certainly bring up another question. This construct requires firms to adapt according to their environment. Which environment will they adapt in response to? There is a growing dissatisfaction with the outdated realist concept of a single environment in favor of a constructivist environment created by the managers embedded within it (Burt, Wright, Bradfield, Cairns & van der Heijden, 2006). If managers in an organization construct their own reality, and various managers can perceive different environments (Fear, 2012), how can a stable reality be assessed for research purposes? This certainly is a limitation, however use of multiple data sources (Patton, 2002; Parkhe, 1993; Gruenbaum, 2007; Miles & Huberman, 1984; Golden, 1992; Harrigan, 1983) can minimize this problem. Written materials, particularly from press agencies, competitors, consultants, etc. proved to be critical in building depth into the cases. Nevertheless, under a constructivist paradigm, every additional interview or document could alter the environment as documented.

The most significant limitation of this research can be classified according to access. Some authors who are very familiar and active in the field of alliances have outlined the problems as noted in the methods chapter previously (Wright, Lane & Beamish, 1998). They mention that access is difficult in developing countries such as China. If the research topic is sensitive, the access problem is further heightened.

Data involving the functioning of a sovereign nation, local operating problems or intercompany conflicts are probably confidential and likely very sensitive... (Wright, Lane & Beamish, 1998, p. 241)

Access was most certainly a problem. At first, the search for willing candidates was extremely broad and resulted in largely negative responses. The most common concern involved the fact that open discussion about a working relationship like a joint venture involved discussion of both positive and negative events. Each partner would of course only want the positive events about their organization to surface. This would lead to an artificially cleansed version of events where nothing negative appears. This complicates things further since the sample should not be a convenience sample but instead cases with rich data. In the end, use of the author's personal network to gain access to top level management personnel in the various target companies was needed to get useful data. Negotiating this access required additional compromises, as described in the following sections. As mentioned in the methods chapter, no cases involved the writer's direct employer.

The largest compromise was the hesitation of informants to have their firm identifiable in print. It was therefore agreed that pseudonyms would be used for informants and participating companies. Examination of a doctoral thesis may require the disclosure of sources, however. This conflict was managed by making a spreadsheet that connects the real source with each quote used in either a direct or indirect manner in this thesis. Considering that several of the participating companies have a very high profile, transparency with respect to their name and business would add significant credibility to the research. Unfortunately, this compromise was made since rich data with diminished content is better than no data (ibid; p. 242). Naturally, some of the details related to the firm (such as their product portfolio) could also make the company easily identifiable. In these cases, the products were disguised in such a way that the challenges of their business could be conveyed without compromising identities. Great care was taken in how the firms were portrayed and the disguise used in order to avoid the temptation to simply refer to each participant as Firm X producing a widget. Some detail was required to prevent the case from turning into a sterile case lacking any of the rich data. The style of disguise may not be typical for a case study format however significant detail was maintained and a side benefit of this compromise was that the data collected contained vivid stories of real occurrences. Challenges, problems and sensitive issues were described openly by nearly all informants resulting in deep, informative case studies.

An additional challenge related to access was location of persons directly involved in the critical events. During the course of gathering data one "may not be able to locate some vital people because they have either died, moved to Tibet, or retired" (ibid; p. 246). Since many of the collaborations described in the case studies had been operating for ten to twenty years, not all persons may be available. A good example is the ALN Material cases where the Chinese parent company was not even in existence anymore. The only way to overcome this difficulty is to gather as much information from as many sources as possible and then build the case history in the most credible manner possible. Third party data in the form of press releases, market reports, and newspaper articles, was found to be very useful for filling gaps and deepening the data received from informants. Despite all of the compromises and limitations, the resulting research contains enough detail of specific events to both see the connections with the proposed theory and also check against alternative or rival theories.

13.5 Suggestions for Further Research

As mentioned previously, biological mutualism theory has the potential to address many varied aspects of alliance theory. This being the case, a large quantity of possibilities exists for future development of these ideas. A case study approach had been advocated in this research due to the complexity of the model together with the complexity of the subject. Over the course of research however, some topics could lend themselves to testing in a large-scale nomothetic manner. One of these topics is mutual need. Since mutual need is a perceived phenomenon, it lends itself to a survey format. A longitudinal study of changes in mutual need coupled paired with a perceived index of relationship depth would yield important results concerning how widely the model could be generalized. Related to this topic is the relationship between differential in mutual need and bargaining power. It was observed that some relationship was present in the Sortex and Faulkner cases. More development of this point would certainly shed light on the source and result of differences in bargaining power.

Some other ideas for further research presented themselves in the data analysis. For example, all cases showed an initial trend toward divergence. This could be an explanation for the observed "honeymoon" period in large-scale studies (Park & Russo, 1996; Lunnan & Haughland, 2008). Additional research to investigate this point would be poignant not only for theorists but also practitioners. Imagine the benefit to managers in knowing that a pattern exists where partnerships face initial difficulties only to stabilize if this period can be successfully navigated.

The learning or skill transfer work in alliance theory has seen a debate concerning the "intent" of one firm in de-skilling their partner. Objectively measuring intent is difficult although Hennart, Roehl and Zietlow (1999) do a thorough job in looking for signs of intent. During the course of this research it was noted that the benefit—cost framework would predict that *motivation*, not intent, may in some cases be present for de-skilling. Examining joint ventures to measure this motivation and observe the partnership for de-skilling would be a very useful topic of study.

The case of Rolte was very telling due to the fact that very little changed within the joint venture; however the nature of the relationship and interdependency shifted immensely. The largest change in configuration of the venture was made as a result of environmental shifts. The local partner had not changed their behavior however the nature of business changed in China and Rolte sought to improve their position. Next the value brought by the local partner slowly increased as the business environment worsened, despite the fact that they local partner was completely inactive. Further study of cases where environmental forces either push partners closer together or drive them apart is extremely valuable for practitioners. It would provide them some guidance about how particular shifts can have specific, even grave consequences on their business.

The case of Bosca brought opportunism into focus. The biological theory has some very important lessons for opportunism. First of all, cheating in nature is only an evolutionary stable strategy if done in a small minority of cases (Ferriere, Bronstein, Rinaldi, Law & Gauduchon, 2002; Jones, Ferriere & Bronstein, 2009) and even then cooperation continues to be a stable strategy. In addition, reputation and network effects are extremely important in the biological world where customers for cleaner fish only queue where they can observe the cleaner's work on others (Douglas, 2010). Reputation and position in a network has also been shown to be important in alliance theory (Gulati, 1998, 1999; Auster, 1992; Arend, 2009). Additionally, mutualisms are formed in nature not due to a calculated search but a chance encounter (Janzen, 1985). Gulati (1999) has shown that similarly alliances are formed according to path dependence within a firm's network.

Referring to specific mutualism in nature was found to be very useful in visualizing and understanding the phenomenon. Since there are many mutualisms in nature and most have been studied at great length, cataloguing these relationships as a taxonomy would be extremely useful for application of this theory. Such a collection would benefit both researchers as well as practitioners in assisting application of the ideas. This research could be done in collaboration with biological researchers with expertise in this area. The biological theory additionally introduces an entirely new topic to the alliance debate. The literature most often focuses on cooperation between partners with the occasional discussion about opportunism. In biology, however, a different type of relationship exists. It is not beneficial to the survival of both parties yet both parties continue. This is a parasitic relationship. This topic would form an entirely new avenue for alliance research. Inkpen and Ross (2001) do address why some alliances continue long past the point where they would appear useful. This begins to address the topic however the potential for learning is greater. Pilkington (1999) wrote a very detailed case study of Rover's alliance with Honda. In this case he describes a situation where Rover turns to Honda in an effort to turn around their difficulties during a point where Rover had little resources to develop new products. The intent was to buy-in a readymade design as a temporary measure during the time of need. Honda agreed but insisted that a large part of the content came as pre-made kits from Japan. This bought-in design was successful and Rover's dependence on Honda grew since the partnership left little room for Rover to develop itself. They were dependent on Honda. Rover slowly lost their capabilities since all was pre-made by Honda and eventually died. Was this parasitism? It would certainly shed new light on some partnerships if they were analyzed in comparison with parasitic relationships.

The Faulkner case taken together with the biological model opened an important topic for alliance theorists. The biologists have found that symbioses, a highly evolved type of mutualism, can be much more robust survivors than individual living organisms. The Faulkner case has lent support to this idea. The general tone of the literature leads one to believe that alliances and joint ventures, cooperative structures for firms, are short-lived and fragile. An investigation into long-lived, robust alliances would not only frame these organizational structures in a new light, they may aid managers in understanding when and how best to use cooperation in a productive way to build business value.

13.6 Key Lessons

There are several key lessons that can be drawn from this work:

- Formation of joint ventures in these cases was dependent on the presence of certain factors:
 - Mutual need between the partners in the form of a net positive interaction derived from benefits contributed by both partners.
 - Reciprocal and not opportunistic behavior.
- The depth of the relationship including mutual interdependence will increase or decrease depending on whether benefits-costs is positive.
- As the environment, including partners, shifts the joint venture will adapt and changes in the benefit–cost ratio must be considered.
- If the costs exceed the benefits, the partners may not continue to cooperate.
- Opportunism is sometimes met with abandonment however other strategies are also effective such as sanctions and adaptation to limit opportunity.
- An effective collaboration may perform better than a fully owned option subsidiary.

In addition, it has been shown that the biological model developed for mutualism in nature is a useful tool for analysis of joint venture evolution over time. The potential for further development of this theory in the alliance field is significant. It has the potential to provide an overall framework from which a great many concepts can be consolidated into one.

Complete Reference List

- Adobor, H. (2004). High performance management of shared-managed joint venture teams: Contextual and socio-dynamic factors. *Team Performance Management*, 10(3/4), 65–76. doi:10.1108/13527590410545063
- Abador, H. (2005). Optimal trust? Uncertainty as a determinant and limit to trust in inter-firm alliances. *Leadership & Organization Development Journal*, 27(7), 537–553. http://www.emeraldinsight.com/0143-7739.htm
- Alchian, A. A. (1950). Uncertainty, evolution and economic theory. *Journal of Political Economy*, 58(3), 211–221. http://www.jstor.org/stable/1827159
- Aldrich, H. E., Hodgson, G. M., Hull, D. L., Knudsen, T., Mokyr, J. & Vanberg, V. J. (2008). In defence of generalized Darwinism. *Journal of Evolutionary Economics*, 18(5), 577–596. doi:10.1007/s00191-008-0110-z
- Anderson, A. R., Benavides-Espinosa, M. D. M., & Mohedano-Suanes, A. (2011). Innovation in services through learning in a joint venture. The Service Industries Journal, 31(12), 2019-2032.
- Annand, B. N. & Khanna, T. (2000). Do firms learn to create value? The case of alliances. Strategic Management Journal, 21(3), 295–315. http://www.jstor.org/stable/3094189
- Arend, R. (2009). Reputation for cooperation: Contingent benefits in alliance activity. *Strategic Management Journal*, 30(4), 371–385. doi:10.1002/smj.740
- Argote, L. & Darr, E. (2000). Repositories of knowledge in franchise organizations: Individual, structural, and technical. In G. Dosi, R. R. Nelson & S. G. Winter (Eds.), *The nature and dynamics of organizational capabilities* (pp. 51–68). Oxford: Oxford University Press.
- Ariño, A. & de la Torre, J. (1998). Learning from failure: Towards an evolutionary model of collaborative ventures. Organization Science, 9(3), 306–325. http://www.jstor.org/stable/2640225
- Auster, E. R. (1992). The relationship of industry evolution to patterns of technological linkages, joint ventures, and direct investment between U.S. and Japan. *Management Science*, 38(6), 778–792. http://www.jstor.org/stable/2632341

Axelrod, R. (1984). The evolution of cooperation. New York, NY: Basic Books.

- Axelrod, R. & Hamilton, W. D. (1981). The evolution of cooperation. *Science*, 211(4489), 1390–1396.
- Balakrishnan, S. & Koza, M. P. (1993). Information asymmetry, adverse selection and joint-ventures: Theory and evidence. *Journal of Economic Behavior & Organization*, 20(1), 99–11.
- Barboza, D. (2009, September 30). Danone exits China venture after years of legal dispute. *The New York Times*. http://www.nytimes.com/2009/10/01/business/global/01danone.html? r=0
- Barden, J. Q., Steensma, K. H. & Lyles, M. A. (2005). The influence of parent control structure on parent conflict in Vietnamese international joint ventures: An organizational justice-based contingency approach. *Journal of International Business Studies*, 36(2), 156–174. http://www.jstor.org/stable/3875224
- Barkema, H. G., Bell, J. H. J. & Pennings, J. M. (1996). Foreign entry, cultural barriers, and learning. *Strategic Management Journal*, 17(2), 151–166. ABI/INFORM Global (Document ID: 415560571).
- Barnett, W. P. & Hansen, M. T. (1996). The Red Queen in organizational evolution. Strategic Management Journal, 17(Special Issue), 139–157. http://www.jstor.org/stable/2486908
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. ABI/INFORM Global (Document ID: 586794).
- Baughn, C. C., Neupert, K. E., Anh, P. T. T. & Hang, N. T. M. (2011). Social capital and human resource management in international joint ventures in Vietnam: A perspective from a transitional economy. *International Journal of Human Resource Management*, 22(5), 1017–1035. doi:10.1080/09585192.2011.556776
- Beamish, P. W. (1984). *Joint venture performance in developing countries*. (Unpublished doctoral dissertation). University of Western Ontario, Canada.
- Beamish, P. W. & Banks, J. C. (1987). Equity joint ventures and the theory of the multinational enterprise. *Journal of International Business Studies*, 18(2), 1– 16. http://www.jstor.org/stable/154867
- Beamish, P. W. & Lupton, N.C. (2009). Managing joint ventures. Academy of Management Perspectives, 23(2), 75–94. doi:10.5465/AMP.2009.39985542

- Becker, M. C., Lazaric, N., Nelson, R. R. & Winter, S. G. (2005). Applying organizational routines in understanding organizational change. *Industrial and Corporate Change*, 14(5), 775–791. doi:10.1093/icc/dth071
- Becker, M. C. (2004). Organizational routines: A review of the literature. *Industrial* and Corporate Change, 13(4), 643–677. doi:10.1093/icc/dth026
- Belderbos, R. & Zou, J. (2007). On the growth of foreign affiliates: Multinational plant networks, joint ventures, and flexibility. *Journal of International Business Studies*, 38(7), 1095–1112.
- Bleeke, J. & Ernst, D. (Eds.). (1993). Collaborating to compete: Using strategic alliances and acquisitions in the global marketplace. New York, NY: John Wiley & Sons, Inc.
- Blodgett, L. L. (1992). Research notes and communications factors in the instability of international joint ventures: An event history analysis. *Strategic Management Journal*, 13(6), 475–481. ABI/INFORM Global (Document ID: 415530021).
- Boucher, D. H. (1985). The idea of mutualism, past and future. In D. H. Boucher (Ed.), *The biology of mutualism* (pp. 1–28). New York, NY: Oxford University Press.
- Bridge, J. G. (1982, June 9). Letters to the editor: The textile industry. *Financial Times*, p. 17.
- Bronstein, J. L. (1994). Conditional outcomes in mutualistic interactions. *Trends in Ecology and Evolution*, 9(6), 214–217.
- Bronstein, J. L. (1998). The contribution of ant-plant protection studies to our understanding of mutualism. *Biotropica*, 30(2), 150–161. http://www.jstor.org/stable/2389158
- Bronstein, J. L. (2001). The exploitation of mutualisms. *Ecology Letters*, 4(3), 277–287. doi:10.1046/j.1461-0248.2001.00218.x
- BTR takeover bid on Norton. (1990, March 20). Agence Europe, p. 18. Factiva: Document ageu000020011127dm3k005en
- Büchel, B. (2000). Framework of joint venture development: Theory-building through qualitative research. *Journal of Management Studies*, *37*(5), 637–661.
- Buckley, P. J. & Casson, M. (1988). A theory of cooperation in international business. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 31–53). Lexington, MA: Lexington Books.
- Buckley, P. J. & Casson, M. (1996). An economic model of international joint venture strategy. *Journal of International Business Studies*, 27(5), 849–876.
- Buderi, R. & Huang, G. T. (2006). Guanxi (The art of relationships): *Microsoft, China, and Bill Gates's plan to win the road ahead.* New York, NY: Simon and Schuster.
- Bull, J. J. & Rice, W. R. (1991). Distinguishing mechanisms for the evolution of cooperation. *Journal of Theoretical Biology*, 149(1), 63–74.
- Burt, G., Wright, G., Bradfield, R., Cairns, G. & van der Heijden, K. (2006). The role of scenario planning in exploring the environment in view of the limitations of PEST and its derivatives. *International Studies of Management and Organization*, 36(3), 50–76. doi:10.2753/IMO0020-8825360303
- Campbell, D. T. (1977). Comment on 'The natural selection model of conceptual evolution'. *Philosophy of Science*, 44(3), 502–507. http://www.jstor.org/stable/187398
- Capitalism confined (2011, September 3). The Economist. http://www.economist.com/node/21528262
- Carroll, J. (2012). The joint venture swindle. Internal Auditor, 69(2), 29.
- Cepeda, G. & Martin, D. (2005). A review of case studies publishing in Management Decision 2003–2004: Guides and criteria for achieving quality in qualitative research. *Management Decision*, 43(6), 851–876. doi:10.1108/00251740510603600
- Chan, K.-B., Luk, V. & Wang, G. X. (2005). Conflict and innovation in international joint ventures: Toward a new sinified corporate culture or 'Alternative Globalization' in China. Asia Pacific Business Review, 11(4), 461–482. doi:10.1080/13602380500135737
- Chang, S.-J., Chung, J. & Moon, J. J. (2013). When do wholly owned subsidiaries perform better than joint ventures? *Strategic Management Journal*, 34(3), 317– 337. doi:10.1002/smj.2016
- Chi, T. & McGuire, D. J. (1996). Collaborative ventures and value of learning: Integrating the transaction cost and strategic option perspectives on the choice of market entry modes. *Journal of International Business Studies*, 27(2), 285– 307. ABI/INFORM Global (Document ID: 9914804).
- Chi, T. (2000). Option to acquire or divest a joint venture. *Strategic Management Journal*, 21(6), 665–687. http://www.jstor.org/stable/3094305

- Child, J. & Yan, Y. (2003). Predicting the performance of international joint ventures: An investigation in China. *Journal of Management Studies*, 40(2), 283–320.
- China imposes export duty on silk (1988, October 26). *Reuters News*. Factiva: Document lba0000020011203dkaq037pd
- China National Silk Corporation to handle all silk exports (1985, October 30). *BBC Monitoring Service: Asia–Pacific.* Factiva: Document bbcfe00020011205dhau008mj
- China's silk price rise provokes protest (1988, August 26). Financial Times, p. 4.
- Choi, C. B. & Beamish, P. W. (2004). Split management control and international joint venture performance. *Journal of International Business Studies*, 35(3), 201–215. doi:I 0. I 057/palgrave.jibs.84000
- Chowdhury, J. (1992). Performance of international joint ventures and wholly owned foreign subsidiaries: A comparative perspective. *Management International Review*, 32(2), 115–133. ABI/INFORM Global (Document ID: 616389).
- Chowdhury, P. B. (2009). Joint venture instability and monitoring. *Indian Growth* and Development Review, 2(2), 126–140. doi:10.1108/17538250910992559
- Christoffersen, J. (2013). A review of antecedents of international strategic alliance performance: Synthesized evidence and new directions for core constructs. *International Journal of Management Reviews*, 15(1), 66–85. doi:10.1111/j.1468-2370.2012.00335.x
- Chung, S., Singh, H. & Lee, K. (2000). Complementarity, status similarity and social capital as drivers of alliance formation. *Strategic Management Journal*, 21(1), 1–22. http://www.jstor.org/stable/3094116
- Cimon, Y. (2004). Knowledge-related asymmetries in strategic alliances. *Journal of Knowledge Management*, 8(3), 17–30. doi:10.1108/13673270410541015
- Clarke, K. A. & Primo, D. M. (2012). Overcoming "physics envy". New York Times, 161, SR9.
- Conley, J. (1997). Enter the dragon. International Business, 10(1), 40-44.
- Contractor, F. J. & Lorange, P. (1988). Why should firms cooperate? The strategy and economics basis for cooperative ventures. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 3–28). Lexington, MA: Lexington Books.
- Contractor, F. J. (1990). Ownership patterns of U.S. joint ventures abroad and the liberalization of foreign government regulations in the 1980's: Evidence from

the benchmark surveys. *Journal of International Business Studies*, 21(1), 55–73. ABI/INFORM Global (Document ID: 583152).

- Contractor, F. J. (2005). Alliance structure and process: Will the two research streams ever meet in alliance research? *European Management Review*, 2(2), 123–129. doi:10.1057/palgrave.emr.1500036
- Cooper, R. W. & Ross, T. W. (2007). Sustaining cooperation with joint ventures. Journal of Law, Economics & Organization, 25(1), 31–54. doi:10.1093/jleo/ewm051.
- Cordes, C. (2006). Darwinism in economics: from analogy to continuity. *Journal of Evolutionary Economics*, 16(5), 529-541.
- Crossan, M. M. & Inkpen, A. C. (1995). The subtle art of learning through alliances. Business Quarterly, 60(2), 68–78. ABI/INFORM Global (Document ID: 632549791).
- Currall, S. C. & Inkpen, A. C. (2002). A multilevel approach to trust in joint ventures. Journal of International Business Studies, 33(3), 479–495.
- Cuypers, I. R. P. & Martin, X. (2010). What makes and what does not make a real option? A study of equity shares in international joint ventures. *Journal of International Business Studies*, 41(1), 47–69. doi:10.1057/jibs.2009.17
- Cyert, R. M. & March, J. G. (1992). *A behavioral theory of the firm*. Malden, MA: Blackwell Publishers, Inc.
- Danis, W. M. & Parkhe, A. (2002). Hungarian–Western partnerships: A grounded theoretical model of integration processes and outcomes. *Journal of International Business Studies*, 33(3), 423–455. http://www.jstor.org/stable/3069524
- Das, T. K. (2004). Time-span and risk of partner opportunism in strategic alliances. Journal of Managerial Psychology, 19(8), 744–759. www.emeraldinsight.com/0268-3946.htm
- Das, T. K. (2005). Deceitful behaviors of alliance partners: Potential and prevention. Management Decision, 43(5), 706–719. www.emeraldinsight.com/0025-1747.htm
- Das, T. K. & Kumar, R. (2007). Learning dynamics in the alliance development process. *Management Decision*, 45(4), 684–707. www.emeraldinsight.com/0025-1747.htm

Dawkins, R. (1976). The selfish gene. Oxford: Oxford University Press.

Dawkins, R. (1982). The extended phenotype. Oxford: Oxford University Press.

- de Vaus, D. A. (2005). Research design in social research. London: Sage.
- del Mar Benavides-Espinosa, M. (2012). Joint venture, an alternative for knowledge learning. *Knowledge and Process Management*, 19(1), 1–16. doi:10.1002/kpm.1378
- del Mar Benavides-Espinosa, M. & Suanes, A. M. (2011). Corporate entrepreneurship through joint venture. *International Entrepreneurship and Management Journal*, 7(3), 413–430. doi:10.1007/s11365-011-0203-2
- Delerue-Vidot, H. (2006). Opportunism and unilateral commitment: The moderating effect of relational capital. *Management Decision*, 44(6), 737–751. www.emeraldinsight.com/0025-1747.htm
- Delios, A. & Beamish, P. W. (2001). Survival profitability: The roles of experience and intangible assets in foreign subsidiary performance. Academy of Management Journal, 44(5), 1028–1038. ABI/INFORM Global (Document ID: 88214604).
- Dhanaraj, C. & Beamish, P. W. (2004). Effect of equity ownership on the survival of international joint ventures. *Strategic Management Journal*, 25(3), 295–305. ABI/INFORM Global (Document ID: 654829671).
- Ding, D. Z. (1997). Control, conflict, and performance: A study of U.S.–Chinese joint ventures. *Journal of International Marketing*, 5(3), 31–45. ABI/INFORM Global (Document ID: 22995147).
- Dollinger, M. J., Golden, P. A. & Saxton, T. (1997). The effect of reputation on the decision to joint venture. *Strategic Management Journal*, 18(2), 127–140. http://www.jstor.org/stable/3088159
- Donker, P. P. (1990, August 8). Norton slugfest finally over: White House won't stand in way of acquisition by French firm. *Worcester Telegram & Gazette*, p. C1. Factiva: Document WORC000020070222dm88005qg
- Douglas, A. E. (1998). Nutritional interactions in insect-microbial symbioses: Aphids and their symbiotic bacteria Buchnera. *Annual Review of Entomology*, 43, 17– 37. doi:10.1146/annurev.ento.43.1.17
- Douglas, A. E. (2008). Conflict, cheats and the persistence of symbioses. *New Phytologist*, *177*(4), 849–858. doi:10.1111/j.1469-8137.2007.02326.x
- Douglas, A. E. (2010). The symbiotic habit. Princeton, NJ: Princeton University Press.

- Doz, Y. L. (1996). The evolution of cooperation in strategic alliances: Initial conditions or learning processes. *Strategic Management Journal*, 17(Special Issue), 55–83. ABI/INFORM Global (Document ID: 10243388).
- Dugatkin, L. A. (1997). *Cooperation among animals: An evolutionary perspective*. New York, NY: Oxford University Press.
- Dugatkin, L. A. (1999). *Cheating monkeys and citizen bees*. Cambridge, MA: Harvard University Press.
- Durden, C. H. (2004). The interface between management accounting and organisational strategy: From strategic control to strategic navigation (Doctoral dissertation). Massey University, Palmerston North, New Zealand.
- Durden, C. (2009). Hubbard Foods: Developing Strategies and Management Control Systems in the Entrepreneurial Firm. In R. J. Pech (Ed.), *Entrepreneurial courage, audacity and genius (pp. 66–81)*. Sydney, NSW: Pearson Education.
- Dussauge, P., Garrette, B. & Mitchell, W. (2000). Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. *Strategic Management Journal*, 21(2), 99–126. http://www.jstor.org/stable/3094036.
- Economic zones: Tianjin's garment industry plans joint ventures. (1987, March 25). *BBC Monitoring Service: Asia–Pacific.* Factiva: Document bbcfe00020011204dj3p0030e
- Eisenhardt, K. M. (1989). Building theories from case study research. *The Academy of Management Review*, 14(4), 532–550. http://www.jstor.org/stable/258557
- Failing enterprises may turn into opportunities (1988, November 24). *China Business and Trade*. Factiva: Document chbtd00020011203dkbo002xp
- Fear, W. J. (2012). Discursive activity in the boardroom: The role of the minutes in the construction of social realities. *Group & Organization Management*, 37(4), 486–520. doi:10.1177/1059601112449477
- Feinberg, A. J. (1983, January 13). China's part in the war on U.S. textiles. *The New York Times*. Factiva: Document NYTF000020050511df1d0022u.
- Feldman, M. S. & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1), 94–118. http://www.jstor.org/stable/3556620
- Ferriere, R., Bronstein, J. L., Rinaldi, S., Law, R. & Gauduchon, M. (2002). Cheating and the evolutionary stability of mutualisms. *Proceedings of the Royal Society*

of London Biological Sciences Series B, 269, 773–780. doi:10.1098/rspb.2001.1900

- Frank, S. A. (1997). Models of symbiosis. *The American Naturalist*, 150(Supplement), S80–S99. http://www.jstor.org/stable/2463502
- Franko, L. G. (1971). *Joint venture survival in multinational corporations*. New York, NY: Praeger.
- Fujimoto, T. (2000). Repositories of knowledge in franchise organzations: Individual, structural, and technical. In G. Dosi, R. R. Nelson & S. G. Winter (Eds.), *The nature and dynamics of organizational capabilities* (pp. 244–281). Oxford: Oxford University Press.
- Gaglio, C. M. & Katz, J. A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small Business Economics*, 16(2), 95– 111.
- Geringer, J. M. & Hebert, L. (1989). Control and performance of international joint ventures. *Journal of International Business Studies*, 20(2), 235–254. http://www.jstor.org/stable/154831
- Geringer, M. J. & Hebert, L. (1991). Measuring performance of international joint ventures. *Journal of International Business Studies*, 22(2), 249–263.
- Gerwin, D. (2004). Coordinating new product development in strategic alliances. *The Academy of Management Review*, 29(2), 241–257. http://www.jstor.org/stable/20159031
- Glaser, B. G. & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New Brunswick, NJ: Aldine.
- Golden, B. R. (1992). The past is the past—or is it? The use of retrospective accounts as indicators of past strategy. *The Academy of Management Journal*, 35(4), 848–860. http://www.jstor.org/stable/256318
- Gomes-Casseres, B. (1987). Joint venture instability: Is it a problem. Division of Research, Harvard University.
- Gomes-Casseres, B. (1988). Joint venture cycles: The evolution of ownership strategies of U.S. MNEs, 1945–75. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 111–128). Lexington, MA: Lexington Books.
- Gomes-Casseres, B. (1989). Joint ventures in the face of global competition. *Sloan Management Review*, *30*(3), 17. ABI/INFORM Global (Document ID: 812828).

- Gomes-Casseres, B. (1997). Alliance strategies of small firms. Small Business Economics, 9(1), 33-44.
- Gomes-Casseres, B. (2003). Constellation strategy: Managing alliance groups. *Ivy Business Journal*, May/June, 1–6.
- Gomes-Casseres, B., Hagedoorn, J. & Jaffe, A. B. (2006). Do alliances promote knowledge flows? *Journal of Financial Economics*, 80(1), 5–33.
- Gong, Y., Shenkar, O., Luo, Y. & Nyaw, M.-K. (2007). Do multiple parents help or hinder international joint venture performance? The mediating roles of contract completeness and partner cooperation. *Strategic Management Journal*, 28(10), 1021–1034. doi:10.1002/smj.626
- Guenbaum, N. N. (2007). Identification of ambiguity in the case study research typology: What is a unit of analysis? *Qualitative Market Research: An International Journal*, 10(1), 78–97. doi:10.1108/13522750710720413
- Guillen, M. F. (2003). Experience, imitation, and the sequence of foreign entry: Wholly owned and joint-venture manufacturing by South Korean firms and business groups in China, 1987–1995. *Journal of International Business Studies*, 34(2), 185–198. doi:10.1057/palgrave.jibs.840001 6
- Gulati, R. (1998). Alliances and networks. *Strategic Management Journal*, *19*(4), 293–317. ABI/INFORM Global (Document ID: 415565141).
- Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20(5), 397–420.
- Gulati, R. & Gargiulo, M. (1999). Where do interorganizational networks come from? *American Journal of Sociology, 104*(5), 1439–1493.
- Habib, M. A. & Mella-Barral, P. (2007). The role of knowhow acquisition in the formation and duration of joint ventures. *Review of Financial Studies*, 20(1), 189–233. doi:10.1093/rfs/hhl007
- Hambrick, D. C., Li, J., Xin, K. & Tsui, A. S. (2001). Compositional gaps and downward spirals in international joint venture management groups. *Strategic Management Journal*, 22(11), 1033–1053. doi:10.1002/smj.1
- Hamel, G. (1991). Competition for competence and inter-partner learning within international strategic alliances. *Strategic Management Journal*, 12, 83–103. ABI/INFORM Global (Document ID: 917558).

- Hamel, G., Doz, Y. L. & Prahalad, C. K. (1989). Collaborate with your competitors and win. *Harvard Business Review*, 67(1), 133–139.
- Hamilton, W. D. (1964). The genetical evolution of behaviour. *Journal of Theoretical Biology*, 7(1), 1–16.
- Harrigan, K. R. (1987b). Managing joint ventures: Part II. *Management Review*, 76(3), 52–55.
- Harrigan, K. R. (1988a). Joint ventures and competitive strategy. *Strategic Management Journal*, 9(2), 141–158.
- Harrigan, K. R. (1988b). Strategic alliances and partner asymmetries. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 205–226). Lexington, MA: Lexington Books.
- Harrigan, K. R. (1983). Research methodologies for contingency approaches to business strategy. Academy of Management Review, 8(3), 398–405. ABI/INFORM Global (Document ID: 415560571).
- Harrigan, K. R. & Newman, W. H. (1990). Bases of interorganizational co-operation: Propensity, power, persistence. *Journal of Management Studies*, 27(4), 417– 434.
- Hedlund, G. (1984). Organization in-between: The evolution of the mother-daughter structure of managing foreign subsidiaries in Swedish MNCS. *Journal of International Business Studies*, 15(2), 109–123. http://www.jstor.org/stable/154236
- Hennart, J. F. (1988). A transaction costs theory of equity joint ventures. *Strategic Management Journal*, 9(4), 361–374. http://www.jstor.org/stable/2486271
- Hennart, J. F. (1991). The transaction costs theory of joint ventures: An empirical study of Japanese subsidiaries in the United States. *Management Science*, 37(4), 483–497. http://www.jstor.org/stable/2632722
- Hennart, J. F. & Reddy, S. B. (1997). The choice between mergers/acquisitions and joint ventures: The case of Japanese investors in the United States. *Strategic Management Journal*, 18(1), 1–12. http://www.jstor.org/stable/3088192
- Hennart, J. F. & Reddy, S. B. (2000). Digestibility and asymmetric information in the choice between acquisitions and joint ventures: Where's the beef? *Strategic Management Journal*, 21(2), 191–193. http://www.jstor.org/stable/3094040
- Hennart, J. F. & Zeng, M. (2002). Cross-cultural differences and joint venture longevity. *Journal of International Business Studies*, 33(4), 699–716.

- Hennart, J. F., Kim, D. J. & Zeng, M. (1998). The impact of joint venture status on the longevity of Japanese stakes in U.S. manufacturing affiliates. *Organization Science*, 9(3), 382–395. http://www.jstor.org/stable/2640230
- Hennart, J., Roehl, T. & Zietlow, D. S. (1999). "Trojan horse" or "workhorse"? The evolution of U.S.–Japanese joint ventures in the United States. *Strategic Management Journal*, 20(1), 15–29. Proquest (Document ID: 38066065).
- Hill, J. & McGowan, P. (1999). Small business and enterprise development: Questions about research methodology. *International Journal of Entrepreneurial Behaviour & Research*, 5(1), 5–18.
- Hitt, M. A. & Ireland, R. D. (2002). The essence of strategic leadership: Managing human and social capital. *Journal of Leadership & Organizational Studies*, 9(1), 3–14.
- Hitt, M. A., Dacin, M. T., Levitas, E., Arregle, J. L. & Borza, A. (2000). Partner selection in emerging and developed market contexts: Resource-based and organizational learning perspectives. *Academy of Management Journal*, 43(3), 449–467.
- Hodgson, G. M. (1998). Evolutionary and competence based theories of the firm. Journal of Economic Studies, 25(1), 25–36.
- Hodgson, G. M. (2002). Darwinism in economics: from analogy to ontology. *Journal* of evolutionary economics, 12(3), 259-281.
- Hodgson, G. M. (2003). The mystery of the routine. *Revue économique*, 54(2), 355-384.
- Hodgson, G. M. & Knudsen, T. (2004). The firm as an interactor: Firms as vehicles for habits and routines. *Journal of Evolutionary Economics*, 14(3), 281–307. doi:10.1007/s00191-004-0192-1
- Hodgson, G. M. & Knudsen, T. (2006). Dismantling Lamarckism: Why descriptions of socio-economic evolution as Lamarckian are misleading. *Journal of Evolutionary Economics*, 16(4), 343–366. doi:10.1007/s00191-006-0019-3
- Hodgson, G. M. & Knudsen, T. (2008). In search of general evolutionary principles:
 Why Darwinism is too important to be left to the biologists. *Journal of Evolutionary Economics*, 10(1), 51–69. doi:10.1007/s10818-008-9030-0
- Hofer, B. K. & Pintrich, P. R. (Eds.). (2004). *Personal epistemology: The psychology* of beliefs about knowledge and knowing. Mahwah, NJ: Psychology Press.

- Holland, N. J., DeAngelis, D. L. & Schultz, S. T. (2004). Evolutionary stability of mutualism: Interspecific population regulation as an evolutionarily stable strategy. *Proceedings of the Royal Society of London*, 271(1550), 1807-1814. doi:10.1098/rspb.2004.2789
- Hyde, K. F. (2000). Recognising deductive processes in qualitative research. *Qualitative Market Research: An International Journal*, *3*(2), 82–89.
- Industrial production: Minister urges increase in finished product exports (1986, December 3). BBC Monitoring Service: Asia–Pacific. Factiva: Document bbcfe00020011204dic300h51
- Inkpen, A. C. (1995). The management of international joint ventures: An organizational learning perspective. London: Routledge.
- Inkpen, A. C. (1996). Creating knowledge through collaboration. *California* Management Review, 39(1), 123–140.
- Inkpen, A. C. (1998). Learning and knowledge acquisition through international strategic alliances. *Academy of Management Executive*, *12*(4), 69–80.
- Inkpen, A. C. (2000). A note on the dynamics of learning alliances: Competition, cooperation, and relative scope. *Strategic Management Journal*, 21(7), 775– 779.
- Inkpen, A. C. & Beamish, P. W. (1997). Knowledge, bargaining power, and the instability of international joint ventures. Academy of Management Review, 22(1), 177–202.
- Inkpen, A. C. & Currall, S. C. (2004). The coevolution of trust, control, and learning in joint ventures. *Organization Science*, 15(5), 586–599. doi:10.1287/orsc. 1040.0079
- Inkpen, A. C. & Dinur, A. (1998). Knowledge management processes and international joint ventures. Organization Science, 9(4), 454–468. http://www.jstor.org/stable/2640272
- Inkpen, A. C. & Ross, J. (2001). Why do some strategic alliances persist beyond their useful life? *California Management Review*, 44(1), 132–148.
- International relations Japan—Profit from joint venture (1986, December 3). *BBC Monitoring Service: Asia–Pacific.* Factiva: Document bbcfe00020011204dic300h04

- International relations USA—Company to appoint foreign factory director (1986, December 3). *BBC Monitoring Service: Asia–Pacific*. Factiva: Document bbcfe00020011204dic300gzy
- International relations: Textile exports (1987, June 10). *BBC Monitoring Service: Asia–Pacific*. Factiva: Document bbcfe00020011204dj6a003vt
- Islam, S., Ali, M. Y. & Sandhu, M. S. (2011). Partner selection criteria in international joint ventures: Perspectives of foreign investors from Asian NIEs of Malaysia and India. Asia Pacific Business Review, 17(1), 25–43. doi:10.1080/13602381.2010.520491
- Ito, S. (2009). Japanese–Taiwanese joint ventures in China: The puzzle of the high survival rate. *China Information*, 23 (1), 15–44. doi:10.1177/0920203X08100946
- Janzen, D. H. (1985). The natural history of mutualisms. In D. H. Boucher (Ed.), *The biology of mutualism* (pp. 40–99). New York, NY: Oxford University Press.
- Johansson, J. & Vahlne, J. E. (1977). The internationalization process of the firm: A model of knowledge development and increasing foreign market commitments. *Journal of International Business Studies*, 8(1), 23–32.
- Johansson, J. & Vahlne, J. E. (2006). Commitment and opportunity development in the internationalization process: A note on the Uppsala internationalization process model. *Management International Review*, *46*(2), 165–178.
- Johnson, J. P., Korsgaard, M. A. & Sapienza, H. J. (2002). Perceived fairness, decision control, and commitment in international joint venture management teams. *Strategic Management Journal*, 23(12), 1141–1160. doi:10.1002/smj.277
- Jones, E. I., Ferriere, R. & Bronstein, J. L. (2009). Eco-evolutionary dynamics of mutualists and exploiters. *The American Naturalist*, 174(6), 780–794. doi:10.1086/647971
- Julian, C. C. (2008). Joint venture conflict: The case of Thai international joint ventures. Journal of Asia–Pacific Business, 9(1), 6–27. doi:10.1080/10599230801971242
- Katsioloudes, M. I. & Isichenko, D. (2007). International joint ventures in Russia: A recipe for success. *Management Research News*, 30(2), 133–152. doi:10.1108/01409170710722964

- Kaufmann, J., O'Neill, H. & York, A. S. (2006). The impact of structural prescriptions on joint venture survival. *Mid-American Journal of Business*, 21(2), 43–59.
- Khanna, T. (1998). The scope of alliances. *Organization Science*, 9(3), 340–355. http://www.jstor.org/stable/2640227
- Khanna, T., Gulati, R. & Nohria, N. (1998). The dynamics of learning alliances: Competition, cooperation and relative scope. *Strategic Management Journal*, 19(3), 193–210.
- Khanna, T., Gulati, R. & Nohria, N. (2000). The economic modeling of strategy process: "Clean models" and "dirty hands". *Strategic Management Journal*, 21(7), 781–790.
- Killing, J. P. (1980). Technology acquisition: License agreement or joint venture. *Columbia Journal of World Business*, 15(3), 38–46.
- Killing, J. P. (1982). How to make a global joint venture work: Learning to live with two parents is harder than managers think. *Harvard Business Review*, 60(3), 120–127.
- Killing, J. P. (1983). Strategies for joint venture success. New York, NY: Praeger.
- Killing, J. P. (1988). Understanding alliances: The role of task and organizational complexity. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 55–67). Lexington, MA: Lexington Books.
- Knudsen, T. (2002). Economic selection theory. *Journal of Evolutionary Economics*, *12*(4), 443–470.
- Kogut, B. (1988). Joint ventures: Theoretical and empirical perspectives. *Strategic Management Journal*, 9(4), 319–332.
- Kogut, B. (1989). The stability of joint ventures: Reciprocity and competitive rivalry. *Journal of Industrial Economics*, 38(2), 183–198. http://www.jstor.org/stable/2098529
- Kogut, B. (1991). Joint ventures and the option to expand and acquire. *Management Science*, *37*(1), 19–33.
- Kogut, B. & Singh, H. (1988). Entering the United States by joint venture: Competitive rivalry and industry structure. In F. J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 31–53). Lexington, MA: Lexington Books.

- Kogut, B. & Zander, U. (2003). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 34(6), 516–529. doi:10. 1057/palgrave. jibs.840005
- Koza, M. P. & Lewin, A. Y. (1998). The co-evolution of strategic alliances. *Organization Science*, 9(3), 255–264. http://www.jstor.org/stable/2640222
- Kranner, I., Beckett, R., Hochman, A. & Nash, T. H. III (2008). Desiccation– tolerance in Lichens: A review. *The Bryologist*, 111(4), 576–593. http://0www.jstor.org.alpha2.latrobe.edu.au/stable/20485752
- Kropotkin, P. (2005). Mutual aid: A factor in evolution. Project Gutenberg e-text.
- Kumar, S. & Seth, A. (1998). The design of coordination and control mechanisms for managing joint venture–parent relationships. *Strategic Management Journal*, 19(6), 579–599.
- Lane, C. (1998). Introduction: Theories and issues in the study of trust. In C. Lane &
 R. Bachmann (Eds.), *Trust within and between organizations: Conceptual issues and empirical applications* (pp. 1–30). New York, NY: Oxford University Press.
- Lane, P. J., Salk, J. E. & Lyles, M. A. (2001). Absorptive capacity, learning, and performance in international joint ventures. *Strategic Management Journal*, 22(12), 1139–1161. doi:10.1002/smj.2
- Lee, C. & Beamish, P. W. (1995). The characteristics and performance of Korean joint ventures in LDCs. *Journal of International Business Studies*, 26(3), 637– 645. Proquest (Document ID: 9091840).
- Li, J., Xin, K. R., Tsui, A. & Hambrick, D. C. (1999). Building effective international joint venture leadership teams in China. *Journal of World Business*, 34(1), 52– 68.
- Lichens are Fungi (1998). http://www.herbarium.usu.edu/fungi/funfacts/lichens.htm
- Lincoln, Y. S. & Guba, E. G. (1985). *Naturalistic Inquiry*, Sage Publications. Newbury Park.
- Lowen, A. & Pope, J. (2008). Survival analysis of international joint venture relationships. *Journal of Business and Economic Studies*, 14(1), 62–94.
- Lu, Y. (1998). Joint venture success in China: How should we select a good partner? *Journal of World Business*, 33(2), 145–166.

- Lunnan, R. & Haughland, S. A. (2008). Predicting and measuring alliance performance: A multidimensional analysis. *Strategic Management Journal*, 29(5), 545–556. doi:10.1002/smj.660
- Luo, Y. (1997). Partner selection and venturing success: The case of joint ventures with firms in the People's Republic of China. *Organization Science*, 8(6), 648– 662. http://www.jstor.org/stable/2635161
- Luo, Y. (2002a). Stimulating exchange in international joint ventures: An attachmentbased view. Journal of International Business Studies, 33(1), 169–181. http://www.jstor.org/stable/3069579
- Luo, Y. (2002b). Contract, cooperation, and performance in international joint ventures. *Strategic Management Journal*, 23(10), 903–919. doi:10.1002/smj 261
- Luo, Y. (2004). Cooperation in international business. Frederiksberg: Copenhagen Business School Press.
- Luo, Y. (2005). Transactional characteristics, institutional environment and joint venture contracts. *Journal of International Business Studies*, 36(2), 209–230. http://www.jstor.org/stable/3875227
- Luo, Y. (2007). An integrated anti-opportunism system in international exchange. Journal of International Business Studies, 38(6), 855–877. doi:10.1057/palgrave.jibs.8400300
- Luo, Y. & Park, S. H. (2005). Multiparty cooperation and performance in international equity joint ventures. *Journal of International Business Studies*, 35(2), 142–160. http://www.jstor.org/stable/3875248
- Luo, Y., Shenkar, O. & Nyaw, M. K. (2001). A dual parent perspective on control and performance in international joint ventures: Lessons from a developing economy. *Journal of International Business Studies*, 32(1), 41–58. http://www.jstor.org/stable/3069509
- Lyles, M. A. & Salk, J. E. (1996). Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context. *Journal of International Business Studies*, 27(5), 877–903. http://www.jstor.org/stable/155573
- MacFadyen, K. (2008). IP theft stokes cross-border tensions. *Mergers and Acquisitions*, 43(1), 54–55. http://0-

search.proquest.com.alpha2.latrobe.edu.au/docview/215903353?accountid=12 001

- Madhok, A. (2006). How much does ownership really matter? Equity and trust relations in joint venture relationships. *Journal of International Business Studies*, 37(1), 4–11. http://www.jstor.org/stable/3875210
- Makino, S. & Beamish, P. W. (1998). Performance and survival of joint ventures with non-conventional ownership structures. *Journal of International Business Studies*, 29(4), 797–818.
- Makino, S., Chan, C. M., Isobe, T. & Beamish, P. W. (2007). Intended and unintended termination of international joint ventures. *Strategic Management Journal*, 28(11), 1113–1132. doi:10.1002/smj.629
- Marketline. (2012). Apparel & non-apparel manufacturing in China. May 2012. Reference Code: 0099-2705. www.marketline.com
- Maynard Smith, J. & Szathmáry, E. (1997). *The major transitions in evolution*. Oxford: Oxford University Press.
- Mayr, E. (1982). *The growth of biological thought: diversity, evolution and inheritance*. Cambridge, MA: Harvard University Press.
- McGrath, R. G., & Boisot, M. (2003). Real options reasoning and the dynamic organization: Strategic insights from the biological analogy. *Leading and managing people in the dynamic organization*, 201.
- McPhee, D., Heckemüller, C., Ariño, A. & Ozcan, P. (2009). Joint ventures: A tool for growth during an economic downturn. KPMG. http://www.kpmg.com/KY/en/IssuesAndInsights/ArticlesPublications/Publishi ngImages/Joint-Ventures-tool-for-growth-downturn.pdf
- Meittinen, R. & Virkkunen, J. (2005). Epistemic objects, artefacts and organizational change. *Organization*, *12*(3), 437–456.
- Merriam, S. B. & Clark, M. C. (1993). Learning from life experience: What makes it significant? *International Journal of Lifelong Education*, *12*(2), 129–138.
- Meschi, P. X. (1997). Longevity and cultural differences of international joint ventures: Toward time-based cultural management. *Human Relations*, 50(2), 211–228.
- Meschi, P. X. (2005). Stock market valuation of joint venture sell-offs. *Journal of International Business Studies*, *36*(6), 688–700.

- Miles, M. B. & Huberman A. M. (1984). Drawing valid meaning from qualitative data: Toward a shared craft. *Educational Researcher*, 13(5), 20–30. http://www.jstor.org/stable/1174243.
- Minic, Z. & Hervé, G. (2004). Biochemical and enzymological aspects of the symbiosis between the deep-sea tubeworm Riftia pachyptila and its bacterial endosymbiont. *European Journal of Biochemistry*, 271(15), 3093–3102. doi:10.1111/j.1432-1033.2004.04248.x
- Mitchell, R. K. (1997). Oral history and expert scripts: Demystifying the entrepreneurial experience. *International Journal of Entrepreneurial Behaviour & Research*, 3(2), 122–139.
- Modernization of China textile industry (1984, September 12). *BBC Monitoring Service: Asia–Pacific*. Factiva: Document bbcfe00020011205dg9c00c2q
- Nalebuff, B. J. & Brandenburger, A. (1996). *Co-opetition*. Harper Collins Business. New York.
- Need for flexible trade arrangements to boost clothing exports (1986, June 18). *BBC Monitoring Service: Asia–Pacific.* Factiva: Document bbcfe00020011204di6i00e23
- Nelson, R. R. (1995). Recent evolutionary theorizing about economic change. *Journal* of *Economic Literature*, 33(1), 48–90. http://www.jstor.org/stable/2728910
- Nelson, R. R. (2007). Comment on: Dismantling Lamarckism: Why descriptions of socio-economic evolution as Lamarckian are misleading, by Hodgson and Knudsen. *Journal of Evolutionary Economics*, 17 (3), 349–352. doi:10.1007/s00191-007-0061-9
- Nelson, R. R. & Winter, S. G. (1982). An evolutionary theory of economic change. Cambridge, MA: Harvard University Press.
- Nelson, R. R. & Winter, S. G. (2002). Evolutionary theorizing in economics. *Journal of Economic Perspectives*, 16(2), 23–46.
- Newman, W. H. (1992). *Birth of a successful joint venture*. Lanham, MD: University Press of America.
- Noë, R. & Hammerstein, P. (1995). Biological markets. TREE, 10(8), 336-339.
- Nooteboom, B., Berger, H. & Noorderhaven, N. G. (1997). Effects of trust and governance on relational risk. Academy of Management Journal, 40(2), 308– 338. http://www.jstor.org/stable/256885

- Orr, H. A. (2005). The genetic theory of adaptation: A brief history. *Nature reviews: Genetics*, *6*, 119–127. doi:10.1038/nrg1523
- Pan, Y. & Tse, D. K. (2000). The hierarchical model of market entry modes. *Journal* of *International Business Studies*, 31(4), 535–554. http://www.jstor.org/stable/155660
- Pangarkar, N. (2007). Survival during a crisis: Alliances by singapore firms. British Journal of Management, 18(3), 209–223. doi:10.1111/j.1467-8551.2006.00490.x
- Pansiri, J. (2005). The influence of managers' characteristics and perceptions in strategic alliance practice. *Management Decision*, 43(9), 1097–1113.
- Park, S. H. & Russo, M. V. (1996). When competition eclipses cooperation: An event history analysis of joint venture failure. *Management Science*, 42(6), 875–890.
- Park, S. H. & Ungson, G. R. (1997). The effect of national culture, organizational complementarity, and economic motivation on joint venture dissolution. *Academy of Management Journal*, 40(2), 279–307.
- Park, S. H. & Ungson, G. R. (2001). Interfirm rivalry and managerial complexity: A conceptual framework of alliance failure. *Organizational Science*, 12(1), 37– 53.
- Parkhe, A. (1991). Interfirm diversity, organizational learning, and longevity in global strategic alliances. *Journal of International Business Studies*, 22(4), 579–601. http://www.jstor.org/stable/154813
- Parkhe, A. (1993a). "Messy" research, methodological predispositions, and theory development in international joint ventures. *Academy of Management Review*, 18(2), 227–268. ABI/INFORM Global (Document ID: 141745).
- Parkhe, A. (1993b). Partner nationality and the structure–performance relationship in strategic alliances. Organization Science, 4(2), 301–324. http://www.jstor.org/stable/2635204
- Parkhe, A. & Miller, S. R. (2000). The structure of optimal trust: A comment and some extensions. Academy of Management Review, 25(1), 10–11. http://www.jstor.org/stable/259259
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks, CA: Sage.

- Pearce, R. J. (1997). Toward understanding joint venture performance and survival: A bargaining and influence approach to transaction cost theory. Academy of Management Review, 22(1), 203–225. http://www.jstor.org/stable/259229
- Pekár, P. & Margulis, M. S. (2003). Equity alliances take centre stage. *Business Strategy Review*, 14(2), 50–62.
- Penrose, E. T. (1952). Biological analogies in the theory of the firm. *The American Economic Review*, 804-819.
- Pentland, B. T. & Feldman, M. S. (2005). Organizational routines as a unit of analysis. *Industrial and Corporate Change*, *14*(5), 793–815. doi:10.1093/icc/dth070
- Pentland, B. T. & Feldman, M. S. (2008). Designing routines: On the folly of designing artefacts, while hoping for patterns of action. *Information and Organization*, 18(4), 235–250. doi:10.1016/j.infoandorg.2008.08.001
- Petre, M. & Rugg, G. (2010). *The unwritten rules of PhD research*. Maidenhead: McGraw-Hill International.
- Petrovic, J. & Kakabadse, N. K. (2003). Strategic staffing of international joint ventures (IJVs): An integrative perspective for future research. *Management Decision*, 41(4), 394–406. doi:10.108/00251740310472022
- Pfeffer, J. & Nowak, P. (1976). Joint ventures and interorganizational interdependence. Administrative Science Quarterly, 21(3), 398–418. http://www.jstor.org/stable/2391851
- Pfeffer, J. & Salancik, G. (1978). *The external control of organizations: A resource dependence perspective*. Stanford, CA: Stanford University Press.
- Pilkington, A. (1999). Strategic alliance and dependency in design and manufacture: The Rover–Honda case. International Journal of Operations and Production Management, 19(5/6), 460–473.
- Polanyi, M. (1966). The tacit dimension. Chicago, IL: University of Chicago Press.
- Popper, K. (1972). The logic of scientific discovery. New York, NY: Routledge.

PRC Ministry of Foreign Economic Relations & Trade. (2001). PRC wholly foreignowned enterprise law implementing rules (revised), http://www.chinalawandpractice.com/Article/1969515/Search/PRC-Wholly-Foreign-owned-Enterprise-Law-Implementing-

Rules.html?Keywords=PRC+wholly+foreign+owned+enterprise+law+implem enting+rules+(revised)

- Pu, H. & Que, Y. (2004). Why have some transnational corporations failed in china? China & World Economy, http://0search.proquest.com.alpha2.latrobe.edu.au/docview/237248016?accountid=12 001
- Puck, J. F., Holtbruegge, D. & Mohr, A. T. (2009). Beyond entry mode choice: Explaining the conversion of joint ventures into wholly owned subsidiaries in the People's Republic of China. *Journal of International Business Studies*, 40(3), 388–404. doi:10.1057/jibs.2008.56
- Qiu, Y. (2005). Problems of managing joint ventures in China's interior: Evidence from Shaanxi. SAM Advanced Management Journal, 70(3), 46–57.
- Raff, D. M. G. (2000). Superstores and the evolution of firm capabilities in American bookselling. *Strategic Management Journal*, 21(10/11), 1043–1059. http://www.jstor.org/stable/3094426
- Ratten, V. & Suseno, Y. (2006). Knowledge development, social capital and alliance learning. *International Journal of Education Management*, 20(1), 60–72. www.emeraldinsight.com/0951-354X.htm
- Reuer, J. J. & Koza, M. P. (2000). Asymmetric information and joint venture performance: Theory and evidence for domestic and international joint ventures. *Strategic Management Journal*, 21(1), 81–88. http://www.jstor.org/stable/3094120
- Reuer, J. J. & Leiblein, M. J. (2000). Downside risk implications of multinationality and international joint ventures. *Academy of Management Journal*, 43(2), 203– 214. http://www.jstor.org/stable/1556377
- Reus, T. H. & Rottig, D. (2009). Meta-analyses of international joint venture performance determinants evidence for theory, methodological artefacts and the unique context of China. *Management International Review*, 49 (5), 607– 640. doi:10.1007/s11575-009-0009-4.
- Riege, A. M. (2003). Validity and reliability tests in case study research: A literature review with "hands-on" applications for each research phase. *Qualitative Market Research: An International Journal*, 6(2), 75–86. doi:10.1108/13522750310470055
- Ring, P. S. & Van de Ven, A. H. (1992). Structuring cooperative relationships between organizations. *Strategic Management Journal*, *13*(7). 483–492.

- Ring, P. S. & Van de Ven, A. H. (1994). Developmental processes of cooperative interorganizational relationships. *Academy of Management Review*, 19(1), 90– 118.
- Robson, M. J. & Katsikeas, C. S. (2005). International strategic alliance relationships within the foreign investment decision process. *International Marketing Review*, 22(4), 399–419. doi:10.1108/02651330510608433
- Rodriguez, S. D., Perez, J. F. M. & del Var, M. P. (2003). An empirical study about the effect of cultural problematic on organizational learning in alliances. *The Learning Organization*, 10(3), 138–148. doi:10.1108/0969647010472462
- Root, F. R. (1988). Some taxonomies of international cooperative arrangements. In F.J. Contractor & P. Lorange (Eds.), *Cooperative strategies in international business* (pp. 69–80). Lexington, MA: Lexington Books.
- Sachs, J. L. & Simms, E. L. (2006). Pathways to mutualism breakdown. *TRENDS in Ecology and Evolution*, 21(10), 585–592. doi:10.1016/j.tree.2006.06.018
- Sachs, J. L., Mueller, U. G., Wilcox, T. P. & Bull, J. J. (2004). The evolution of cooperation. *Quarterly Review of Biology*, 79(2), 135–160.
- Salk, J. E. & Shenkar, O. (2001). Social identities in an international joint venture: An exploratory case study. Organization Science, 12(2), 161–178. http://www.jstor.org/stable/3086053
- Schaan, J. L. F. (1983). Parent control and joint venture success: The case of Mexico.(Unpublished doctoral dissertation). University of Western Ontario, Canada.
- Schillaci, C. E. (2007). Designing successful joint ventures. Journal of Business Strategy, 8(2), 59-63. doi: 10.1108/eb039201
- Simon, H. A. (1957). Models of man. Oxford: Wiley.
- Simon, H. A. (1993). Strategy and organizational evolution. *Strategic Management Journal*, *14*(S2), 131–142. http://www.jstor.org/stable/2486501
- Sniegowski, P. D. & Lenski R. E. (1995). Mutation and adaptation: The directed mutation controversy in evolutionary perspective. Annual Review of Ecology and Systematics, 26, 553–578. http://www.jstor.org/stable/2097219
- Society and environment: Establishment of clothing technology institute (1988, May 18). BBC Monitoring Service: Asia–Pacific. Factiva: Document bbcfe00020011203dk5i00478

- Stamboulidis, G. (2009). An investigation into Australian family firms: A Darwinian explanation for entrepreneurial survival and success. (PhD thesis). La Trobe University, Victoria.
- Steensma, H. K. & Lyles, M. A. (2000). Explaining IJV survival in a transitional economy through social exchange and knowledge-based perspectives. *Strategic Management Journal*, 21(8), 831–851. http://www.jstor.org/stable/3094399
- Steensma, H. K., Barden, J. Q., Dhanaraj, C., Lyles, M. A. & Tihanyi, L. (2008). The evolution and internalization of international joint ventures in a transitioning economy. *Journal of International Business Studies*, 39(3), 491–507. doi:10.1057/palgrave.jibs.8400341
- Stiles, J. (2003). A philosophical justification for a realist approach to strategic alliance research. *Qualitative Market Research: An International Journal*, 6(4), 263–271. doi:10.1108/13522750310495346
- Suen, W. W. (2005). *Non-cooperation: The dark side of strategic alliances*. Hampshire: Palgrave Macmillan.
- Tang, J. (2005). *Managers and Mandarins in contemporary China: The building of an international business*. London: Routledge.
- Teece, D. J., Pisano, G. & Shuen, A. (2000). Dynamic capabilities and strategic management. In G. Dosi, R. R. Nelson & S. G. Winter (Eds.), *The nature and dynamics of organizational capabilities* (pp. 335–362). Oxford: Oxford University Press.
- Textile rules jolt Hong Kong (1984, August 7). *The New York Times*. Factiva: Document NYTF000020050510dg8701nlg
- Tian, X. (2007). Managing international business in China. Cambridge: Cambridge University Press.
- Timm, R. M., Baker, R. O., Bennett, J. R. & Coolahan, C. C. (2004). Coyote sttacks: An increasing suburban problem. UC Davis: Hopland Research and Extension Center. http://escholarship.org/uc/item/8qg662fb
- Todeva, E. & Knoke, D. (2005). Strategic alliances and models of collaboration. *Management Decision*, 43(1), 123–148. doi:10.1108/00251740510572533
- Tong, T. W., Reuer, J. J. & Peng, M. W. (2008). International joint ventures and the value of growth options. *Academy of Management Journal*, *51*(5), 1014–1029.
- Toulmin, S. E. (1977). *Human understanding, volume I: The collective use and evolution of concepts.* Princeton, NJ: Princeton University Press.

- Trivers, R. L. (1971). The evolution of reciprocal altruism. Quarterly Review of Biology, 46(1), 35–57. http://www.jstor.org/stable/2822435
- Tsang, E. W. K. (2002). Acquiring knowledge by foreign partners from international joint ventures in a transition economy: Learning-by-doing and learning myopia. *Strategic Management Journal*, 23(9), 835–854. http://www.jstor.org/stable/3094281
- Veblen, T. (1898). Why is economics not an evolutionary science? *Quarterly Journal of Economics*, 12(4), 373–397. http://www.jstor.org/stable/1882952
- Waldmeir, P. & Tucker, S. (2009, September 30). Danone to quit joint venture with Wahaha. *Financial Times*. http://www.ft.com/cms/s/0/849e7eda-ad87-11debb8a-00144feabdc0.html#axzzdB4CG700
- Walsh, C. T. & Fischbach, M. A. (2009). New ways to squash superbugs. *Scientific American*, 301(1), 44–51.
- West, S. A., Griffin, A. S. & Gardner, A. (2007). Social semantics: Altruism, cooperation, mutualism, strong reciprocity and group selection. *Journal of Evolutionary Biology*, 20(2), 415–432. doi:10.1111/j.1420-9101.2006.01258.x
- Williamson, O. E. (1975). Markets and hierarchies: Analysis and antitrust implications. New York, NY: Basic Books.
- Wirtz, P. (2008). The Gulf of Guinea goby-shrimp symbiosis and a review of goby thalassinidean associations. *Arquipélago. Life and Marine Sciences*, 25, 71–76.
- Witt, U. (1992). Evolutionary concepts in economics. *Eastern Economic Journal*, 18(4), 405–419.
- Witt, U. (2008). What is specific about evolutionary economics? *Journal of Evolutionary Economics*, 18(5), 547–575. doi:10.1007/s00191-008-0107-7
- Wren, D. A. (1994). The evolution of management thought (4th ed.). New York, NY: Wiley.
- Wright, L. L., Lane, H. W. & Beamish, P. W. (1988). International management research: Lessons from the field. *International Studies of Management & Organization*, 18(3), 55–71. http://www.jstor.org/stable/40397103
- Wright, M., Herron, C. R., Douglas, C. C. (1983, December 18). The nation. *The New York Times*. Factiva: Document NYTF000020050512dfci00mnz
- Xia, J. (2011). Mutual dependence, partner substitutability, and repeated partnership: The survival of cross-border alliances. *Strategic Management Journal*, 32(3), 229–253. doi:10.1002/smj.873

- Yan, A. (1998). Structural stability and reconfiguration of international joint ventures. Journal of International Business Studies, 29(4), 773–795.
- Yan, A. & Gray, B. (1994). Bargaining power, management control, and performance in United States–China joint ventures: A comparative case study. *Academy of Management Journal*, 37(6), 1478–1517.
- Yan, A. & Zeng, M. (1999). International joint venture instability: A critique of previous research, a reconceptualization, and directions for future research. *Journal of International Business Studies*, 30(2), 397–414.
- Yang, J. & Lee, H. (2002). Identifying key factors for successful joint venture in China. Industrial Management & Data Systems, 102(2), 98–109. doi:10.1108/02635570210419645
- Yang, L. & Herrmann, R. (2011). Get your evidence right. *Managing Intellectual Property*, (210), 54–56. http://0-search.proquest.com.alpha2.latrobe.edu.au/docview/876090141?accountid=12 001
- Yavas, U., Eroglu, D. & Eroglu, S. (1994). Sources and management of conflict: The case of Saudi–U.S. joint ventures. *Journal of International Marketing*, 2(3), 61–82.
- Yin, R. K. (2003). Case study research: Design and methods. London: Sage.
- Zhang, Y. & Rajagopalan, N. (2002). Inter-partner credible threat in international joint ventures: An infinitely repeated prisoner's dilemma model. *Journal of International Business Studies*, 33(3), 457–478. http://www.jstor.org/stable/3069525
- Zineldin, M. & Dodourova, M. (2005). Motivation, achievements and failure of strategic alliances: The case of Swedish auto-manufacturers in Russia. *European Business Review*, 17(5), 460–470. doi:10.1108/09555340510620357

Glossary of Terms

A

- **adaptation**: organisms or organizations face environmental challenges to their survival. Adaptation refers to the ability to change traits or phenotype in response to these challenges possibly resulting in improved survival fitness.
- **alliance**: refers to an agreement between firms to collaborate or cooperate together with the expectation that the mutual net benefits exceed the outcome of individual action.

С

- **cheating**: in reference to mutualisms and partnerships refers to receiving benefits from a partner without providing less than equivalent or possibly any benefit in return.
- **continuity**: existence of a trait over time and/or through generations without interruption.
- cooperate: partners all combining significant efforts for mutual benefit.

E

endosymbiont: any organism living within the confines of another, both in symbiosis.

- **environment**: external conditions, including all factors such as resources, stimuli and threats, which affect the survival of an organism/organization.
- equity alliance: an alliance where each partner owns equity in the firm where the cooperative efforts take place.
- evolution: the gradual development or change in an organism/organization in response to its environmental.

G

gene: a unit of heredity representing a specific characteristic. Together all genes combine to form the phenotype of a specific organism/organization.

Ι

instability: a state of a joint venture or alliance which is not in a steady mode of operation or ownership. It has been contended by Yan and Gray (1994) that this is not an auspicious trait since some change is required to adapt positively to environmental forces.

J

joint venture: common abbreviation for joint venture.

joint venture: an alliance between two firms for a specific purpose. The terms of the alliance can be exclusively contractual or with the addition of shared equity. Although joint ventures can have many configurations, many partnering firms set up a distinct daughter company for the partnership with the partners each owning some portion of equity in said daughter firm.

mutualism: a relationship where two or more biological organisms live in close physical proximity and exchange benefits with each other for mutual gain. A mutualism can be obligate, where one or more partners needs cooperation for survival, or facultative, where the partners benefit from cooperation but do not need it for survival.

0

opportunism: the alliance literature usually defines opportunism as "self-interest seeking with guile" (Williamson, 1975; p. 9) see (Das, 2004; Buckley & Casson, 1988). The biological literature applies opportunism to mean receipt of benefits from a partner without reciprocation. The subtle difference being the consciousness needed to use "guile", which many organisms simply do not possess. In this work the simpler biological application of the term was applied.

Р

phenotype: the combination of traits, expressed by genes, in interaction with the environment, which finally determines a physical or behavioral attribute of an organism or organization.

S

- **selection**: a process whereby specific traits, in interaction with the environment, will be favored for survival.
- survival: the continuity of a singular organism/organization.
- **survival fitness**: the ability of a particular phenotype to successfully adapt to a given environment and survive (reproduction is also considered specifically for biology).
- symbiosis: a particularly close and highly evolved mutualism.

Т

trait: a characteristic of organisms/organizations in response to their environment (determined by expressions of genes in biology).

V

variation: a modification or deviation from the norm in a particular trait.

W

wholly owned subsidiary: a daughter company of a larger firm where no second firm owns any equity or has holds any significant contractual control.

Ethics Approval



MEMORANDUM

RESEARCH AND GRADUATE STUDIES OFFICE

То:	Dr. Richard Pech, Grad. School of Management, Faculty of Law and Mgmt Mr. Lance Smith, Grad. School of Management, Faculty of Law and Mgmt
From:	Secretary, La Trobe University Human Ethics Committee
Subject:	Review of Human Ethics Committee Application No. 08-132
Title:	Survival Fitness of Joint Ventures
Date:	25 November 2008

Thank you for submitting revisions to your application for ethics approval to the La Trobe University Human Ethics Committee (UHEC) for the project referred to above. Your response was forwarded to a subcommittee of the UHEC, who has assessed the project as complying with the National Health and Medical Research Council's *National Statement on Ethical Conduct in Human Research* and with University *Human Research Ethics Guidelines*.

Your project has been granted ethics approval and you may commence the study.

The project has been approved to 31 October 2010.

Please note that your application has been reviewed by a sub-committee of the UHEC in the interest of facilitating a decision on your application before the next committee meeting. The decision to approve your project will need to be ratified by the full UHEC and consequently approval for your project may be withdrawn or conditions of approval altered. However, your project may commence prior to ratification of the approval decision. You will be notified if the approval status of your project is altered.

The following standard conditions apply to your project:

- **Complaints.** If any complaints are received or ethical issues arise during the course of the project, researchers should advise the UHEC Secretary on telephone (03) 9479 1443;
- Limit of Approval. Approval is limited strictly to the research proposal as submitted in your application while taking into account the conditions and approval dates advised by the UHEC;
- Variation to Project. As a consequence of the previous condition, any subsequent variations . or modifications you may wish to make to your project must be notified formally to the UHEC. This can be done using the appropriate form (Application for Approval of Modification to Research Proiect) which is available on the internet at If the UHEC considers that the proposed www.latrobe.edu.au/rgso/ethics/human.htm. changes are significant, you may be required to submit a new application form for approval of the revised project;

• **Progress Reports.** If your project continues for more than 12 months, you are required to submit a *Progress Report* form annually, on or just prior to 12 February. The form is available on the internet (see above address). Please return the completed form to the UHEC Secretary. Failure to submit a progress report will mean approval for this project will lapse. An audit may be conducted by the UHEC at any time.

A Final Report (template available on the Human Ethics website) will be due by 30 April 2011.

If you have any queries on the matters mentioned above or require any further clarification please contact me through the Research and Graduate Studies Department on telephone (03) 9479 1443, facsimile (03) 9479 1464 or e-mail address humanethics@latrobe.edu.au

On behalf of the University Human Ethics Committee, best wishes with your research!

Barbara Doherty Administrative Officer (Research Ethics) University Human Ethics Committee postal details: Research and Graduate Studies Office La Trobe University Bundoora, Victoria 3086 P: (03) 9479 - 1443 F: (03) 9479 - 1464 http://www.latrobe.edu.au/rgso/ethics