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Survival, Short-Term and Long-Term Performance of Strategic Alliances

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Abstract

Can we predict which alliances that will terminate, and which alliances that will be successful over time? This is the core research question raised in this paper. By reviewing transaction cost economics, the resource-based view of strategy, and the relational contracting perspective, we derive at important alliance characteristics that these perspectives suggest as important for understanding alliance success and failure. Our hypotheses were tested on one hundred strategic alliances from the Norwegian manufacturing sector covering a five-year period. The results show that strategic alliances based on access to strategic important resources were less likely to terminate abruptly. We also found that newly established alliances had a higher termination rate than older alliances, indicating that alliances go through different phases of termination risk. Short-term performance was primarily affected by factors such as getting access to complementary and strategic important resources, whereas long-term performance was be related to the partners' ability to extend and develop the alliance.

INTRODUCTION

The strategic alliance has become an increasingly popular way of organizing economic activities. Companies are using strategic alliances to gain access to new markets, broaden product lines, and share research and development (e.g., Contractor and Lorange, 1988; Kale *et al.*, 2000; Powell, 1987; Varadarajan and Cunningham, 1995). It is well accepted both in management practice and research that strategic alliances can generate strategic value for the cooperating partners, described as relational rent (Dyer and Singh, 1998). The literature provides valuable insights into areas such as what kind of advantages companies can achieve from strategic alliances, and the managerial challenges of operating such governance forms (e.g., Child and Faulkner, 1998; Dyer and Singh, 1998; Gulati, 1998).

However, despite the popularity of strategic alliances, many alliances fail to deliver the anticipated results and are terminated prematurely. Park and Ungson (1997) found in a study of joint ventures a dissolution rate of about 50 percent. Similar dissolution rates are also reported in business reports as well as in other academic studies (Barringer and Harrison, 2000), and some studies report that as many as 70 percent of alliances are not successful (Day, 1995). Many companies that enter into a strategic alliance experience that the anticipated outcomes are not reached, and the costs of cooperating far exceed the benefits. Thus, an important research issue is to investigate which alliances that become long-term and successful.

Previous studies have suggested that early termination or lack of success can be attributed to a number of different factors. Some important factors seem to be asymmetry between the partners (Harrigan, 1988; Saxton, 1997), the reputation and prior affiliation of the partners (Saxton, 1997), and the competitive situation (Park and Russo, 1996). Furthermore, studies have also suggested that the R&D intensity (Kogut, 1989), the type of

cooperation (Dussauge *et al.*, 2000), or the cooperation processes (Arino and Torre, 1998; Doz, 1996; Kumar *et al.*, 1998) are important for understanding alliance success and failure. However, the literature on alliance development is still scant and cannot provide a systematic picture of which alliances that turn out to be long-term and successful, and which alliances that will end prematurely (Saxton, 1997). Furthermore, most of these studies are based on joint ventures and Japanese or U.S. data. More research is needed especially on non-equity, contract-based alliances in other countries than Japan and the U.S. (Glaister and Buckely, 1998).

The purpose of this study is to shed light on the survival, termination, and performance of strategic alliances. Based on transaction cost economics, the resource-based view of strategy and the relational contracting perspective, we will review factors that these perspectives suggest as important for developing long-term and successful alliances. Based on a longitudinal study with data from one hundred strategic alliances covering a five-year period, we will empirically explore how these alliances develop, survive, and terminate. More specifically, the review of the three theoretical perspectives should enable us to find important alliance characteristics. Furthermore, we will test whether these characteristics can differentiate between those alliances that survived the five-year period and became successful, and those alliances that were abruptly terminated. The article contributes to the alliance literature by exploring to what extent key alliance characteristics at one point in time can predict alliance development and success. In this way the study enhances our knowledge about which alliances that are most likely to fail, and which alliances that are most likely to become long-tern and successful.

The article is organized as follows: First, we present the theoretical perspectives underlying our research. We emphasize factors that these perspectives assume to be important for alliance survival and success, and a number of research hypotheses are derived.

We then report the research methodology, followed by a presentation of the results. Finally, the results are discussed, and implications for theory and practice are outlined.

THEORY AND HYPOTHESES

Strategic alliances can be defined as *"voluntary arrangements between firms involving exchange, sharing or co-development of products, technologies or services"* (Gulati, 1998: 293). Strategic alliances may involve equity investments, but this is not a requirement. Alliances involving equity investments are typically joint ventures and cross equity holdings, while non-equity alliances are usually based on contracts between the partners. We focus in this study only on non-equity, contract-based alliances.

The core idea of a strategic alliance is that such a venture *is "a bilateral relationship characterized by the commitment of two or more partner firms to reach a common goal, and which entails the pooling of assets and capabilities"* (Jorde and Teece, 1989: 29). Such a definition means that strategic alliances can be differentiated from exchange transactions where one party provides goods or services in exchange for cash. Furthermore, strategic alliances do not include mergers, since mergers involve acquisitions or controlling interests in another firm. It is observed that strategic alliances are diverse in nature. They can take many different forms from rather informal cooperation with weak ties between the companies to long-term cooperation with strong ties and a high degree of dependence. Furthermore, alliances can be between buyer and seller in a value chain (vertical), between competitors or companies at the same level in the value chain (horizontal), or between companies in different industries (related).

Companies entering into strategic alliances try to exploit new opportunities by cooperative specialization (Alchian and Demsetz, 1972). Different theoretical perspectives

have offered different explanations as to how companies can realize opportunities by cooperative specialization. Transaction cost economics (e.g., Williamson, 1985) focuses on the need for specific investments in the alliance. Here, it is assumed that actors need to make specific investments in an alliance in order to achieve the benefits of cooperative specialization. The actors are willing to invest in specialized assets as such investments are assumed to yield larger profits than more general investments. The resource-based view of strategy (e.g., Barney, 1991; Penrose, 1959; Wernerfeldt, 1984) offers another explanation. Firms enter into alliances in order to get access to complementary skills and resources, and thereby increase competitiveness, growth, and learning (Badaracco, 1991; Barringer and Harrison, 2000). As no single firm can possess all necessary skills and resources within firm boundaries, firms enter into strategic alliances and other kinds of inter-organizational relationships to exploit the benefits of pooling skills and resources across firm boundaries. A third perspective referred to as relational contracting (e.g., Håkansson and Snehota, 1995; Macneil, 1980), focuses on how firms can develop productive inter-firm relationships. Productive relationships require long-term orientation and cooperation on joint activities (Håkansson and Snehota, 1995; Lambe *et al.*, 2000; Murry and Heide, 1998). Such relationships are expected to produce future outcomes, and often the actors are not able to ex-ante foresee these outcomes. The relationship itself becomes in this way an asset for the cooperating partners, as it is through joint discoveries over time that the partners can realize the benefits of cooperative specialization. The development of common norms and close personal relationships are important characteristics of these kinds of relationships (Bradach and Eccles, 1989; Macneil, 1980). These three perspectives will be the theoretical underpinnings of our study. Before going into more detail about how these perspectives can predict alliance outcomes, we will present how we in this study will approach the question of alliance success and failure.

Alliance success and failure

Strategic alliances have been formed in order to achieve a variety of different outcomes for the participating firms. Potential advantages for firms entering into alliances can take the form of: gaining access to a particular resource, economies of scale, risk and cost sharing, product and/or service development, learning, speed to market, flexibility, collective lobbying, and neutralizing or blocking competitors (Barringer and Harrison, 2000) One specific alliance can most often only deliver a limited scope of these benefits.

The fact that there is a large range of potential advantages is likely to be one of the reasons why it has been difficult to find which types of alliances that succeed and which alliances that fail (Barringer and Harrison, 2000; Gulati, 1998). Furthermore, the long-term success of strategic alliances is a problematic issue because *"…of failure to achieve consensus regarding the relevant dimensions to incorporate and disagreement regarding how these dimensions of performance should be measured"* (Geringer, 1998: 119). Anderson (1990) argues that since alliances are often formed in high uncertainty situations, short-term financial indicators may fluctuate greatly under such circumstances. The short-term financial performance may be very poor, although the partners may achieve other goals such as strategic positioning (Kogut, 1988) or learning (Hamel, 1991). In addition to be difficult to obtain, financial measures may also be unreliable. The most used measures of alliance success are (1) manager's opinion on the success of an alliance, (2) alliance stability or duration, and (3) stock market reactions to alliance formations (Dussauge *et al.*, 2000). It has been argued that alliance stability and duration are inferior measures of alliance performance. Hamel (1991) argues that continuing an alliance that has fulfilled its purpose and that is no longer contributing resources to the partner firms, indicates a failure rather than a success. He maintains that we should rather view success in terms of the outcomes that the alliance

delivers to the partner firms. Regarding non-equity alliances, where objective financial measures are either unobtainable or misleading, the most fruitful way to understand success and failure should then be in terms of the benefits that the partners can realize from participating in alliances.

We will therefore in this study use three measures of alliance failure and success. These are (1) abrupt termination, (2) short-term performance, and (3) long-term performance. By abrupt termination we refer to alliances that have been terminated before the end of the intended time period for cooperation, and as a result the partners did not realize the intended outcomes. Since we in this study follow one hundred strategic alliances over a five-year period, we are able to measure performance at different time intervals. By short-term performance we refer to the benefits the alliances delivered to the partners at the time of our first data collection, and long-term performance is the benefits the alliances delivered to the partners five years later at our second round of data collection. Short-term and long-term performance are perceived measures based on how managers evaluate the benefits their companies receive from cooperating in the alliances.

The effects of specific investments on abrupt termination and performance

According to transaction cost economics, the principal variable for achieving the benefits of cooperative specialization is the level of specialized investments that the actors invest in the alliance (Williamson 1985; Dyer, 1997). Specific investments or asset specificity can be defined as *"durable investments that are undertaken in support of particular transactions"* (Williamson, 1985: 55). Specific investments create a lock-in situation. If the partners undertake specific investments in the alliance, these investments will have a lower value outside the relationship than inside. If the level of asset specificity is high, terminating

the alliance will incur economic losses on the partners. Companies should therefore have no reason to make such investments, unless they intend to develop a long-term alliance. Specific investments should thus be an important dimension preventing the cooperating companies from prematurely terminating the alliance.

Furthermore, asset specificity is likely to impact the results that the partners can realize. First, firms are willing to make specific investments as such investments are expected to generate larger rents than more general investments. According to Dyer and Singh (1998), asset specificity is one of the major determinants of relational rent. Second, specific investments may be necessary to facilitate resource transfer between the partners, especially if the resources have tacit elements. Thus, whereas the partners in a low asset specificity situation are only able to access non-tacit resources, higher levels of asset specificity such as, for example, investments in a common communication structure, routines, and joint ways of co-working may allow the firms also to transfer tacit resources. Such resource transfer may facilitate learning, and stimulate the discovery of complementarities. Empirical studies have found that alliances where the partners either possessed ownership, or had made specific investments, reported more learning and innovation than alliances not involving such investments (e.g., Goes and Park, 1997; Harrigan, 1988; Hennart, 1988; Mowery *et al.*, 1996). We therefore propose the following hypothesis:

Hypothesis 1: Specific investments in the alliance will negatively affect abrupt termination, and positively affect short-term and long-term performance.

The effects of complementary resources and strategic importance on abrupt termination and performance

One of the most cited reasons for engaging in alliances is access to resources such as know-how and information (Hamel, 1991; Khanna *et al.*, 1998). Since resources are more or less firm specific and heterogeneous, they are also imperfectly mobile across companies. Das and Teng argue that: *"A resource-based view seems particularly appropriate for examining strategic alliances because firms essentially use alliances to gain access to other firm's valuable resources"* (Das and Teng, 2000: 32-33). By forming strategic alliances firms can get access to resources they cannot buy in the market or develop internally. Strategic alliances can in this way help companies to overcome their limits by contributing to new value creation by pooling resources across firm boundaries. In line with the resource-based view, we argue that the degree of complementary resources between the partners, and the strategic importance of the alliance are important for achieving alliance success.

Strategic alliances yield benefits to the partners based on the combination of the partners' resources (Hunt, 2000; Lambe *et al.*, 2002). This is a question of the degree of resource complementarity between the partners. The degree of resource complementarity is likely to affect the potential for joint profits, as this reflects the companies' ability to realize synergies by cooperating. Harrigan (1988) found that alliances with high degree of complementarity were more likely to succeed, whereas Mowery *et al.* (1996) reported that high degree of complementarity was positively associated with learning. Strategic alliances that are based on complementary resources should thus be expected to be long-term, as dissolution may reduce the firm's ability to create value, and thereby decrease its competitive strength. Furthermore, it is also tenable to argue that alliances that are based on a high degree

of complementarity will result in better performance, and thus be perceived as more successful. We therefore suggest the following hypothesis:

Hypothesis 2: Complementary resources will negatively affect abrupt termination, and positively affect short-term and long-term performance.

As pointed at above, firms use strategic alliances to get access to other firms' valuable resources. However, combining resources across firm boundaries can also create a high degree of dependency between companies, especially when a company perceives the partner's resources as very valuable and important for its own value creation and competitive advantage. Therefore, a key question is how strategically dependent the firm is on the alliance partner for its own value creation. We argue that the strategic importance of the alliance for firm development is an important dimension influencing the duration and success of strategic alliances. If a firm through a strategic alliance becomes strategically dependent on another firm for a specific resource, it is reasonable to expect that the firm will enter a long-term contract with the partner in order to secure access to this resource for a long time period. Furthermore, Inkpen (1998) argues that more resource transfer and learning will take place when the knowledge is expected to be valuable or strategic, and thereby contribute to better performance. This allows the following hypothesis.

Hypothesis 3: The strategic importance of the alliance will negatively affect abrupt termination, and positively affect short-term and long-term performance.

The effects of relational norms and personal relationships on abrupt termination and performance

Many authors have recognized the importance of relational dimensions in long-term relationships and strategic alliances (Doz, 1996; Dyer and Singh, 1998; Gulati, 1995, 1998; Håkansson and Snehota, 1995; Larson, 1992). A key characteristic of contract-based strategic alliances is the lack of a formal organizational structure linking the partners. The partners therefore lack a set of common organizational routines and codes that usually exists within organizations. Relational factors such as relational norms and personal relationships are therefore assumed to be important as they bridge the partners and help the partners to discover and realize synergies. Relational factors contribute to the development of productive inter-firm relationships that serve as devices for conducting future, unspecified cooperation. Companies are willing to build such relationships as they anticipate future benefits even though it is not possible to fully specify these benefits in advance.

Macneil (1980) argues that when two parties repeat interactions over time, relational norms develop. Norms are defined as: "*A principle of right action binding upon the members of the group and serving to guide, control, or regulate proper and acceptable behavior*" (Macneil 1980: 38). Firms cooperating in alliances develop over time a set of shared guiding principles based on mutuality and solidarity that are not expected to be found in short-term or terminated alliances. Relational norms can be viewed as an important coordinating mechanism; as such norms facilitate a common understanding and a common frame of reference between the partners. Unless the alliance partners have reached a certain level of common understanding, it is likely to be very difficult to discover and exploit synergies between the companies. We therefore propose the following hypothesis:

Hypothesis 4: Relational norms will negatively affect abrupt termination, and positively affect short-term and long-term performance.

Furthermore, relational norms are often combined with strong personal relationships (Bradach and Eccles, 1989). Personal relationships serve the role of smoothing company relationships by providing points of contact for resolving conflicts and discuss further development. Furthermore, personal relationships guide interactions and enhance information flows. Personal relationships may thus be viewed as important glue in long-term strategic alliances. Kanter (1994) argues that synergies cannot be realized in cooperative relationships unless the people get to know each other personally. Larson (1991) found in a study of four entrepreneurial firms that trust and personal interaction resulted in information exchange and research improvements. We thus hypothesize that:

Hypothesis 5: Personal relationships will negatively affect abrupt termination, and positively affect short-term and long-term performance.

The hypotheses are related as shown in Figure 1.

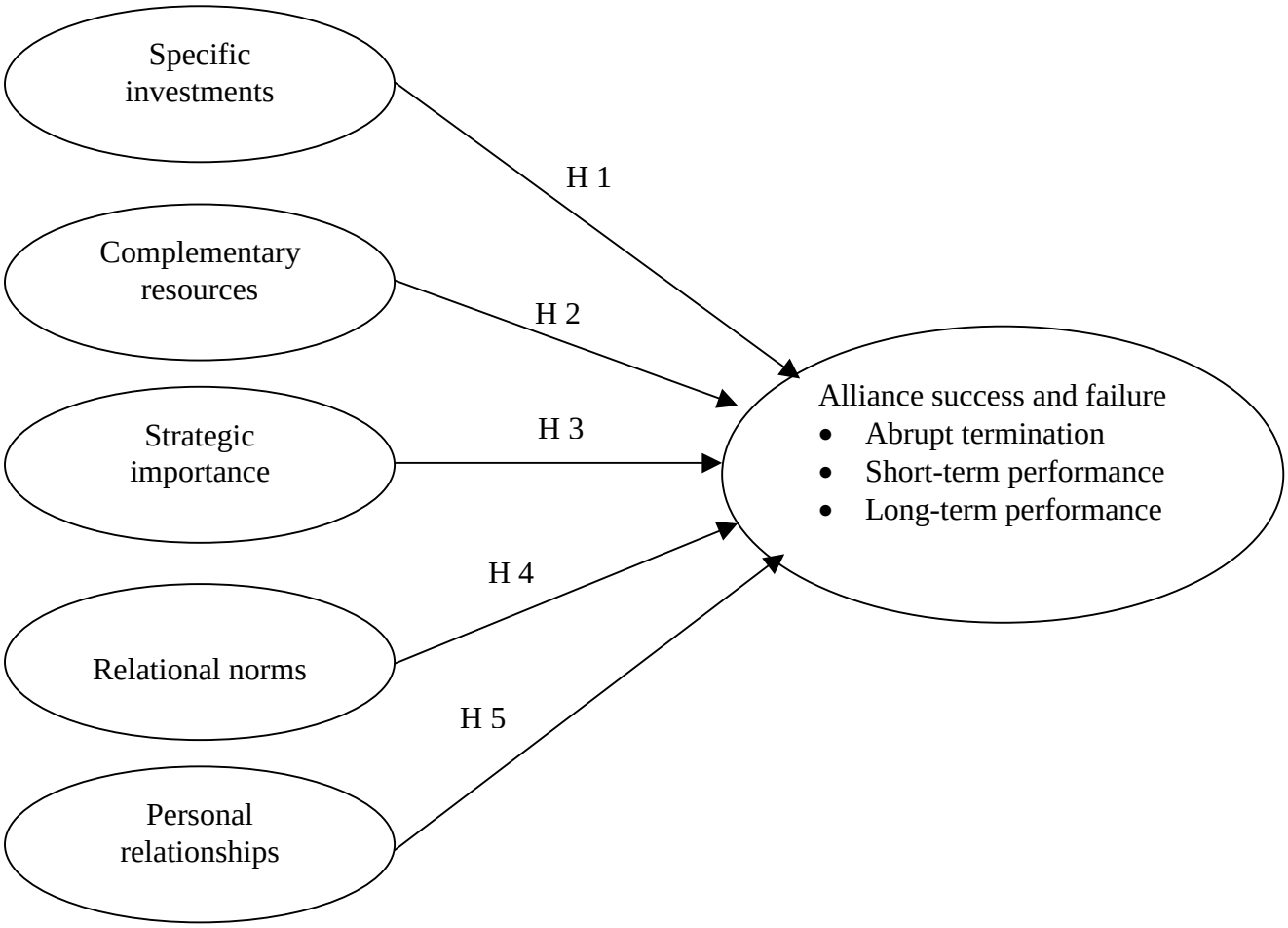

FIGURE 1
A theoretical model of antecedents to alliance success and failure

RESEARCH METHOD

Empirical setting and data

The hypotheses were tested empirically on a sample of one hundred strategic alliances formed by member companies of the Federation of Norwegian Engineering Industries. The engineering industry is the dominating industrial sector in Norway. The members of the Federation are electrical companies, information technology companies, engineering firms,

structural steel manufacturers, producers of iron and non-ferrous metal products, oil industry suppliers, shipbuilders, and foundries.

The Federation of Norwegian Engineering Industries provided us with company names, addresses and phone numbers for all 600 members. The first step in the data collection was to investigate which of these companies were engaged in a strategic alliance or partnership, and to identify key informants in the companies. Of the 600 members, we reached 493 members on the phone, and asked if their company had a strategic alliance and was willing to participate in a mail questionnaire survey. 263 companies confirmed that they cooperated in a strategic alliance, and stated that they were willing to participate in the survey. A structured questionnaire was then mailed to these 263 companies asking them to describe their most important alliance. Furthermore, questionnaires were also mailed to the 107 companies that we did not reach by phone. 118 questionnaires were returned. 18 questionnaires were excluded due to incomplete information. This gives a response rate of 35 percent (118 returned questionnaires) or 29 percent (100 usable questionnaires). All alliances were non-equity alliances.

Those persons that were selected as key informants were all actively involved in the alliance. The key informant approach has been criticized as it may increase systematic and random error. However, John and Reve (1982) reported satisfactory validity on key informants describing structural aspects of inter-firm relationships. Our questions were mostly structural, although questions related to relational norms and personal relationships were more judgmental and could thus be colored by individual perceptions and feelings. Simonin (1997) argues, however, that bringing in more informants adds noise, rather than valid information if the new informants have less knowledge than the expert does. In our study, many of the firms were small companies with less than fifty employees, and the key

informants selected were usually the key responsible executives for the alliances. The key informant approach should thus be appropriate for this study.

Five years later, a follow-up survey was conducted to investigate whether the alliances still existed, and to study developments within the sample of survived alliances. All firms were contacted by phone before they were mailed a follow-up questionnaire. We asked in the phone conversation whether the alliance had been terminated or not, and how it had developed. 66 of the 100 alliances still existed, whereas 34 alliances had been terminated. By investigating the reasons for termination, we found that 25 of the alliances had been abruptly terminated before completion of the agreement. The reasons for abrupt termination were explained as: *"we were never really able to cooperate," "our firm was acquired by another firm," "the alliance was not seen as important,"* or *"the alliance did not work well."* We then mailed new questionnaires to all firms. We received 55 (83 percent) usable questionnaires from the 66 existing alliances, and17 (50 percent) usable questionnaires from the 34 alliances that had been terminated. About one half of the key informants were the same in both surveys. We performed a t-test to check for possible differences between those alliances that had the same key informants in both surveys, and those that had two different key informants. No systematic differences were found.

Measures

All independent and dependent variables except for abrupt termination were measured by multi-item scales, relying closely on previous empirical studies of strategic alliances. In addition to the theoretical constructs in the hypotheses, eight control variables were included. The specific items, response scales, and reliability coefficients are reported in Appendix 1.

Independent variables. Specific investments in the alliance were measured along two dimensions: (1) *physical asset specificity* and (2) *human asset specificity*. The physical asset specificity scale measures the extent to which the firm had made specific investments in plant, production equipment and in the relationship to the partner for establishing and developing the alliance. The human asset specificity scale describes the degree of specific human knowledge necessary for handling the relationship to the alliance partner**.** The *complementary resources* scale captures the degree of complementarity between the resources that each partner firm contributes to the alliance. The *strategic importance* scale describes the strategic importance of the alliance for the future development of the firm. Relational norms were measured along two dimensions: (1) *solidarity* and (2) *mutuality*. Solidarity covers the alliance partners' willingness to avoid harmful actions, and help each other in difficult situations. Mutuality measures whether the partners experience an equitable sharing of benefits. The *personal relationship* scale captures the importance of personal ties for handling the relationship to the partner.

Dependent variables. *Abrupt termination* identifies whether an alliance had been terminated in the five-year period between our two data collections, and before the intended time period for cooperation was ended. *Short-term performance* was measured as the perceived benefits that the alliance had contributed to the parent firm at the first round of data collection (T_1). *Long-term performance* was measured as the perceived benefits that the alliance had contributed to the parent firm at the second round of data collection (T_2).

Control variables. We also included eight control variables. These are number of years the alliance had existed at T_1, the company's previous experiences with alliances, cultural distance, and five variables capturing different types of changes in the alliance between T_1 and T_2. Regarding the first variable, the respondents were asked to state the year the alliance was formed. We then calculated years of existence from formation until T_1.

Furthermore, previous cooperation experience might influence abrupt termination and performance. We therefore included a variable measuring the company's previous experiences with cooperation. Studies have also investigated possible effects of cultural distance on alliance development. The results seem to be inconclusive. Lane and Beamish (1990) argue that distance lead to difficulties, whereas Park and Ungson (1996) found that larger cultural distances were related to lower rates of joint venture dissolution. We have in this study 50 alliances between domestic partners, 13 alliances were with Scandinavian partners, 22 with European partners, and 15 with partners outside Europe. We therefore computed a variable with four cultural categories, and conceived these categories as forming a linear distance variable. Finally, we controlled for the development of the alliance in the five years between our two observation points. Hence, we included five single-item indicators reflecting dimensions such as alliance stability, change in partner commitment, growth in alliance scope, and change of management responsible for the alliance in the two parent firms.

The correlation matrix is reported in Table 1. All variables except for abrupt termination were standardized, and have a score ranging from 0 to 1 (Petersen, 1996). Exploratory factor analysis revealed overall satisfactory convergent and discriminant validity. One physical asset specificity item loaded on strategic importance, and one strategic importance item loaded on solidarity. However, these items were not excluded due to the overall reliability of the variables.

Table 1. Descriptive statistics and correlations

	MEAN (St. dev)	1	2	3	4	5	6	7	8	9
Physical asset specificity	.39 (.23)									
Human asset specificity	.31 (.21)	.42**								
Strategic importance	.72 (.19)	.30**	.25**							
Complementary resources	.65 (.26)	.22**	.17	.19						
Mutuality	.75 (.21)	-.01	-.19	.12	.12					
Solidarity	.76 (.18)	.21*	.02	.27**	.25*	.40**				
Personal relationships	.78 (.19)	.07	-.03	.13	.15	.43**	.50**			
Abrupt termination	.25 (.44)	-.05	-.14	-.20*	.01	.12	-.04	-.10		
Short-term performance	.54 (.21)	.31**	.21*	.46**	.18	.27**	.17	.27**	-.11	
Long-term performance	.31 (.23)	.08	.15	.23	.10	-.10	-.01	-.07	---	.10

* $p < .05$, ** $p < .01$

RESULTS

The hypotheses were tested by logistic and ordinary least square regression analyses. Collinearity diagnosis was performed in all analyses. All tolerance levels were between .60 and .90 indicating that no variable was a linear combination of other variables. We conducted a logistic regression analysis (LOGIT) in order to test for possible differences between abruptly terminated alliances, and those alliances that survived the five-year period along with the alliances that had been terminated due to goal completion. The analysis was based on the first survey with additional information about survival or termination five years later. Furthermore, we tested the effects of the independent variables on short-term and long-term

performance by ordinary least square regression models based on data from the first survey with additional information about performance five years later.

The results of the logistic regression analysis are reported in Table 2. We report unstandardized B-values. Model 1 represents the baseline model based on the hypotheses, while model 2 includes the control variables. Model 2 shows a better fit than Model 1, and thus better predicts the likelihood of abrupt termination. Hypothesis 1 predicted that as the level of asset specificity increases, firms would be less likely to terminate alliances abruptly. Neither physical asset specificity nor human asset specificity have any effect on survival versus abrupt termination. Hypotheses 2 and 3 proposed that alliances that offer the parent firms complementary and strategically important resources would be less likely to terminate abruptly. Hypothesis 3 is supported both in Model 1 and Model 2, indicating that alliances that are considered to be strategically important are less likely to be terminated. Hypotheses 4 and 5 predicted that relational norms and personal relationships would be negatively related to abrupt termination. The effect of mutuality is significant, but not in the hypothesized direction. Mutuality is thus positively related to abrupt termination. In sum, only hypothesis 3 was supported. Moreover, one control variable, the number of years the alliance had existed at T_1 is statistically significant. Older alliances are less likely to be abruptly terminated then recently started alliances.

Table 2. Logistic regression analysis with abrupt termination as dependent variable

	Model 1 B-value	Model 2 B-value
Physical asset specificity	.67	.26
Human asset specificity	-1.29	-.54
Complementary resources	.38	-.66
Strategic importance	-2.56†	-3.71*
Solidarity	.18	2.19
Mutuality	2.77†	1.67
Personal relationships	-2.54	-2.22
Control variables		
Number of years the alliance had existed at T_1		.29*
Cooperation experience		.02
Cultural distance		-.20
Chi-square	9.786	24.295**
- 2 Log likelihood	102.819	87.092
Cox and Snell R-square	.092	.22

† p < .10, * p < .05, ** p< .01, *** p < .001
N = 70

Before investigating short-term and long-term performance, we note from the correlation matrix presented in Table 1 that short-term performance is not significantly correlated to long-term performance. An alliance that is perceived to be successful at one point in time is thus not necessarily successful at a later stage.

The regression results of the effects of the independent variables on short-term performance are reported in Table 3. We should here be aware of the fact that this regression is based on data where the informant has reported alliance characteristics and outcomes in the same questionnaire. Model 1 represents the baseline model and Model 2 includes the control variables. Including the control variables do not add any explanatory power to the model, and none of the control variables are significant. Physical asset specificity is positively related to short-term performance, but only at the .10-level. Hence, hypothesis 1 receives some support. We also note that complementary resources and strategic importance have positive effects on short-term performance, indicating that in the short run the focus on resources, and especially

strategic resources are important for these types of alliances. Hypotheses 2 and 3 are thus supported. Mutuality is also positively related to short-term performance, whereas solidarity is negatively related. The effect of personal relationships on short-term performance is also positive, but only significant at the .10-level in Model 1. In sum, the results support hypotheses 2 and 3 while hypotheses 1, 4 and 4 receive minor support.

Table 3. Linear regression analysis with short-term performance as dependent variable

	Model 1 β-value	Model 2 β-value
Physical asset specificity	.18†	.16†
Human asset specificity	.06	.04
Complementary resources	.18*	.21*
Strategic importance	.35***	.34***
Solidarity	-.19†	-.21†
Mutuality	.22*	.23*
Personal relationships	.18†	.16
Control variables		
Number of years the alliance had existed at T_1		-.04
Cooperation experience		.09
Cultural distance		.11
F-value	7.389***	5.517***
Adjusted R-square	.32	.32

† p < .10, * p < .05, ** p< .01, *** p < .001
N = 100

The effects of our independent variables on long-term performance are somewhat different from the effects on short-term performance. We note from Table 4 (Model 1), that only strategic importance is positively related to long-term performance, but only at the .10 level. Furthermore, the overall model is not significant. By including the control variables (Model 2), we note that cooperation experience is negatively related to long-term performance, indicating that firms with less cooperation experience report better long-term alliance performance than firms with more cooperation experience. By including the control variables related to alliance development from T_1 to T_2, the adjusted R-square increases

significantly, and the control variables also produce some interesting results. Apparently, alliances that have experienced instability or turbulence, an increase in partner commitment, and growth in the number of alliance tasks report the highest levels of long-term performance. Furthermore, a change in the management responsible for the alliance in the firm has a negative effect on long-term performance. It is also interesting to note that human asset specificity in this model is positively related to long-term performance. There is no effect of human asset specificity in the baseline model, but by introducing the developmental dimensions human asset specificity has a positive effect on long-term performance. Furthermore, solidarity is negatively related to long-term performance. The effect of cooperation experience is negative in Model 3 as it was in Model 2.

Table 4. Linear regression analysis with long-term performance as dependent variable

	Model 1 β-value	Model 2 β-value	Model 2 β-value
Physical asset specificity	-.02	.01	.07
Human asset specificity	.06	.10	.36**
Complementary resources	-.03	-.08	-.11
Strategic importance	.24†	.27†	.12
Solidarity	-.01	-.06	-.27†
Mutuality	-.08	-.04	-.03
Personal relationships	-.07	.01	.25†
Control variables			
Number of years the alliance had existed at T_1		-.12	-.05
Cooperation experience		-.27*	-.32**
Cultural distance		-.03	-.07
Stability of the alliance			.34*
Change in partner commitment			.37*
Growth in alliance scope			.38*
Change in management responsible for the alliance in our firm			-.40*
Change in management responsible for the alliance in the partner firm			.08
F-value	.734	1.156	4.004***
Adjusted R-square	-.03	.02	.46

† p < .10, * p < .05, ** p< .01, *** p < .001
N = 100

In sum, the results yielded only minor support for our hypotheses. Hypothesis 1, linking asset specificity to abrupt termination and performance was not supported, except for the positive effect of physical asset specificity on short-term performance, and the positive effect of human asset specificity on long-term performance (Model 3). Hypotheses 2 and 3, predicting complementary resources and strategic importance to be negatively related to abrupt termination and positively related to performance were partly supported, as both complementary resources and strategic importance affect short-term performance, and strategic importance seems to have some effect on abrupt termination and long-term performance. Hypotheses 4 and 5 predicting relational norms and personal relationships to be negatively related to abrupt termination and positively related to performance did not receive much support. We only find a positive relationship between mutuality and short-term performance, and a rather weak effect of personal relationships on long-term performance (Model 3). We also found that solidarity had negative effects on both short-term and long-term performance. However, it is interesting to note that the number of years the alliance has existed at T_1 was negatively related to abrupt termination, and furthermore, several of the control variables related to alliance development were positively related to long-term performance.

DISCUSSION AND IMPLICATIONS

Discussion of the results

The most important variable for predicting abrupt termination according to our study is strategic importance. Strategic importance captures how dependent the company is on the alliance partner for access to valuable resources that contribute to value creation and firm

development. Surprisingly, we did not find any effect of specific investments on termination. One possible answer can be that the level of specific investments in the studied alliances was rather low. Recall that we are only studying non-equity alliances. However, it may also be the case that specific investments are considered to be of minor importance to firms in a termination process, as other are perceived to be more important. Moreover, relational norms and personal relationships seem to be rather unrelated to abrupt termination.

We also found that previous duration of the alliance was negatively related to abrupt termination. It seems as if alliances have passed the initial critical years, the likelihood of abrupt termination decreases, and these alliances will be more likely to take on *'an evergreen role'*. This finding is consistent with the concept of the *liability of newness* (Stinchcombe, 1965) reflecting that new organizational entities lacks internal routines and external relations, and therefore have higher failure rates than older organizations. A newly started strategic alliance can also be viewed as a new organizational entity that needs to overcome the liability of newness.

In the short run, the partners seem to relate performance to gaining access to complementary and strategic resources. This finding confirms the results of several alliance studies (e.g., Badaracco, 1991; Doz, 1996; Hamel, 1991; Inkpen, 1998; Mowery *et al.*, 1996; Powell *et al.*, 1996; Teece *et al.*, 1997). The resource-based view may thus be the strongest theoretical framework for explaining short-term alliance performance. However, we note that the resource-based perspective cannot predict which resources that will affect long-term performance, although it seems as if strategic importance have some effect on long-term performance. We may argue that growth in alliance scope (adding new tasks to the alliance) implies that other resources acquired over time become more important for understanding long-term performance. If we see resources as stocks and flows (Dierickx and Cool, 1989), it seems as if the ability to develop the flows of resources are more important than the stock of

resources at one point in time. This finding supports the view that resources are dynamic and changing (Teece *et al.,* 1997). In order to enhance long-term performance, firms should primarily be concerned about how to develop the alliance rather than focus too much on resources related to short-term success. Our study indicates that those alliances that grow in scope, are dynamic (even turbulent), increase partner commitment, and do not change the alliance management are more successful in the long run than those alliances that possessed a high degree of complementary and strategic important resources at one point in time.

Our results may indicate that the relational norm of solidarity has a negative effect on performance. We may speculate whether high levels of solidarity may indicate a lock-in situation, where the alliance no longer exists for economical reasons, but simply because of high exit barriers (Harrigan, 1988; Porter, 1980).

Another interesting finding is the negative effect of cooperation experience on long-term performance. Gulati (1995) has suggested that prior alliances influence new alliance formation, and Lambe *et al.* (2002) found that alliance competence positively affected joint alliance success. Alliance experience was in their study part of alliance competence along with factors such as alliance management development capability and partner identification propensity. We have in this study not measured alliance experience between specific firms, but alliance experience more in general, and find that the most experienced firms are less likely to obtain long-term success. We may speculate whether cooperation experience may be restricted to specific partners, and cannot be applied to alliances with new partners. Larson (1992), studying social ties between firms, found that firms repeatedly entered alliances with each other. Larson's study and our finding may indicate that firms can access previous cooperation experience by forming new alliances with known partners, but this experience may have more limited value if a firm enters alliances with new partners.

Theoretical implications

We found in this study only limited support for our three theoretical perspectives. Our results can be interpreted as follows:

First, factors related to the resources and competencies that firms contribute to the alliance seem to play a key role in the start-up of an alliance. The resource-based view argues that alliances are important sources for obtaining strategically important resources (Doz, 1996; Doz and Hamel, 1998; Hamel, 1991; Mowery *et al.*, 1996). By pooling resources across firm boundaries, strategic alliances can contribute to joint value creation (Badaracco, 1991; Hamel, 1991). We found that strategic importance was negatively related to abrupt termination. The start-up of an alliance seems to require strategic involvement from the partner firms in order to develop a sound relationship between the partners. Strategic importance may also reflect commitment and willingness to actively participate in the cooperative venture. Furthermore, both complementary resources and strategic importance positively affected short-term performance. However, the resource-based view cannot explain much when it comes to long-term performance. At first glance this finding seems to be rather counterintuitive. However, the resource-based view in its current standing cannot fully explain how resources and competencies within a firm over time contribute to value creation and competitive advantage. The perspective provides valuable insight in understanding how firms' current resources can generate value and contribute to competitive advantage, but it does not offer valid and accurate explanations for the long-term development of firm resources.

Secondly, relational norms and personal relationships seem to have some mixed effects on alliance outcomes. Mutuality was positively related to abrupt termination and short-term performance, solidarity was negatively related to short- term and long-term performance, and

personal relationships were somewhat positively related to performance. Although these findings are not very strong, our study may indicate that relational factors do not always have positive effects on alliance outcomes. Possible negative impacts of relational norms on alliance outcomes can at least have two explanations. First, alliances that report a strong focus on relational norms could fall deep if the partner does not behave according to expectations. Hence, an alliance with expectations of mutual obligations could have a higher risk of not meeting these expectations resulting in abrupt termination. Second, focus on relational norms may imply that an alliance exists for other reasons than alliance outcomes, reflecting the build up of a lock-in situation, or an inability to exit the alliance even though performance is low. We know, for example, that emotional barriers to exit a market can be very high (Harrigan, 1988, Porter 1980). The theoretical implications of these finding are not to diminish the importance of relational factors for alliance success, but rather to encourage more cautiousness in our interpretation and understanding of the roles of these factors.

Thirdly, our results suggest that the developmental process of an alliance is very important for long-term success. Transaction cost economics, the resource-based view, and the relational contracting perspective are all static theories, and do not address process and developments over time. Even though some studies addressing the evolutionary aspects of strategic alliances have been reported in the literature (e.g., Arino and Torre, 1998; Doz, 1996), our understanding of these processes is rather scant. It seems evident that research on strategic alliances as well as strategy research in general, can benefit by more explicitly addressing the issue of process (Van de Ven, 1992).

In sum, this study implies that the relevance and appropriateness of different theoretical perspectives applied to strategic alliances is dependent upon the stage of alliance development. Especially, the resource-based view, but also relational contracting should be well suited for addressing issues at start-up and in the early stages, while process theories of

inter-firm relationship development seem to be most appropriate for addressing long-term alliance issues. This implies that the phenomenon of strategic alliances can best be understood by applying a set of theories rather than relying on one single theory.

Managerial implications

Several managerial implications can be drawn from the study. First, our results indicate that the first years are crucial for the future development of strategic alliances. Alliances that have succeeded the first years are less likely to be abruptly terminated later. Furthermore, it seems as strategically important alliances have a higher chance of survival. Mangers should therefore invest both time and money in the early stages of a strategic alliance in order to bridge organizational boundaries, develop close inter-firm interaction, and establish a platform for common learning and understanding.

Furthermore, managers should pay careful attention to the resources and competencies they contribute to the alliance in the early stages of alliance development. The cooperating partners should contribute resources and competencies that are complementary and strategically important, as these factors largely affect short-term performance. This is a question of establishing a sound strategic fit between the cooperating partners. Mangers may find it difficult in the early stages to cooperate on resources and competencies that are important and close to the strategic core of the company, due to the risk that these resources and competencies may be opportunistically exploited by the partner. As a result, mangers may be more confident to cooperate on resources and competencies that are more peripheral to the strategic core. However, it may be difficult to obtain any short-term results from such alliances, as it may be more difficult to discover and realize the joint benefits the partners can achieve. If managers therefore find it difficult to cooperate with another company based on

strategic important and complementary resources and competencies, they should rather consider pursuing the activities through another organizational arrangement, for example within the company.

Kanter (1994) argues that strategic alliances are *'living systems'* with their own specific development. This study has also shown the importance of the developmental process for long-term alliance success. In the long run, managing the process itself may be more important than building the relationship and obtain a sound strategic fit. Once a strategic alliance has been successfully established, and has passed the critical early stages, it may be easy to view the alliance as well functioning. However, this study has also shown the importance of a hands-on management attitude to the developmental process itself. The long-term character of a strategic alliance may be very different from the start-up. The investments, resources, and competencies that are necessary for realizing the alliance objectives are likely to change as the partners cooperate, and only through careful and continuous attention to the process of cooperating, can the long-term benefits from strategic alliances be achieved.

Limitations and future research

The hypotheses in this study were based on transaction cost economics, the resource-based view of strategy, and the relational contracting perspective. Our study shows that these perspectives can to some extent predict abrupt termination and short-term performance of strategic alliances. However, these theories cannot predict and explain long-term performance. However, our performance indicators capture only some of the benefits that companies can realize through strategic alliances. As pointed at in the beginning of the paper, the potential advantages that firm can realize through inter-firm cooperation can take many

different forms (e.g., Barringer and Harrison, 2000). The lack of support for our hypotheses predicting long-term performance may be caused by the fact that we have not measured all relevant and important performance dimensions.

This study yielded very little support for transaction cost economics. We should here have in mind that we have only included non-equity alliances in our study. If we also had included equity alliances, transaction cost economics might have received more support. However, specific investments occur frequently between actors that are not tied by any kind of ownership bond, and according to transaction cost economics, it is only at very high levels of specific investments that safeguarding through ownership is required.

Our findings suggest that alliances change and develop over time. The nature of such changes, or possibly the failure to undertake necessary changes can be useful for understanding abrupt termination of alliances. Furthermore, alliance termination can also be related to changing external demands on the partner firms. Future studies should thus investigate changes in the parent firms' strategies and market offerings over time, and link these changes to alliance development.

Few longitudinal studies of strategic alliances are based on large samples of alliances. Our study contributes to this body of knowledge by demonstrating the complexity of alliance development, and the careful consideration that must be made as to the design of longitudinal studies. In order to follow-up on our findings, we believe it is important to describe in more detail the different stages of development that alliances go through, and relate this to specific characteristics of the alliance in each stage. We should in this way be able to provide a deeper understanding of the effects of both structure and process on termination and performance. Such a design would first require insight into the developmental stages (e.g., Doz, 1996), before a broader survey approach can be used. Another fruitful approach would be to investigate the broader range of cooperative inter-firm relations that firms possess, and allow

these relations to be both active and inactive for periods of time. Such an approach would require a more explorative design in order to map the level of activity in relationships over time, and describe both structural characteristics and the processes related to the different activity levels.

CONCLUSION

We have in this paper investigated whether we can predict abrupt alliance termination and alliance performance based on alliance characteristics at one point in time. Can we, based on the three theoretical perspectives understand, explain, and predict which alliances that are likely to terminate before the intended time period, and which alliances that will be successful? The answer is *to some extent*, although the studied alliances develop in ways that are rather unpredictable. Our results suggest that alliances that are considered to be important and successful at one point in time may not necessarily be successful in the future. The major contribution from this study is that our conventional theories do not cover longitudinal aspects of strategic alliances. The long-term development of strategic alliances is a complex issue that depends on the partners' ability to solve initial adaptation phases, as well as the partners' ability to handle developmental processes that ex-ante may be very difficult to predict. Only more research can provide us with a deeper understanding of these complex inter-organizational issues.

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APPENDIX 1

Physical asset specificity (Reliability= .83)
Based on/similar to: Heide and John (1988); Zaheer and Venkatraman (1995).
Six-item, seven-point scale anchored by "very poor description" and "very good description."

- We have made specific investments in plant and equipment in order to develop this alliance.
- It is important that this cooperation continues, as a termination will result in financial losses due to our investments.
- Making investments that are tailored to this cooperation was a precondition for establishing this alliance.
- We have adjusted our production equipment in order establish this alliance.
- Terminating this alliance would be a great loss for our company.
- We have used much time and resources in order to develop this cooperative venture.

Human asset specificity (Reliability = .65)
Based on/similar to: Heide and John (1988); Zaheer and Venkatraman (1995).
Three-item, seven-point scale anchored by "very poor description" and "very good description."

- We have had to learn extensively about our partner's business.
- In order to solve the tasks we are cooperating on, we have had to acquire new competencies that have limited value if the alliance is to be terminated.
- Our company has acquired new competencies through this alliance. However, it is difficult to see how these competencies can be used if the cooperation is terminated.

Complementary resources (Reliability = .58)
Based on/similar to: Harrigan (1988).
Three-item, seven-point scale anchored by "very poor description" and "very good description."

- The partner and we are mutually dependent on each other since we contribute with different resources and competencies.
- The partner contributes with similar resources and competencies as we do ®.
- This cooperative venture would not be possible without the partner's resources and competencies.

Strategic importance (Reliability = .76)
Based on/similar to: Contractor and Kundu (1998); Cullen et al. (1995); Harrigan (1985).
Four-item, seven-point scale anchored by "very poor description" and "very good description."

- The content of this cooperation is close to the company's core business areas.
- This cooperation will be of strategic importance for us in the future.
- This cooperation will provide valuable knowledge and competence for the future development of our core business areas.
- It is important for us that this relationship continues

Solidarity (Reliability = .62)
Based on/similar to: Kaufman and Dant (1992); Macneil (1980).
Two-item, seven-point scale anchored by "very poor description" and "very good description."

- None of the parties in this alliance will do anything harmful against the other partner.
- We are ready to help if the partner has any problems.

Mutuality (Reliability = .76)
Based on/similar to: Kaufmand and Dant (1992); Macneil (1980).
Two-item, seven-point scale anchored by "very poor description" and "very good description."
- We feel that the partner and we receive equal benefits from this cooperative venture.
- We feel that our partner receives a disproportionate share of benefits from this cooperation. ®

Personal relationships (Reliability = .76)
Based on/similar to: Håkansson, (1982); Håkansson and Snehota (1995); Madhok (1995).
Three-item, seven-point scale anchored by "very poor description" and "very good description."
- It is easy to cooperate with the partner since we know each other so well.
- Good personal relationships have been a positive driving force in this cooperative venture.
- Good personal relationships have resulted in few problems in this cooperative venture.

Alliance performance (Reliability = .79 (short-term) and .84 (long-term))
Based on/similar to: Boyatzis (1982); Glaister and Buckley (1998); Simonin (1997).
Six-item, seven-point scale anchored by "not at all satisfied" and "very satisfied."
- The net contribution from this cooperation this year.
- This cooperative venture has resulted in firm growth.
- This cooperative venture has resulted in market growth.
- This cooperative venture has resulted in new products.
- This cooperative venture has resulted in new competencies.
- This cooperative venture has resulted in new market entrances.

Control variables:

Years
- The number of years the alliance had existed at T_1.

Cooperation experience (Reliability = .91)
Four-item, seven-point scale anchored by "very poor description" and "very good description."
- Our firm is experienced in inter-firm collaboration.
- We have learned how to handle inter-firm relations through previous cooperative ventures.
- Our previous experiences have guided us in how we have structured and govern this cooperative venture.
- We think it is troublesome to cooperate since we have limited previous experience. ®

Cultural distance
The alliances were grouped into four cultural categories: (1) the company cooperated with a Norwegian partner, (2) the company cooperated with a Scandinavian partner, (3) the

company cooperated with a European partner, and (4) the company cooperated with a partner outside Europe.

Alliance developments
Five single item measures

- Stability of the alliance (five-point scale anchored by “very stable” and “very turbulent”).
- Change in partner commitment (five-point point scale anchored by “less commitment” and “more commitment”).
- Growth in alliance scope (five-point scale anchored by “reduction” and “growth”).
- Change in management responsible for the alliance in our firm (five-point scale anchored by “same people” and “large change”).
- Change in management responsible for the alliance in the partner firm (five-point scale anchored by “same people” and “large change”).

® designates reverse coding.