

The Virtues of Green Strategies: Some Empirical Support from the Alliance Context

Anne Norheim-Hansen¹

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Abstract Whilst strategic alliance performance has been extensively researched through the resource-based lens, it has yet to be examined under the *natural*-resource-based view (NRBV) of the firm. Building on the NRBV, this article argues that a firm's level of environmental proactiveness affects its level of alliance satisfaction. The argument is tested by surveying Norwegian CEOs, and the results confirm a positive relationship. Moreover, the partner's environmental proactiveness equally influences the focal firm's satisfaction with the alliance, in consistent with related studies. In addition to providing new empirical evidence in support of the NRBV, and extending the alliance performance literature, the findings add to the corporate environmentalism literature by offering insights on the virtues of green strategies in an underexplored context.

Keywords Corporate environmentalism · Natural-resource-based view · Organizational capabilities · Proactive environmental strategies · Strategic alliance performance · Survey method

Abbreviations

CEO Chief executive officer
NRBV Natural-resource-based view
R&D Research and development
RBV Resource-based view
VIF Variance inflation factor

Introduction

The resource-based theory of strategic alliances (Das and Teng 2000)—i.e., interfirm cooperative agreements aimed at generating competitive advantage—and numerous empirical studies have shown that the nature of the resources and capabilities of the partners strongly influence alliance performance (Das and Teng 2003; Lunnan and Haugland 2008; Mitsuhashi and Greve 2009).

However, despite the extensive attention to alliance performance from a resource-based perspective (Das and Teng 2000; Lin et al. 2009), it has yet to be researched under the *natural*-resource-based view (NRBV) of the firm (Hart 1995; Hart and Dowell 2011). The essence of this empirically supported theory is that environmental proactiveness is positively associated with organizational performance (Ambec and Lanoie 2008; Hart and Ahuja 1996; López-Gamero et al. 2008). Although there is still disagreement about the environmental–*financial* performance relationship (Albertini 2013; Endrikat et al. 2014), it is established that ‘green’ firms exhibit higher capability not only for attracting investors, customers, employees, and partner firms (Aaron et al. 2012; Cacioppe et al. 2008), but also for, e.g., stakeholder integration, continuous innovation, and higher-order learning (Sharma and Vredenburg 1998). In fact, Aragón-Correa and Sharma “characterize a proactive environmental strategy as a dynamic capability” (2003, p. 74), most importantly because it “enables organizations to maintain dynamic alignment with the general business environment” (Ibid., p. 73).

Considering that alliance performance largely depends on dynamic interorganizational alignment with changing conditions and partner objectives (Lunnan and Haugland 2008), investigating the possible link to environmental proactiveness is useful; both for furthering our

✉ Anne Norheim-Hansen
anne.norheimhansen@kedgebs.com

¹ KEDGE Business School, Domaine de Luminy – BP 921,
13288 Marseille Cedex 9, France

understanding of the virtues of green strategies and for extending the alliance performance literature. It is timely too, as we are in an era with a mounting world-wide focus on environmental sustainability and in a business context with a growing dependence on alliances (Hart and Dowell 2011; Kale and Singh 2009).

Building on the NRBV and the accepted idea that environmental proactiveness is a dynamic capability (Teece et al. 1997), I argue that it somewhat influences the value obtained from alliances—regardless their scope and type—thus increasing a firm's satisfaction with its alliance. This argument, detailed in the next sections, draws attention to the fact that “firms essentially use alliances to gain access to other firms' valuable resources” (Das and Teng 2000, p. 33). Dynamic capabilities are defined as “the firm's ability to integrate, build, and reconfigure internal and external [including partners'] competences to address rapidly changing environments” (Teece et al., p. 516).

It must be noted that, to be considered strongly proactive, the firm must have implemented environmental practices beyond compliance with regulations (Sharma et al. 2007), this over a long time and in a substantial way (Aragón-Correa and Sharma 2003; Sharma and Vredenburg 1998). Moreover, its environmental performance (Chan 2005) must be high relative to the industry standards, meaning that its environmental credibility among stakeholders is high (Hart 1995; Hart and Dowell 2011).

In sum, the main objective of this article is to—as a first study—test the possible relationship between the focal firm's level of environmental proactiveness and alliance performance; conceptualized as the focal firm's alliance satisfaction (Ariño 2003). Consequently, it follows the example of the early studies (Judge and Douglas 1998; Klassen and McLaughlin 1996) which “directly examined the link between environmental strategy and financial performance using one or a few indicators of a firm's environmental and financial performance, without accounting for the underlying organizational variables that possibly moderated [or mediated] this relationship” (Aragón-Correa and Sharma 2003, p. 71). In accordance with these and subsequent studies, I concede that this article serves as a very first step only; the confirmation of a significant relationship should prompt further research into mediating and moderating variables (Russo and Fouts 1997).

As it has been previously shown that a *partner's* environmental profile somewhat influences alliance partner selection (Mitsuhashi 2002; Norheim-Hansen 2015), I equally test whether the partner's level of environmental proactiveness affects the focal firm's alliance satisfaction. According to Mitsuhashi and Greve, “a comparison of findings on alliance formation with those on organizational outcomes helps illuminate whether the criteria managers use in alliance formation reflect actual drivers of

performance” (2009, p. 980). Finally, I test the impact of asymmetry between the partners as to level of environmental proactiveness on the focal firm's alliance satisfaction, and its potential moderating effect on the two previous relationships. This, since it is a widely accepted notion that partner asymmetry can affect alliance performance (Harrigan 1988; Yan and Gray 1994).

Altogether, these explorations contribute new insights on the virtues of green strategies in an underexplored context; the strategic alliance context. At the same time, the results provide some additional empirical evidence in support of the NRBV. They also extend the alliance performance literature by showing that own (and partner) environmental proactiveness influences the focal firm's alliance satisfaction. Firms are frequently disappointed with their alliances, as many as around 50 % fail (Kale and Singh 2009; Lunnan and Haugland 2008). Hence, further research on alliance performance determinants are regularly called for (Ibid.). Finally, the findings contribute to the debate on “whether high ethical standards enhance or detract from a firm's competitive position” (Stead et al. 1990, p. 236).

The article is structured as follows. First, the most relevant parts (for the purposes of this study) of the voluminous alliance performance literature are reviewed in brief, as well as the most pertinent parts of the NRBV literature. Next, the hypotheses are developed. In a subsequent section, the method and sample are described. Then, the results and analyses are presented. Finally, a concluding section discusses the implications for theory and practice, the limitations, and future research directions.

Strategic Alliance Performance: Definition and Antecedents

There is relatively little agreement in prior research as to how strategic alliance performance should be conceptualized and measured (Makino et al. 2007). Several approaches have developed, related to the different levels of performance (Ariño 2003). These are generally divided into three categories: Financial (stock market responses, profitability,...), operational (alliance duration, stability,...), and organizational effectiveness (Das and Teng 2003; Ibid.; Lunnan and Haugland 2008). Although there are advantages and disadvantages associated with each, the “most commonly used measures of alliance performance are related to effectiveness in terms of fulfillment of strategic goals” (Lunnan and Haugland 2008, p. 546) or “an overall assessment of the firm's [alliance] satisfaction” (Ariño, 2003, p. 67)—the approach adopted in this study.

Generally, this effectiveness is estimated based on subjective evaluations by managers (Lunnan and Haugland 2008; Parkhe 1993). Moreover, such evaluations

encompass private and common goals and benefits (Das and Teng 2003), as well as initial and emergent ambitions (Ariño 2003). However, while getting both parties perspectives is naturally preferable, it is widely accepted to operationalize alliance performance by including solely one partner's viewpoint (Mjoen and Tallman 1997). This, partly is due to the fact that collecting data from both firms tends to be difficult and unpractical, especially when anonymity is guaranteed. Consequently, in this study, alliance performance is defined and measured as the focal firm's satisfaction with the alliance (Zollo et al. 2002).

Unlike the issues of conceptualization and measurement, the problem of high failure rates has high consensus among researchers (Kale and Singh 2009; Lunnan and Haugland 2008). Making alliances work is not evident, and this has motivated many studies on performance determinants (e.g., Das and Teng 2003; Doz 1996; Mitsuhashi and Greve 2009; Mohr and Spekman 1994; Shah and Swaminathan 2008). Most of those identified can be grouped into partner attributes (resources, culture,...) and the degree of compatibility, relational attributes (trust, cooperation and conflict resolution,...), and alliance structure (equity sharing, control mechanisms,...). Moreover, there is the factor of shifts in bargaining power (Yan and Gray 1994), since "much of the alliance experience is about learning and knowledge acquisition" (Das and Teng 2003, p. 283). As aforementioned, gaining access to other firms' valuable resources is the primary goal of allying (Das and Teng 2000).

Nonetheless, as stated by Das and Teng "we do not have a sufficient understanding of why certain alliances are more plagued by inter partner conflicts than others and, also, why knowledge acquisition is smoother in some alliances than in others" (2003, p. 284). Following a short review of the NRBV, this article argues that environmental proactiveness plays a role and positively affects the focal firm's alliance satisfaction. Whereas the *partner's* level of satisfaction is not in focus in these developments, its level of environmental proactiveness is taken into consideration. Thus, auxiliary hypotheses are formulated and tested in addition to the principal hypothesis on the link between own environmental proactiveness and alliance satisfaction. While not all hypotheses are confirmed, the results support the idea of virtues of green strategies in the alliance context.

The Natural-Resource-Based View (NRBV) of the Firm

In his seminal article, giving birth to the NRBV of the firm, Hart argues that the omission of constraints imposed by the natural environment "has rendered existing theory inadequate as a basis for identifying important emerging sources of competitive advantage" (1995, p. 987). Accordingly, the

NRBV is an extension of the resource-based view (RBV) or theory (Barney 1991; Wernerfelt 1984), yet, with the same basic assumptions that firms are heterogeneous over time (Grant 1991; Mahoney and Pandian 1992) and have idiosyncratic and immobile resources (Peteraf 1993). Furthermore, these resources are sources of competitive advantage when they are valuable, rare, and nonsubstitutable—an advantage which is sustained when the resources are also costly to imitate or inimitable (Barney 1991). Additional similarities are the assumptions that market dynamics influence the value of resources, and that inferior investments means being confronted with competitive barriers.

However, unlike the classic RBV, the NRBV holds that "managers make systematic errors" (Berchicci and King 2007, p. 516), as they systematically underinvest in developing environmental capabilities. The explanation revolves around valuation difficulties and associated cognitive biases. The NRBV also contends, with empirical support, that the involvement of external stakeholders, such as environmental groups (Stafford et al. 2000) and customers (Klassen and Vachon 2003), can "foster better decision making, and thereby cause managers to uncover hidden value" (Berchicci and King 2007, p. 520).

Overall, the main (empirically supported) assumption of the NRBV is the following: Proactive environmental strategies both require and strengthen competitively valuable organizational capabilities that are sources of competitive advantage. Examples include stakeholder integration, productive problem solving, continuous innovation, higher-order learning (Sharma and Vredenburg 1998), and helpful managerial skills, attitudes, and interpretations (Aragón-Correa and Sharma 2003).

Accordingly, Aragón-Correa and Sharma (2003) explain that environmental proactiveness is, in fact, a dynamic capability—for instance because it "enables organizations to maintain dynamic alignment with their general business environment" (p. 73). This article argues that—additionally—environmental proactiveness facilitates a dynamic and productive *interorganizational* alignment, making the focal firm more satisfied with its strategic alliance, an argument developed in the next section.

The Virtues of Environmental Proactiveness in the Strategic Alliance Context

The Focal Firm's Environmental Proactiveness and Alliance Satisfaction

There is "consensus on the benefits of strategic alliances for learning and innovation" (Luo and Deng 2009, p. 1005). With theoretical and empirical evidence that

learning and knowledge acquisition are central to the value creation and value appropriation from strategic alliances (Zollo et al. 2002), it is clear that alliance satisfaction relies strongly on the level to which this is achieved. In fact, while alliances differ in their objectives (Gulati and Singh 1998), this constitutes a common denominator. Accordingly, firms estimate the resource endowment of prospective partners (Bae and Gargiulo 2004), and endeavor to ally with others having complementarity and, not least, compatible resources (Shah and Swaminathan 2008). Although resource complementarity is more important in link than scale alliances (Dussauge et al. 2000), these factors are weighty alliance performance drivers (Kale and Singh 2009; Mitsuhashi and Greve 2009; Shah and Swaminathan 2008).

However, as stated by Das and Teng, “[v]alue creation in alliances is related [...] also to the degree to which the committed resources are being utilized” (2003, p. 289), and utilization level depends on multiple factors. Due to, for instance, differences in managerial and organizational routines and decision-making, there may be difficulties related to combining or obtaining resources that at first sight seemed compatible. What is more, not all committed resources are intentionally included. There are valuable resources that are inseparable from other resources (Das and Teng 2003). The extent to which the focal firm will benefit from access to such surplus resources depends largely on its absorptive capacity (Cohen and Levinthal 1990), and productive interactions with its partner (Lunnan and Haugland 2008). Overall, smooth collaboration ensuring value creation and value appropriation necessitates being capable of dealing with a high level of complexity, and “requires attention to the dynamic changes that occur in an alliance” (Ibid., p. 548).

It seems evident that environmental proactiveness as a dynamic capability will act as a facilitator, “as the relationship between the partners must adapt over time in response to changing environmental conditions and partner objectives” (Ibid.). For instance, as aforementioned, a green focal firm will be more apt at integrating, building, and reconfiguring own and partners’ resources (Teece et al. 1997)—partly due to environmental proactiveness requiring continuous innovation and higher-order learning. Firms with the dynamic capability of environmental proactiveness should also be better at detecting emerging opportunities for undertaking additional activities with the partner and expanding the common value creation.

Moreover, when encountering difficulties in the collaboration, whether in attempts to exchange, share, or jointly develop resources, a green focal firm should be better able to surmount these. That is, owing to some experience and routines for productive problem solving with various stakeholders (e.g., environmental activists, consumers,...)—

another requirement for environmental proactiveness—partners’ perspectives and concerns are more easily taken in and interpreted, resulting in a proper response. As noted by Aragón-Correa and Sharma, proactive environmental strategies “are socially complex because they require integration of a number of external and internal views” (2003, p. 80). Managing the alliance evolution process and the increasing resource stocks (Lunnan and Haugland 2008) is also helped by the green focal firm being perceived by its partner as more trustworthy than a nongreen firm (Norheim-Hansen 2015).

In sum, I argue that a focal firm with a high level of environmental proactiveness will be better situated for maximum utilization of resources committed to an alliance and for maximizing value creation. Consequently, the focal firm’s greenness is predicted to have a positive bearing on its alliance satisfaction. These developments lead to the following principal hypothesis:

Hypothesis 1 The higher the focal firm’s environmental proactiveness, the higher its strategic alliance satisfaction.

The Partner Firm’s Environmental Proactiveness and Alliance Satisfaction

Although the main objective of this article is to scrutinize the link between the focal firm’s *own* environmental proactiveness and its satisfaction with the alliance, it seems valuable to equally examine the impact of the *partner’s* environmental proactiveness. First of all, prior research has demonstrated that environmental profile somewhat influences strategic alliance partner selection (Dollinger et al. 1997; Mitsuhashi 2002; Norheim-Hansen 2015). The underlying mechanisms or incentives identified are multi-fold, and revolve around advantages such as positive spillovers, lower risk of opportunism. As stated above, it has been shown that greenness positively influences the level of trustworthiness attributed to a partner—more specifically, the levels of integrity and benevolence (Mayer et al. 1995).

What is more, proactive environmental strategies (over time) foster strong environmental reputations (Hart and Dowell 2011) and there are previous studies showing that strong partner reputations do, in fact, enhance alliance satisfaction (Saxton 1997). While these do not focus specifically on the environmental dimension (Dollinger et al. 1997), theoretically, a positive effect of a partner’s greenness on the focal firm’s alliance satisfaction can be expected. The argument is based both on a likely reinforcement of own environmental reputation through favorable spillovers, and from learning and acquiring new valuable knowledge related to green capabilities (Albino et al. 2012; Lin 2012).

In addition to the arguments above, the developments leading to the first hypothesis can be ‘mirrored’ here. A

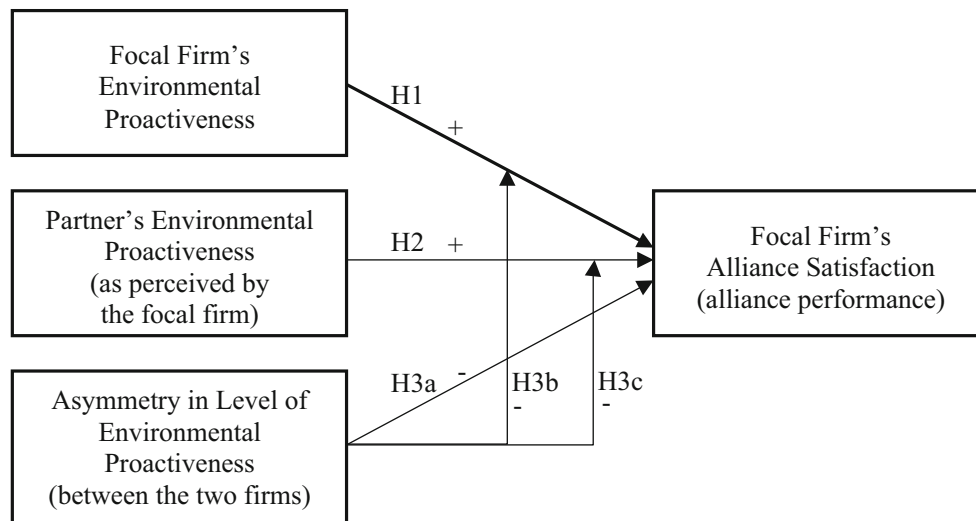


Fig. 1 Illustrates the conceptual model to be tested

partner with a high level of environmental proactiveness will manage more efficiently and effectively the dynamic alliance evolution process (Lunnan and Haugland 2008); allowing for achieving the common project(s) faster. Accordingly, the following prediction is formulated:

Hypothesis 2 The higher the partner firm's environmental proactiveness, the higher the focal firm's strategic alliance satisfaction.

Asymmetry Between the Partners as to Level of Proactiveness and Alliance Satisfaction

The third and final determinant of alliance satisfaction investigated in this article combines the two firms' environmental proactiveness. In other words, does asymmetry on this dimension matter? Recent research suggests that a large gap (Obloj and Capron 2011) can be problematic. It is a source of partner asymmetry (Das and Teng 2002; Harrigan 1988) representing not only benefits, but also costs, for both the green and less green partner (Castellucci and Ertug 2010; Mayer 2006; Yu and Lester 2008). Moreover, dissimilar level of responsiveness to environmental sustainability issues indicates divergent stances toward society embedded in the organizational culture (Banerjee 2001), and opposing priorities and temporal orientations (Das 2006), which can all influence alliance performance (Chen et al. 2009; Greve et al. 2012).

While also the direction of an asymmetry should matter—since the two directions will not have the same benefit/cost outcomes for the focal firm (Meschi et al. 2016)—this article only tests whether asymmetry *size* directly significantly affects alliance satisfaction, as well as its potential moderating effect on the relationships tested in Hypotheses 1 and 2. Further examinations are left to future research, as partner

asymmetry is not the main focus of this study. Based on these developments, the final hypotheses are formulated as follows:

Hypothesis 3a The larger the asymmetry between the partners as to level of environmental proactiveness, the lower the focal firm's strategic alliance satisfaction.

Hypothesis 3b The larger the asymmetry between the partners as to level of environmental proactiveness, the weaker the positive impact of the focal firm's environmental proactiveness on its strategic alliance satisfaction.

Hypothesis 3c The larger the asymmetry between the partners as to level of environmental proactiveness, the weaker the positive impact of the partner firm's environmental proactiveness on the focal firm's strategic alliance satisfaction.

Method and Data

The hypotheses (cf. Fig. 1) of this study are tested through a survey administered to CEOs in Norwegian manufacturing firms, in spring 2013. A survey method is considered an appropriate method, given the nature of the variables and of the questions addressed. Moreover, no secondary data are available for testing the proposed relationships. Besides, this approach is widely consistent with similar and related studies (Lunnan and Haugland 2008; Saxton 1997; Zollo et al. 2002; Sharma et al. 2007). To ensure robust results, several measures were taken to overcome the shortcomings of the method, most importantly the risk of common method bias. These actions are detailed below.

As regards the choice of the geographical context, Norway, I draw on current research arguing that it is well suited for corporate environmentalism research. The essence of the argument is that the Nordic countries have

long been preoccupied with the issue of environmental sustainability, and have up until recent times devoted greater attention to it than most other countries; a claim supported by Porter and van der Linde (1995). They contend that these countries are among the most “attuned to environmental concerns” (1995, p. 127). This signifies a large enough number of firms with elevated environmental proactiveness for the survey to be pertinent. In addition, it is helpful for the purposes of this study that close to half of Norwegian manufacturing firms are engaged in one or several strategic alliances (Norheim-Hansen 2015). Yet, despite these and other advantages of the empirical context, some caution is needed in generalization to other geographical areas. The issue is elaborated together with other limitations in the last section of this article.

Measurement Instrument Development

The survey instrument or questionnaire was created according to recommendations in extant literature (Nunnally and Bernstein 1994; Krishnan et al. 2006). It consists mainly of a large number of statements, to which the respondents mark their level of agreement/disagreement on 7-point Likert-scales. Apart from some of the control variables included, each construct is measured on at least three scale items (statements). Appendix Table 4 presents the items of the constructs. For high-content validity (Nunnally and Bernstein 1994), all are adopted or adapted from extant literature. Additionally, questions are included pertaining to the respondent, firm, and its strategic alliance(s). Importantly, and consistent with advice in earlier work, the questionnaire was carefully crafted to ensure that the independent and dependent variables were included in different parts of the questionnaire (Lunnan and Haugland 2008; Zollo et al. 2002)—which allows for reducing common method bias (Krishnan et al. 2006). A Harman’s (1967) single-factor test confirmed that there is no significant amount of common variance in the data (an unrotated factor analysis showed distinctive factors, all with eigenvalues >1). The alliance satisfaction and environmental proactiveness variables all loaded on different factors.

Extensive pretests were performed, where the questionnaire was administered to both academics and practitioners. As part of these processes, discussions about the instrument were conducted (DeVellis 2003). These allowed for eliminating some ambiguities and ensure a high level of readability and accuracy as to the intended comprehension—another important measure to reduce common method bias (Krishnan et al. 2006). The discourse of the CEOs during the discussions and their rating behavior suggest that social desirability bias is not a threat to the validity of my results. Several CEOs uttered phrases similar to the following: “...we do not have a strong environmental profile...” (CEO

from the maritime industry). Finally, preliminary statistical analyses were performed, revealing acceptable Cronbach’s alpha scores and therefore high construct reliability (cf. Appendix Table 4). Next, the sample and data collection procedure are described.

Sample and Procedure

The sample of manufacturing firms used in this study is taken from a commercial database provided by the company Proff Forvalt. Among the secondary data available on all firms ($n = 3076$) are industry (e.g., food, furniture, machinery, maritime, oil & gas, textiles, and wood), firm age, size, and profitability. From the list, containing every manufacturing firm in Norway, an initial random sample of 500 was extracted. When first contacted, mainly by e-mail (Dillman 2000), participants were promised anonymity and confidentiality—allowing for further reducing the risk of common method bias (Krishnan et al. 2006)—and an analysis report on the results (Zollo et al. 2002). The explanation for not pursuing a larger sample revolves around the category of respondents targeted, CEOs. Ample time is needed to apply appropriate and personalized follow-up procedures, ensuring a good response rate—which in this study was 28 % (139 completed questionnaires). This is an acceptable rate, according to prior research (Weaver et al. 1999; Zollo et al. 2002). However, the sample of 139 includes firms not having strategic alliances, which had to be removed in order to test this article’s hypotheses. The final sample used is 61 and covers a broad range of industries, as shown in Table 1.

When answering the questions (agreeing/disagreeing with the statements) addressing alliance satisfaction, respondents were asked to focus on the firm’s most prominent/important alliance (Tsang 2002). Approximately 64 % of the alliances are with partners from the same industry, 62 % with Scandinavian, 28 % with other European. Moreover, 31 % of the alliances are equity joint ventures, 10 % minority equity investments, and 56 % nonequity contractual alliances (3 % unknown). As regards scope, 12 % are R&D only, 5 % manufacturing only, 21 % marketing only, 10 % R&D + manufacturing, 11 % R&D + marketing, 23 % manufacturing + marketing, and 13 % all three (5 % unknown). Average alliance age is 6 years.

Measures

Dependent Variable

Alliance Satisfaction (alliance performance) of the focal firm is the dependent variable of this study. The three scale items used (cf. Appendix Table 4) are adapted from Zollo et al. (2002) and concern knowledge accumulated, and whether the alliance has created new opportunities as well

Table 1 Industry distribution of final sample by two-digit NACE codes

	Industry	Freq.	Percent	Cum.
1 = NACE 10	Manufacture of food products	4	6.56	6.56
2 = NACE 13	Manufacture of textiles	2	3.28	9.84
3 = NACE 16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	7	11.48	21.31
4 = NACE 18	Printing and reproduction of recorded media	2	3.28	24.59
5 = NACE 20	Manufacture of chemicals and chemical products	0	0	24.59
6 = NACE 21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	1	1.64	26.23
7 = NACE 22	Manufacture of rubber and plastic products	3	4.92	31.15
8 = NACE 23	Manufacture of other nonmetallic mineral products	4	6.56	37.70
9 = NACE 24	Manufacture of basic metals	2	3.28	40.98
10 = NACE 25	Manufacture of fabricated metal products, except machinery and equipment	5	8.20	49.18
11 = NACE 26	Manufacture of computer, electronic, and optical products	5	8.20	57.38
12 = NACE 27	Manufacture of electrical equipment	4	6.56	63.93
13 = NACE 28	Manufacture of machinery and equipment n.e.c.	7	11.48	75.41
14 = NACE 29	Manufacture of motor vehicles, trailers, and semitrailers	1	1.64	77.05
15 = NACE 30	Manufacture of other transport equipment	5	8.20	85.25
16 = NACE 31	Manufacture of furniture	1	1.64	86.89
17 = NACE 32	Other manufacturing	1	1.64	88.52
18 = NACE 33	Repair and installation of machinery and equipment	7	11.48	100.00
Total		61	100	

Statistical classification of economic activities in the European Community

as satisfied initial objectives. A composite measure was created by summing and averaging the items, all equally weighted (Ibid.). Calculation of such a measure was done for each latent construct.

Independent Variables

Environmental Proactiveness is the main independent variable. As highlighted by Sharma et al., “corporate environmental strategy has often been measured via managerial self-perception” (2007, p. 274), mainly because “it has many components and is difficult to measure with publicly available data” (Ibid.). The five-items-scale, adapted from recent research (Norheim-Hansen 2015), reflects the characteristics of a strongly proactive environmental strategy provided earlier (Aragón-Correa and Sharma 2003; Chan 2005; Hart 1995; Sharma and Vredenburg 1998). The first three statements address the degree of environmental orientation and strategy, integration of environmental activities in business operations (on a voluntary basis, over a long time, in a substantial way), and the level of environmental performance relative to industry standards. The two final items address whether the firm possesses a strong environmental reputation, since firms with high environmental proactiveness have high environmental credibility among stakeholders (Hart and Dowell 2011). While Sharma et al. (2007) provide a more

detailed measure, the items included (specific environmental practices) are not relevant for all industries. Adopting this or an equally detailed measure was therefore not feasible for my multiindustry study.

The same scale items, this time asking about the other firm in the alliance, are used for measuring *Partner’s Environmental Proactiveness*. Necessarily, the focal firm has somewhat less perfect information concerning the partner’s than its own environmental proactiveness. However, of importance for testing Hypothesis 2 is how the partner is *perceived* by the focal firm on this dimension. As regards the last independent variable, *Asymmetry as to Level of Environmental Proactiveness* (between the two firms), it is measured as the score difference (absolute value) between the two previous variables.

Information available on company and other websites (Walls et al. 2011) was consulted for informal triangulation of the self-reported data on environmental proactiveness (Homburg et al. 2012). No cases of dubious scores were identified. Whereas other sources within the firms could have been surveyed as well, the CEOs are seen as the most knowledgeable on the focal questions of this study.

Control Variables

Among the control variables included in the analyses, some have previous been found to affect strategic alliance

performance, while others are deemed to possibly have this effect. Alliance-level controls are *Alliance Age*, as well as *Mutual Trust*, and *Partner Compatibility* between the two firms. Also, a control is included for the level of green objectives in the alliance whether it could be considered an *Environmental Collaboration* (Wassmer et al. 2012). Firm-level controls are *Alliance Experience*, *Firm Size* (number of employees), *Firm Age*, and *Profitability*. Executive-level controls are *Years in Position*, *Years in Company*, and *Years in Industry*. While secondary data are used for most of the variables, some were measured on 7-point Likert-scales (cf. Appendix Table 4). The 3-item scale for *Alliance Experience* was adapted from Lunnan and Haugland (2008) and the 1-item scale for *Mutual Trust* from Nielsen and Nielsen (2009). Fixed effects are included for industry (18 dummy variables), partner nationality (8), alliance type (3), and alliance scope (7).

Analyses and Results

The hypotheses of this article were tested through a series of OLS regressions. Table 2 presents the means, standard deviations, and correlation matrix. Variance inflation factor (VIF) estimates for the variables are all but one ≤ 3 . Only *Years in Company* is slightly above (3.14), but as long as an explanatory variable is < 5 it is unproblematic (Groebner et al. 2005). Nevertheless, I also ran the tests with this variable removed, as a robustness check.

Environmental Proactiveness is moderately related to *Partner's Environmental Proactiveness* (.40). This was expected, as firms prefer to ally with other firms having at least equal environmental performance (Chung et al. 2000); though it is not a key selection criterion—as confirmed during the pretest interviews. It is the only significant correlation between the independent variables. Moreover, whereas these two variables are both moderately related to *Alliance Satisfaction* (.34 and .48), there is no significant relationship between *Asymmetry as to Level of Environmental Proactiveness* and the dependent variable (it is still included in the regression models). As regards the control variables, both *Mutual Trust* and *Partner Compatibility* are strongly related to *Alliance Satisfaction* (.70 and .58), which is consistent with prior research (Kale and Singh 2009). Also, *Years in Position* is moderately but negatively related to *Alliance Satisfaction* (.30).

Model 1 in Table 3, the baseline model, includes the control variables. Models 2, 3, 4, 5, and 6 test Hypotheses 1, 2, and 3a, b, c. The results give support to Hypothesis 1 (the focal hypothesis) and Hypothesis 2, but not to Hypotheses 3a, b, c. Specifically, consistent with what was predicted, the higher the focal firm's environmental proactiveness, the higher its strategic alliance satisfaction.

Table 2 Descriptive statistics and correlation matrix

Variables	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Alliance Satisfaction	5.10	0.98	1.00														
(2) Alliance Age	5.51	7.01	-0.20	1.00													
(3) Alliance Experience	5.22	1.29	0.19	-0.20	1.00												
(4) Mutual Trust	5.31	1.57	0.70**	-0.13	0.30*	1.00											
(5) Partner Compatibility	5.16	1.43	0.58**	-0.26*	-0.02	0.43**	1.00										
(6) Env. Collaboration	2.74	1.68	0.10	-0.02	-0.04	0.06	-0.02	1.00									
(7) Firm Size	165.89	378.91	0.23†	-0.03	0.31*	0.22†	0.23†	0.06	1.00								
(8) Firm Age	18.54	14.36	0.11	0.35**	0.08	0.08	-0.09	-0.06	0.22†	1.00							
(9) Profitability	8.86	12.82	-0.09	0.12	-0.02	0.04	0.00	0.21	0.07	0.14	1.00						
(10) Years in Position	7.92	8.32	-0.30*	0.46**	-0.18	-0.20	-0.35**	0.03	-0.15	0.26*	0.21	1.00					
(11) Years in Company	12.33	11.46	-0.18	0.36**	-0.01	-0.10	-0.32*	0.06	0.04	0.20	0.09	0.72**	1.00				
(12) Years in Industry	18.77	12.47	-0.10	0.27*	0.09	-0.09	-0.14	0.08	-0.06	0.05	0.19	0.56**	0.68**	1.00			
(13) Env. Proactiveness	4.22	0.97	0.34**	-0.01	0.16	0.12	-0.12	0.16	0.25†	0.17	0.03	-0.02	0.02	-0.01	1.00		
(14) Partner's Env. Proac.	4.03	1.30	0.48**	-0.07	0.02	0.29*	0.17	0.25*	0.14	0.06	0.06	-0.13	-0.04	-0.08	0.40**	1.00	
(15) Asym. in Env. Proac.	0.91	0.91	-0.18	-0.02	0.01	-0.23†	-0.12	0.11	-0.17	0.14	0.02	0.20	0.12	0.08	-0.10	-0.11	1.00

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

Table 3 Alliance satisfaction results—OLS regressions to test Hypotheses 1–3c

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Alliance satisfaction						
Alliance age	0.000 (0.00)	−0.003 (0.13)	0.001 (0.02)	−0.000 (0.00)	0.001 (0.03)	0.000 (0.00)
Alliance experience	0.020 (0.18)	0.027 (0.29)	0.063 (0.69)	0.022 (0.19)	0.009 (0.08)	0.014 (0.12)
Mutual trust	0.296 (3.30)**	0.225 (2.78)*	0.249 (3.27)**	0.295 (3.18)**	0.297 (3.26)**	0.299 (3.27)**
Partner compatibility	0.263 (2.10)*	0.382 (3.32)**	0.250 (2.39)*	0.264 (2.06) [†]	0.264 (2.08)*	0.253 (1.96) [†]
Env. collaboration	0.042 (0.54)	0.005 (0.07)	−0.041 (0.59)	0.043 (0.54)	0.036 (0.45)	0.032 (0.39)
Firm size	−0.000 (0.85)	−0.000 (1.00)	−0.000 (0.21)	−0.000 (0.83)	−0.000 (0.71)	−0.000 (0.69)
Firm age	0.010 (0.87)	0.010 (1.03)	0.010 (1.05)	0.010 (0.86)	0.010 (0.84)	0.010 (0.86)
Profitability	−0.007 (0.71)	−0.009 (0.99)	−0.007 (0.75)	−0.007 (0.70)	−0.007 (0.65)	−0.007 (0.70)
Years in position	−0.036 (1.40)	−0.041 (1.85) [†]	−0.032 (1.50)	−0.035 (1.32)	−0.039 (1.45)	−0.036 (1.40)
Years in company	0.009 (0.43)	0.013 (0.75)	0.002 (0.13)	0.009 (0.43)	0.007 (0.35)	0.007 (0.33)
Years in industry	0.000 (0.01)	0.013 (0.74)	0.006 (0.36)	−0.000 (0.01)	0.004 (0.19)	0.002 (0.11)
Env. proactiveness		0.378 (3.08)**				
Partner's Env. Proac.			0.318 (3.42)**			
Asym. in Env. Proac.				−0.012 (0.09)		
Env. proactiveness × Asym. in Env. Proac.					0.017 (0.47)	
Partner's Env. Proac. × Asym. in Env. Proac.						0.011 (0.41)
Constant	3.968 (2.08)*	2.301 (1.39)	3.654 (2.28)*	3.996 (2.02)	3.993 (2.16)*	3.990 (2.05)
Observations	61	61	61	61	61	61
R ²	0.78	0.84	0.85	0.78	0.78	0.78

Absolute value of t statistics in parentheses

[†] $p < 0.10$; * $p < 0.05$; ** $p < 0.01$

Fixed effects included for industry, partner nationality, alliance type, and scope

What is more, also the partner's proactiveness influences the focal firm's satisfaction with its alliance, as expected. Both of these relationships are significant at the 1 % level (Models 2 and 3). The fact that Hypotheses 3a, b, c were not supported indicates that the asymmetry as to level of environmental proactiveness between partnering firms does not affect alliance satisfaction. However, this finding could be partly explained by the low mean registered for this sample, meaning that the difference is relatively small in most of the alliances. Partner asymmetries are often not problematic before reaching a certain level. The author thus encourages further research on this issue.

In addition, the results show that mutual trust and compatibility between the partners affect alliance satisfaction. Besides, these variables have the strongest effects on the dependent variable. These findings are consistent with prior research. Only one additional control variable is significant; the number of years in position was found to negatively influence alliance satisfaction. To avoid putting forward speculative claims, I leave it to future studies to scrutinize this relationship.

Finally, I draw attention to the nonsignificant results for the alliance age and experience variables. As regards alliance age, it is widely accepted that alliances tend to undergo

a 'liability of newness' effect (Stinchcombe 1965), and that the relationship between age and alliance performance then changes over time. Accordingly, Lunnan and Haugland (2008) found an influence on abrupt termination, but not on long-term performance. Alliance experience has also been found to affect short- and long-term performance differently (Ibid.). Besides, experience matters more for some alliances than others (Anand and Khanna 2000) and "each alliance provides unique challenges" (Lunnan and Haugland 2008, p. 552). Additionally, the codification level of the experience matters too, and affects performance differently in different alliance phases (Heimeriks et al. 2015). These contingencies, potentially resulting in canceling-out effects, may explain the nonsignificant results.

Discussion and Conclusion

Findings and Contributions

This study was motivated by the lack of research on how environmental proactiveness (Sharma and Vredenburg 1998) influences *interorganizational* performance. Specifically, drawing on the NRBV and the accepted idea that

environmental proactiveness is a dynamic capability, I argued that it affects partnering firms' satisfaction with their alliance. Empirical evidence from surveying CEOs of Norwegian manufacturing firms confirm that the higher the focal firm's environmental proactiveness, the higher its strategic alliance satisfaction. Moreover, that the higher the *partner* firm's environmental proactiveness, the higher the focal firm's satisfaction.

In other words, the global argument that there are virtues of green strategies (also) in the alliance context is supported. The exact mechanism(s) of the broad virtue identified—boosting alliance performance—needs to be scrutinized in more detail, and empirically tested, in future research. Overall, I contended that environmental proactiveness allows for better utilization of resources committed to an alliance and for maximizing value creation; this, partly because environmental proactiveness as a dynamic capability will act as a facilitator, “as the relationship between the partners must adapt over time in response to changing environmental conditions and partner objectives” (Lunnan and Haugland, p. 548).

No support was found for the claim that asymmetry between the two firms on this variable equally affects satisfaction with the alliance; neither as a direct effect, nor as a moderator of the prior two relationships. The latter result may be explained by the relatively small mean result. Stated differently, the average gap as to environmental proactiveness for the firms in this sample may not be large enough for it to be problematic.

The findings mainly extend two important literature streams. First, they provide new insights on the outcomes of corporate environmentalism in an underexplored context, the strategic alliance context. Concurrently, these results contribute some supplementary empirical evidence in support of the NRBV, which is the theoretical lens employed in this article. Second, the findings offer new insights to the alliance performance literature, by revealing additional determinants. Scholars regularly call for continued efforts to enhance our understanding of what it takes to ensure prolific interorganizational relationships (Lunnan and Haugland 2008). It is problematic that they are plagued with poor performance.

Finally, the findings contribute to the debate on “whether high ethical standards enhance or detract from a firm's competitive position” (Stead et al. 1990, p. 236). Corporate environmentalism is frequently conceptualized as an ethics issue or moral responsibility (Laine 2010), one that “may directly decrease a firm's profitability (i.e., increasing costs by installing an expensive pollution control system” (Stead et al. 1990, p. 236). However, in line with numerous studies revealing a positive but less direct effect (Hart and Ahuja 1996), this research shows that ethical actions concerning the environment can enhance the firm's competitiveness.

For practice, the value of this study can be seen from considering simultaneously firms' growing dependence on

alliances in their quests for competitive advantage (Das and Teng 1999; Kale and Singh 2009) and the increasing greening pressure (Hart and Dowell 2011). In fact, a yearly survey by *MIT Sloan Management Review* and The Boston Consulting Group shows that nearly “50 % of companies have changed their business models as a result of sustainability opportunities—a 20 % jump [from 2012 to 2013]” (<http://sloanreview.mit.edu/reports/sustainability-innovation/introduction>). That environmental practices, over time, enhance value creation from firms' alliances can serve as an additional argument for managers advocating for green investments. The findings also suggest that the greenness of prospective alliance partners should be given more importance in partner selection decisions.

Limitations and Future Research

I bring this article to a close with the major limitations and perspectives for future research. First, and as aforementioned, caution is needed in attempts to generalize the findings of this study to other populations, i.e., outside of Norway—or especially outside of Scandinavia. While Norway was explained to represent a suitable context, for the purposes of this study, the author strongly encourages other researchers to explore whether similar analyses provide consistent or conflicting results in other countries—with different institutional, cultural, and regulatory contexts, etc. Such probing is thought to offer excellent opportunities to identify contingencies. Not delving into potential moderators is a shortcoming of this study. Moreover, analyses of mediators and analyses through other theoretical frameworks may provide interesting and important contributions. In addition, comparative studies with alliance performance outcomes of environmental collaborations and firm-NGO alliances—where the main alliance objective is to reduce negative or generate positive environmental impact (Wassmer et al. 2012)—seem promising.

The survey method used comprises the limitation that the data are subjective rather than objective measures. However, it was explained earlier how this and other weaknesses of the method were compensated for or dealt with. Further, explanations were offered as to why it is still considered highly suitable for the purpose of this study. Likewise, the choice to conceptualize and measure alliance performance as alliance satisfaction was explained and justified. Nevertheless, the author encourages further studies adopting different alliance performance measures, e.g., financial and operational measures such as profitability and alliance termination. As frequently underlined in the alliance literature, each measure has both strengths and weaknesses. While not perfect, the major practical relevance of using alliance satisfaction is that it indicates the success level according to the main objective of allying—“access to other firms' valuable resources” (Das and

Teng 2000, p. 33). If CEOs are “satisfied with the knowledge accumulated from participating in the alliance” and see the alliance as having “created new opportunities” as well as having “satisfied [the firm’s] initial objectives” (cf. Appendix Table 4), one can safely claim that the alliance performance can be considered as high.

Although there are surely additional caveats, the ones described above are thought to be the most important. Some of the prospects for future research coming out of these were detailed; evidently, the listing is nonexhaustive.

In conclusion, I underline again that the role of firms’ environmental conduct in determining alliance outcomes has received little prior consideration. This research suggests it might be an interesting path for further work, and that the environmental-*alliance* performance link offers

new incentives for top executives to strive for environmental proactiveness—since there are virtues of green strategies in the alliance context.

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Appendix

See Table 4.

Table 4 Scale items

Construct	Measures (7-point Likert-scales—disagree/agree)	Cronbach’s alpha
Alliance satisfaction (alliance performance)	Adapted from scales in Zollo et al. (2002): 1. We are satisfied with the knowledge accumulated from participating in the alliance 2. The alliance has created new opportunities for our firm 3. The alliance has satisfied our initial objectives	$\alpha = 0.83$
Environmental proactiveness	Adapted from scales in Norheim-Hansen (2015) ^a : 1. Our company has a strong environmental orientation and strategy 2. Our company has, over a long time and in a substantial way, integrated environmental activities in its business operations on a voluntary basis 3. Our company has achieved high environmental performance, relative to the standards in our industry 4. We have a strong environmental reputation 5. Our environmental reputation is highly positive	$\alpha = 0.90$
Partner’s environmental proactiveness (as perceived by the focal firm)	1. Our partner has a strong environmental orientation and strategy 2. Our partner has, over a long time and in a substantial way, integrated environmental activities in its business operations on a voluntary basis 3. Our partner has achieved high environmental performance, relative to the standards in our industry 4. Our partner has a strong environmental reputation 5. Our partner’s environmental reputation is highly positive	$\alpha = 0.96$
Alliance experience (control variable)	Adapted from scales in Lunnan and Haugland (2008): 1. Our firm is experienced in interfirm collaboration 2. We have learned how to handle interfirm relations through prior cooperative ventures 3. We think it is troublesome to cooperate since we have limited prior experience	$\alpha = 0.84$
Mutual trust (control variable)	Adapted from scale in Nielsen and Nielsen (2009) ^b : Overall, there is a high level of mutual trust between us and our partner	
Partner compatibility (control variable)	Overall, there is a high level of compatibility between us and our partner	
Environmental collaboration (control variable)	The alliance is an environmental collaboration (the main alliance objective is to reduce negative or generate positive environmental impact)	

^a In that article, they were applied to control for *own environmental reputation*; with strong environmental reputation conceptualized as a proxy “for firms’ long-term proactive environmental strategies” (2015, p. 814). The scales in that study were built on the same key, and highly cited, environmental strategy studies (Aragón-Correa and Sharma 2003; Hart 1995; Hart and Dowell 2011; Sharma and Vredenburg 1998). Please see further justification for the selected measure in the subsection ‘Measures’

^b Justification for a single-item measure can be found in Nielsen and Nielsen (2009)

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