



# Relational governance, communication and the performance of biotechnology partnerships

Relational  
governance

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## Abstract

**Purpose** – Emerging biotechnology firms rely on a network of socio-economic partnerships that can be classified as “interimistic” or close, collaborative but relatively short-lived. Few studies have assessed the importance of relational governance to the performance of these partnerships. The purposes of this research were to determine the effect of relational governance on the performance of financial partnerships and to compare biotechnology manager assessments of their financial and non-financial partnerships.

**Design/methodology/approach** – Interviews were conducted with managers of emerging biotechnology companies and lead investors in Canada, France and Germany. Relational governance was assessed by relational norms such as flexibility, information sharing, solidarity and fairness. Performance was assessed by overall effectiveness and partnership benefits. First, the contribution of relational governance to partnership effectiveness and benefits was examined. Second, for the financial partnerships, the perceptions of both biotech managers and lead investors were compared. Third, the biotech manager perceptions of their financial and non-financial partnerships were compared.

**Findings** – Relational governance is positively associated with performance. Communication (information sharing) was most predictive of partnership performance. Biotech managers view their financial partnerships as being less relational than do their lead investors. Also, biotech managers view their financial partnerships to be less relational than those with their non-financial partners.

**Originality/value** – The findings extend our knowledge of the positive influence of relational governance from longer lasting exchanges to “interimistic” technology partnerships. The communication of pertinent and timely information is particularly relevant for both biotech managers and lead investors and can allay fears of opportunistic behaviour and develop trust and commitment.

**Keywords** Biotechnology, Information exchange, Venture capital, Partnership, Industrial relations

**Paper type** Research paper



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**Introduction**

Entrepreneurial firms in high technology industries rely on a network of partnerships and alliances. It is essential to determine how to structure successful cooperative partnerships and what relational expertise is necessary to effectively create, maintain and enhance them. Innovation-driven firms must not only learn from collaboration but also learn how to collaborate (Powell, 1998). In this respect, management scholars and entrepreneurs are confronted with the problem of dealing with the social embeddedness of the firm's economic activities (BarNir and Smith, 2002; Gassenheimer *et al.*, 1998; Granovetter, 1985; Sobrero and Schrader, 1998). Economic sociologists suggest that a firm can benefit from having a network of inter-firm exchanges that is a mixture of weak and strong ties (Uzzi, 1999). Weak ties are short-term, depersonalized, arm's length approaches focusing on the financial parameters of the exchange. Strong tie approaches are more longer-lasting, collaborative exchanges characterized by the relationships among the actors involved in the exchange. Weak ties provide the firm with readily available public information from the marketplace, whereas strong ties provide private information that can only be communicated through embedded relationships (Uzzi, 1999).

In the exchange governance literature, this socio-economic interaction has been studied using the concept of the transactional/relational continuum (Dwyer *et al.*, 1987; Macneil, 1974; Paulin *et al.*, 1997). The continuum is based on the combined use of two dominant theoretical approaches: transactional cost economics (TCE) (Williamson, 1975; 1985) and relational contracting norms or relational exchange theory (RET) (Macneil, 1980). In exchange governance terms, the poles of the continuum can also refer to contractual and relational governance respectively (Cannon *et al.*, 2000; Ferguson *et al.*, 2005). As such, research on biotechnology and pharmaceutical industries can have a transactional perspective which focuses more on the contractual mechanisms for coordinating inter-firm activities, and also a relational perspective which focuses on the mechanisms for information flows and mutual adjustment (Powell, 1998). Therefore, any inter-firm exchange can be classified along a continuum ranging from a highly transactional, discrete, short-term and price-focused exchange to a more multi-dimensional, cooperative and longer lasting relational exchange (Macneil, 2000). Relational governance can be measured by the strength of relational norms (e.g. information sharing, flexibility, solidarity and fairness) present in the exchange (Noordewier *et al.*, 1990). Conversely, a low level of relational governance is consistent with more transactional or contractual governance (Ferguson *et al.*, 2005).

Lambe *et al.* (2000) emphasize that research on relational governance has focused mainly on long-term enduring exchanges and little empirical information is available with regard to short-term or "interimistic" relational exchanges. Interimistic refers to a category of inter-firm exchanges that are close, collaborative, fast-developing, but somewhat short-lived. Time is an important dimension of the transactional/relational continuum and, therefore, interimistic exchanges can be placed somewhere in the mid-range of the continuum. In these exchanges, companies pool their resources in order to address transient, albeit important, business opportunities or threats. The context of high-technology partnerships, as found in emerging biotechnology clusters, fits closely with the concept of interimistic exchanges (Lambe *et al.*, 2000). Therefore, these clusters provide a fruitful terrain for assessing the effect of relational governance on the performance of this interimistic category of inter-firm exchanges.

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In this paper, we focus on the assessment of relational governance and its influence on the performance of financial and non-financial partnerships of emerging companies in biotechnology clusters in Canada, France and Germany. The main partnership under investigation is the financial one between the biotechnology manager and the lead investor. This venture capital partnership is crucial for the survival of emerging biotechnology companies since the funds provided by founders and government grants are usually inadequate, and the high risks and lack of securities preclude traditional loan sources. Obviously, a retrospective evaluation of a partnership's performance can be done once it has been concluded. However, a more practical managerial question is how to evaluate the performance of partnerships while they are ongoing? Obviously, it should be done from the perspective of both partners. We obtained assessments of the financial partnership's overall effectiveness and its specific benefits from both the lead investor and the biotechnology company manager. For comparison purposes, we also obtained the biotechnology manager's perspective of the exchange with the company's most important non-financial partner.

The specific purposes of this research were to: examine the importance of relational governance in the performance of interimistic exchanges; determine if in these exchanges certain relational norms are more important than others; ascertain if there are differences in the assessments of the partnership between the biotechnology company manager and lead investor; and determine to what extent the biotechnology company managers perceive differences in the governance of their financial and non-financial partnerships.

### Hypotheses

Partnerships and alliances are strategic relationships between independent firms who share compatible goals, interests and resources and also achieve a high level of interdependence in seeking mutual benefits in a context of uncertain outcomes (Arino, 2003; Mohr and Spekman, 1994). The main purpose of these collaborative relationships is to find ways that create value or reduce costs for both parties (Lambe *et al.*, 2000). Theoretically, the competitive advantage accruing from partnerships include the exchange of relevant knowledge, the combination of complementary resources, the returns on relationship specific investments and reduced transaction costs (Dyer and Singh 1998). Empirically, relational governance has been shown to be positively associated with enhanced performance of business-to-business exchanges of physical goods and services over a broad range of contexts (Bello *et al.*, 2003; Ferguson *et al.*, 2005; Mohr and Spekman, 1994; Paulin *et al.*, 1997).

Despite their relatively shorter duration and somewhat more transactional approach (Lambe *et al.*, 2000), the close and collaborative nature of interimistic exchanges, would lead one to postulate that relational governance would still be associated with enhanced performance of the partnership. This leads to the following hypotheses:

- H1a.* The higher the level of relational governance in a biotechnology partnership, the greater will be the parties' assessment of the partnerships overall effectiveness.
- H1b.* The higher the level of relational governance in a biotechnology partnership, the greater will be the parties' assessment of the benefits derived from the partnership.

Relational governance can be considered to be a single, higher-order construct in a second-order factor model where the first-order factors are a set of highly correlated relational norms (Cannon and Perrault, 1999; Noordewier *et al.*, 1990). However, the context of the exchange can influence the relative importance of a given relational norm with respect to its performance (Paulin *et al.*, 1999). In interimistic partnerships, the parties have less time to develop relational norms. Time constraints reduce the frequency of relationship-building interactions between the parties (Lambe *et al.*, 2000) and limit the activities that normally provide for necessary adaptations (flexibility), a sense of mutual benefits and obligations (solidarity) and feelings of equity (fairness) in the partnership. Knowledge and learning are the stock-in-trade of entrepreneurial, high-technology companies. The most valued information is tacit and private and it exists to a large extent outside the firm (Powell, 1998; Uzzi, 1999). Without adequate information sharing early in the partnership, differing expectations and unresolved conflicts can make one partner feel vulnerable to opportunistic behaviors of the other partner. Therefore, we hypothesize that:

*H2a.* The level of communication (information sharing) in a biotechnology partnership will be the most important relational norm for the prediction of the partnership's overall effectiveness.

*H2b.* The level of communication (information sharing) in a biotechnology partnership will be the most important relational norm for the prediction of the benefits from the partnership.

In terms of power-dependence, the partnerships between emerging biotechnology managers and lead investors are somewhat asymmetrical in nature. Most frequently, power is held by the lead investors who are the dominant partners because they can apply the stipulations of the written contract. The exit strategy of the lead investor involves seeking a substantial and rapid return on investment. After first round financing, lead investors perceive considerable uncertainty in the partnership and, therefore, one would expect the lead investor to take a more transactional than relational approach to the partnership. Conversely, emerging biotechnology company managers are always concerned with the management of cash flow and are often highly dependent on funds provided by the lead investor. Therefore, one can posit that biotechnology company managers perceive a more transactional approach in the behaviors of the lead investor and, thus, assess the financial partnership in a less favorable manner than the lead investor does. Using the same argumentation, the biotechnology managers would also assess their most important non-financial partnership in a more favorable manner than their financial partnerships. This raises two sets of hypotheses:

*H3a.* Compared to lead investors, biotechnology managers will perceive a lower level of relational governance in their partnership.

*H3b.* Compared to lead investors, biotechnology managers will perceive a lower level overall effectiveness in their partnership.

*H3c.* Compared to lead investors, biotechnology managers will perceive a lower level of benefits from their partnership.

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- H4a.* Biotechnology managers will perceive a lower level of relational governance in their financial partnership compared to their most important non-financial partnership.
- H4b.* Biotechnology managers will perceive a lower level of overall effectiveness in their financial partnership compared to their most important non-financial partnership.
- H4c.* Biotechnology managers will perceive a lower level of benefits from their financial partnership compared to their most important non-financial partnership.

### Sample and data collection

Structured interviews were conducted with respondents from 79 emerging biotechnology companies and 36 lead investors in Germany, Canada and France. The respondents for the biotechnology companies were chief executive, operations or financial officers. The important criteria for the selection of the biotechnology company respondent were a strong involvement in the external business partnerships and interaction with the lead investor. They were asked to name their lead investor who was subsequently contacted. The investor respondents were mainly the managers responsible for the portfolio company. The questionnaire was first constructed in English and then back translated into German. Following a back translation into English, both versions were corrected and pre-tested on a sample of knowledgeable respondents in both Canada and Germany. A similar procedure was followed for the construction of the French questionnaire. All interviews were confidential and it was made clear to the respondents that at no time would their individual responses be made known to their partner in the dyadic relationships or made public. The data was analyzed in aggregate form without reference to the names of the companies or of the interviewees.

The companies studied were active in the human health branch of biotechnology with an average age of four years (range one to nine years). Three-quarters of the companies were founded within three years of this study. Approximately 70 percent were in the first or second round of financing with the remainder being in subsequent rounds prior to initial public offering. The German cluster of companies was concentrated in the greater Munich area whereas the Canadian cluster was divided between Montreal (67 percent) and Quebec City (33 percent). The majority (67 percent) of the French companies were located in the region of Paris, including Evry, with the remainder being in Lyon, Grenoble and Marseille. The lead investors were mainly venture capital companies but a few were business angels, bank subsidiaries, and representatives of government agencies.

The biotechnology company managers responded to two questionnaires, one concerning their partnership with their lead investor and the other with their most important non-financial partner. Lead investors responded to one questionnaire concerning their partnerships with biotechnology companies. When a lead investor had partnerships with more than one biotechnology company, the lead investor responded for each company separately. The resulting numbers for the analyses of these three types of partnerships are given in the tables in the results section. In general, analyses of variance showed few significant across-country differences among

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the means for relational governance, overall effectiveness and derived benefits for the three assessments of partnerships. The mean values of these variables for the German respondents' were not significantly different from the Canadian respondents. However, some significant differences were found with the French data. Lead investors in France tended to assess relational governance slightly lower in their partnerships with biotechnology companies than did their Canadian and German counterparts and, French biotechnology managers assessed the benefits derived from their lead investor partnerships to be somewhat higher than was the case in the other two countries. These differences were judged to be immaterial for the purposes of this study. Therefore, the data from the three countries were treated in aggregate.

### Measures

#### *Overall effectiveness and benefits from the partnership*

A single question was used to evaluate the overall effectiveness of the partnership. This question was scored on a five-point Likert scale. Separate individual scales were developed to evaluate the benefits that the biotechnology company and the lead investor were obtaining from their partnerships. These were based on the concepts described by Fried and Hisrich (1995) and Powell (1998).

Following principal component analysis, the final partnership benefits scales included five items for the biotechnology manager's perspective and four items for the lead investor's perspective. These items were scored on a seven-point Likert scale. From the biotechnology company manager's perspective, the five items of the partnership benefits scale included: gaining experience to help attract and develop other partnerships in the biotech network; improving the ability to manage the company more effectively; greatly enhancing the company's reputation in the biotech network; having a more disciplined approach to achieving company's financial objectives; and being able to attract and hire the most competent human capital. The Cronbach alpha's for the this scale from the biotechnology company's perspective were 0.80 and 0.71 for the partnerships with the lead investor and most important non-financial partner respectively. From the lead investor perspective, the four items of the partnership benefits scale included: having a greater chance of achieving return on investment goals; attracting other investment partners for existing and future ventures; finding that the job as lead investor with this company was relatively easy; and achieving much more than expected from the partnership. The Cronbach alpha for the partnership benefits scale for the lead investor perspective was 0.70.

#### *Relational governance*

A 12-item scale of relational governance was developed based on Macneil's relational contracting theory. Similar relational norm scales are to be found in Brown *et al.* (2000), Cannon *et al.* (2000) and Ferguson *et al.* (2005). The Cronbach alphas for the relational governance scale from the biotechnology company's perspective were 0.90 and 0.84 for the partnerships with the lead investor and most important non-financial partner respectively. The Cronbach alpha for the relational governance for the lead investor perspective was 0.84.

The relational governance scale comprised three items for each of four relational norms: communication, flexibility, solidarity and fairness. The items for the communication norm were: always provides us with timely and accurate

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information; spends sufficient time with us in meetings and discussions; and provides us with open access to additional networks of contacts. The items for flexibility were: is open to modifying our formal/informal agreements due to unforeseen changes in the technological and business environment; works with us to resolve relationship problems, conflicts or errors so that we both are satisfied; and is open to discussing changes to operations or the formal business plan. The solidarity norm included: recognizes that for both of us to be successful, we must work cooperatively; realizes that no matter who is at fault, problems in the relationship are joint responsibilities; and would not take undue advantage from a strong bargaining position in the partnership. The fairness items were: always behaves in a fair manner, with or without the guidelines of our formal/informal agreement; ensures that the benefits and costs in the partnership are fair and equitable for both of our companies; and behaves in a manner coherent with the norms accepted in our industry.

## Results

*H1a* and *H1b*, concerning the effect of relational governance on exchange performance, are clearly supported in the multiple regression analyses (Table I). In the three assessments of partnerships (lead investor assessment of the financial partnership and the biotechnology manager's assessment of both the financial and most important non-financial partnership), relational governance is a significant and strong predictor of the overall effectiveness of the partnership. The adjusted  $R^2$  values range from 0.36 to 0.50.  $R^2$  values are proper indicators of effect size (Sawyer and Peter, 1983). Also, both parties in the financial partnership demonstrate that relational governance is a significant and strong predictor of the benefits derived from their partnership. The respective adjusted  $R^2$  values were 0.28 and 0.19. In this dyad, relational governance is a significant predictor of virtually all the individual items of partnership benefits. Relational governance is not a predictor of the biotechnology company managers' assessments of the benefits derived from the partnership with their most important non-financial partner.

*H2a* and *H2b* postulated that communication (information sharing) would be the relational norm most closely linked to the overall effectiveness and derived benefits of the partnership respectively. *H2a* is fully supported by the standardized beta coefficients in the multiple regression analyses (Table I). In each of the three partnership assessments, the norm of communication is the most important contributor to overall effectiveness. To a lesser extent, the fairness norm is also a significant predictor of overall effectiveness for both parties in this dyad. *H2b* is supported in the financial partnership, since both parties demonstrate that communication is also the best predictor of the benefits derived from that partnership (Table I). In particular, biotechnology managers assessed communication to be an important predictor of all five items of partnership benefits. However, the biotechnology manager's assessment of the benefits of the non-financial partnership is not significantly associated with communication. The norms of solidarity and flexibility were not significant predictors of overall effectiveness and derived benefits in any of the three partnership assessments.

*H3a* suggested that, compared to lead investors, biotechnology managers would assess their financial partnership as being less relational. Concomitantly, *H4a* postulated that biotechnology managers would also find less relational governance in

**Table I.**  
Relational norms  
(relational governance) as  
predictors of the  
effectiveness and benefits  
from biotechnology  
partnerships

|   | Communication | Flexibility | Solidarity | Fairness | Adj $R^2$ | F    | p      |
|---|---------------|-------------|------------|----------|-----------|------|--------|
| <i>Lead investor view of financial partnership<sup>a</sup></i>                                    |               |             |            |          |           |      |        |
| Overall effectiveness   | 0.447***      | 0.079       | 0.083      | 0.266*   | 0.36      | 8.4  | 0.0001 |
| Benefits (a to d)   | 0.387*        | 0.082       | 0.006      | 0.183    | 0.19      | 4.1  | 0.01   |
| (a) Chance to achieve ROI goals   | 0.262*        | -0.025      | 0.191      | 0.195    | 0.14      | 3.1  | 0.05   |
| (b) Attract other investment partners   | 0.233         | -0.350      | 0.279      | 0.260    | 0.09      | 2.2  | 0.05   |
| (c) Easier job as venture capitalist  | 0.357***      | 0.227       | -0.227     | 0.079    | 0.10      | 2.5  | 0.05   |
| (d) Achieve more than expected  | 0.222         | 0.343       | -0.114     | -0.057   | 0.06      | 1.9  | NS     |
| <i>Biotechnology company manager view of financial partnership<sup>b</sup></i>                    |               |             |            |          |           |      |        |
| Overall effectiveness   | 0.449***      | -0.006      | 0.082      | 0.305*   | 0.50      | 19.0 | 0.0001 |
| Benefits (a to e)   | 0.532***      | -0.183      | -0.161     | 0.227    | 0.28      | 8.1  | 0.0001 |
| (a) Attract other network partners  | 0.390**       | -0.239      | -0.012     | 0.107    | 0.12      | 3.4  | 0.01   |
| (b) Manage more effectively   | 0.445**       | -0.244      | -0.032     | 0.092    | 0.15      | 4.3  | 0.01   |
| (c) Enhance reputation in BT network  | 0.388**       | 0.052       | 0.013      | 0.096    | 0.19      | 5.4  | 0.001  |
| (d) Discipline for financial objectives   | 0.420**       | -0.098      | -0.231     | 0.175    | 0.14      | 4.0  | 0.01   |
| (e) Attract competent human capital   | 0.342**       | -0.134      | -0.337     | 0.382*   | 0.17      | 4.7  | 0.01   |
| <i>Biotechnology company manager view of most important non-financial partnership<sup>c</sup></i> |               |             |            |          |           |      |        |
| Overall effectiveness   | 0.363***      | 0.018       | 0.186      | 0.218    | 0.37      | 11.9 | 0.0001 |
| Benefits (a to e)   | -0.087        | 0.067       | -0.044     | 0.117    | 0.07      | 0.2  | NS     |
| (a) Attract other network partners  | 0.250*        | 0.025       | 0.004      | -0.158   | 0.03      | 0.9  | NS     |
| (b) Manage more effectively   | -0.295*       | -0.086      | 0.070      | 0.285    | 0.05      | 2.0  | NS     |
| (c) Enhance reputation in BT network  | -0.055        | 0.154       | -0.213     | 0.124    | 0.02      | 0.6  | NS     |
| (d) Discipline for financial objectives   | -0.226        | -0.037      | 0.072      | 0.125    | 0.03      | 0.8  | NS     |
| (e) Attract competent human capital   | 0.092         | 0.216       | -0.138     | -0.007   | 0.01      | 0.8  | NS     |

**Notes:** Values are standardized beta coefficients from multiple regression analyses; significance of coefficients are: \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$ ; \*\*\*\* $p < 0.0001$ ; <sup>a</sup>lead investor's view of partnership with biotechnology company ( $n = 53$ ); <sup>b</sup>biotech company's view of partnership with lead investor ( $n = 73$ ); <sup>c</sup>biotechnology company's view of partnership with their most important non-financial partner ( $n = 74$ )

their financial as compared to their non-financial partnerships. The results support *H3a* (Table II). Duncan's post hoc comparisons of means (following one-way analysis of variance) show that biotechnology managers do have a significantly lower opinion than lead investors of the level of relational governance in the partnership ( $4.9 \pm 1.2$  vs  $5.6 \pm 0.8$ ). Biotechnology managers perceive the partnership to have significantly less flexibility, solidarity and fairness than do their lead investors. The level of communication norm is not significantly different between the parties. *H4a* is also supported since biotechnology managers assess their financial partnerships as having less relational governance than their non-financial partnerships ( $4.9 \pm 1.2$  vs  $5.3 \pm 0.9$ ). Again, this is due to lower assessments of the norms of flexibility, solidarity and fairness.

*H3b* and *H4b* concerned comparisons of the partnerships' overall effectiveness. These hypotheses are not supported since there is no significant difference between the lead investor's and the biotechnology manager's evaluation of the overall effectiveness of the financial partnership, and no significant difference between the biotechnology manager's evaluation of the overall effectiveness of the financial compared to the non-financial partnership (Table II).

*H3c* and *H4c* dealt with comparisons of the benefits derived from partnerships. *H3c* is not supported since no significant differences exist between the biotechnology and lead investor assessments of the financial partnerships benefits (Table II). However, biotechnology managers indicate that they derive significantly more benefits from their partnership with their lead investor ( $4.7 \pm 1.4$  vs  $4.2 \pm 1.3$ ) compared to their non-financial partner.

## Discussion

The present findings extend our knowledge of the positive influence of relational governance on the performance of business-to-business exchanges from manufactured goods (Artz, 1999; Cannon *et al.*, 2000; Noordewier *et al.*, 1990) and services (Brown *et al.*, 2000; Ferguson *et al.*, 2005; Paulin *et al.*, 1997) to interimistic exchanges in entrepreneurial, high technology partnerships. We clearly demonstrate the importance of social embeddedness in the economic activities of firms in clusters of emerging biotechnology companies. The higher the parties assess the degree of relational governance in biotechnology partnerships, the greater are the perceptions of the overall effectiveness and the derived benefits. Therefore, these close, collaborative, fast-developing and relatively short-lived partnerships can also benefit from effective relationship management.

The results indicate that communication (information sharing) and to some extent fairness are the most important norms predicting the ongoing effectiveness and benefits of biotechnology partnerships. The empirical evidence that the effectiveness and benefits of the partnership are linked to the communication norm confirms the qualitative data obtained in the interviews with both respondents. Lead investors often emphasize the importance of open communication with the biotechnology partner and mentioned problems with their portfolio companies that do not inform them about timely problems or painted a more rosy picture than reality. Similarly, biotechnology managers often reported that the lead investors spent little time on the individual companies in their portfolio. Communication and fairness early in a relationship are key for the development of trust.

**Table II.**  
Comparison of  
biotechnology company  
financial and most  
important non-financial  
partnerships

|  | Lead investor view of<br>financial partnership ( <i>n</i> = 54) | Biotechnology manager view<br>of financial partnership<br>( <i>n</i> = 74) | Biotechnology manager view<br>of most important<br>non-financial partnership<br>( <i>n</i> = 74) | <i>F</i>   | <i>p</i>    |
|--|---|--|--|------------|-------------|
| Relational governance (mean<br>of relational norms a to d) |   |  |  |            |             |
| (a) Communication  | 5.6 (0.77)<br>5.4 (0.9)   | 4.9 (1.2)<br>5.2 (1.4)   | 5.3 (0.9)<br>5.2 (1.2)   | 7.7<br>0.8 | 0.001<br>NS |
| (b) Flexibility  | 5.6 (1.2)   | 5.0 (1.3)  | 5.4 (1.1)  | 4.3        | 0.01        |
| (c) Solidarity   | 5.6 (1.0)   | 4.4 (1.5)  | 5.0 (1.3)  | 12.2       | 0.0001      |
| (d) Fairness   | 5.6 (1.1)   | 4.9 (1.5)  | 5.5 (0.9)  | 6.9        | 0.001       |
| Overall effectiveness <sup>a</sup>                         | 4.1 (1.0)   | 3.98 (1.4)   | 4.1 (1.3)  | 0.3        | 0.72        |
| Benefits   | 4.9 (1.0)   | 4.7 (1.4)  | 4.2 (1.3)  | 5.1        | 0.01        |

**Notes:** Values are means (standard deviation) based on seven-point Likert scales: *F*-statistic and *p* for one-way ANOVA probability for Duncan post hoc comparison of means are: \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001, \*\*\*\**p* < 0.0001, \*\*\*\*\**p* < 0.00001, only overall effectiveness was measured by a five-point Likert scale

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As pointed out by Lambe *et al.* (2000), interimistic relationships do not permit a great deal of time for the development of solidarity and trust. In the dynamic environment of emerging biotechnology partnerships, uncertainty and the fear of partner opportunism may be mitigated by more open sharing of information and the fostering of a climate of fairness. This is vital since the sharing of timely, meaningful and pertinent information is a strategic activity necessary for the attainment of a biotechnology firm's goals. Information sharing is a precursor of trust and commitment in relational exchanges (Morgan and Hunt, 1994), and in the longer term, trust may actually improve communication. In the context of high technology industries, information is not efficient and quality decisions require managers to have access to a combination of both public and private information. Specialized information, knowledge and know-how is required (Dyer and Singh, 1998) and these can only be acquired through embedded relationships. In the context of emerging biotechnology firms, private information is at a premium and those companies capable of positioning themselves in learning networks will have a competitive advantage (Powell *et al.*, 1996). Successful entrepreneurs use contacts and connections in their social milieu to obtain private information (BarNir and Smith, 2002) and it is through day-to-day communication that partnership coordination is achieved (Sobrero and Schrader, 1998).

The study design allowed us to compare how lead investors and the emerging biotechnology company managers view their financial partnership, and also, how biotechnology company managers view both their financial and most important non-financial partnership. Overall, biotechnology managers perceive the financial partnership to be less relational than do the lead investors and they judge their financial partnership to be less relational than their non-financial partnership. This is not due to differences in the parties' perception of communication in the partnership but to the biotechnology managers' assessments lower levels of flexibility, solidarity and fairness. It is tempting to speculate that this is attributed to the interimistic nature of these relationships. However, this is not the case, but rather particular to the financial partnership itself, since biotechnology company managers see their non-financial partnership financial partnerships to be more relational than with their lead investor. Interestingly, these compared findings of relational governance did not influence these assessments of the partnerships' overall effectiveness or derived benefits.

### **Limitations**

Research in different national contexts always poses the risk that the theoretical constructs employed are not applicable or perceived in the same manner in each cultural context. In the present study, several measures were taken to avoid cultural bias. The study was designed and conducted by investigators from Germany and Canada. The interviews in France were conducted by a French national, after completion of her graduate work with the investigators. Questionnaires were back translated and, in each country, the terminology was verified by practitioners in the biotechnology and investment fields. The lack of substantial cross-country differences in our findings would suggest that any bias with respect to the principal variables in the study was minimal.

We only obtained data from one side of the partnership between the biotechnology company and their most important non-financial partner. Although this permitted a

certain control and comparison with the partnership between the biotechnology company and the lead investor, it would have been advisable to have also obtained data from the perspective of the most important non-financial partner of the biotechnology companies. Future research could also involve a more longitudinal approach where the eventual success or failure of the biotechnology companies could be also evaluated.

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### Conclusion

The governance of inter-firm exchanges has become increasingly bilateral or relational in nature and away from traditional arm's-length or transactional market governance (Larson, 1992; Lusch and Brown, 1996). Concomitantly, there has been a pervasive growth in corporate partnering and a reliance on different forms of external collaboration (BarNir and Smith, 2002; Powell *et al.*, 1996). It has been suggested that partnerships and cooperative efforts between companies are key to the creation of competitive advantage in the twenty-first century (Zinkhan, 2002). The challenge for emerging biotechnology companies is to develop superior industry networks and managers with well-developed relationship skills (Fisken and Rutherford, 2002). Often, transactional and strictly financial parameters are overemphasized in the selection and development of high tech company and portfolio managers. Our research points out the importance of relationship management to the success of entrepreneurial, high technology partnerships.

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**Further reading**

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