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HORIZONTAL AND VERTICAL RELATIONSHIPS IN DEVELOPING ECONOMIES: IMPLICATIONS FOR SMEs' ACCESS TO GLOBAL MARKETS

LUIZ F. MESQUITA
Arizona State University

SERGIO G. LAZZARINI
Ibmec São Paulo

We integrate the resource-based view, transaction cost economics, and institutional theory to model how collaboration among small-to-medium-sized enterprises (SMEs) in environments of weak infrastructure and institutions help them achieve greater collective efficiencies and access to global markets. Using survey data from 232 Argentine furniture SMEs, we found that different types of ties matter in different ways for these SMEs' collective efficiencies. For instance, vertical ties yield manufacturing productivity along the supply chain, while horizontal ties enable collective resource use as well as joint product innovation. These collective efficiencies, in turn, serve as competitive currencies helping SMEs access global markets.

In most developing economies, firms are urged to become internationally competitive to boost exports and decrease country risk exposure; at the same time, these firms tend to be deprived of the superior technology and supporting infrastructure often found in developed countries—such as government support, efficient ports, shared scale-efficient resources–that would ease reaching global markets (Porter, 1998). Because small-to-medium-sized enterprises (SMEs) are commonplace in these countries (Sengenberger, Loveman, & Piore, 1990), entrepreneurs are also plagued with severe scale constraints on investment in productive assets and development of international channels. A possible way to circumvent such scale and infrastructure limitations is to promote joint action among SMEs through interfirm agreements (Markusen, 1999; Storper, 1997; Tallman, Jenkins, Henry, & Pinch, 2004). By forging extensive collaborative ties, SMEs can exploit complementary competencies and solve common production problems (Amin & Thrift, 1992; Pouder & St. John, 1996); share knowledge, technologies, and inputs (Storper, 1997); develop greater responsiveness to global demands (Canina, Enz, & Harrison, 2005; Tallman et al., 2004; Tendler & Amorim, 1996); and attain greater export levels as a result (Schmitz, 1995: 537).

Ironically, although forging interorganizational collaborative arrangements appears to be critical for SMEs in weak infrastructure settings, it is precisely in those countries that firms also suffer from a host of institutional failures, such as poor legal systems, discretionary governmental policies, and inefficient regulation, that hinder the pursuit of joint action and impose high investment uncertainty and exchange hazards (Mesquita, 2003; North, 1990). Suppose, for instance, that SMEs wish to articulate complementary competencies to overcome infrastructure shortcomings. As they invest in resources specific to their joint project and form expectations of outcomes that are difficult to meter ex ante, they may suffer severe contractual hazards. For example, some firms may renege on collective agreements and free ride on the investments of others, as contracts are difficult to enforce.

These weak infrastructure and poor institutional setting dilemmas seem to be common in emerging markets (Hoskisson, Eden, Lau, & Wright, 2000), where the combination of small scale and lack of country-level support poses formidable challenges

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for SMEs. Thus, we ask, How can SMEs' joint actions enable them to overcome weak infrastructure and institutional settings and become internationally competitive? To address this question, we draw on three complementary theoretical lenses: the resource-based view, transaction cost economics, and institutional theory. In a nutshell, we employ resource-based logic (Barney, 1991) to model how coordinated efforts to articulate distinct sets of interfirm resources and competencies allow SMEs to attain *collective efficiencies*—that is, efficiencies that are unavailable to firms operating alone (Schmitz & Nadvi, 1999)—and overcome infrastructure limitations.[1] Such efficiencies in turn enhance SMEs' access to global markets. As these environments also present institutional challenges, we further employ transaction cost logic (Williamson, 1985) and institutional theory (North, 1990); these perspectives are particularly useful for demonstrating how SMEs can overcome institutional failures and avoid contractual hazards by forging relational governance mechanisms, defined here as sets of commitments, informal rules, and unwritten codes of conduct that affect the behavior of partners (Baker, Gibbons, & Murphy, 2002; Macneil, 1980). In sum, our model is that relational governance helps SMEs supplant weak institutions and make possible their attaining the necessary collective efficiencies to overcome infrastructure constraints in emerging markets; such efficiencies then enable the firms to access global markets. We found empirical support for this model with tests on a sample of 232 furniture SMEs located in the province of Buenos Aires, Argentina.

Our study makes at least three important literature contributions. First, following Hoskisson et al.'s (2000) suggestion, we integrate distinct theories to bring to light important aspects likely to be overlooked when individual frames are applied. As we explored events falling in the interstices of the theories mentioned above, we were able to enrich our understanding of a more complex phenomenon. Second, unlike studies focusing on one particular type of interorganizational tie—that is, either vertical (Dyer, 1997; Helper, 1991) or horizontal relationships (Doz & Hamel, 1998; Gulati, 1999; Kogut, 1988)—we analyze how SMEs can attain export-enhancing collective efficiencies through the management of a complex web of *both* vertical and horizontal relationships, which embody a specific pattern of cooperative interactions within a context in which firms often compete for input and output resources. As such, our work helps expand a growing line of inquiry demonstrating the virtues of studying various types of ties simultaneously (e.g., Brandenburger & Nalebuff, 1997; Choi, Wu, Ellram, & Koka, 2002; Lazzarini, Chaddad, & Cook, 2001; Storper, 1997) as we specify the impact of collaborative processes on the creation of export-enhancing collective efficiencies. Finally, our model also helps highlight important contributions to the international management and cluster-development literatures, not only by fine-tuning theoretical aspects, but also by applying novel empirical methods not used in strategy studies before.

[1] Our argument is also related to the "relational view" (Dyer & Singh, 1998), which establishes the value of resources in the context of interorganizational relationships. Specifically, we examine how firms develop collective efficiencies by employing resources that "extend beyond firm boundaries" (Dyer & Singh, 1998: 660).

INTERORGANIZATIONAL RELATIONSHIPS, COLLECTIVE EFFICIENCIES, AND SMEs' ACCESS TO GLOBAL MARKETS

Promoting Collective Efficiencies through Interfirm Coordination

The resource-based view of the firm states that the possession of distinctive resources is critical if one wishes to attain competitive advantage (Barney, 1991; Miller & Shamsie, 1996; Peteraf, 1993). Smaller firms may be particularly pressed to reach beyond their own boundaries to find and control such key resources (Dyer & Singh, 1998; Stinchcombe, 1965). For instance, SMEs may work together to integrate complementary assets, or even jointly promote investments in common resources (e.g., logistic infrastructure) that would otherwise be prohibitively costly. Essentially, this possibility of joint efforts results from various forms of interfirm interdependencies that make the performance of a firm contingent on the performance of other firms in the same industry or market domain. To more didactically develop our theoretical model, we rely on Thompson's (1967) categorization of interdependencies, which, though not central to our model, helps illustrate the multiple ways in which interfirm coordination can lead to distinct types of collective efficiencies (Gulati & Singh, 1998; Lazzarini et al., 2001).

First, the activities of firms can be related to each other in a *pooled* way. In this case, although firms are loosely coupled, they may wish nonetheless to be interdependent so as to benefit from resources that any firm alone would be unable to acquire because of scale constraints. Here, firms pool their common needs to collectively source a broad set of

scale-efficient resources, such as export infrastructure (e.g., roads and ports), aggregate market information, and even governmental support (e.g., promotion of products in foreign markets). Second, firms' activities may be related to each other in a *sequential* fashion, where one's input is another's output. This type of interdependence typically occurs among firms in a supply chain, where the performance of a particular activity (e.g., assembly) depends heavily on the performance of upstream stages (e.g., production of components). Thus, firms may attain *manufacturing productivity* (e.g., inventory and delivery efficiencies) if they coordinate their sequential activities and jointly develop competencies to manage their supply chain. Finally, activities may be related to each other in a *reciprocal* way, whereby each agent's input is dependent on the others' output and vice versa. For instance, SMEs interested in jointly developing new products can mutually deploy resources and cospecialize their knowledge through recurrent simultaneous interaction (Gulati & Singh, 1998). By combining distinct and complementary resources, SMEs can, for example, collectively achieve rates of product innovation that would be unattainable individually. We therefore focus our analysis on three major types of collective efficiencies that SMEs can achieve through the coordination of their efforts: sourcing of collective resources, manufacturing productivity, and product innovation.

Relational Governance as a Mechanism of Interfirm Coordination

As parties integrate the above resource interdependencies to attain collective efficiencies, they must align expectations and mitigate associated trade hazards. Given the relationship-specific nature of these efforts, transaction cost logic suggests that parties need to employ safeguarding mechanisms, such as formal contracts, to avoid opportunistic expropriation (Williamson, 1985). Contracts, however, require the existence of solid institutions to guarantee their good functioning. For example, scholars have pointed out that the existence of strong courts helps curb opportunism; parties behave as contracted in these institutional settings, aware of the dire consequences of behaving otherwise (North, 1990; Stone, Levy, & Paredes, 1996). In most emerging economies, however, firms are plagued with weak institutions, making the enforcement of such safeguards ineffective and costly. In these settings, firms are likely to resort to informal, *relational* mechanisms of governance to support their joint action and substitute for adequate legal enforcement (e.g., Ellickson, 1991; Greif, 1994; Xin & Pearce, 1996).

Relational governance mechanisms are interfirm cooperative arrangements based on informal rules and unwritten codes of conduct that affect the behavior of firms when they are dealing with others (Baker et al., 2002: 39). Partners engaged in relational governance rely on generic processes for periodic ex post negotiations (Macneil, 1980) and thus overcome difficulties involved in formally spelling out actions and responsibilities ex ante. In doing so, the parties institutionalize the very environment surrounding their trade, endowing it with elements of a "mini-society" (Williamson, 1985: 71) within which they solve conflicts via mutual assessment of circumstances as they develop (e.g., Baker et al., 2002; Heide & Miner, 1992). Fundamentally, relational governance mechanisms are based on recurring exchanges between firms. According to theories of contractual self-enforcement, parties may honor unwritten agreements to preserve their reputations and avoid the termination of valuable long-term relationships (Axelrod, 1984: 124; Heide & Miner, 1992: 267). As parties continue transacting over time, social norms and trust also tend to emerge and further support a collaborative orientation (Fichman & Levinthal, 1991).

Relational governance involves a complex, multidimensional set of norms (Macneil, 1980). We follow Palay (1984) and Kaufmann and Stern (1988) by focusing on particular relational norms supporting informal agreements. First, parties engaged in relational governance should share information so as to facilitate their current interaction and promote subsequent changes in product design and schedules (Palay, 1984). Second, firms should maintain a high level of mutual assistance (Macneil, 1980), for instance by helping each other during unanticipated crises, or recommending alternative courses of action when new contingencies emerge. Finally, firms should pay attention to distributive norms (Kaufmann & Stern, 1988; Ring & Van de Ven, 1992) by sharing the costs and benefits of their joint efforts; here, unilateralism is supplanted by a mutual orientation toward promoting fair returns for all the parties involved in a given project or activity.

Horizontal and Vertical Relationships and Types of Collective Efficiencies

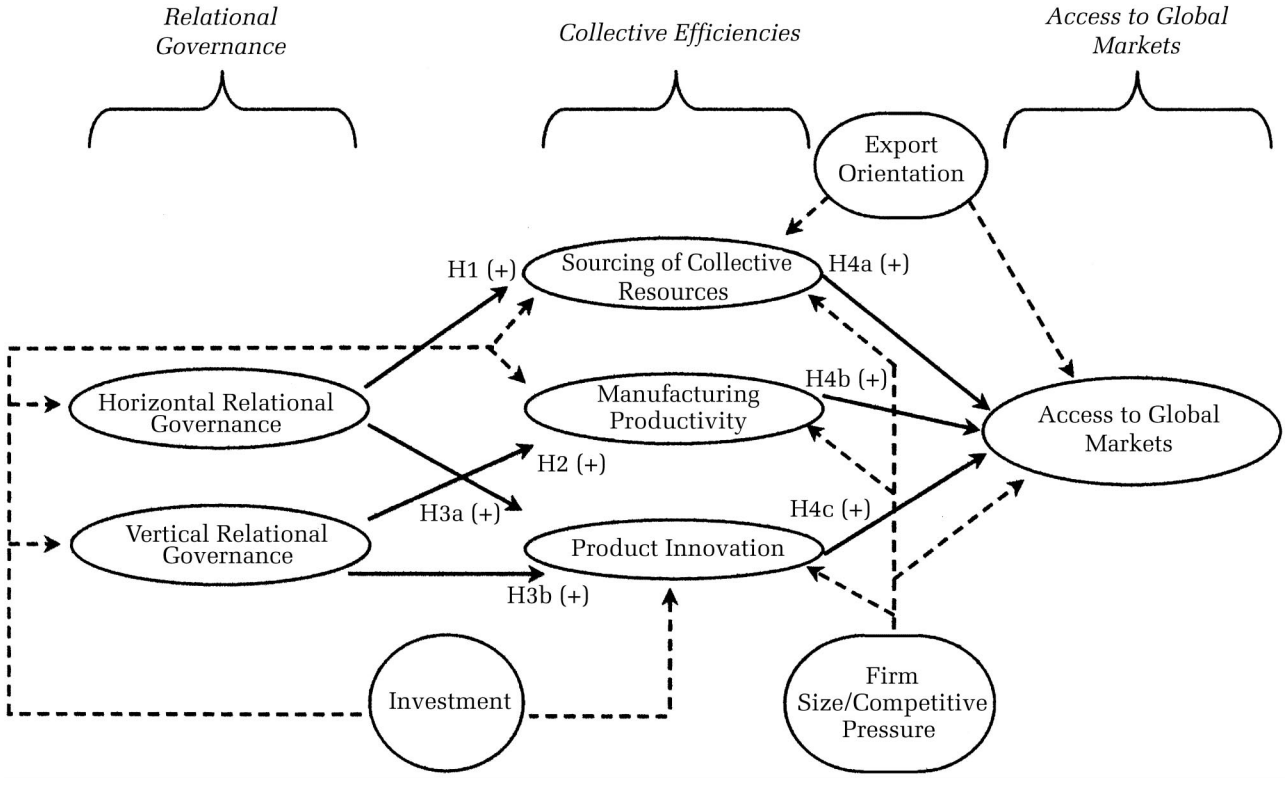
Drawing on the above arguments, we next explain the link between relational governance and distinct types of collective efficiencies. Then, we address how these resulting collective efficiencies

associate with improved access to global markets. Figure 1 outlines the hypothesized relationships.

Our discussion of the effects of relational governance distinguishes between two types of ties that may occur among SMEs: *horizontal ties* (those involving SMEs located in the same industry segment or producing complementary products) and *vertical ties* (involving SMEs specialized in sequential activities of a particular supply chain). Consider first how SMEs may secure collective resources. As Schmitz (1995) explained, collective sourcing is especially relevant when firms need resources that require large-scale initiatives, such as when firms pool their efforts to more effectively lobby their government for improved financing or jointly collect information on new opportunities in global markets (Bartlett & Ghoshal, 1992). To do so, SMEs must establish common rules and patterns of interaction that guide their joint action while preserving their autonomy (Thompson, 1967). For example, if SMEs' decision makers seek to improve their access to global markets, they may decide to establish a common brand and even integrate individual efforts to collectively lobby their government for financial support or investments in infrastructure. A critical decision will be how to assign responsibilities and share the costs of performing particular collective actions, given that the benefits will be equally available to all SMEs in the same industry or market domain. Free riding will be a possibility: some firms may bear a proportionally higher fraction of the necessary time and effort to secure collective resources, while others try to free ride on those efforts (Nault & Tyagi, 2001; Olson, 1965).

Relational governance helps SMEs overcome such coordination dilemmas by enhancing their ability to align expectations and craft common strategies to secure collective resources. For example, implicit commitments to share information and mutually assist one another enable parties to resolve pending conflicts in their process of adaptation to new standards and other types of collective strategies (Heide & Miner, 1992; Helper, 1991). Moreover, relational governance discourages free riding and promotes mutual trust owing to evolving social norms and procedures guiding collective action (Ostrom, Walker, & Gardner, 1992). Thus, we expect a group of firms to be more willing to invest time and effort to obtain government support for their joint export initiatives when they are confi-

FIGURE 1
Theoretical Model: Interfirm Relationships among SMEs in Developing Economies[a]



[a] This is a simplified version of our actual model. It does not show error terms, exogenous factor variances, disturbance terms, error correlations, or correlations between exogenous factors. Solid lines represent hypothesized effects and dotted lines, control paths.

dent that all the other parties are fully committed to the process.

We posit that the relational governance of horizontal ties is particularly important to guaranteeing the provision of collective resources because it is easier to establish a common agenda when SMEs are in the same industry or market segment. Horizontally linked SMEs face similar challenges in their competitive arenas, and hence are more likely agree on common strategies and more equally benefit from industry-specific norms. In contrast, SMEs with vertical ties likely have more differentiated demands for collective resources. For instance, although manufacturers of final goods may be more interested in governmental support to collect information on international clients, suppliers of components may be more interested in domestic financing or local investments in logistics. Even though vertically linked firms should also have sets of overlapping interests, we contend that the likelihood of effective joint action for the provision of collective resources is higher in the case of horizontally linked, relationally governed SMEs. Thus, in weak infrastructure and institutional environments:

Hypothesis 1. An SME's relational governance of horizontal ties has a positive association with its sourcing of collective resources.

Relationships should also contribute to the attainment of superior manufacturing productivity along supply chains. SMEs can coordinate their sequential activities to guarantee, for example, higher inventory turnover and timely delivery (Boyer, Leong, Ward, & Krajewski, 1997). Such coordination also involves severe challenges, as parties need to jointly plan their production schedules and constantly check for inconsistencies and nonconformities (Thompson, 1967). Because the process is sequential, interfirm coordination to achieve manufacturing productivity largely benefits from *vertical* relationships among suppliers and their clients.

The critical role of relational governance on the coordination of vertical ties can be explained by two distinct yet related arguments (Mesquita & Brush, 2008). The first of these, based on transaction cost economics, explains that relational governance attenuates contractual hazards occurring in complex buyer-supplier arrangements involving the deployment of relationship-specific resources (Poppo & Zenger, 2002; Williamson, 1985). Because vertical exchanges are commonly subject to moral hazard (e.g., the seller delivers core inputs late, or of low quality, or the buyer bargains for price reductions after the seller has made specific investments), parties can benefit from social norms and commitments that mitigate those hazards, reduce transaction costs, and increase exchange efficiencies (Dyer, 1997). As Helper (1991) explained, the relational commitment to voice concerns helps firms resolve their conflicts and avoid ex post negotiation hazards.

The second argument explains that relational governance mechanisms affect the efficiency with which parties mutually coordinate their interdependent assembly systems and build competencies with which to manage their activities (Gulati & Singh, 1998). The development of vertical relationships, in particular, can help SMEs develop competencies to coordinate their production activities in a flexible way. For instance, commitments for information exchange, especially on market demand conditions, enable parties to more accurately track each other's expectations and adjust production processes accordingly (Van de Ven & Walker, 1984). Likewise, commitments for mutual assistance, especially during emergencies such as production line breakdowns, can help parties either prevent unwanted supply interruptions or even react more quickly to avert major losses when disruptions inadvertently occur; thus, such commitments help firms enhance the reliability of their supply system processes (Boyer et al., 1997). Therefore, in environments in which infrastructure and institutions are weak:

Hypothesis 2. An SME's relational governance of vertical ties has a positive association with its manufacturing productivity.

Relational governance also allows SMEs to leverage their rates of product innovation. We propose, in particular, that *both* vertical and horizontal relationships help SMEs achieve this type of collective efficiency. Thus, buyer and supplier may jointly develop a new product or adjust the attributes of existing products (the architecture of components, the functionality of an overall design, and so on). To do so, they likely have to cospecialize their resources and competencies: the seller has to develop knowledge and production processes that are specific to the manufacturer, and the manufacturer has to develop operations and marketing efforts that rely on the specific attributes of the product (Teece, 1992: 9). Cospecialization is greater if parties are willing to fully exchange proprietary information, mutually assist one another, and guarantee fair division of the net value arising from such investments in innovation. Relational norms therefore promote greater support for cospecialization efforts (Dyer & Singh, 1998; Poppo & Zenger, 2002), which leads us to propose that vertical rela-

tional mechanisms are likely to induce higher rates of product innovation.

The same is true in the case of horizontal ties. Firms that are part of the same industry or segment may want to share complementary knowledge to improve their existing product portfolios, create new products, or jointly develop product bundles (Audretsch & Feldman, 1996). Because horizontally linked firms tend to operate in the same industry or segment, knowledge sharing may lead to imitation or expropriation of proprietary technology (Dussauge, Garrette, & Mitchell, 2000; Zhao, Anand, & Mitchell, 2004). For instance, a firm may learn the design processes of one of its peers and then apply this knowledge in the development of competing products. This behavior may not occur, however, if peers form horizontal links whereby norms and social attachments become prevalent (Granovetter, 1985; Uzzi, 1997). Therefore, in environments in which infrastructure and institutions are weak:

Hypothesis 3a. An SME's relational governance of horizontal ties has a positive association with its product innovation.

Hypothesis 3b. An SME's relational governance of vertical ties has a positive association with its product innovation.

Collective Efficiencies and Improved Access to Global Markets

In the second part of our model, we posit that the benefits resulting from collective efficiencies enable SMEs to improve their access to global markets. Our argument derives from propositions established in earlier international management research (Buckley & Casson, 1976; Dunning, 1981). Dunning, for example, posited that firms have a better chance to access global markets if they have the necessary resources and capabilities to scan international clients and meet their expectations for quality, timely delivery, and more (see also Bartlett & Ghoshal, 1992: 10). Specifically, as more and more industries exhibit increasing scale economies and high rates of product innovation induced by skyrocketing R&D investment, firms are increasingly required to muster superior knowledge and capabilities to seek, find, and flexibly serve global customers. Firms can position themselves as high-scale, low-cost providers, and even, in some cases, attempt to "outinnovate" competitors (Buckley & Casson, 1976; Caves, 1982).

Because SMEs often lack individual resources and capabilities with which to address such scale-based and innovation challenges in global markets, we theorize that collective efficiencies resulting from the proper coordination of joint action among SMEs allows these firms to overcome these difficulties and strengthen their ability to compete globally. Thus, manufacturing productivity emanating from the relational coordination of sequential activities is likely to bring cost-based competitive advantages for SMEs in global markets. Moreover, increased product innovation resulting from the relational coordination of knowledge-based resources is likely to improve SMEs' ability to satisfy the needs of diverse international customers. Finally, improved sourcing of collective resources is likely to enable SMEs to leverage their presence in global markets if, for instance, they influence local governments to invest in export infrastructure or collectively gather information about potential foreign clients. Such collective sourcing provides firms with capabilities to seek, find, and supply international clients—capabilities that each SME, alone, would be unable to gather. In sum, in keeping with the resource-based view, we posit that these collective efficiencies borne by the articulation and creation of distinctive interfirm resources and competencies allow firms to develop competitive advantage and better access global markets. Thus, within weak infrastructure and institutional environments:

Hypothesis 4a. An SME's improved sourcing of collective resources has a positive association with its access to global markets.

Hypothesis 4b. An SME's improved manufacturing productivity has a positive association with its access to global markets.

Hypothesis 4c. An SME's improved product innovation has a positive association with its access to global markets.

DATA AND METHODS

Industry Setting

We tested the proposed model with a survey data set from SMEs producing furniture in the province of Buenos Aires, Argentina. These firms make finished goods such as tables, chairs, cabinets, and other pieces that are sold as single units or as sets and also make preassembled whole parts, such as machined table structures, bed frames, and other complex compositions of separate parts. To ensure consistency, we excluded makers of smaller parts, such as laminated wood, tubes, and connectors.

We believe that the country in question and the industrial setting were appropriate to our objectives. First, Argentina is known to suffer from a lack of strong export-enhancing infrastructure and of

solid institutions such as those found in more developed countries. Such conditions create barriers for local companies that need to expand globally or even simply coordinate joint actions (Mesquita, 2003). Moreover, recent studies have demonstrated that exports have become an important means of gauging the success of firms in Argentina, as they are a source of hard currency for firms competing in a shrinking local market as well as a form of diversification against country-level risk (Carrera, Mesquita, Perkins, & Vassolo, 2003). Thus, our study setting provided an invaluable opportunity to model how SMEs can overcome common environmental difficulties by coordinating joint action to attain collective efficiencies and successfully access global markets.

The Argentine furniture sector also had an appropriate profile for testing our model. Most of the firms are small family businesses (CSIL Research, 2003); as such they lack the necessary scale to compete on cost and to search for global opportunities. Further, responding to a request of the local trade association, the Foreign Ministry of Argentina developed an exports sponsorship program coordinated by its agency Fundación ExportAR. This program provided furniture makers with foreign relations support, market information, and even partial financial support to facilitate their involvement in export activities. We considered this governmental service to be a collective resource that a group of firms can access through interfirm coordination.

Data Collection

In collecting our data set, we mostly followed the prescriptions of Dillman (2000). We initially developed a questionnaire by identifying construct items from previous studies. We then interviewed entrepreneurs and managers in the furniture business to develop and adapt items, refine survey wording, and check the overall validity of questions vis-à-vis their industry environment. With the help of the local trade association, we assembled a list of 521 firms. Information from the Argentine Ministry of Economy indicated that the population of furniture makers was as large as 2,000 firms. Thus, we believed that our initial sample was fairly representative of the population. Based on this initial sample, our response rate was roughly 45 percent (232 responses). We also assessed whether nonresponse produced any significant bias, by comparing early with late respondents through *t*-tests (see Armstrong and Overton [1977] for an outline of similar tests). We found no significant differences.

In the survey, respondents assessed their vertical and horizontal ties and performance. They were asked to consider the past three years of their relationships to avoid capturing biased responses based on particular episodes of peak performance or even one-time negative relational experiences. Item responses were scaled from 1 ("not at all") to 5 ("to a high extent").

Measures

Relational governance of vertical and horizontal ties. We asked the respondents to indicate the degree to which they were committed to establishing a set of behavioral norms in the partnerships they held.[2] Vertical and horizontal partnerships were referred to in separate questions. Thus, we measured the degree to which respondents relied on social commitments of collaboration as gauged by their efforts to (1) share information, (2) assist each other, and (3) promote fair sharing of cost savings and benefits arising out of joint efforts. The two first survey items were adapted from Heide and John (1992) and Artz and Brush (2000). The third was adapted from Ring and Van de Ven (1992).

Sourcing of collective resources. To measure the degree to which firms shared resources, we were careful to select a form of resource sharing that was meaningful to the particular population studied. As mentioned above, a particular type of collective resource provided to this group of firms involved the efforts of Fundación ExportAR, which assigned a foreign ministry counselor to assist furniture makers in matters related to (1) contacting potential foreign customers through their web of consulates in other countries, (2) coordinating and financing their showing products in international fairs, and (3) promoting the country image of Argentina. We therefore asked respondents the degree to which their firms pooled demand with other peer firms for specialized services such as these.

Manufacturing productivity. To gauge productivity, we referred to past research using metrics associated with the performance of production systems (Boyer et al., 1997; De Meyer & Ferdows, 1985; Ward, Duray, Leong, & Sum, 1995). The cited scholars suggest the use of inventory turns and timely deliveries. The first directly gauges productivity (the amount of input tied to production output), whereas the second gauges efficiencies in the han-

[2] To the extent the owner-CEO of an SME is invariably the person who has the authority for all major decisions taken by the small organization, we took the interfirm relationships of the owner-manager to be tantamount to those of the organization. See McEvily and Zaheer (1999: 1137, footnote) for a similar treatment.

dling of production processes as goods move from up- to downstream stations in the value chain. Thus, we asked respondents to indicate the (1) number of inventory turns necessary to support 12 months of sales as well as (2) the percentage of goods delivered when promised. An analysis of those measures indicated that timely delivery was highly skewed; because our analysis required normally distributed data, we dropped this measure from our study.

Product innovation. Product innovation has become one of the most important aspects of competition in the world market for furniture (CSIL Research, 2004). A measure of product innovation often used in the industry (CSIL Research, 2004) is the rate of "catalogue turnover," defined in our survey as both the percentage of revenue from new products and the percentage of new products in a firm's catalogue.

Access to global markets. Entrepreneurs suggested that to gauge the degree to which SMEs had successfully accessed global markets, we should use some indicator related to the percentage of revenues coming from foreign clients. Thus, we measured SMEs' access to global markets as the percentage of a firm's total sales that was in foreign markets.

Control variables. Although we were interested in developing a parsimonious model, other factors that might also influence the relationships stated in Figure 1 had to be considered to ensure results were not unjustifiably influenced. First, we controlled for *firm size*. Because larger firms might have enough resources such as capital and managerial talent to "go international" alone, their international success might result from the SMEs' own, as opposed to shared, efficiencies. We measured firm size in two ways, as the logarithm of a firm's yearly revenues averaged over three years and as the log of the firm's number of employees. Second, we controlled for *competitive pressure* in the marketplace. If a firm suffers from stiff competition in its domestic market segment, it is more motivated to pursue foreign markets. Competitive pressure was measured as the log of a firm's number of competitors, that is, firms selling similar products in the same domestic market.

We also adopted a set of variables to control for spurious causality involving relationships, collective efficiencies, and export performance. For instance, a firm whose strategy focused on exporting would be both more likely to access global markets and more interested in participating in collective sourcing of specialized government support for going abroad. Therefore, we controlled for an *export orientation*, measuring the degree to which respondents believed that firms that export their goods (1) are more competitive than those that do not and (2) can better weather home market recessions. A significant effect found for both constructs would imply that the association between collective sourcing and access to global markets was spurious. Finally, we controlled for *investments* in implementing three types of systems: just–in-time (*JIT*), total quality management (*TQM*), and new information technology (*IT*). Our worry here was possibly spurious causality in the effects of horizontal and vertical relational governance on collective efficiencies, particularly manufacturing productivity and innovation. Firms that are in the process of implementing JIT- and TQM-related practices may search for closer partnerships because these are seen as part of the overall scheme of implementing leaner manufacturing (Boyer et al., 1997). If investment in one of these three types of systems was associated with both relational governance and collective efficiencies, our theorized effects of relational governance on collective efficiencies might be either spurious or even causally reversed.

Structural Equation Method

We performed a structural equation model (SEM) analysis, which, by definition, is a hybrid of factor and path analysis. To implement the model, we followed recommendations by Anderson and Gerbing (1988). Specifically, in the first stage we used confirmatory factor analysis to test whether the variables selected to measure each construct showed convergent validity (i.e., whether items were fairly correlated with one another) and discriminant validity (i.e., whether variables clearly measured different constructs). In the second stage, we computed the structural model, basing it on the measurement model found in the first stage. Here, interfactor correlations were estimated for all factors, making this an oblique, rather than an orthogonal, analysis. Anderson and Gerbing (1988) recommended that, when moving to the second stage, one should compare two other models to the theoretical model: the next-best-constrained and the next-best-unconstrained models. The former is the theoretical model with one path representing an important alternative theoretical argument deleted. The latter contains all paths included in the theoretical model plus one or more previously unspecified paths representing important alternative theoretical arguments. Thus, for the next-best-unconstrained model, we added nonhypothesized paths between horizontal governance and manufacturing productivity and between vertical governance and collective sourcing to assess whether our parsimonious model was appropriate. For the next-best-constrained model, we dropped the path between horizontal relational governance and innovation. Previous studies have stated that firms are

more likely to cooperate with suppliers, whom they see as partners, rather than with peer firms, whom they see as competitors (Choi et al., 2002; Brandenburger & Nalebuff, 1997).

Because our analysis of alternative models involved interactions, a note on how we modeled interaction terms is in order. Analyses of latent variable interactions are not common in strategy studies and only recently have they been adopted in marketing and psychology (see Bollen and Curran [2005] for a review). Here, we used Ping's (1995, 1996) techniques for interaction terms with a single indicant. The single indicant for the two factors X and Y, with respective indicants as x_1, x_2 and y_1, y_2, is computed as $X{:}Y = (x_1 + x_2)(y_1 + y_2)$. In such a case, Ping proposed that the loadings and errors for X:Y be given respectively by $\lambda x{:}y = (\lambda_{x1} + \lambda_{x2})(\lambda_{y1} + \lambda_{y2})$ and $\theta_{\epsilon x:y} = (\lambda_{x1} + \lambda_{x2})^2 \mathrm{Var}(X)(\theta_{\epsilon y1} + \theta_{\epsilon y2}) + (\lambda_{z1} + \lambda_{z2})^2 \mathrm{Var}(Y)(\theta_{\epsilon x1} + \theta_{\epsilon x2}) + (\theta_{\epsilon x1} + \theta_{\epsilon x2})(\theta_{\epsilon y1} + \theta_{\epsilon y2})$. As far as specification of the measurement model is concerned, drawing on Anderson and Gerbing (1988: 418), Ping (1995: 339) indicated that the unidimensionality of X and Y enables the omission of the nonlinear latent variables from the linear terms only measurement model. Because X and Y are each unidimensional, their indicants are unaffected by the presence or absence of other latent variables in a measurement or structural model. Stated differently, this method provides similar measurement parameter estimates between measurement and structural models.

RESULTS AND DISCUSSION

Measurement Model

Table 1 reports basic statistics and correlations. Tables 2 through 5 report results of our SEM analysis, based on the two-stage procedure recommended by Anderson and Gerbing (1988). A brief analysis of the correlation matrix shows initial evidence of good convergent and discriminant validity: all 14 values greater than .58 involve intrafactor correlations, and interfactor correlations do not surpass .36. We also followed Anderson and Gerbing's formal analysis for convergent validity by computing *t*-tests for factor loadings. We kept indicators for which factor loadings were greater than twice their standard errors (Table 2). Lastly, we assessed discriminant validity. Here, we used chi-square difference tests for constrained and unconstrained models. The constrained model sets the covariance between two constructs equal to one; a significantly lower chi-square value for the unconstrained model supports the discriminant validity criterion. As we indicate in Table 3, all multi-item constructs exhibit satisfactory discriminant validity.

In Table 4, we present summary statistics for all models estimated in both stages as well as difference statistics for all tests of one model against another. As far as our test of the initial measurement model (model 1) is concerned, we look at chi-square and five other goodness-of-fit statistics: the goodness of fit index (GFI), the normed and the nonnormed fit indexes (NFI and NNFI), the comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA). A commonly accepted rule of thumb is that the first four fit indexes should be greater than 0.90 (Anderson & Gerbing, 1988).[3] RMSEAs of 0.05 or less indicate good models. Probability levels on chi-square of 0.10 or higher are generally considered evidence of ideal models (Bentler, 1989). Because the chi-square statistic of model 1 is insignificant ($p < .36$), and because the values on all the goodness-of-fit indexes are within the expected range, we concluded that this is a strong measurement model.

Structural Model

We therefore proceeded to stage 2, which involves path analyses with the latent and observed variables resulting from the measurement model obtained in the first stage. Our theoretical model (model 2), represented in Table 4, has a significant chi-square, which could have been cause for concern. In such cases, Anderson and Gerbing (1988) argued, the chi-square test is frequently not valid in applied settings, and they recommended that this statistic be treated as a general

[3] The GFI indicates the relative amount of variance and covariance jointly explained by a model. The NNFI is defined as "the percentage of observed-measure covariation explained by a given measurement or structural model . . . that solely accounts for the observed measure variances" (Anderson & Gerbing, 1988: 421). The NNFI is often viewed as a superior variation of Bentler and Bonnett's (1980) normed fit index (NFI) since it has been shown to be more robust in reflecting model fit regardless of sample size (Anderson & Gerbing, 1988; Bentler, 1989). Bentler's (1989) CFI is similar to the NNFI in that it provides an accurate assessment of fit regardless of sample size. The CFI tends to be more precise than the NNFI, however, in describing comparative model fit as it corrects for small sample size by subtracting the degrees of freedom from their corresponding chi-square values (Bentler, 1989). The RMSEA incorporates both model complexity (expressed in the degrees of freedom) and sample size in an analysis, and it is thus suggested for analyses relying on maximum likelihood (Browne & Cudeck, 1993) with smaller samples.

TABLE 1
Basic Statistics and Pearson Correlations Matrix

Variables	Mean	s.d.	Kurtosis	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Horizontal norms of information exchange (HG1)	2.35	1.28	−0.90																				
2. Horizontal norms of assistance (HG2)	2.38	1.24	−0.79	.80**																			
3. Horizontal norms of fair sharing (HG3)	2.38	1.27	−1.02	.80**	.83**																		
4. Vertical norms of information exchange (VG1)	2.75	1.09	−0.72	.35**	.37**	.35**																	
5. Vertical norms of assistance (VG2)	2.77	1.09	−0.68	.36**	.35**	.34**	.73**																
6. Vertical norms of fair sharing (VG3)	2.72	1.07	−0.81	.35**	.33**	.32**	.75**	.72**															
7. Manufacturing productivity (INN1)	13.98	7.94	−0.67	.10	.11	.10	.28**	.21**	.26**														
8. Percentage of revenues from new products (INN2)	15.67	8.11	−0.25	.20**	.22**	.26**	.04	.16*	.06	.15*													
9. Percentage of new products in catalogue (INN3)	15.72	8.07	−0.30	.19**	.19**	.24**	.04	.15*	.08	.13	.97**												
10. Collective sourcing for contacting international customers (CS1)	2.33	1.00	−0.73	.15*	.17*	.20**	.05	.12	.17*	.09	.05	.04											
11. Collective sourcing for coordinating international fairs (CS2)	2.32	1.02	−0.60	.09	.13	.16*	−.03	.09	.08	.09	.01	.00	.72**										
12. Collective sourcing for promotion of country brand (CS3)	2.32	1.02	−0.58	.12	.14*	.17**	.03	.08	.05	.13*	.02	.00	.67**	.68**									
13. Percentage of exported products (AG1)	18.63	11.30	0.99	.19**	.18**	.13	.16*	.19**	.14*	.28**	.14*	.11	.22**	.21**	.24**								
14. Firm size: Sales in US$[a] (SIZ1)	5.49	0.52	−0.77	.01	.07	.05	.12	.15*	.15*	.07	−.01	−.03	.13*	.09	.12	.17**							
15. Firm size: Employees[a] (SIZ2)	1.16	0.23	−0.64	−.02	.02	.00	.07	.10	.06	.05	−.05	−.06	.08	.07	.07	.17**	.89**						
16. Competitive pressure[a] (COMP1)	2.36	1.68	−1.26	.11	.05	.04	−.05	−.02	−.01	−.03	−.01	.00	.00	−.04	.02	.18**	−.11	−.13*					
17. Exporters more competitive (EO1)	2.42	1.45	−1.15	.04	.01	.01	.07	.03	−.04	.03	−.01	.00	−.02	.03	.08	.28**	−.12	−.11	.27**				
18. Exporters more protected from recession (EO2)	2.44	1.52	−1.05	.03	−.01	.00	.04	.00	−.06	.01	−.03	−.01	.02	.04	.08	.16*	−.14*	−.13*	.27**	.86**			
19. Investments in JIT (INV1)	2.29	1.29	−0.09	−.01	−.10	−.03	−.03	.02	−.01	.33**	.27**	.26**	−.10	−.11	−.05	.15*	.02	.05	.06	.00	−.02		
20. Investments in IT (INV2)	2.39	1.24	−0.79	.00	−.07	−.03	−.01	.01	−.01	.28**	.20**	.20**	−.13*	−.135*	−.04	.11	−.04	.01	−.03	−.01	−.02	.78**	
21. Investments in TQM (INV3)	2.37	1.31	−1.02	−.02	−.11	−.03	−.03	.01	−.03	.20**	.21**	.20**	−.09	−.13*	−.12	.00	−.04	.01	−.03	−.06	−.05	.75**	.59**

[a] Logarithm.

* $p < .05$

** $p < .01$

TABLE 2
Comparison of Measurement Model to Best Model

Observed Variables	Latent Factors	Measurement Model		Best Model	
		Loading	C.R.	Loading	C.R.
Horizontal norms of information exchange	F1. Horizontal relational governance	1.00		0.96	
Horizontal norms of assistance	F1. Horizontal relational governance	1.00	21.06	1.00	20.97
Horizontal norms of fair sharing	F1. Horizontal relational governance	0.96	19.76	1.00	19.70
Vertical norms of information exchange	F2. Vertical relational governance	1.00		1.00	
Vertical norms of assistance	F2. Vertical relational governance	0.96	14.93	0.96	14.85
Vertical norms of fair sharing	F2. Vertical relational governance	1.03	15.86	1.03	15.66
Collective sourcing for contacting international customers	F3. Sourcing of collective resources	1.00		1.00	
Collective sourcing for coordinating international fairs	F3. Sourcing of collective resources	1.03	14.04	1.02	14.01
Collective sourcing for promotion of country brand	F3. Sourcing of collective resources	0.96	13.28	0.96	13.30
Manufacturing productivity					
Percentage of revenues from new products	F4. Product innovation	1.00		1.00	
Percentage of new products in catalogue	F4. Product innovation	0.98	12.60	0.97	12.55
Access to global markets					
Sales in US$[a]	F5. Firm size	1.00		1.00	
Employees[a]	F5. Firm size	0.98	13.64	0.92	12.85
Market pressure					
Exporters more competitive	F6. Export orientation	1.00		1.00	
Exporters more protected from recession	F6. Export orientation	0.98	11.15	0.97	11.11
Investments in JIT	F7. Investment	1.00		1.00	
Investments in IT	F7. Investment	1.09	12.59	1.10	12.63
Investments in TQM	F7. Investment	1.07	13.97	1.06	13.99

[a] Logarithm.

goodness-of-fit index rather than as a statistical test in the strict sense. Many researchers use the informal criterion that the model may be acceptable if the chi-square value is less than twice the size of the degrees of freedom (Bentler, 1989). The fact that our model 2 chi-square of 231.5 is less than twice the degrees of freedom of 167, together with the fact that all other goodness-of-fit index values are within expected ranges, indicates ours is a strong and acceptable theoretical model.

From here, the second step in the path analysis was to compare the next-best-constrained model (model 3) with our theoretical model (model 2). Model 3 gained one degree of freedom (Table 4), but that came at a cost of a significant increase in chi- square ($\Delta\chi^2 = 14.79$, $p < .001$). Thus, we still preferred our original model 2. We next tested model 2 against the next-best-unconstrained model (model 4). Here we lost degrees of freedom ($\Delta df = -2$), while there was no significant improvement in chi-square ($\Delta\chi^2 = 0.16$, $p > .1$). We therefore discarded the next-best-unconstrained model and, following Anderson and Gerbing, retained model 2. As a follow-up step, we examined modification indexes resulting from Lagrangian multiplier tests (Bentler, 1989) to see if any unspecified paths could be added to improve model fit. Here, we found it necessary to add a covariance path between the error terms of horizontal and vertical relational governance. Additionally, we found that several elements in our model were correlated and that adding covariance paths among them would help ensure our findings were robust. We thus also added covariance paths between the error terms of the three collective efficiencies, as well as between three exogenous factors (i.e., investments, firm size, and export orientation) and the error terms of competitive pressure and of horizontal and vertical relational governance. Lastly, we trimmed off insignificant parameters estimates to obtain a most-constrained version of the theoretical model; applying the marginal significance cutoff of $p < .10$ and Z-statistic of 1.65, we dropped the path between vertical relational governance and product innovation. We retained paths involving control variables and covariances between the items mentioned above, however, even if their coefficients were insignificant.

TABLE 3
Results of Chi-Square Difference Tests

Latent Factor 1		Latent Factor 2		Chi-Squares[a]		Change in Chi-Square[b]
F1.	Horizontal relational governance	F2.	Vertical relational governance	199.0	155.4	43.6
F1.	Horizontal relational governance	F3.	Sourcing of collective resources	231.7	155.4	76.3
F1.	Horizontal relational governance	INV1.	Manufacturing productivity	236.5	155.4	81.1
F1.	Horizontal relational governance	F4.	Innovation	215.0	155.4	59.6
F1.	Horizontal relational governance	AG1.	Access to global markets	221.3	155.4	65.9
F1.	Horizontal relational governance	F5.	Firm size	283.4	155.4	128.0
F1.	Horizontal relational governance	COMP1.	Competitive pressure	207.8	155.4	52.4
F1.	Horizontal relational governance	F6.	Export orientation	215.7	155.4	60.3
F1.	Horizontal relational governance	F7.	Investments	267.5	155.4	112.1
F2.	Vertical relational governance	F3.	Sourcing of collective resources	248.4	155.4	93.0
F2.	Vertical relational governance	INV1.	Manufacturing productivity	212.4	155.4	57.0
F2.	Vertical relational governance	F4.	Innovation	241.3	155.4	85.9
F2.	Vertical relational governance	AG1.	Access to global markets	222.7	155.4	67.3
F2.	Vertical relational governance	F5.	Firm size	264.8	155.4	109.4
F2.	Vertical relational governance	COMP1.	Competitive pressure	226.5	155.4	71.1
F2.	Vertical relational governance	F6.	Export orientation	219.0	155.4	63.6
F2.	Vertical relational governance	F7.	Investments	160.7	155.4	5.3
F3.	Sourcing of collective resources	INV1.	Manufacturing productivity	164.0	155.4	8.6
F3.	Sourcing of collective resources	F4.	Innovation	255.5	155.4	100.1
F3.	Sourcing of collective resources	AG1.	Access to global markets	215.3	155.4	59.9
F3.	Sourcing of collective resources	F5.	Firm size	276.2	155.4	120.8
F3.	Sourcing of collective resources	COMP1.	Competitive pressure	225.2	155.4	69.8
F3.	Sourcing of collective resources	F6.	Export orientation	217.4	155.4	62.0
F3.	Sourcing of collective resources	F7.	Investments	284.9	155.4	129.5
INV1.	Manufacturing productivity	F4.	Innovation	227.7	155.4	72.3
INV1.	Manufacturing productivity	AG1.	Access global markets	203.3	155.4	47.9
INV1.	Manufacturing productivity	F5.	Firm size	278.7	155.4	123.3
INV1.	Manufacturing productivity	COMP1.	Competitive pressure	222.4	155.4	67.0
INV1.	Manufacturing productivity	F6.	Export orientation	213.0	155.4	57.6
INV1.	Manufacturing productivity	F7.	Investments	204.3	155.4	48.9
F4.	Innovation	AG1.	Access to global markets	224.5	155.4	69.1
F4.	Innovation	F5.	Firm size	294.9	155.4	139.5
F4.	Innovation	COMP1.	Competitive pressure	218.1	155.4	62.7
F4.	Innovation	F6.	Export orientation	217.4	155.4	62.0
F4.	Innovation	F7.	Investments	211.1	155.4	55.7
AG1.	Access to global markets	F5.	Firm size	255.6	155.4	100.2
AG1.	Access to global markets	COMP1.	Competitive pressure	189.6	155.4	34.2
AG1.	Access to global markets	F6.	Export orientation	182.8	155.4	27.4
AG1.	Access to global markets	F7.	Investments	229.3	155.4	73.9
F5.	Firm size	COMP1.	Competitive pressure	254.4	155.4	99.0
F5.	Firm size	F6.	Export orientation	269.1	155.4	113.7
F5.	Firm size	F7.	Investments	285.1	155.4	129.7
F6.	Export orientation	F7.	Investments	291.8	155.4	136.4

[a] The chi-square for each latent factor 1 is on the left ($df = 149$), and the chi-square for each latent factor 2 ($df = 148$) is in the middle.
[b] For changes in chi-square greater than 3.85, $df = 1$.

As a result of the above mentioned changes, we specified our best model (model 5), shown in Figure 2. The chi-square statistic for model 5 is not significant ($\chi^2 = 162.4$, $p \sim .5$), and it represents a significant reduction from the chi-square of model 2 ($\Delta\chi^2 = -69.11$, $p < .001$). Though a statistically nonsignificant chi-square often indicates a good fit to the model, we were only cautiously optimistic. Critics have often argued that statistically nonsignificant chi-squares can be unstable when one uses small samples (i.e., fewer than 300 observations, as is our case). In these circumstances, adding covariance paths to control for correlation (as we did from model 2 to model 5) can result in a model that is *overfitted* (e.g., Byrne, 2001: 92; Wheaton, 1987: 123). To ensure this was not the case, we also contrasted other fit indexes, as shown in Table 4. There, not only do we look at the GFI, NFI, NNFI, CFI, and RMSEA, but also at the Akaike information crite-

TABLE 4
Model Statistics and Testing Sequence[a, b]

(a) Statistics

Models	Chi-Square	*df*	Probability	GFI	NFI	NNFI	CFI	RMSEA	AIC	BCC	BIC
Null	155.41	193	>.5								
1. Measurement	155.41	147	0.36	0.94	0.95	0.97	0.998	0.01	317.3	334.35	596.49
2. Theoretical	231.51	167	>0.01	0.91	0.93	0.94	0.981	0.04	353.39	366.23	563.64
3. Next-best-constrained	246.3	168	>0.01	0.91	0.93	0.94	0.976	0.04	366.21	378.84	573.01
4. Next-best-unconstrained	231.35	165	>0.05	0.91	0.93	0.94	0.980	0.04	357.28	370.54	574.42
5. Best model	162.4	160	0.5	0.94	0.95	0.96	0.997	0.01	298.35	312.67	532.73
6. Alternative model 1	160.23	157	0.5	0.94	0.95	0.95	0.998	0.00	300.23	314.97	541.50
7. Alternative model 2	1,503.93	222	0.001	0.74	0.68	0.68	0.710	0.16	1,653.93	1,672.13	1,912.43
8. Alternative model 3	192.23	177	0.25	0.93	0.94	0.94	0.980	0.02	338.26	354.4	589.87

(b) Testing Sequence and Difference Tests

Comparison	$\Delta\chi^2$	Probability	Δdf	ΔAIC	ΔBCC	ΔBIC	Model Preference
Model 2 vs. 3	14.79	<0.001	1	12.82	12.61	9.37	2
Model 2 vs. 4	−0.16	>0.1	−2	3.89	4.31	10.78	2
Model 2 vs. 5	−69.11	<0.001	−7	−55.04	−53.56	−30.91	5
Model 5 vs. 6	−2.17	>0.1	−3	1.88	2.30	8.77	5
Model 5 vs. 7	1,341.53	<0.001	62	1,355.58	1,359.46	1,379.70	5
Model 5 vs. 8	29.83	<0.001	17	39.91	41.73	57.14	5

[a] The variance-covariance matrix of the best model (model 5) is based on 231 moments (21 observed variables). These moments are used to estimate the following 71 parameters: 11 factor loading paths, 21 causal paths, 18 variances of measurement errors, 4 variances of exogenous factors, 6 variances for estimation errors of endogenous factors, and 11 covariance paths among exogenous latent factors. For the more avid reader wishing to replicate our results, we indicate these covariance paths (along with covariance paths of model 2) in Table 5.

[b] Results are based on maximum likelihood (ML) estimation, which tends to produce unbiased estimators under assumptions of normality (Browne & Cudeck, 1993). Critics argue, however, that ML estimators rely heavily on the assumption of normal distribution and have proposed that small-sample analyses (such as this one) should rely instead on generalized least squares. For comparison, GLS estimates for model 5 are as follows: GFI = 0.93, NFI = 0.94, NNFI = 0.95, CFI = 0.98, RMSEA = 0.02. We are thus confident our data set does not severely depart from normality.

rion (AIC), the Browne-Cudeck criterion (BCC), and the Bayes information criterion (BIC).[4] The last three measures are used to compare models; one accepts the model with the lowest values. As results in Table 4 demonstrate, model 5 is superior to model 2 across all of these indexes. Therefore, we are confident that model 5 is indeed our best model.

Table 2 compares the measurement structure of model 5 to that of model 1. The loadings are highly consistent for the two models. Table 5 presents results for our best (model 5) and theoretical models (model 2). Here, we can see that parameters from model 5 and model 2 are highly similar, a fact that indicates the parameters are robust. In Table 5, the first 7 rows summarize path coefficients, *Z*-statistics, and significance tests of our best model. The next 15 rows summarize the control paths, and the following 11 rows, the covariances.

Relational Governance and Collective Efficiency Hypotheses

Our analysis of model 5 supports six of the seven hypotheses. Primarily, all hypotheses related to the impact of horizontal governance on collective efficiencies specified in our theory are supported. The path coefficient associated with Hypothesis 1 (stating that the relational governance of horizontal ties associates positively with sourcing of collective resources) is positive (0.18) and statistically significant ($Z = 2.72$; $p < .001$). Hypothesis 3a (stating that the relational governance of horizontal ties associates positively with product innovation) is supported as

[4] The AIC can be said to represent an operational way of trading off the complexity of an estimated model against how well the model fits the data (Akaike, 1987). Another measure with a similar intent, the BCC, is known to impose a slightly greater penalty for model complexity than does the AIC (Browne & Cudeck, 1993). In comparison to AIC and BCC, the BIC assigns a greater penalty to model complexity and so has a greater tendency to pick parsimonious models (see Raftery [1995] and Schwartz [1978] for reviews).

TABLE 5
Path Coefficients and Covariance Paths from Theoretical and Best Models[a]

Path Name	Bentler EQS Identification[b]	Path Description	Theoretical Model	Best Model	Critical Ratio
Hypothesis 1	PF1F3	Horizontal relational governance → sourcing of collective resources	0.18**	0.18**	2.72
Hypothesis 2	PF2INV1	Vertical relational governance → manufacturing productivity	0.34***	0.34***	4.70
Hypothesis 3a	PF1F4	Horizontal relational governance → product innovation	0.30***	0.29***	4.20
Hypothesis 3b	PF2F4	Vertical relational governance → product innovation	−0.01		
Hypothesis 4a	PF3AG1	Sourcing of collective resources → access to global markets	0.27***	0.27***	3.32
Hypothesis 4b	PINV1AG1	Manufacturing productivity → access to global markets	0.25***	0.25***	3.96
Hypothesis 4c	PF4AG1	Product innovation → access to global markets	0.11†	0.11†	1.69
Control	PF5AG1	Firm size → access to global markets	0.14*	0.13*	2.04
Control	PF5F3	Firm size → sourcing of collective resources	0.09	0.09	1.51
Control	PF5INV1	Firm size → manufacturing productivity	0.01	0.01	0.22
Control	PF5F4	Firm size → product innovation	−0.07	−0.07	−1.09
Control	PCOMP1AG1	Competitive pressure → access to global markets	0.10†	0.10†	2.35
Control	PCOMP1F3	Competitive pressure → sourcing of collective resources	−0.01	−0.01	−0.25
Control	PCOMP1INV1	Competitive pressure → manufacturing productivity	−0.03	−0.03	−0.63
Control	PCOMP1F4	Competitive pressure → product innovation	−0.04	−0.07	−1.12
Control	PF7F3	Investments → sourcing of collective resources	−0.10†	−0.09	−1.49
Control	PF7INV1	Investments → manufacturing productivity	0.37***	0.37***	5.26
Control	PF7F4	Investments → product innovation	0.32***	0.32***	4.52
Control	PF7F1	Investments → horizontal relational governance	−0.06	−0.06	−0.89
Control	PF7F2	Investments → vertical relational governance	−0.01	−0.01	−0.12
Control	PF6AG1	Exports orientation → access to global markets	0.13**	0.13*	2.77
Control	PF6AF3	Exports orientation → sourcing of collective resources	0.03	0.03	0.67
Covariance	D(F1) × D(F2)	Residual of horizontal relational governance ↔ residual of vertical relational governance		0.35***	5.51
Covariance	D(F1) × D(COMP1)	Residual of horizontal relational governance ↔ error term of competitive pressure		0.09	1.08
Covariance	D(F2) × E(COMP1)	Residual of vertical relational governance ↔ error term of competitive pressure		−0.03	−0.39
Covariance	D(F3) × E(INV1)	Residual of sourcing of collective resources ↔ error term of manufacturing productivity		0.10*	2.00
Covariance	D(F3) × D(F4)	Residual of sourcing of collective resources ↔ residual of product innovation		0.01	0.20
Covariance	E(INV1) × D(F4)	Error term of manufacturing productivity ↔ residual of product innovation		0.03	0.47
Covariance	E(COMP1) × F5	Error term of competitive pressure ↔ firm size		−0.20*	−2.03
Covariance	E(COMP1) × F6	Error term of competitive pressure ↔ export orientation		0.61***	4.15
Covariance	F6 × F5	Export orientation ↔ firm size	−0.20*	−0.20*	−1.99
Covariance	F7 × F6	Investments ↔ export orientation	−0.04	−0.04	−0.46
Covariance	F7 × F5	Investments ↔ firm size	0.05	0.05	0.76

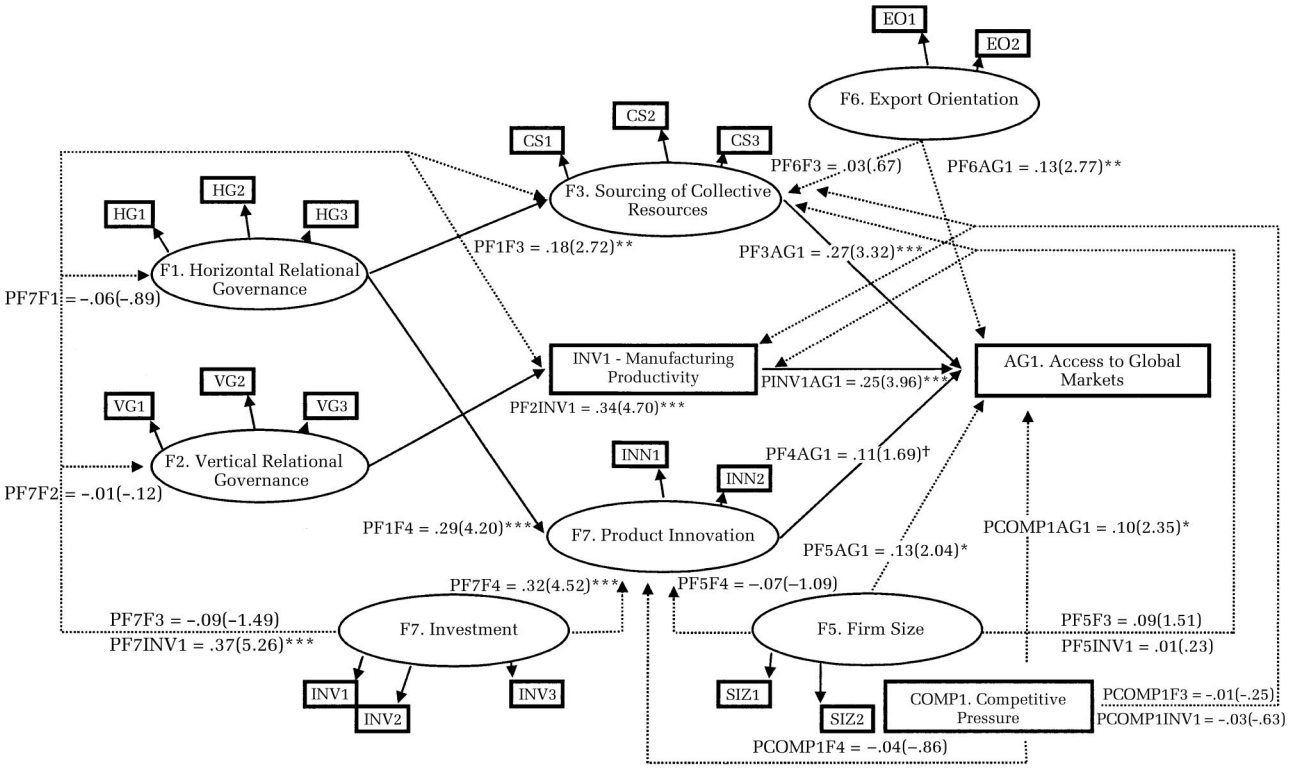
[a] The theoretical model is model 2; the best model is model 5.
[b] In Bentler's (1989) EQS identification conventions, "F" is factor, "P" is path. Thus, e.g., "PF/F3" is the path from factor 1 to factor 3.
† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

well. The associated path coefficient is positive (0.29) and statistically significant ($Z = 4.20$, $p < .001$). Not all of our hypotheses related to the impact of vertical ties on collective efficiencies, however, receive support. On the one hand, Hypothesis 2, asserting that relational governance of vertical ties positively associates with production efficiencies, is strongly supported. The path coefficient is positive (0.34) and statistically significant ($Z = 4.70$, $p < .001$). There is no evidence, however, that relational governance of vertical relationships improve product innovation. Thus, Hypothesis 3b is not supported.

Collective Efficiencies and Access to Global Market Hypotheses

All hypotheses tracing the successful access to global markets to the particular collective efficien-

FIGURE 2
Best Model[a]



[a] We follow Bentler's (1989) EQS conventions: "F" is factor, "P" is path; thus, e.g., "PF1F3" is the path from factor 1 to factor 3. Ellipses are latent factors; rectangles are observed variables. Solid arrows are paths; dotted-line arrows are controls. This simplified version of the actual best model does not show error terms, exogenous factor variances, endogenous variable disturbance terms, covariance paths, and error correlations. For the more avid reader wishing to replicate our results, covariance paths are included in Table 5.

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

cies that are associated with horizontal and vertical governance are supported. Particularly, Hypotheses 4a, 4b, and 4c respectively establish that access to global markets positively associates with collective sourcing, manufacturing productivity, and product innovation. The path coefficients are positive and statistically significant (respectively, path coefficient = 0.27, $Z = 3.32$, $p < .001$ for Hypothesis 4a; path coefficient = 0.25, $Z = 3.96$, $p < .001$ for Hypothesis 4b; and path coefficient = 0.11, $Z = 1.69$, $p < .1$ for Hypothesis 4c).

Testing Alternative Models

Because SEM provides information regarding the fit of a proposed model but cannot determine if that model is the "correct" one, we examined three theoretically plausible alternative models. The first alternative model (model 6) represents the theory that horizontal governance and vertical governance *directly* affect SMEs' abilities to access global markets in addition to the mediated collective efficiencies effects. Direct effects are plausible in that firms may simply coordinate export efforts without engaging in deliberate actions to achieve the particular forms of collective efficiencies discussed here. The second alternative model (model 7) includes interaction terms between collective efficiencies and access to global markets. These interactions identify ways in which distinct types of collective efficiencies may complement one another in the achievement of superior export performance. For instance, manufacturing productivity may create cost advantages and hence increase the degree to which SMEs with innovative products can access global markets. The third alternative (model 8) differs from the best model (model 5) in that it suggests an interaction between horizontal and vertical relationships affecting collective efficiencies.

Our expectation arises from previous theorizing that firms do integrate such forms of partnerships to attain productivity not only in innovation, but also in manufacturing (e.g., Choi et al., 2002; Lazzarini et al., 2001; Teece, 1992: 9); in our case, if horizontal ties provide scale and coordination to a group, vertical partners may have improved channels for exporting their supplies.

We relied on an analysis of the AIC, BCC, and BIC to contrast the best model with the alternative models.[5] As can be seen in Table 4, none of the alternative models was an improvement over our best model. Specifically, the changes in all three indexes (ΔAIC, ΔBCC, and ΔBIC) are all positive, indicating increases. We therefore concluded that model 5 is indeed the best model of how SMEs attain superior export performance.

Interpretation of Results

Our findings indicate that by coordinating their joint actions through horizontal and vertical relational governance, SMEs can attain a set of collective efficiencies that contribute to superior access to global markets. Specifically, we found that different types of relationships (i.e., horizontal or vertical) yield different types of collective efficiencies. Horizontal relational governance promotes the provision of collective inputs and product innovation, and vertical relational governance yields manufacturing productivity gains along a supply chain. Our finding that product innovation is mostly restricted to horizontal relationships in our context is interesting, because it is somewhat inconsistent with received theory that knowledge exchange among horizontal competitors tends to be more difficult than exchange in transactions involving vertically related partners, who are not in direct competition (Brandenburger & Nalebuff, 1997; Choi et al., 2002). We believe this interesting result reflects the nature of our export context, where cooperation is less likely to be hindered by competition between SMEs. Specifically, in general, firms find it difficult to cooperate with competitors when they are sharing the same limited market opportunity. To the extent that export-oriented cooperation improves opportunity for both a focal firm and its competitor, there is no change in the advantage of one firm vis-à-vis another. In these circumstances, the concerns about cooperating with competitors are less relevant, since the "size-of-the-pie effect" overwhelms any concerns about one's share of the pie.

Our results also indicate that superior export performance associates with a host of collective efficiencies—sourcing of collective resources, manufacturing productivity, and product innovation—that require complex links among local partners. Our test of the best unconstrained model indicates, however, that there are no synergistic effects among those collective efficiencies. Put another way, it appears that the collective efficiencies outlined in our model work independently of one another.

Moreover, from our alternative models, it seems the direct effects of horizontal and vertical relational governance on access to global markets are insignificant in light of the mediator effects of collective efficiencies (model 6). These results suggest that the engine behind SMEs' global competitiveness is the set of collective efficiencies firms attain from their horizontal and vertical ties. In other words, collective efficiencies appear to mediate the impact of vertical and horizontal relationships on SMEs' abilities to access global markets. Additionally, we did not find synergistic effects among the different types of collective efficiencies (model 7), or interaction effects among horizontal and vertical partnerships (model 8) that could explain gains beyond those they would get by simply adding those partnerships to their portfolio of ties. Horizontal and vertical relationships appear, in our context, to have independent effects triggering different types of collective efficiencies.

Control Effects

As can be seen from Table 5, firm size and competitive pressure partially explain why some firms are more active in accessing global markets than others. However, these factors do not appear to concomitantly explain any of our three forms of collective efficiencies. We thus remain confident that collective efficiencies are powerful mediating factors behind the success of Argentine small and medium-sized furniture makers in competitively accessing global markets. Second, our control for the degree of investments in JIT, TQM, and IT also indicates that relational governance between peer firms and buyers and suppliers does not result from such investments. This finding indicates that firms investing in these production and innovation capabilities do not become more likely to form stronger partnerships with other firms, or more attractive partners. According to the entrepreneurs we interviewed, partnerships are not thus strengthened be-

[5] Here, we avoid comparisons through chi-square statistics because some of our alternative models are nonnested. They are thus because we implemented Ping's (1995, 1996) interaction term procedure, which, as explained above, creates a new single-indicant variable from two other factors.

cause a firm's investment in JIT relates more to limited internal changes in manufacturing layout and inventory control than to the implementation of seamless JIT systems linking all partners in a supply chain. We are therefore more confident that the association between relational governance and collective efficiencies are in the direction proposed and do not appear to be subject to spurious effects. Lastly, our control for export orientation does seem to indicate that firms with stronger beliefs about exports enjoy greater levels of exports, although it does not indicate that firms with such beliefs are more likely to jointly pursue governmental support for their efforts. We thus believe that the association between collective sourcing and access to global markets is indeed robust.

IMPLICATIONS AND CONCLUSION

In this study, we model how SMEs can overcome their weak infrastructure and poor institutional environments to garner export-enhancing collective efficiencies. Specifically, our model highlights particular patterns of cooperative engagements within a context in which firms may also compete for input and output resources. For instance, we submit that the relational governance of horizontal ties (i.e., relationships with local peer firms) promotes collective sourcing of resources and superior innovation rates. Likewise, the relational governance of vertical ties (i.e., relationships with local suppliers) enables higher manufacturing productivity. Such efficiencies are in turn associated with SMEs' improved access to global markets. Our empirical results, using data from a group of Argentine furniture manufacturers, generally support our model.

Our research has significant implications for the management literature. Primarily, our model integrates three theoretical perspectives—the resource-based view, transaction cost economics, and institutional theory—and in doing so it highlights important aspects of their interactions. For example, previous research has hinted that institutional constraints found in emerging economies limit possibilities for resource access (e.g., Hoskisson et al., 2000; Peng & Heath, 1996) and called for further research to examine the interstices of these two theoretical perspectives. Hoskisson et al. (2000: 256–257) indicated that little research using a resource-based view has examined strategy differences in the social contexts of emerging economies, or even the value of intangible relationship–based resources (as opposed to product-market-based ones). Here, our theoretical and empirical analyses illustrate how SMEs can overcome institutional shortages by *institutionalizing* behavioral commitments and norms within particular partnerships. Network ties therefore help substitute for the lack of a strong institutional settings, and they enable a combination of interfirm complementary resource endowments that associate with export-enhancing collective efficiencies.

Our study also highlights important institutional factors leading to choices of relationship governance under threats of exchange hazards. Particularly, many critics of the transaction cost literature have noted that this theory has been primarily applied to developed market contexts, which are often characterized by strong legal regimes and binding social norms; less is known about governance structures devised to govern transactions in emerging economies (e.g., Hoskisson et al., 2000: 254). Where official discretion as opposed to the rule of law describes property rights, contracts are unlikely to be enforced (la Porta, Lopez de Silanes, Schleifer, & Vishny, 1997). In these circumstances, the coordination of either resource complementarities or joint resource acquisition efforts by local SMEs (in search of collective efficiencies) could be threatened by the impossibility of their forming contractual safeguards to reduce opportunistic behavior and transaction costs. Indeed, in our survey we found that only four firms had formal contracts with partners; interviews indicated entrepreneurs mistrusted their country's legal system and thus deemed such formalities useless. In a way, our findings support Peng and Heath's (1996) suggestion that in emerging economies, owing to the lack of property rights and unstable institutional environments, firms may strengthen informal ties to reduce transactional hazards and pool resources to achieve scale and scope economies that are unavailable otherwise.

In addition to helping better integrate the cited theoretical perspectives, our study also reconciles several models of interfirm alliance. Although the literature on alliances has advanced knowledge of the sources of interorganizational value creation, studies have often focused on particular types of interfirm ties (i.e., horizontal or vertical; see, for example, Doz and Hamel [1998], Dyer [1997], Gulati [1999], Helper [1991], and Kogut [1988]). The challenges posed by weak infrastructure and institutional difficulties in emerging economies, however, are likely to require the integration of both vertical and horizontal ties. Consider, for example, the following illustration, taken from an interview with a prominent small wood-furniture maker in Argentina. She revealed that her focus as a CEO had always been on excelling at the coordination of vertical partnerships along the supply chain. Through such efforts, she had managed to

obtain competitive production costs vis-à-vis her local competitors. However, given her small scale, she felt that it would be difficult to leverage such competencies in foreign markets; finding and engaging international customers proved too costly for her on her own. Her scale liabilities, she argued, could even prove to be fatal, given the fast-shrinking Argentine market of the early 21st century. To circumvent these limitations, the entrepreneur had to interact with local peers to carry out other equally important joint activities—for example, the collective lobbying of the foreign ministry of Argentina to support the search for international clients and the sharing of costs to advertise products in international fairs. In sum, besides developing competencies in supply chain management resulting from her vertical partnerships, she also managed to craft horizontal ties with competitors to overcome her small scale and the poor export infrastructure of her country. By integrating distinct types of ties and exploring how they enable firms to create competitive advantages, our model is better able to accommodate a more complex pattern of competitive coordination as it highlights dimensions on which firms cooperate with natural partners (e.g., vertical links) but also with would-be competitors (e.g., horizontal links). Therefore, our model contributes to recent research on interfirm relations and competitive coordination as it integrates the different forms of interdependencies found among firms (e.g., Brandenburger and Nalebuff's [1997] "value net"; Choi et al.'s [2002] "vertical and horizontal relationships model"; and Lazzarini et al.'s [2001] "netchains"). In particular, our model maintains that horizontal and vertical ties create value in very specific ways—that is, they yield very particular forms of collective efficiencies that mediate the access of SMEs to global markets.

Our study also contributes to an important and growing stream of the literature dealing with international management. This literature has often focused on international alliances as a means of enabling firms to globally source commodities (Murray, Masaaki, & Wildt, 1995), knowledge (Simonin, 1999; Zhao et al., 2004), or cutting-edge technologies (Nordberg, Campbell, & Verbeke, 1996). Our research focuses instead on the role of *local* alliances in fostering firms' ability to compete globally through collective sourcing of resources, manufacturing productivity, and product innovation. Specifically, our focus is on the economies enabled by local partnerships and how they matter for SMEs' access to global markets. This shift in focus (from international alliances to local alliances for going global) integrates the strategic alliances and entrepreneurship research streams, answering Hitt, Ireland, Camp, Sexton's (2001) call. Further, it turns out to be a considerably more useful way to look at entrepreneurial ventures that may lack the resources to go abroad to begin with, or even the resources to establish international alliances.

Lastly, our study adds to a growing stream of research on strategy and entrepreneurship dealing with the emergence and competitiveness of clusters, or sectoral and geographical concentrations of firms (Schmitz & Nadvi, 1999: 1503). Although early work on clusters accentuated the benefits that passively accrued to firms from their geographically agglomerating into larger markets (for example, bigger and more specialized pools of labor and supply), recent treatments of the concept have tended to move away from this emphasis on passive agglomeration economies toward that of active networking among clustered firms. Given the complex interfirm interdependencies occurring in clusters, firm decision makers can consciously build cooperative governance structures to improve clusterwide competitiveness (see also Christopherson & Storper, 1986; Markusen, 1999; Mesquita, 2007; Storper, 1997; Tallman et al., 2004). Our study contributes to this latter trend in the cluster literature by outlining specific mechanisms through which firms that properly coordinate their actions with other firms perform better than those firms that do not. Further, though research to date has relied excessively on anecdotal accounts instead of rigorous theorizing, and on case studies instead of meticulous statistical validation (see the criticisms in Gordon and McCann [2000: 17] and Martin and Sunley [2003: 16]), our study integrates three important theoretical streams to model clustered SMEs' interfirm relationships to collective efficiencies and access to global markets and applies modern quantitative techniques, including the interaction terms of structural models.

Admittedly, our research is limited in some ways that suggest several opportunities for future research. First, our study is limited in scope, as it suits only the context of firms sharing environments with limited infrastructure and weak institutions, such as emerging economies. We do not evaluate whether our argument holds in other settings. A possible extension of our study would contrast our model in developed and emerging countries. Arguably, developed countries in general exhibit stronger legal institutions that increase the viability of alternative forms of contracting (e.g., formal contracts, equity-based partnerships, and joint ventures). Further, governments tend to be more effective in the provision of public goods. Thus, we can suppose that SMEs in emerging mar-

kets resort to interorganizational relationships supported by informal, relational means of governance to a greater degree than SMEs in developed economies (e.g., Peng & Heath, 1996). Future research should therefore try to examine relationships among SMEs in a diverse set of countries in a way that the costs and likelihood of contractual enforcement vary.

Although we expect that the role of relational governance in creating collective efficiencies will decrease when formal institutions become more efficient, we believe that, even in countries with stronger institutions, interfirm relationships will still have a role in creating collective efficiencies jointly with formal means of governance. Recent research has discussed complementarities among formal and informal means of governance (e.g., Poppo & Zenger, 2002). For instance, relational governance can help enforce exchange dimensions that are difficult to specify in formal contracts (Lazzarini, Miller, & Zenger, 2004), and formal contracts can align expectations and provide guidance for the development of long-term relationships (Mayer & Argyres, 2004).

Additionally, in our study we observed only the benefits of relational governance and disregarded its costs, such as the "overembeddedness" that may result when long-term partners avoid transacting with new actors and hence fail to benefit from novel information and opportunities (e.g., Uzzi, 1997). We were interested, however, in environments in which institutions are weak, where establishing relational governance is often the only way to govern interorganizational arrangements that are critical for the creation of collective efficiencies. It is possible that in settings involving stronger institutions, SMEs can use contracts and other formal means of governance to support relationships of shorter duration and hence avoid the risk of overembeddedness. Therefore, another important issue that future research should address is whether SMEs maintain partners for longer periods of time or adopt a more arm's-length approach by switching partners from time to time.

Lastly, our methods could be improved. Future research may tackle similar phenomena through the use of panel data sets that permit observation of SMEs over time. In this case, one could examine how past efforts to develop relational ties create collective efficiencies in future periods. One could also model how vertical and horizontal relationships appear and evolve over time—an issue we do not tackle in the present study, but one that is critical to informing SME managers about how to leverage local partnerships to better access global markets.

Despite the limitations mentioned above, our hope is that our study will encourage further work on the global competitiveness of SMEs established within emerging economy contexts. A lot of strategy research has discussed the significance of emerging economy environmental traits; we believe it is time for scholars to examine these through more varied combinations of theoretical perspectives as well as with deeper empirical analyses.

REFERENCES

Akaike, H. 1987. Factor analysis and AIC. ***Psychometrika,*** 52: 317–332.

Amin, A., & Thrift, N. 1992. Neo-Marshallian nodes in global networks. ***International Journal of Urban and Regional Research,*** 16: 571–587.

Anderson, J. C., & Gerbing, D. W. 1988. Structural equation modeling in practice: A review and recommended two-step approach. ***Psychological Bulletin,*** 103: 411–423.

Artz, K., & Brush, T. H. 2000. Asset specificity, uncertainty and relational norms: An examination of coordination costs in collaborative strategic alliances. ***Journal of Economic Behavior and Organization,*** 41: 337–362.

Audretsch, D. B., & Feldman, M. P. 1996. R & D spillovers and the geography of innovation and production. ***American Economic Review,*** 86: 630–640.

Axelrod, R. 1984. ***The evolution of cooperation.*** New York: Basic Books.

Baker, G., Gibbons, R., & Murphy, K. J. 2002. Relational contracts and the theory of the firm. ***Quarterly Journal of Economics,*** 117: 39–84.

Barney, J. B. 1991. Firm resources and sustained competitive advantage. ***Journal of Management,*** 17: 99–120.

Bartlett, C. A., & Ghoshal, S. 1992. ***Transnational management*** (2nd ed.). London: Irwin.

Bentler, P. M. 1989. Comparative fit indexes in structural models. ***Psychological Bulletin,*** 107: 238–246.

Bentler, P. M., & Bonnett, D. G. 1980. Significance tests and goodness of fit in the analysis of covariance structures. ***Psychological Bulletin,*** 88: 588–606.

Bollen, K. A., & Curran, P. J. 2005. ***Latent curve models: A structural equation perspective.*** Hoboken, NJ: Wiley-Interscience.

Boyer, K. K., Leong, G. K., Ward, P. T., & Krajewski, L. J. 1997. Unlocking the potential of advanced manufacturing technologies. ***Journal of Operations Management,*** 15: 331–347.

Brandenburger, A. M., & Nalebuff, B. J. 1997. ***Co-opetition: A revolution mindset that combines competition and business.*** New York: Doubleday.

Browne, M. W., & Cudeck, R. 1989. Single sample cross-validation indices for covariance structures. ***Multivariate Behavior Research,*** 24: 445–455.

Browne, M. W., & Cudeck, R. 1993. Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), ***Testing structural equation models:*** 136–162. Newbury Park, CA: Sage.

Buckley, P. J., & Casson, M. 1976. ***The future of the multinational enterprise.*** London: Macmillan.

Byrne, B. M. 2001. ***Structural modeling with AMOS.*** Mahwah, NJ: Erlbaum.

Canina, L., Enz, C. A., & Harrison, J. S. 2005. Agglomeration effects and strategic orientations: Evidence from the U.S. lodging industry. ***Academy of Management Journal,*** 48(4): 565.

Carrera, A., Mesquita, L., Perkins, G., & Vassolo, R. 2003. Business groups and their corporate strategies in the Argentine roller coaster of competitive and anticompetitive shocks. ***Academy of Management Executive,*** 17(3): 32–44.

Caves, R. E. 1982. ***Multinational enterprise and economic analysis.*** Cambridge, U.K.: Cambridge University Press.

Choi, T. Y., Wu, Z., Ellram, L., & Koka, B. R. 2002. Supplier-supplier relationships and their implications for buyer-supplier relationships. ***IEEE Transactions on Engineering Management,*** 49(2): 119.

Christopherson, S., & Storper, M. 1986. The city as studio, the world as back lot: The impact of vertical disintegration on the location of the motion picture industry. ***Environment and Planning D: Society and Space,*** 4: 305–320.

CSIL Research. 2003. ***The furniture industry in Argentina, Brazil, Chile.*** Milan: CSIL Milano.

CSIL Research. 2004. ***World furniture outlook.*** Milan: CSIL Milano.

De Meyer, A., & Ferdows, K. 1985. Integration of information systems in manufacturing. ***International Journal of Operations and Production Management,*** 5(2): 5–12.

Dillman, D. A. 2000. ***Mail and Internet surveys: The tailored design method.*** New York: Wiley.

Doz, Y. L., & Hamel, G. 1998. ***Alliance advantage: The art of creating value through partnering.*** Cambridge, MA: Harvard University Press.

Dunning, J. H. 1981. ***International production and the multinational enterprise.*** Winchester, MA: Allen & Unwin.

Dussauge, P., Garrette, B., & Mitchell, W. 2000. Learning from competing partners: Outcomes and durations of scale and link alliances in Europe, North America and Asia. ***Strategic Management Journal,*** 21: 99–126.

Dyer, J. H. 1997. Effective interfirm collaboration: How firms minimize transaction costs and maximize transaction value. ***Strategic Management Journal,*** 18: 553–556.

Dyer, J. H., & Singh, H. 1998. The relational view: Cooperative strategy and sources of interorganizational competitive advantage. ***Academy of Management Review,*** 23: 660–680.

Ellickson, R. C. 1991. ***Order without law: How neighbors settle disputes.*** Cambridge, MA: Harvard University Press.

Fichman, M., & Levinthal, D. A. 1991. History dependence and professional relationships: Ties that bind. ***Research in the Sociology of Organizations,*** 8: 119–153.

Gordon, I. R., & McCann, P. 2000. Industrial clusters: Complexes, agglomeration, and/or social networks? ***Urban Studies,*** 37: 513–535.

Granovetter, M. S. 1985. Economic action and social structure. ***American Journal of Sociology,*** 91: 481–510.

Greif, A. 1994. Cultural beliefs and the organization of society: A historical and theoretical reflection on collectivist and individualistic societies. ***Journal of Political Economy,*** 102: 912–950.

Gulati, R. 1999. Network location and learning: The influence of network resources and firm capabilities on alliance formation. ***Strategic Management Journal,*** 20: 397–420.

Gulati, R., & Singh, H. 1998. The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. ***Administrative Science Quarterly,*** 43: 781–814.

Heide, J. B., & John, G. 1992. Do norms matter in marketing relationships? ***Journal of Marketing,*** 56(2): 32–44.

Heide, J. B., & Miner, A. S. 1992. The shadow of the future: Effects of anticipated interaction and frequency of contact on buyer-seller cooperation. ***Academy of Management Journal,*** 35: 265–291.

Helper, S. 1991. Strategy and irreversibility in supplier relations: The case of the U.S. automobile industry. ***Business History Review,*** 65: 781–824.

Hitt, M. A., Ireland, R. D., Camp, S. M., & Sexton, D. L. 2001. Strategic entrepreneurship: Integrating entrepreneurial and strategic management perspectives. ***Strategic Management Journal,*** 22(special issue): 479–491.

Hoskisson, R. E., Eden, L., Lau, C. M., & Wright, M. 2000. Strategy in emerging economies. ***Academy of Management Journal,*** 43: 249–267.

Kaufmann, P. J., & Stern, L. W. 1988. Relational exchange norms, perceptions of unfairness and retained hostility in commercial litigation. ***Journal of Conflict Resolution,*** 32: 534–552.

Kogut, B. 1988. Joint ventures: Theoretical and empirical

perspectives. ***Strategic Management Journal,*** 9: 319–332.

la Porta, R., Lopez de Silanes, F., Schleifer, A., & Vishny, A. 1997. Legal determinants of external finance. ***Journal of Finance,*** 52: 1131–1150.

Lazzarini, S. G., Chaddad, F. R., & Cook, M. 2001. Integrating supply chain and network analyses: The study of netchains. ***Journal on Chain and Network Science,*** 1(1): 7–22.

Lazzarini, S. G., Miller, G. J., & Zenger, T. 2004. Order with some law: Complementarity vs substitution of formal and informal agreements. ***Journal of Law, Economics and Organization,*** 20: 261–298.

Macneil, I. R. 1980. ***The new social contract.*** New Haven, CT: Yale University Press.

Markusen, A. 1999. Sticky places in slippery space. In M. S. Gertler (Ed.), ***New industrial geography: Regions, regulations and institutions:*** 98–124. Florence, KY: Routledge.

Martin, R., & Sunley, P. 2003. Deconstructing clusters: Chaotic concept or policy panacea? ***Journal of Economic Geography,*** 3(?): 5–35.

Mayer, K. J., & Argyres, N. S. 2004. Learning to contract: Evidence from the personal computer industry. ***Organization Science,*** 15: 394–410.

McEvily, W., & Zaheer, A. 1999. Bridging ties: A source of firm heterogeneity in competitive capabilities. ***Strategic Management Journal,*** 20: 1133–1156.

Mesquita, L. 2003. Rationality as the basis for a new institutional environment: Argentina's former presidential candidate Ricardo Lopez Murphy. ***Academy of Management Executive,*** 17(3): 44–50.

Mesquita, L. F. 2007. Starting over when the bickering never ends: Rebuilding aggregate trust among clustered firms through trust facilitators. ***Academy of Management Review,*** 32: 72–91.

Mesquita, L. F., & Brush, T. H. 2008. Untangling safeguard and coordination effects in long-term buyer-supplier relationships. ***Academy of Management Journal,*** 51: In press.

Miller, D. J., & Shamsie, J. 1996. The resource-based view of the firm in two environments: The Hollywood film studios from 1936–1965. ***Academy of Management Journal,*** 39: 519–543.

Murray, J. Y., Masaaki, K., & Wildt, A. R. 1995. Strategic and financial performance implications of global sourcing. ***Journal of International Business Studies,*** 26: 181.

Nault, B. R., & Tyagi, R. K. 2001. Implementable mechanisms to coordinate horizontal alliances. ***Management Science,*** 47: 787–799.

Nordberg, M., Campbell, A. J., & Verbeke, A. 1996. Can market based contracts substitute for alliances in high technology markets? ***Journal of International Business Studies,*** 27: 963.

North, D. C. 1990. ***Institutions, institutional change, and economic performance.*** New York: Cambridge University Press.

Olson, M. 1965. ***The logic of collective action.*** Cambridge, MA: Harvard University Press.

Ostrom, E., Walker, J., & Gardner, R. 1992. Covenants with and without a sword: Self-governance is possible. ***American Political Science Review,*** 86: 404–417.

Palay, T. 1984. Comparative institutional economics: The governance of rail freight contracting. ***Journal of Legal Studies,*** 13: 265–287.

Peng, M. W., & Heath, P. S. 1996. The growth of the firm in planned economies in transition: Institutions, organizations, and strategic choice. ***Academy of Management Review,*** 21: 492–458.

Peteraf, M. A. 1993. The cornerstones of competitive advantage: A resource-based view. ***Strategic Management Journal,*** 14: 179–191.

Ping, R. A. J. 1995. A parsimonious estimating technique for interaction and quadratic latent variables. ***Journal of Marketing Research,*** 32: 336–347.

Ping, R. A. J. 1996. Estimating latent variable interactions and quadratics: The state of this art. ***Journal of Management,*** 22(1): 163–183.

Poppo, L., & Zenger, T. 2002. Do formal contracts and relational governance function as substitutes or complements. ***Strategic Management Journal,*** 23: 707–725.

Porter, M. E. 1998. Clusters and competition: New agendas for companies, governments, and institutions. In M. Porter (Ed.), ***On competitiveness:*** 197–288. Boston: Harvard Business School Press.

Pouder, R., & St. John, C. H. 1996. Hot spots and blind spots: Geographical clusters of firms and innovation. ***Academy of Management Review,*** 21: 1192–1225.

Raftery, A. 1995. Bayesian model selection in social research. In P. V. Marsden (Ed.), ***Sociological methodology:*** 111–163. San Francisco: Jossey-Bass.

Ring, P., & Van de Ven, A. 1992. Structuring cooperative relationships between organizations. ***Strategic Management Journal,*** 13: 483–498.

Schmitz, H. 1995. Collective efficiency: Growth path for small-scale industry. ***Journal of Development Studies,*** 31: 529–567.

Schmitz, H., & Nadvi, K. 1999. Clustering and industrialization: Introduction. ***World Development,*** 27: 1503–1514.

Schwartz, G. 1978. Estimating the dimension of a model. ***Annals of Statistics,*** 6: 461–464.

Sengenberger, W., Loveman, G. W., & Piore, M. J. 1990. ***The reemergence of small enterprises: Industrial restructuring in industrialized countries.*** Geneva: ILO.

Simonin, B. L. 1999. Ambiguity and the process of knowledge transfer in strategic alliances. ***Strategic Management Journal,*** 20: 595–623.

Stinchcombe, A. L. 1965. Social Structure and Organizations. In J. G. March (Ed.), ***Handbook of organizations:*** 142–193. Chicago: Rand McNally.

Stone, A., Levy, B., & Paredes, R. 1996. Public institutions and private transactions: A comparative analysis of the legal and regulatory environment for business transactions in Brazil and Chile. In L. J. Alston, T. Eggertsson, & D. North (Eds.), ***Empirical studies in institutional change:*** 95–128. New York: Cambridge University Press.

Storper, M. 1997. ***The regional world: Territorial development in a global economy.*** New York: Guilford Press.

Tallman, S., Jenkins, M., Henry, N., & Pinch, S. 2004. Knowledge, clusters, and competitive advantage. ***Academy of Management Review,*** 29: 258.

Teece, D. 1992. Competition, cooperation, and innovation: Organizational arrangements for regimes of rapid technological progress. ***Journal of Economic Behavior and Organization,*** 18: 1–25.

Tendler, J., & Amorim, M. 1996. Small firms and their helpers: Lessons on demand. ***World Development,*** 24: 407–426.

Thompson, J. D. 1967. ***Organizations in action: Social science bases of administration.*** New York: McGraw-Hill.

Uzzi, B. 1997. Social structure and competition in interfirm networks: The paradox of embeddedness. ***Administrative Science Quarterly,*** 42: 35–67.

Van de Ven, A. H., & Walker, G. 1984. The dynamics of inter-organizational coordination. ***Administrative Science Quarterly,*** 29: 598–622.

Ward, P. T., Duray, R., Leong, G. K., & Sum, C.-C. 1995. Business environment, operations strategy, and performance: An empirical study of Singapore manufacturers. ***Journal of Operations Management,*** 13: 99–115.

Wheaton, B. 1987. Assessment of fit in overidentified models with latent variables. ***Sociological Methods and Research,*** 16: 118–154.

Williamson, O. 1985. ***The economic institutions of capitalism.*** New York: Free Press.

Xin, K. K., & Pearce, J. L. 1996. Guanxi: Connections as substitutes for formal institutional support. ***Academy of Management Journal,*** 39: 1641–1659.

Zhao, Z., Anand, J., & Mitchell, W. 2004. Transferring collective knowledge: Teaching and learning in the Chinese auto industry. ***Strategic Organization,*** 2(2): 133–167.

Luiz F. Mesquita (mesquita@asu.edu) is an assistant professor of strategy and international management at the School of Global Management and Leadership, Arizona State University. He received his Ph.D. in business and corporate strategy from Purdue University. His research interests involve buyer-supplier relationships, small firm networks, cooperative and competitive firm interactions, and cross-cultural management.

Sergio Giovanetti Lazzarini (sergiogl1@isp.edu.br) is an associate professor of organization and strategy at Ibmec São Paulo. He received his Ph.D. in business administration from the John Olin School of Business, Washington University in St. Louis. He does research on the design and performance implications of the organizational mechanisms governing interactions within and between firms.