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Organizational culture, market orientation, innovativeness, and firm performance: an international research odyssey

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Abstract

In this paper, we chronicle a research program spanning a decade and a dozen countries. The studies were framed in an extended model of competing values of organizational culture, and focused on how organizational culture, market orientation, and innovativeness affect the performance of firms competing in business-to-business markets. The design was developed and first tested in Japan. It was used throughout the research program, with the exception of a simplification of the sampling unit. We summarize substantive conclusions, including discussion of empirical similarities and differences in different cultures, in rich and poor countries, in the Orient and the Occident, in emerging economies, and in economies in transition towards a more market-driven form. As a general pattern, we find significant differences across countries in the means of all of the variables under study, and these differences generally reflect characteristics of national cultures. However, we find that slopes relating these variables to firm performance do not differ systematically over countries. We also examine buyer–seller relationships in the framework of an international "natural experiment" based on aspects of national culture. A brief research agenda is included.

Keywords: International management; Organizational culture and climate; Innovativeness; Market orientation; Firm performance; Business-to-business markets

1. Introduction

Deshpandé and Webster (1989) proposed a research agenda for combining the study of several facets of organizational culture with the study of marketing management. In the first half of the 1990s, as discussed later, marketing also benefited from considerable progress in the measurement of market orientation and on relating these measures to firm performance. In 1993, a study of the effect of organizational cultures, market orientation (measured with a new scale), and innovativeness on the performance of Japanese firms was published (Deshpandé, Farley, & Webster, 1993). The questionnaire was developed and administered in Japanese. As a general matter, hypotheses (discussed later) con-

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cerning the relationship of performance to elements of the modified competing values model (also described later) were supported both quantitatively and qualitatively.

In the latter half of the same decade, the field of management in general (Management Science, 1994) and the field of marketing in particular (Marketing Science, 1995) turned attention to knowledge generalization—that is, to how existing knowledge can be used to predict what will happen in new, partially analogous product/market situations (Aharoni & Burton, 1994). The Marketing Science Institute (MSI) recognized the need for integration of organizational culture, market orientation, and innovation as linked to firm performance by designating interdisciplinary research leading to a better understanding of customer-oriented organizations as a highest research priority (Marketing Science Institute, 1994). Since this was also a period of intense interest in the rapid progress of globalization, there was particular interest in developing global generalizations of marketing knowledge (Winer, 1998).

Work expanded throughout the 1990s along the lines of testing a series of geographic generalizations of the research methodology and of substantive results developed in Japan. In the design of these extensions, the decision was made to maintain the same research methodology, retaining the advantages of direct comparability of measures, but at the same time losing the ability to really capitalize on the ongoing work in fields from which the research design was derived. Table 1 lists 9 published or forthcoming articles, which involved 10 countries (including pre-handover Hong Kong) and 17 cities. (To avoid highly repetitive citations in this paper, these articles and more recent working papers by the authors will be cited by the last initials and the year of publication—e.g. Deshpandé & Farley, 2002c; Deshpandé et al., 1993; other citations will be spelled out.) The articles are linked together by an effort to generalize conclusions, to the degree possible, quantitatively and non-contingently. The choice of countries and cities was largely driven by our research interests at the time, combined with some concerns with costs and the availability of skilled research suppliers.

The first step in the sequence was a test of generalizability in four other industrial countries (Deshpandé, Farley, & Webster, 2000), a near replication which is discussed in detail later in this paper to illustrate both the research methodology and the substantive conclusions. Later studies (chronological in completion but not necessarily in publication) focused on different issues. Second was a test, which

Table 1
The research chronicle

Country	Cities	Reported in
First application[a]		
Japan	Tokyo	Deshpandé et al. (1993)
Generalizing in the industrial world[a]		
US	New York, Atlanta	Deshpandé et al. (2000)
France	Paris	
England	London	
Germany	Frankfurt	
Generalizing to the industrializing world[a]		
India	Bombay	Deshpandé and Farley (1999a)
Generalizing in Asia		
Hong Kong		Deshpandé and Farley (2001)
Vietnam	Hanoi, Ho Chi Minh City	
Thailand	Bangkok	
China	Shanghai	
Generalizing to transition economies, including to state-owned enterprises		
Vietnam	Hanoi, Ho Chi Minh City	Deshpandé and Farley (1999b)
China	Shanghai	Deshpandé and Farley (2000)
Generalizing to other cities		
China	Beijing, Guangzhou, Shanghai, Shenzhen, Tianjen, Wuxi	Deshpandé and Farley (2002a)
Generalizing via "natural (environmental) experiments"		
Relationships—US vs. Japan		Steinman et al. (2000)
Relationships—five industrial countries		Deshpandé and Farley (2002b)

[a] Quadrad design used.

turned out to be successful, as to whether the methodology generalized to the industrializing world—in this case India (Deshpandé & Farley, 1999a). After a major simplification of the methodologies, two research streams followed. One stream involved Asian market economies (Hong Kong, India, and Thailand; Deshpandé & Farley, 2001) and the other focused on economies in transition from centralized economic planning to more market-driven structures (Vietnam, Deshpandé & Farley, 1999b, and China, Deshpandé & Farley, 2000). Finally, a comparison of six different cities was executed in culturally diverse China (Deshpandé & Farley, 2002a). Later, two studies reanalyzed some of the data to examine the interplay of national cultures and buyer–seller relationships (Deshpandé & Farley, 2002a; SDF, 2000).

2. Conceptual structure: the elements of the modified competing values model

As noted earlier, the conceptual framework which links together this research program was motivated by a research agenda related to "organizational culture and marketing" proposed by Deshpandé and Webster (1989). This cross-national work has proceeded in a framework based on an integrative Theory of competing values of organizational cultures, which has been modified and expanded for use in the analysis of firm performance (Deshpandé et al., 1993). The modification involves incorporation of market orientation, innovation, and organizational climate into the structure.

2.1. Organizational culture and competing values

The starting point for the assembly of the modified model is the pattern of shared values and beliefs that help individuals understand how an organization functions (Deshpandé & Webster, 1989). Four classifications of culture were developed (Cameron & Freeman, 1991; Campbell, 1977; Quinn, 1988; Quinn & McGrath, 1985; Quinn & Rohrbach, 1983). Over the course of the work, we adopted new labels for the culture types, which are more closely related to the particular application. These new labels are used throughout this text; the original labels are shown in parentheses below:

Competitive (market) culture characterized by an emphasis on competitive advantage and market superiority;
Entrepreneurial (ad hocracy) culture emphasizing innovation and risk-taking;
Bureaucratic (hierarchy) culture characterized by regulations and formal structures; and
Consensual (clan) cultures emphasizing loyalty, tradition and internal maintenance.

In practice, our results indicate that organizations everywhere turn out to be a mixture of these four organizational culture types, but that the importance of each type differs significantly across countries in a pattern related to key attributes of national cultures. In terms of performance, the externally oriented cultures (entrepreneurial and competitive) should and generally do outperform the internally oriented (bureaucratic and consensual).

2.2. Motivation for modification of the competing values model—complexity in explaining performance

Both Deshpandé and Webster (1989) for conceptual reasons and Capon, Farley, and Hoenig (1996) for reasons related to a meta-analysis of studies of firm performance, suggested moving away from bivariate study (e.g. the effect of organizational culture on performance) and towards studies of related groups of determinants of performance—especially to groups of explanatory variables related to firm organization. The modification and expansion of the competing values model involved the addition of market orientation, innovativeness, and organizational climate. Each element of the resulting modified model of competing values has a history in terms of theory and measurement, and each was developed more or less independently by researchers in different fields—organizational behavior, marketing, and economic development.

2.2.1. Market orientation

The concept of market orientation is the central element of the management philosophy based on the marketing concept (Drucker, 1954; Levitt, 1960;

Menguc, 1996; Ruekert, 1992; Webster, 1988) and is presumed to contribute to long-term profitability. Because of the apparent importance of market orientation as a measure of successful implementation of the marketing concept, empirical work on the conceptualization, and measurement of market orientation was encouraged by the Marketing Science Institute in the mid-1980s (Deshpandé, 1999; Deshpandé & Farley, 1998, 1999c). Three different but related approaches were tested in the early 1990s to measure market orientation (Deshpandé et al., 1993; Kohli & Jaworski, 1993; Narver & Slater, 1990). When used on the same subjects, the three scales were highly correlated and produced similar substantive results (Deshpandé & Farley, 1998). The scales also consistently produced high reliability when used cross-culturally (DF, 1988). The study of the market orientation–performance relationship in various industries and in various countries is very much an on-going research field. One branch of work involves the use of market orientation as a moderating variable in a more broadly specified model of firm performance (for example, Gatignon & Xuereb, 1997). Another line of development involves meta-analysis of the growing empirical literature. Work involving market orientation has also spread beyond the confines of marketing publications (for example, Appiah & Ranchhod, 1998).

2.2.2. Organizational innovativeness

Innovativeness, by hypothesis related positively to firm performance, has drawn interdisciplinary attention. The impact of innovation on firm performance and on economic growth has been of interest to economists for decades (Mansfield, Rapaport, Schnee, Wagner, & Hamburger, 1971; Schumpeter, 1934). Marketing has also been interested in innovation for some time. In one of his most-cited passages, Drucker (1954) linked innovativeness and market orientation, stating that "…business enterprise has two—and only two—functions: marketing and innovation…". Innovation has been linked empirically to performance in the US (Capon, Farley, Hulbert, & Lehmann, 1992) and in China (Du & Farley, 2001). Because of the importance and the difficulty of managing innovation, students of organizations have been concerned with organizational designs which foster innovative behavior by managers (Gatignon, Tushman, & Smith, 2002).

2.2.3. Organizational climate

Organizational climate is an enduring quality of the internal environment of the firm which influences behavior and can be described in terms of attributes of an organization (Taguiri & Litwin, 1968). Empowered climates, which encourage communication, participation, decentralization, friendliness, and trust, have been related to performance in the US (Capon et al., 1996; Capon, Farley, Hulbert, & Lei, 1991). Organizational climate differs subtly from organizational culture due to a focus on the decision-making processes of the organization. Elements of organizational climate such as trust and work satisfaction have also been used as dependent variables in assessing such matters as the impact of downsizing and organizational restructuring (Lee, 2002).

2.3. Measuring performance

In the studies reviewed in this article, performance was measured with self-reported scales (Buzzell & Gale, 1987) and validated for the (Deshpandé et al., 2000) US data using publicly available historical data on the financial performance of the firms. Self-reporting is not an ideal solution to measuring performance, but it seems the most workable at the product/market level for making complex international comparisons. Different reporting requirements, ownership structures, and accounting practices pose great problems internationally in acquiring and comparing other sources of performance data. Even if these problems were absent, aggregate performance measures for a multi-divisional firm are often distant from the situation of a particular product/market situation. The performance scale used here has proven reliable in many different settings (DF, 1999c).

2.4. Each element of the modified model is a subject of ongoing research

Each of the four elements of the modified model is itself the subject of major on-going research development and has been over the past two deca-

des. This is shown in the numbers of published items relating each element to performance in peer-reviewed publications recognized by the ABI/INFORM database:

	Number of publications cited	
	1986–1998	1999 to the present
Organizational culture and performance	96	48
Market orientation and performance	71	57
Innovativeness and performance	33	26
Organizational climate and performance	48	8

Further, there are significant developments within each category which are not related explicitly to performance. For example, ABI cites 32 peer-reviewed publications between 1999 and the present related to organizational climate, and 202 more published between 1986 and 1998.

Work based on attempts to assemble more complex combinations of organization-related variables to explain aspects of performance, such as that described here, has grown more slowly. Only eight ABI-cited publications since 1999 involve intersections of three of the four elements of the modified model. The integrative contribution of our research is reflected in the fact that the only ABI-cited paper, which involved all four elements of the modified model was Deshpandé et al. (2000).

3. Method

The original methodology of the modified model was developed and tested in Japan to help establish the extent to which the elements of the model, which were generally developed in the West, would function in a non-Western setting. The original study also included development of a new market orientation scale because the other scales now available had not yet been published when data were collected. This new scale has been shown to be reliable in a wide variety of settings (DF, 1999c). The methodology reported in Deshpandé et al. (1993) formed the basis of the later studies after careful translation, appropriate modification of format, and extensive pre-testing in each new national setting.

3.1. Samples

The studies focused on companies operating in business-to-business markets. This choice was made because it allowed direct identification of specific customers to participate by evaluating organizational cultures and market orientations for both themselves and a supplier. In the large industrial countries, as well as in India and in Hong Kong, the samples of firms selected for in-office personal interviews represent random samples of firms publicly headquartered in that country and in the city in which the interviews were conducted, and traded on the major stock exchange of that country. From this sample, a subsample of domestic firms headquartered in one major city was chosen, except for the US where the sample contained firms from two cities. (The geographic concentration was required because of the expense of the quadrad interviewing method described in Section 3.2.) In the transition economies, stock exchanges generally do not exist in most cities. Where they exist, they do not function like those in the market economies, so samples of locally based business-to-business firms in the transition economies were chosen randomly from available industrial directories. This was also done in Thailand to create a part of the sample consisting of members of the sizeable fraction of large firms which are privately (usually family) owned and not publicly traded.

3.2. The initial unit of observation: the buyer–seller quadrad

Deshpandé et al. (1993) coined the term "quadrad" for the sampling unit involving double dyads made up of four interviews—two pairs each of matched buyers and sellers in a business-to-business relationship (Fig. 1). Besides the basic measures related to the competing values model, these provide measures of within-organization reliability (Moriarty & Bateson, 1982) and of buyer–seller agreement (Anderson & Narus, 1990; Siguaw, Simpson, & Baker, 1998; Weitz, 1981). Two marketing executives in a single business unit of each supplier firm were

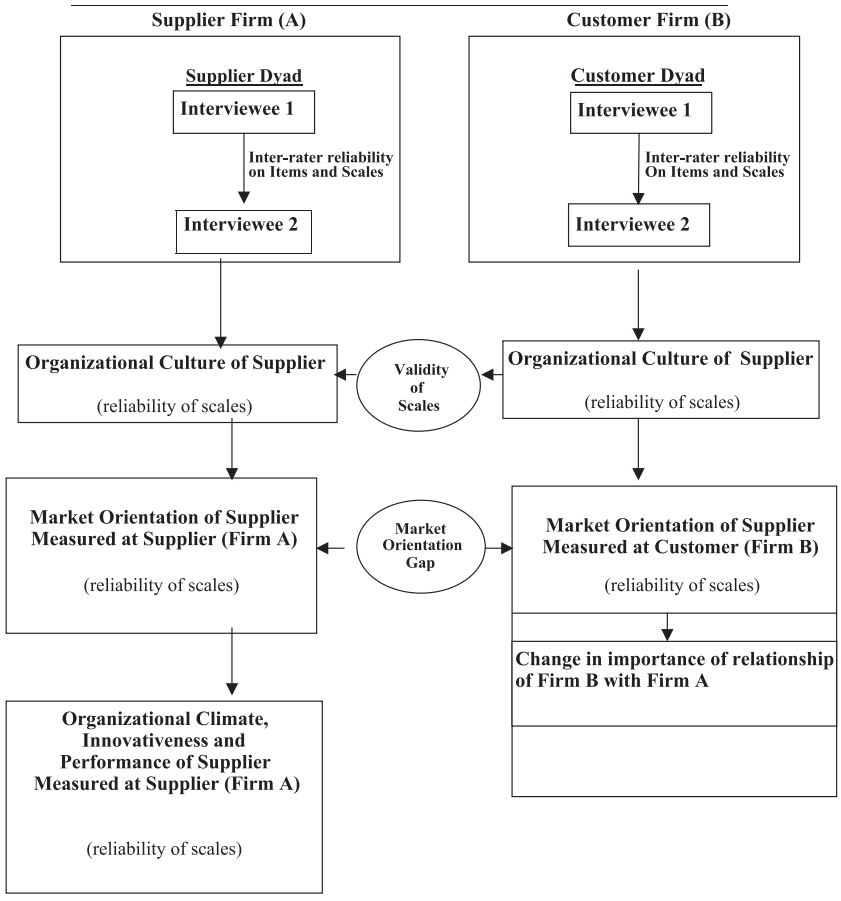

Fig. 1. The quadrad design.

interviewed in their offices about a specific product/market situation (“business”). The interviews were conducted in an appropriate local language by professional interviewers from a commercial market research firm. Two purchasing executives of a customer firm randomly chosen from a list of three such customers named by each supplier respondent were subsequently interviewed. These two respondents were chosen on the basis of their working with the supplier in question.

As Fig. 1 indicates, the design provides a very rich structure for the analysis of inter-rater reliabilities, validity of the supplier scales, and for new types of analysis, such as a gap which may exist between buyer and seller in the evaluation of the supplier’s market orientation. However, this sampling technique is cumbersome, and by economic necessity constrains both the geographic areas of the study because of travel cost. Also, the total number of observations is limited by the fact that each unit of observation (quadrad) requires four completed questionnaires.

The two relevant responses within the quadrad in each case were averaged to build the scales (Hage & Aiken, 1970), after finding no viewpoint variance problem (Heide & John, 1990).

3.2.1. The end of the quadrad

The research supplier in India reported difficulty in convincing both supplier firms and customer firms to provide the pair of required interviews, mainly because of relatively hierarchical structures. As a result, there were many sampled firms in which multiple respondents with both decision-making responsibility and with appropriate information were not available.

This was not a problem in the relatively participative environments in the industrial countries that had been studied earlier. About the same time two reviewers and an associate editor observed that the quadrad structure had probably served its purpose, and as a result was probably no longer necessary in follow-up studies-advice that we were delighted to take in designing the work which followed the Indian study in the form of single respondents from supplier firms.

3.3. Measures, operationalizations, and questionnaire design

The sources of operationalizations and measurement content of the four explanatory constructs (organizational culture, market orientation, organizational climate, and innovativeness) as well as the performance measures are shown in Table 2. All scales were taken from other sources except for market orientation, which was developed and tested in Japan (Deshpandé et al., 1993, which also includes an English version of the questionnaire in the appendix).

Our approach is intentionally etic, using comparative survey research methodology carefully adapted and pre-tested for each cultural environment (Deshpandé & Webster, 1989; Moms, Leung, Ames, & Lickel, 1999). This etic measurement approach has well-known advantages and disadvantages (Berry, 1969, 1980). We hope that our results will complement related work using an emic approach, which is based primarily on ethnographic methods and which might be especially useful in this case in improving the organizational culture scales.

In the studies listed in Table 1, the scheme of Berry (1969) was used to establish elements of scale equivalence. Construct equivalence was tested in preliminary qualitative interviews with both senior managers and professional market researchers from each country to establish that the concepts served the same function from country to country (functional equivalence), that the concepts were expressed properly in each country (conceptual equivalence), and that the same classification scheme was usable in each country (category equivalence). Pre-tests of the questionnaire in each country ensured that scaling and measurement units were usable in that country (calibration equivalence). Two rounds of back-translation in each country established translation equivalence (Brislin, 1980). Sampling equivalence was provided by use of similar procedures and sampling frames in multiple countries.

Table 2
Sources and content of scales

Concepts	Number of items	Scale content
Organizational culture[a]		
Consensual/clan	4	Personal atmosphere, mentor-style leadership, loyalty and tradition, cohesion and morale
Bureaucratic/ hierarchy	4	Formalization, coordinator-style leadership, presence of rules and policies, stability
Entrepreneurial/ ad hocracy	4	Entrepreneurial dynamism, risk-taking, leadership, innovation, emphasizes growth
Competitive/ market	4	Production oriented, goal-oriented leadership, task accomplishment, competitiveness (Sources: Cameron & Freeman, 1991; Quinn, 1988)
Innovativeness	5	Being first to market, avoiding late entry and stable markets, being at cutting edge of technology (Source: Capon et al., 1992)
Organizational climate	5	Communication, trust, participation, friendliness, self-management (Source: Capon, Farley, & Hulbert, 1988)
Market orientation	9	Customer service, good market information, knowledge of competitors, customer value, customer focus, product differentiation, putting customer first, best products, primary business is serving customer (Source: Deshpandé et al., 1993)
Performance	4	Profits, size, growth, share (Source: Buzzell & Gale, 1987; Kotabe, Duhan, Smith, & Wilson, 1990)

[a] Constant-sum scale with sum of all four items equal to 400 for all respondents.

4. Results

We do not attempt to catalogue details of the results from the studies listed in Table 1. Rather, we attempt to identify common elements from which we can draw generalizations, supplemented by some of

Table 3
Country means of explanatory variables, scale reliabilities, and results of regression on performance

	Means						Reliability (Cronbach α)	β Coefficient in pooled performance regression
	Japan	US	France	England	Germany	All		
Organizational culture types[a]								
Consensual/clan	119.3	101.4	78.9	107.6	96.2	105.8	0.65	−0.30*
Bureaucracy/hierarchy	99.9	80.3	99.1	76.8	83.2	89.6	0.78	0.00
Entrepreneurial/ad hocracy	77.6	105.8	128.3	99.1	131.1	100.3	0.60	0.08
Competitive/market	103.3	112.5	93.7	116.3	89.4	104.4	0.68	0.21*
Organizational climate	27.2	26.9	26.3	26.7	26.5	26.8	0.69	0.19
Innovativeness	17.5	18.4	16.3	17.5	18.2	17.0	0.62	0.28*
Market orientation[b]	32.5	34.8	32.1	33.1	36.9	34.3	0.75	0.10

[a] Significant differences over countries ($p<0.01$) and significant differences over culture types ($p<0.01$) as a group in MANOVA.
[b] Significantly difference over countries ($p<0.01$).
* Regression coefficient significantly different from 0 ($p<0.05$).

what we consider the more interesting specific findings. Section 4 contains the following:

1. Basic approach to analysis of cross-national differences on the measured values of the elements of the modified competing values model and analysis of country differences in how these elements affect performance.
2. Review of published comparisons in five industrial countries.
3. Discussion of consistencies in general patterns of results in six different settings.
4. Some of the more interesting specific results—for example, the degree of heterogeneity of cities in a culturally diverse country and potential usefulness of convenience samples.
5. Secondary research using part of the information to examine cross-cultural patterns of relationships in marketing.

4.1. Basic approach to analysis

The basic approach to analysis reflects the view of cross-national research of Farley and Lehmann (1994). They observe that easily detected, order-of-magnitude cross-national differences in average values of important variables create a sense of "everything is different" in the minds of marketing decision makers in international marketing. (Examples are large inter-country differences in per capita purchase of items like cameras (Armstrong, 1970) and in business spending per capita on advertising (Leff & Farley, 1980).) This mindset may carry over to an implicit assumption that the parameters of relationships between these same variables also vary a great deal internationally. In fact, these slopes often vary much less over countries or over time than do the means of the corresponding measures. This is consistently the case in the results in the comparative papers listed in Table 1.

The first step of the analysis is through MANOVA comparing and contrasting country means of the various measurements. The basic statistical approach to performance analysis is through segmented regressions, which contain specifications of country-specific intercepts and country-specific slopes for each explanatory variable. Later applications have added time-variant parameters to assess the impact of environmental shocks on system parameters (Deshpandé & Farley, 2002c).

4.2. An illustration: five industrial countries[1]

To illustrate the approach, we examine the study carried out in five industrial countries (Deshpandé et al., 2000) and published in IJRM. Table 3 shows the values of the three elements of the analysis plan: the country means along with tests for mean inequalities, reliabilities of the scales, and regression results for pooled and unpooled models of performance.

[1] This section is adapted from DFW (2000).

4.2.1. Inter-country differences in scale averages

Based on MANOVA, the four organizational culture scores in Table 3 were significantly different as a group across countries. Market orientation is also significantly different across countries, with the US and Germany having the highest values and Japan the lowest. The Japanese sample is high on consensual culture, the US and England high on competitive culture, and France high on bureaucratic culture—all as expected, based on putative characteristics of national culture. organizational climate and organizational innovativeness were not significantly different across these countries.

Pauly and Reich (1997) examine the loss of national characteristics in the face of globalization, concluding that there is only limited cultural convergence, which occurs in areas such as innovation management. Our results (which include US, Germany, and Japan which Pauly and Reich also studied) support this view. Organizational cultures are quite different and clearly relate to characteristics of national cultures. Market orientation also varies significantly, while innovativeness does not. The cross-sectional nature of our study does not allow us to assess movements towards or away from convergence.

4.2.2. Relating organizational factors to performance

Individual country and industry differences in the impact of the organizational variables on performance were tested using Chow (1970) tests on sub-elements of a segmented regression specified with country-and industry-specific slopes. The fit of the basic unsegmented model (all slopes constrained to be equal) was significant, but the inter-country mean and slope differences were not significant as a group. Country-by-country analysis showed that no individual country slopes were significantly different from the model where all intercepts and slopes were constrained to be equal for all countries. The covariate, industry, was not a significant factor in explaining performance.

Based on the lack of significance of specific country slopes or intercepts, a pooled model was used to examine the signs of the coefficients of a regression with performance as the dependent variable (last column of Table 3).

The organizational culture scores as a set have a significant effect on performance, and the magnitudes rank order as hypothesized in Deshpandé et al. (1993). Coefficients of competitive and entrepreneurial cultures are positive, with competitive being slightly higher. Coefficients of bureaucratic and consensual cultures are negative, with consensual the lowest. Participative climates that encourage communication, decentralization, and trust relate to better performance. Organizational innovativeness, the best-established of our independent variables in terms of its effect on performance, has the strongest single effect as is shown by the largest positive β coefficient in Table 3. Market orientation had a positive sign but was not significant.

All β coefficients have the expected sign, and a sign test rejects the hypothesis of a random sign pattern ($p < 0.01$). This indicates that substantive results on determinants of performance in Japan reported in Deshpandé et al. (1993) are not idiosyncratic to the special nature of that particular national context.

4.2.3. Scale reliability and invariance

Inter-rater reliabilities for individual items, measured by correlations of items from individual raters within the respective supplier and customer dyads, were statistically significant for all measures, with value correlation averaging around 0.65. Corresponding correlations were not significantly different for suppliers and customer dyads within individual quadrads.

All scale reliability estimates with scales pooled for the five countries (Cronbach α) were at or above 0.6, and three were at or near 0.7.

All measures clear at least one criterion on invariance of covariance matrices of the different countries using the Steenkamp and Baumgartner (1998) procedure. The Box test found no significant country-specific differences of covariances of market orientation, organizational climate, or of three cultures—consensual, bureaucratic, and competitive. The consensual scale had partial scalar invariance. The entrepreneurial scale, the competitive scale, the market orientation scale, and the innovativeness scale all had some form of partial metric invariance.

4.3. Summary of performance results for six studies

Generalization of the Deshpandé et al. (1993) results were the focus of the five other studies listed in Table 1, all of which used a variant of the analysis structure described in Section 4.2. The study-by-study

summaries are shown in Table 4 and an overall summary is shown in Table 5. We assess the consistency of the results of these six studies in terms of presence or absence of mean differences of the seven organizational measures, and in terms of the hypothesized and actual relationship of the seven variables with performance. Also involved is attention to goodness of fit of the performance regressions, to scale reliability, and to invariance over countries of covariance matrices of the scales.

4.3.1. Intra-sample mean differences in scale averages

The general pattern of significant differences in the means of the organizational variables is consistent with those summarized for the five industrial countries discussed in Section 4.2. It is clear that there are differences in mean value of the seven explanatory variables, shown by the fact 23 of the 35 cases in which at least two populations are compared, have significantly different means. The means of each variable are significantly different in two or more of the five cases. Ad hocracy culture is different in all five cases, market orientation in four cases, and organizational climate and innovativeness are different in two of five cases. All four organizational culture scores have different means in the case of the six Asian countries, which have highly diverse national cultures.

4.3.2. Slopes and fit in performance relationships

There was also a qualitative consistency of the partial relationships of the seven organizational variables with performance. Overall, 40 of the 41 regression coefficients have the hypothesized signs and 26 of these are significant. Innovativeness is positive and significant in all six cases. Market orientation is also positive in all cases and significant in four—especially outside the industrial world, where marketing is less developed and where investment in marketing may have higher pay-offs.

Organizational climate is not significant in the Asian countries, the transition economies, and the Chinese cities, while organizational climate has a significant effect in the industrial countries. There are indications that efforts of Western firms to install such Climate-related practices as entitlement in parts of Asia have not been effective, in part because of clashes with personal values (Ang, Lee, Singh, & Tan, 2000). There is a clear lack of significant effects (only one of eight of regression coefficients is significant) of organizational cultures in the Chinese cities and in the transition economies. On the other hand, both market orientation and innovativeness have significant effects on performance in the transition countries and in the Chinese cities.

The coefficient of determination of the performance regressions for the five industrial countries was 0.2, and for the six Asian settings 0.17, for transition economies 0.16, and for the Chinese cities 0.14. All were significant. Differences may be related to some extent to different between-study patterns in scale reliabilities discussed in the next section.

The magnitudes of the coefficients of determination are consistent with the contributions of a group of organizational structure and climate variables to explanation of performance of 121 large American corporations reported in Capon et al., 1996, p. 309. Coefficients of determination for fuller models, which also include measures of environment and strategy as well as organization structure and organizational climate, ranged from 0.41 to 0.57, depending on the measure of performance used.

4.3.3. Reliability and invariance

Generalization of the Deshpandé et al. (1993) results were the focus of five other studies, all of which used a variant of the analysis structure described in Section 4.2. We assess the consistency of the results of these six studies with those hypothesized (signal). We also compare goodness of fit of regressions, reliability of scales, and invariance of covariance matrices of scales over countries.

4.3.3.1. Scale reliability. The first applications were in the industrial world, where pairs (dyads) of managers in supplier firms and customer firms established inter-rater reliabilities within firms, a result also confirmed in the quadrad analysis in India.

Table 6 indicates that reliability declined as work moved outside the industrial world. Measures of market orientation, innovativeness, organizational climate, and performance had Cronbach α's above 0.6, and the majority had α's above 0.7. The majority of the scale reliabilities for organizational culture is above 0.6, and thus within a generally acceptable range for exploratory research of the type represented in this

Table 4
Summary for six studies of mean differences and relationships between performance and organizational variables

	Japan (Deshpandé et al., 1993)		5 Industrial countries (Deshpandé et al., 2000)		Japan and India (Deshpandé & Farley, 1999a)		Six Asian countries (Deshpandé & Farley, 2001)		Transition economies (Deshpandé & Farley, 1999b, 2000)		Six Chinese cities (Deshpandé & Farley, 2002a)	
	Performance relationship	Means different	Performance relationship	Means different	Performance relationship	Means different	Performance relationship	Means different	Performance relationship	Means different	Performance relationship	Means different
Organizational culture (group)	*	NA	*	yes	*	yes	*	yes		no		no
Clan/consensual	−*	NA	−*	yes	−	yes	−*	yes	−	no	−	no
Hierarchy/bureaucracy	−	NA	−	no	−	yes	−*	yes	−*	no	−	no
Ad hocracy/ entrepreneurial	+	NA	+	yes	+*	yes	+*	yes	+	yes	+	yes
Market/competitive	+*	NA	+*	yes	+	yes	+*	yes	+	no	+	no
Innovativeness	+*	NA	+*	no	+*	no	+*	no	+*	yes	+*	yes
Organizational climate	NA	NA	+*	no	+*	no	+	no	+	yes	−	yes
Market orientation	+	NA	+	no	+*	yes	+*	yes	+*	yes	+*	yes
Country (city) slopes different?	NA		no		no		no		NA		no	
Industry significant?	no		no		no		no		no		no	
R^2	NA		0.20*		NA		0.17*		0.16*		0.14*	

NA—not applicable.
* Indicates significance at $\alpha = 0.05$.

Table 5
Summary for six studies of mean differences and relationships between performance and organizational variables

Number with	Performance relationship			Country/city
	Expected signs	Number of signs correct	Number coefficients significant	Means significantly different
Organizational culture (group)			4 of 6	3 of 5
Clan/consensual	–	6 of 6	3 of 6	3 of 5
Hierarchy/ bureaucracy	–	6 of 6	2 of 6	2 of 5
Ad hocracy/ entrepreneurial	+	6 of 6	2 of 5	5 of 5
Market/competitive	+	6 of 6	3 of 6	3 of 5
Innovativeness	+	6 of 6	6 of 6	2 of 5
Organizational climate	+	4 of 5	2 of 5	2 of 5
Market orientation	+	6 of 6	4 of 6	4 of 5
Country (city) slopes different?	NA	NA	0 of 4	NA
Industry significant?	NA	NA	0 of 4	NA
R^2	NA	NA	4 of 4	NA

NA—not applicable.

paper. This pattern, which may be partially due to the fact that the four scales contain only four items, indicates that further research is needed on methodologies to measure organizational culture globally. Work on a more reliable scale to measure Innovativeness is also needed, as the items based on stages of the product life cycle used in these studies worked poorly outside the industrial world.

4.3.3.2. Invariance. During the later phases of the research described here, there was increasing concern with invariance of covariance matrices of the set of measures used to compare populations (generally meaning countries in international comparative research). Discussions often expressed concerns about US methods exported to the rest of the world, and we guess the same could be said about methods developed in Japan. Older methods such as the Box test of equality of covariance matrices can be used, and newer methods based on the measurement component of causal models (Singh, 1995; Steenkamp & Baumgartner, 1998; Steenkamp, ter Hofstede, & Wedel, 1999) are also available. These methods were applied to both the study of five industrial countries (DFW, 2000), where only the US and Japan had sample sizes adequate for testing, and to the six Asian economies (Deshpandé & Farley, 2001). Results were mixed. As mentioned earlier, all measures in the study of industrial countries clear at least one criterion of invariance. No sort of invariance was found for the six Asian economies, which also had much larger sample sizes.

4.3.4. Covariates—industry and firm size

Industry and firm size were used as indicators related to context of the studies.

Industry, divided into seven groups (financial and other services, consumer durables and non-durables, and industrial products, subdivided into capital goods, equipment, and supplies) was used as a covariate to represent possible differences in within-country and between-country business environments. In no case did the inclusion of Industry as a covariate have a significant effect on a coefficient of determination of a regression, nor did any have a significant correlation with any of the scales.

Firm size, when measured in terms of either revenues or number of employees, also was not correlated with performance or with any of the organizational scales.

4.4. A selection of more detailed results

The following sections include a number of what we consider interesting detailed results which occur in individual studies or subsets of studies. Some of these results are substantive and some are methodological, as is illustrated in Sections 4.4.1–4.4.4.

4.4.1. The transition economies

Chinese and Vietnamese firms have the highest scores on Bureaucracy of all countries studied, perhaps reflecting their development of many firms in an atmosphere of centralized economic planning. As was generally hoped with their adoption, the newer types of organizations (for example, joint ventures and wholly owned subsidiaries in China, and private firms in China and Vietnam) have lower bureaucracy scores and perform slightly better.

4.4.2. City effects

We are often asked whether focusing on a single large city in each country introduced bias into the results. Three studies examined differences between

Table 6
Reliability (Cronbach α)

Concepts			Reliability			
Organizational culture	Japan	Five industrial countries	Six Asian nations	China and Vietnam	Hong Kong	Six PRC cities
Consensual/clan	0.42	0.65	0.63	0.47	0.63	0.61
Bureaucratic/ hierarchy	0.71	0.78	0.61	0.51	0.61	0.60
Entrepreneurial/ ad hocracy	0.66	0.60	0.47	0.47	0.47	0.51
Competitive/ market	0.82	0.68	0.53	0.47	0.53	0.53
Innovativeness	0.85	0.62	0.62	0.62	0.62	0.68
Organizational climate	NA	0.69	0.78	0.78	0.72	0.67
Market orientation	0.69	0.75	0.72	0.72	0.72	0.67
Performance	0.72	0.71	0.80	0.71	0.80	0.68

cities within countries. Two cities were used in the US (New York and Atlanta (Deshpandé et al., 2000)) and in Vietnam (Hanoi and Ho Chi Minh City (Deshpandé & Farley, 1999b)) to identify the possible city differences in the values of the organizational variables or in the structure of the performance regression results. No significant differences were found in either.

The third study, designed at the strong urging of reviewers of earlier work, involved systematic study of city differences in six Chinese cities (Deshpandé & Farley, 2002a), where a number of factors might reasonably be expected to have shaped different organizational cultures. These cities have different spoken languages and millennia of different histories. Special economic zones, like the one in which Shenzhen grew from a village to a large city in ten years, might have made firms less like the profiles of cities undergoing economic transition more gradually, such as Beijing and Tianjin. Similarly, firms in cities more dependent on collective firms (Wuxi) may have a different set of cultures. Personal values are more traditional in firms in Beijing, Tianjin, and Wuxi than firms in Shanghai, Shenzhen, and Guangzhou, where the economic reforms had earlier impact. Again, we find city-specific differences in the means of some organizational variables, but we find that the slopes relating those measures to performance do not vary over six quite different PRC cities. The patterns of the mean differences are as might be expected. Firms in Shanghai, the engine of China's economy as well as international trade up to World War II and now a leading center for industrial investment, show higher market orientation scores.

4.4.3. Convenience samples

Many studies of managers involve the use of convenience samples, leading to concern about representativeness of samples (for example, Aulakh & Kotabe, 1993). In Vietnam, we had the occasion to compare results from a sample of 100 firms drawn randomly with the results from a group of 27 managers from similar firms who attended an executive program together. Based on item-by-item *t*-tests, there were no differences in either mean or variance of any item in our questionnaire. Of course, this does not prove that convenience samples are representative, but it does show that such information can be quite useful.

4.4.4. The uniqueness of organizational culture in Hong Kong

Hong Kong provided the only sample (among 17) in which the pattern of the four organizational culture scores are statistically equal. This pattern may reflect the unique combination of Eastern and Western cultures, which has developed in Hong Kong over the past century. For example, Tung Chee-hwa said in his first public statement as the first Chinese leader of Hong Kong (New York Times, 1996), "We understand instinctively Chinese traditional values. . .yet we also appreciate. . .Western traits. . .".

4.4.5. Other results from the quadrad

Despite the costliness and inherent difficulty of executing the quadrad, the design, in addition to inter-rater reliabilities discussed in Section 4.2.2, made possible a number of analyses, which could not have been done with either single informants or interviews of only supplier or customer dyads.

4.4.5.1. Comparing supplier and customer evaluations of supplier market orientation. The two measures of market orientation, one a self-evaluation and the other a customer evaluation, provide a good example of the distinction between differences in means and differences in slopes described in the basic approach to the analysis in Section 4.1. The self-evaluations are significantly larger on average than the customer evaluations, indicating that firms (as well as researchers) must be cautious in interpreting the average values of self-evaluations. On the other hand, the two market orientation measures are positively correlated, and regressions coefficients relating each to performance are not significantly different. Thus, the self-evaluations, which are generally easier to obtain, can be used to evaluate the impact of market orientation on performance.

4.4.5.2. Validity of organizational culture scales. Each customer provided their own organizational culture scores and scores for their supplier under study. The supplier's self-evaluations and the customer's evaluation of the supplier's culture were not significantly different in the five industrial countries, providing a measure of validity for the organizational culture scales. The customer measures of their own culture were, as expected, significantly different from the supplier evaluations provided by the customers, again providing evidence of validity of the organizational culture scales.

4.4.5.3. Generalizing to the industrializing world. The quadrad design was used in a later study of Indian firms (Deshpandé & Farley, 1999a). Mean values of the scales were significantly different in India, where the scores on entrepreneurial culture were very high. However, regression coefficients of the organizational measures on performance were equal to those of other Asian countries (DF, 2001).

4.5. Secondary analysis of quadrad data: social identity theory and cross-cultural study of relationships[2]

It is not unusual to return to a set of data to study matters not explicitly considered in the original study design. The quadrad allowed us to return for more detailed culture-related analysis of relationships between buyer and seller. Market orientation is based on the extent to which a seller's focus on customers binds buyers and sellers together. Relationship marketing also focuses on the efforts of sellers, and to some extent buyers as well, to move away from an emphasis on transactions and towards investment in longer-term mutually profitable partnerships (Anderson & Weitz, 1989; Morgan & Hunt, 1994; Moriarty & Bateson, 1982). Secondary analysis of market orientation and relationship marketing used the social psychology framework of social identity theory for cross-national analysis of buyer–seller alliances (Deshpandé & Farley, 2001; Steinman, Deshpandé, & Farley, 2000).

4.5.1. The cross-cultural context of social identity theory: "us vs. them"

Elements of national culture have entered social identity theory (Tajfel & Turner, 1979) through the extent of inter-society differences in the importance of the individual and of the importance of groups in governing acceptable behavior in different cultures (Gannon, 2001; Kessing, 1974). Individualist cultures "emphasize the individual's goals...individuals take care of themselves...", while collectivist cultures "stress that group goals have precedence over the individual's goals...the in-groups to which individuals belong take care of them in exchange for loyalty" (Gudykunst, 1989, pp. 166–167).

4.5.2. Linking market orientation and relationship marketing

Under social identity theory, marketers should try to get away from the "us vs. them" to the "we"—that is, to a sort of alliance based on consensus of buyer and seller. This is especially important in business-to-business markets where buyer and seller often engage in frequent direct personal contact. A conceptual basis for a connection between the two constructs is sug-

[2] This section is adapted from Steinman et al. (2000) and Deshpandé and Farley (2002b).

gested by Kalwani and Narayandas (1995), who stress looking at customer relations from a long-term perspective. Berry and Parasuraman (1991) also focus on customers: "Relationship marketing concerns attracting, developing, and retaining customer relationships".

4.5.3. Measures: market orientation and relationship importance

The analysis involves relating market orientation as perceived and as desired to the importance of a relationship. We measure two types of market orientation: (1) actual market orientation (what the supplier respondents say about their own market orientation and what the customer respondents say about the supplier) and (2) normative market orientation (what suppliers and what customers think norms should be). The contents of the nine items, which comprise each scale, are shown in Table 2. Change in importance of relationship, a single item five-point scale measuring whether the relationship is becoming less or more important, has been used in research on industrial financial services (Bowman, Farley, & Schmittlein, 2000).

4.5.4. Results about gaps and relationships

Table 7 shows the size of the actual and normative market orientation gaps for low and high individualism countries as identified by the (Hofstede, 1980) individualism scales. Suppliers and customers *do* disagree about the supplier's market orientation—that is, a market orientation gap does exist, and suppliers think better of themselves than customers do for both the actual and normative measures. The size of the gap increases as individualism of national culture increases. For Japan, the most collectivist culture, neither difference is significant, while the difference is significant for both the Middle countries (France and Germany) and for the Individualist countries (the US and UK). There is a negative correlation between both "gaps" and the scale measuring "relationship becoming more important"—that is, as either gap becomes larger, the relationship becomes less important.

Again, the results are not industry specific; in no case did the inclusion of industry as a covariate have a significant effect on the results.

As the normative and actual gaps decrease within a culture, relationship importance increases. For companies which base their marketing programs on relationship building, it could be important to assess these gaps and to narrow the specific areas of particular disagreement—as, for example, is indicated by individual items in the market orientation scales.

Closing the gaps discussed above to improve the "alliance" atmosphere will probably require changing perceptions of "us vs. them" to "we"—that is, away from the vocabulary of the transaction toward the

Table 7
Mean of supplier's actual and normative market orientation gaps for high and low individualism countries

Type of national culture	Country	Group mean of supplier's market			
		Rank (of 39) on gap Hofstede (1980, 1991) individualism scale	Orientation gap (supplier's self-evaluation minus customer evaluation)		*t*-test of differences
Collectivist	Japan	23	Actual	0.42	1.26
			Normative	0.75	1.54
Middle	France	16	Actual	2.17	2.24*
			Normative	1.97	2.47*
	Germany	11	Actual	3.50	3.23**
			Normative	2.90	2.01*
Individualist	UK	3	Actual	3.30	3.54**
			Normative	1.67	1.73*
	US	1	Actual	2.73	3.69**
			Normative	2.61	5.16**
Correlation of "gap" with relationship becoming more important			Normative gap: $r = -0.16$*		Actual gap: $r = -0.26$**

Source: Deshpandé et al. (2000).

* Significant at $p < 0.05$.

** Significant at $p < 0.01$.

vocabulary of the relationship. Both social identity theory and our empirical results suggest that culture-related cross-national differences preclude benchmarking market orientation gaps with information from just one country.

5. Discussion

A framework built on an expanded theory of competing values was used to examine the impact of organizational culture, market orientation, organizational climate, and innovativeness on firm performance. These individual elements were developed more or less independently in different fields of research and at different times. The original design of the overall framework was developed in the early 1990s and used without major change for over a decade to provide comparability; during this period, there was significant research development in each of the four literatures which contributed research to the expanded competing values model.

The importance of the results is that improvement of a given size in a particular explanatory variable should be related to approximately the same improvement in performance in many countries. Open organizational cultures (competitive and entrepreneurial), stronger market orientation, and innovativeness all had a pattern of positive effects on performance as expected. Based on the insignificance of country effects in the slopes of regressions, we find similar substantive results in 10 countries, both industrial and industrializing, both Western and Asian, and in both market economies and economies in transition from central planning. Similar results hold qualitatively within a diverse set of Chinese cities. Further, the basic approach can be extended to analyses of such matters as the connection of relationship marketing with cultural differences.

5.1. Substantive generalizations

Some specific generalizations deal with both measures and markets:

- Market orientation and innovativeness have a pattern of consistently positive impact on performance. Innovativeness appears to be more important in the industrial world, and market orientation more important in the industrializing world, where the notion of marketing is at an earlier stage of development.
- As a general matter, relatively open, externally oriented organizational cultures related to better performance, while relatively closed, internally oriented organizational cultures related to poorer performance.
- In the so-called "transition economies" which are moving towards more market-driven economies, the results appear to apply to only a minority of firms—the upper third or upper quarter in terms of performance.
- Industry type, defined in rather broad categories (e.g. consumer non-durables), has no effect on these conclusions.

5.2. Methodological generalizations

The following generalizations have to do mainly with measurement:

- Market orientation, organizational climate, and performance were reliably measurable in all the situations studied. Organizational climate had limited impact on performance; it is possible that this measure is more specific to national culture than the others (Newman & Nollan, 1996).
- More specific issues can be examined by bringing new theories to bear on analysis of the same information. This was illustrated in the discussion of cultural patterns in buyer–seller relationships under social identity theory in Section 4.5.
- Work is needed on more universally reliable measures of organizational culture and innovativeness. The innovativeness scale is highly dependent on items related to the product life cycle, and these do not seem to work as well in the industrializing world. Similarly, the four-item organizational climate scales appear too limited in the industrializing world.
- In terms of methodology, the exact role of invariance of individual country covariance matrices is unclear, as are the sensitivities of invariance tests to sample sizes, scale reliability, collinearity of measures, or sensitivity of the tests to various types of alternatives. Probably more important is

developing a better understanding of the effect on both reliability and invariance of relatively high levels of observation-idiosyncratic variability in the dependent and independent variables, which apparently occur in cross-sectional studies of firm performance. Experiments, perhaps in a simulation framework, might be as useful in this situation as they were in the early history of econometrics in assessing the actual effect of specification error on various approaches to parameter estimation. Invariance will probably continue to be a nearly ubiquitous problem for cross-national researchers. Steenkamp et al. (1999) suggest that using alternative tests is useful, but that estimation can produce meaningful results in absence of invariance. (Ryan, Chan, Ployhart, & Slade, 1999), in a rather balanced discussion of the subject, argue that invariance should at least be considered, but that some methods appear to be too stringent. They also point out that a model that predicts results well in each country (that is, that has a consistent "signal" in terms of parameter estimates and model fit) may help override some apparent weaknesses in data.

5.3. What next?

The results, while consistent with theory and consistent over countries, probably raise more questions than provide definitive answers. Some questions deal with limitations on generalization:

- These studies, while they use representative samples of manufacturing and service firms, deal only with direct business-to-business relationships. Studies of patterns of perceptions of market orientation through the layers of complex distribution systems, for example, in the business-to-consumer context, would broaden the scope of generalization.
- The growing interest in causal models during the period of the research program suggests returning to the analysis in this context. (Throughout this research program, the scales were maintained in the form in which they were developed—that is, with items weighted equally.) As a next step, confirmatory factor analysis should be explored as a means to weight the elements of the various scales, perhaps leading to the addition of a measurement model to future studies of this type.
- The quadrad design, which required limiting interviewing to geographically proximate customers, left open the question of whether geographic distance between customer and supplier is systematically related to perceived levels of market orientation.
- Most of the results deal with a single, major city in each country. The results on the existence of within-country city patterns are similar rather than different.
- All individual studies are cross-sectional. Longitudinal studies would be useful to study changes over time in perceptions of managers of both producing and buying firms. A useful design might include periodic re-interviews on a subset of a sample in panel form, with the rest of each sample being used in fresh samples to help calibrate any effects of re-measurement (Deshpandé & Farley, 2002c).
- The choice of countries was driven more by chance than by design. In particular, a balanced approach to characteristics of the sample countries—culture, demographics, major institutional factors, etc.—could help sharpen results.
- In all likelihood, industry (which did not effect our results) probably does have a systematic effect at some level of greater disaggregation. Many students of firm performance find that industry characteristics systematically matter in study of performance (Bain, 1951; Hansen & Wernerfelt, 1989; Scherer & Ross, 1990), hence probably in organizational elements also related to performance, such as market orientation. Some experiments with different levels of aggregation might be useful.

Some open questions deal with methodological matters:

- As mentioned earlier, some basic work is needed on the scales measuring organizational culture and innovativeness.
- Experiments with measures of performance other than self-reports would be most useful, although self-reports have proven reliable in many settings.
- Replication and re-measurement should be considered to track stability of results over time and to assess systematic changes related to major envi-

ronmental changes—the Southeast Asian Crisis, for example.

5.4. Towards a broader perspective on determinants of firm performance

While the results do seem robust, our research program is based on three classes of essentially organizational variables. This helps remedy the relative historical void of organizational measurements (at least relative to environmental and strategic measures) in studies of performance. However, it is important that these results now be fit into a broader context in terms of a wider range of determinants of firm performance.

The research required to develop a broad understanding of superior firm performance is daunting. We know a great deal about the bivariate effect on firm performance of a long list of environmental and strategic factors, but we know relatively little about how these elements combine within categories and even less about how environmental, strategic, and organizational combine across categories in a comprehensive model of firm performance.

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