INSTITUTIONAL INFLUENCES ON ORGANIZATIONAL CONTROL
A COMPARATIVE EXAMINATION OF AGENCY THEORY IN SINO-JAPANESE AND SINO-AMERICAN JOINT VENTURES

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ABSTRACT

This paper reports empirical research on the applicability of agency theory in international joint ventures in the People's Republic of China. The research suggests that significant differences exist between Sino-Japanese and Sino-American joint ventures and that these differences reflect institutional effects associated with the nationality of foreign partner firms. The findings have important implications for the scope of organizational theories based on traditional utiitarian principles and for many of the prevailing approaches to comparative research on organizations. The paper argues that neither a narrow focus on the effects of local culture nor the search for universal theories of organization is suitable for the real complexity of contemporary international organizations.
The universality of theories of social and economic organization is one of the oldest and most basic concerns of the social sciences, and it has shaped work in organization studies throughout the history of the field. For more than a century, social scientists have been deeply divided over the significance of society and culture in economic organization and the degree to which general theories can be used to understand organizations in different sociocultural settings. These issues continue to play a major part in organization studies, both in comparative research on management and in recent efforts to build new organizational theories on microeconomic foundations (Boyacigiller & Adler, 1991; Earley & Singh, 1995; Lammers & Hickson, 1979; Moe, 1984; Nilakant & Rao, 1994).

The issues examined in these different fields have been similar, but the work on international and comparative management has had little influence on discussion of topics in organizational economics such as the scope of agency theory. Although agency theory has become the dominant paradigm in a number of disciplines (Bricker & Chandar, 1998; Hunt & Hogler, 1990; Kaplan, 1983; Nilakant & Rao, 1994), discussion of the applicability of the theory has been couched largely in terms of acceptance or rejection of axioms about individual rationality (Donaldson, 1990; Hirsch, Friedman, & Koza, 1990). The possibility that those axioms might be more suitable for certain social contexts than others has received only limited attention, despite the existence of a substantial body of comparative research on the sociocultural bases of organizational behavior.

There has been a good deal of empirical research on the question of whether administrative structures and control systems actually resemble models drawn from agency theory (e.g., Davis & Thompson, 1994; Eisenhardt, 1985; Sapienza & Gupta, 1994; Tosi & Gomez-Mejia, 1989), though much less work has been done on the scope of agency theory or the conditions that might affect the applicability of the theory in different social settings (Bird & Wiersema, 1996). With a few exceptions (e.g., Bird & Wiersema, 1996; Chia, 1995), research on agency relations has been confined to a relatively narrow range of topics studied within North America and Western Europe (Wellbourne, Balkin, & Gomez-Mejia, 1995).

This has left two major questions about the scope of organizational economic theories such as agency theory largely unexplored: whether the theories are peculiar to the North American and European settings in which they have been developed and tested, and whether the applicability of the theories varies for individuals in different institutional contexts within any given national society. This paper responds to both questions. It looks at agency theory in a setting outside North America or Europe, and it examines the influence of institutional factors other than local culture on the applicability of the theory. Local society or culture is one of the important factors that may influence individual views of economic behavior, but individuals within a given society also may exhibit systematic differences due to other types of institutional effects (Kaplinski & Posthuma, 1994; Lincoln & Kalleberg, 1990).

This is not a conventional cross-cultural study. The research examines the applicability of agency theory among Chinese managers working in joint ventures in the People's Republic of China (PRC). It is closest to the type of research that Earley and Singh (1995) have described as "reduced form," as a primary objective of this study is to assess the degree to which a major theoretical approach developed within the United States may be useful for analyzing similar organizational issues in different social settings (Boyacigiller & Adler, 1991). This paper avoids the extreme positions that either view ideas as purely culture-bound or strive for a universal science of economic organization. The position adopted here is that economic organization is embedded within complex social and institutional frameworks that can be investigated in a systematic fashion (Cheng, 1994; Granovetter, 1985; Lin & Hui, 1999).

The paper is divided into two major sections. The first part of the paper provides a brief review of some basic principles of agency theory, attempts to place the theory in a broader context, and looks at institutional factors that may affect the applicability of theories of this type. The discussion of agency theory in this part of the paper is not intended to be a comprehensive treatment of the approach. Eisenhardt (1989), Levinthal (1988), Moe (1984), Nilakant and Rao (1994), and others have published extensive discussions of agency theory elsewhere. The purpose of this review is to provide an overview of the implications of agency theory for the nature of jobs and incentives in different types of organizations.

Institutional theory provides a basis for expectations about differences between Sino-Japanese and Sino-American joint ventures. Most research on international organizations such as joint ventures has focused on the effects of local cultures of host countries; however, institutional theory offers grounds for anticipating isomorphism with foreign parent firms as well. Foreign parent firms of ventures in emerging or transitional economies often play major roles in management training and organizational design, and foreign regulatory regimes may constrain control systems in joint ventures as well. Many practices differ substantially between Japanese and U.S. firms (Brown et al., 1997; Kagono et al., 1984) and the analysis of agency relations in Sino-Japanese and Sino-American joint ventures offers a good opportunity to explore the influences of parent firms.

The second part of the paper presents empirical findings that address the issues raised in the first section. The analysis described in this section is based on a survey of managers in several Sino-Japanese and Sino-American joint ventures in Shanghai, PRC. Eighty-one Chinese managers were interviewed using a detailed questionnaire covering a variety of issues related to the nature of their work, the form of performance evaluation, reward systems, and their views of a number of general elements of exchange and economic behavior. All managers were employed in joint ventures with major multinational corporations, and all of the joint ventures were in manufacturing industries.

The paper concludes with a brief discussion of some of the implications of the research. The study provides evidence that certain features of agency theory may
be applicable to Chinese managers, but the applicability of the theory also varies across different types of joint ventures. There is an important indication that the concepts and attitudes held by Chinese managers in joint ventures vary with the nationality of foreign partner firms, and that these institutional effects may have significant implications for the generality of agency theory and other similar liberal, utilitarian theories as tools for understanding organization and control. The existence of these institutional effects also highlights the need for broader approaches to international research on organizations.

AGENCY RELATIONS AND INSTITUTIONAL EFFECTS IN INTERNATIONAL JOINT VENTURES: THEORETICAL CONSIDERATIONS

Agency Theory

The central tenets of agency theory are relatively simple. As Perrow (1986) has pointed out, the approach developed by Jensen (1983) and others posits three basic axioms about economic behavior: individuals engage in self-interested (optimizing) behavior, social relations can be decomposed into contracts "governed by competitive self-interest," and contracts are likely to be violated because they are costly to monitor and enforce (Perrow, 1986, p. 12). Exchange relationships of all types—ranging from market transactions to employment—are treated as contracts between "self-interested" individuals. These contracts establish incentives for individual economic behavior under specific assumptions about the definition of "self-interest." Analysis of the incentive properties of contracts provides a basis for expectations about the behavior of individuals who are party to specific types of contracts (Eisenhardt, 1989; Jensen, 1983).

The three axioms of agency theory identified by Perrow (1986) reflect a view of social relations that is deeply rooted in specific European traditions. The idea that society can be treated as a set of contractual arrangements among individuals with conflicting interests represents English utilitarianism in almost pure form. The central premises of agency theory have been passed down to contemporary economists from utilitarian and liberal social theorists such as Hobbes, Locke, and Mill (Robins, 1993). These concepts have come to play an important role in the prevailing ideologies of many Western nations, but their relevance to societies that do not share these traditions is far less certain (Bird & Wiersema, 1996).

The degree to which social and organizational theories developed in Western societies may be useful in settings other than North America and Western Europe has been widely questioned (e.g., Bird & Wiersema, 1996; Boyacigiller & Adler, 1991; Hofstede, 1983; Shenkar & von Glinow, 1994), and some of the strongest challenges to the universality of theories based on European traditions have come from researchers studying Asian societies (e.g., Adler et al., 1986; Bond, 1986; Lyle et al., 1995; Triandis, 1989). Shenkar and von Glinow (1994), for example, have argued that a wide variety of Western theories may be unsuitable for the study of organizations in China, while Bird and Wiersema (1995) have posed important questions about the validity of agency theory for analysis of organizations in Japan. The objections that have been raised to the use of Western organizational theories within Asian societies generally have emphasized the influence of national cultures on organizational behavior, with researchers arguing that prevailing attitudes and practices in non-Western societies may be fundamentally different from those of North America (Adler et al., 1986; Boyacigiller & Adler, 1991; Shenkar & von Glinow, 1994).

Institutional Effects on Joint Ventures

These questions about the influence of national culture on organizations are important but incomplete. As Scott (1991) has pointed out, national culture represents only one of the major sources of institutional effects on social relations. Organizations such as international joint ventures are likely to be subject to a variety of other institutional influences, including strong pressures for isomorphism with foreign parent firms (Abo, 1994; Kaplinsky & Posthuma, 1994).

The study of Chinese managers in international joint ventures offers an excellent opportunity for an analysis of these issues. The managers surveyed in this study are Chinese nationals whose education and training prior to joining joint ventures took place within the PRC. Many of the respondents have had previous experience in Chinese state-owned enterprises, and some have spent periods in training at parent companies in Japan or the United States since joining the joint ventures. In many regards, the managers examined in this study epitomize a new class of people whose lives bridge the worlds of agrarian and industrial society, socialism and capitalism, and the Chinese past and future. These types of dualities—which play important roles in the lives of many managers in newly industrializing societies—also increase the likelihood that individuals will vary in the manner in which they view economic behavior and the ideological tenets of capitalism.

The fact that the organizations in which respondents work are joint ventures also is important. Joint ventures are neither truly local nor genuinely foreign organizations. They combine managers and management practices from foreign and domestic parent organizations, and they commonly devote substantial resources to training personnel in new techniques and styles of management. Efforts to transplant foreign management styles into joint ventures vary considerably, and the nationality of the foreign parent firm may have important bearing on these practices (Kaplinsky & Posthuma, 1994).

Joint ventures provide exceptional opportunities for the study of theories of control such as agency theory. The resolution of problems of control is central to
the successful management of joint ventures, and controls are one of the few areas of organization that may be explicitly negotiated in forming joint ventures. Standards and practices for control systems are among the most strongly institutionalized features of the societies in which parent firms operate, and isomorphism between joint ventures and parent companies in this domain is likely. International joint ventures provide a natural setting for examining whether institutions in the societies of parent firms serve as sources of institutional differences among joint ventures.

Finally, international joint ventures also have great practical importance. International organizations such as joint ventures probably represent the fastest growing type of private firms in the world. The majority of world economic activities in the next century may well take place in currently emerging economies, and the expansion of economic activities in those nations is being achieved largely through the creation of international cooperative ventures. Research on institutional, cultural, and social factors that shape organizations of this type is vital to organizational studies.

Organizational Isomorphism

There are a number of reasons why international joint ventures are particularly likely to be influenced by the norms and practices of their foreign parent companies. DiMaggio and Powell (1983) have described the sources of isomorphism between organizations in terms of coercive, mimetic, and normative influences. All of these forms of isomorphism can be expected to have an important impact on international joint ventures. This is especially true of joint ventures operating in emerging economies, where legal standards and business practices may be less sharply defined and enforced than in the societies of parent companies.

Coercive isomorphism may be very important for international joint ventures in developing countries such as China. Parent companies in developed industrial societies typically are subject to a variety of regulatory and reporting requirements that affect both overseas and domestic operations. Publicly traded firms are accountable to investors for uses of capital abroad as well as at home, and the financial reporting required by domestic markets of parent companies may necessitate controls in overseas ventures that far exceed requirements of the societies in which the ventures operate. Parent companies also may be subject to a variety of other legal requirements—such as restrictions on bribery or environmental hazards—that create liability in home countries for the activities of overseas joint ventures. Because standards for business practice vary among industrial nations, these forms of coercive isomorphism are likely to result in differences among joint ventures that reflect underlying differences among the societies of foreign parent firms.

Mimetic isomorphism can be expected to have similar effects, particularly for joint ventures operating in societies where large-scale private enterprises still are somewhat novel. Foreign parent companies typically serve as models for systems and practices designed to reduce uncertainties associated with these new types of economic organization. Companies in developing countries that seek joint ventures in order to gain management skills or knowledge often are effectively establishing programs of mimetic isomorphism in the process.

The normative influences that come with professionalization of management typically play a role in joint ventures as well. Companies operating in emerging economies characteristically face major shortages of managers, and in-house training programs run by expatriates are common. Local managers also may be sent abroad for training in the home facilities of foreign parent companies. In both cases, the development of professional skills involves learning concepts and attitudes about management prevalent in the societies of parent companies. Management development within joint ventures in emerging economies largely is built on the principle of normative isomorphism; the success of training is likely to be measured by the degree to which local managers understand and accept practices of the foreign parent firm.

All of these factors combine to make it probable that significant institutional differences will develop among joint ventures operating in the emerging economies of countries such as China. In certain important ways, the success of an international joint venture relies upon the creation of institutional effects of this type. If the norms and practices of a joint venture deviate too far from the acceptable standards of parent firms, the venture risks being defined as a failure and terminated. This is especially true for organizational controls, where pressures to conform to standards set by parent firms are likely to be severe. These institutional effects suggest a very general proposition about the applicability of agency theory across joint ventures with parent firms of different nationalities:

**Proposition 1.** Emerging economy joint ventures are likely to employ incentive and control systems that vary with the nationality of parent firms.

Joint ventures may experience pressures of this sort from both parent organizations, and these pressures may sometimes threaten the stability of ventures (Contractor & Lorange, 1988; Kogut, 1988). However, companies in emerging economies often seek foreign partners in order to gain access to sophisticated management and technology, and the local parent actually may exert pressure to increase these potentially isomorphic transfers (Schaan & Beamish, 1988; Tallman, Fladmoe-Lindquist, & Robins, 1997). This coincidence of interest between parent firms in creating isomorphic change underscores the likelihood of foreign parent influence in successful ventures (Geringer & Hebert, 1989; Kaplanski & Posthuma, 1994). Alignment of interests between parent companies may be more fragile where financial controls are concerned, but this also is the area where foreign parents are likely to be most bound by fiduciary responsibilities and least able to accept strong local influence.
Institutional effects of this type can be seen not only in the adoption of formal procedures or controls but also in concepts and attitudes held by individuals within organizations. Zucker (1991[1977], p. 83) describes the way institutions shape individual ideas and motivations succinctly:

Each individual is motivated to comply because otherwise his actions and those of others in the system cannot be understood...the fundamental process is one in which the moral becomes factual.

The ability to produce these effects among individuals within organizations is critical to the success of economic institutions in creating what Jepperson (1991, p. 149) has called "...socially constructed, routine-reproduced programs or rule systems" that can facilitate highly complex forms of economic coordination (Scott, 1991).

Institutional effects of this type on Sino-American and Sino-Japanese joint ventures are likely to influence the applicability of agency theory. As indicated above, agency theory is rooted in Western utilitarian and liberal traditions that have not had major importance in Japanese society (Bird & Wiersema, 1995). Management practices and norms that are commonplace in the United States would be alien in many Japanese enterprises, and the relevance of Western theories to Japanese firms has been challenged on a variety of grounds (see Dunphy, 1987 for a review). The influence of parent firms suggests that controls may differ in Sino-Japanese and Sino-American joint ventures (Brown et al., 1997), and managers within the companies may have different attitudes toward control systems (Azumi et al., 1984; Kaplinski & Posthuma, 1994). These differences may take the form of direct similarities to foreign parent firms, or joint ventures may be influenced by norms within foreign firms that define the relationship between parent companies and joint ventures. This suggests another very general proposition about institutional effects on joint ventures due to the nationality of parent firms:

Proposition 2. Attitudes of local managers toward incentive and control systems in emerging economy joint ventures are likely to vary with the nationality of parent firms.

Institutional Influences on Agency Relations in Joint Ventures

Some of the most basic premises of agency theory are likely to be sensitive to institutional differences of this type. The analysis of contracting in agency theory treats the employment relationship as an asymmetrical bond between principal and agent in which the principal attempts to exert control over the behavior of agents through the adoption of specific forms of contract that have identifiable incentive properties (Jensen, 1983; Perrow, 1986; White, 1985). The choice of incentives, in turn, is based on assumptions about the preferences and calculus of utility of individuals (Levinthal, 1988).

Programmability and Control

As Eisenhardt (1989) has pointed out, this view of the relationship between principals and agents gives rise to the idea of a tradeoff between control based on the monitoring of employee activities and the use of incentives tied to the outcomes of economic activity. The most fundamental principle of agency theory probably is that rewards based on behavior and rewards based on the outcomes of behavior are alternative mechanisms for achieving the same end—mitigating the effects of goal conflicts between the owners and managers of firms (Eisenhardt, 1989). The form of the tradeoff between these two types of control ultimately is determined by the utility attached to different rewards by principals and agents and the difficulties of monitoring behavior. When monitoring of managerial behavior can be accomplished relatively easily, fixed rewards such as salaries and standard bonuses generally assume greater importance in systems for control (Jensen & Meckling, 1976).

Monitoring of behavior typically will be cost efficient in situations where tasks can be readily analyzed and comprehensively described. Under those circumstances it is easy to formalize and codify job requirements, and ex ante specification of appropriate levels of compensation is not problematic. Eisenhardt (1989) has referred to this issue in terms of the "programmability" of tasks. The relationship between activities and rewards posited by agency theory leads to the expectation that programmability of jobs will be linked to the use of fixed forms of compensation. This relationship between programmability and rewards is one of the most fundamental empirical implications of agency theory for control systems.

The relationship between programmability and fixed forms of compensation can be expected to be more important for Sino-American joint ventures than Sino-Japanese joint ventures for two reasons: the influence of Western liberalism in the United States, and the fact that neither Japanese nor Chinese societies have been strongly influenced by the same utilitarian and liberal traditions (Maruyama, 1984). Isomorphism with U.S. parent firms is likely to result in Sino-American joint ventures incorporating control systems and norms that embody liberal principles. Although isomorphism with Japanese parent firms might be equally important for Sino-Japanese joint ventures, it would be less likely to result in the adoption of practices that conform to the principles of agency theory. On the contrary, evidence exists that preferences for monitoring of work activities may be independent of task structure in Japanese enterprises (Lincoln & Kalberg, 1990). This suggests two more specific implications of Proposition 1, above:
Proposition 1a. Programmability of jobs will be positively associated with fixed forms of compensation in Sino-American joint ventures.

Proposition 1b. Programmability of jobs will have no relationship to the use of fixed forms of compensation in Sino-Japanese joint ventures.

If the premises of agency theory hold true only in Sino-American joint ventures, it would suggest important institutional influences from U.S. parent organizations. However, the failure to find comparable agency relations in Sino-Japanese joint ventures would be more ambiguous; it might indicate the influence of Japanese parent firms, the influence of Chinese culture and institutions, or both. The important point is that differences between joint venture types in the degree to which agency relations are significant would indicate institutional effects that equal or exceed the influence of local culture.

Agency Relations and Institutional Effects on Individuals

The arguments about control systems outlined above follow one of the characteristic assumptions of agency theory: the idea that observed systems for control are efficient. Agency theory, like other microeconomic theories, operates from the premise that the pressure of competition will result in more efficient social arrangements supplanting less efficient ones. In the case of agency theory, competition focuses on the organizational form, and the outcome of competition is an allocation of effort and rewards that jointly maximizes utility for principals and agents (Jensen, 1983). Observed control systems are assumed to be efficient solutions to problems of organization, under constraints imposed by social and technical conditions.

These assumptions have drawn some of the most severe criticisms of agency theory. Perrow (1986), Tinker (1988), and others have argued that the assumption of joint utility maximization ignores basic relationships of power and authority within organizations. Perrow (1986) has characterized these elements of agency theory as part of a broader ideology aimed at rationalizing inequalities, while Tinker (1988) has described the assumption that efficient control systems will prevail as "Panglossian" in its willful naiveté.

Although the responses of critics such as Perrow (1986) and Tinker (1988) may be extreme, they highlight an important problem. The assumption that observed control systems will be relatively efficient serves as an important analytical convenience in agency models, but it is a weak approximation of reality. Control systems are blunt instruments, and the degree to which any specific system of controls maximizes utility for a given individual or set of individuals within an organization may be quite variable.

Recognition of this indeterminacy has helped to spawn a new stream of research on the question of whether agency theory can help to explain individual preferences for incentive and control systems. Questions about preferences among contracting arrangements (Conlon & Parks, 1992; Parks & Conlon, 1995) or the impact of control systems on job satisfaction (Chia, 1995) recently have been explored in experimental and survey research. In this work, agency theory provides hypotheses about the types of organizational arrangements that can be expected to be satisfactory to individuals.

In this research the link between control systems and individual satisfaction provides a means of examining whether individuals appear to have utility functions that correspond to the assumptions of agency theory. If individual utilities match the assumptions of the theory, then theoretically efficient control systems also will be utility maximizing. Departures from the arrangements dictated by agency theory would result in lower individual utility and less satisfaction. Support for a relationship between controls that follow the precepts of agency theory and individual satisfaction has been taken as evidence for the applicability of the underlying axioms of the theory to a given group or population (Chia, 1995; Conlon & Parks, 1994).

Agency theory has relatively straightforward implications for the impact of job characteristics and control systems on individuals when the assumption of social efficiency is suspended and the analysis shifted to this individual level. The tradeoff described above between monitoring and risk-sharing offers a basis for forming expectations about the responses of managers to control systems. As Eisenhardt (1989) observes, agents generally can be expected to prefer reward systems that involve less risk-sharing, all other things held equal. When jobs are highly programmable and rewards might be calibrated to the efforts of employees, evaluation systems that focus on other types of criteria can be expected to be less satisfactory for managers. The effort to monitor jobs with little programmability creates a similar agency problem: individuals are held accountable for processes they cannot control.

When agency theory is used in this way—to form expectations about individual responses to control systems—the underlying assumptions of the theory take on new importance. The capacity of agency theory to predict individual responses to control systems can be expected to vary with the degree to which individuals embrace the underlying principles of "economic rationality" that lie behind the theory. As suggested above, supporters and detractors of agency theory generally have treated this question as a purely axiomatic issue. Homo economicus either has been taken as a reasonable representation of the human race (e.g., Jensen, 1983) or a grotesque fabrication (e.g., Perrow, 1986; Tinker, 1988).

Real human beings probably fall somewhere between these extremes, and utilitarian ideas about social relations may not be equally appropriate for Sino-Japanese and Sino-American organizations. As Zucker (1991[1977]) has pointed out, institutionalization ultimately rests on the fact that individuals come to see certain types of normative social relations as factual. The institutionalization of norms of utilitarianism in the United States, for example, is vividly illustrated by the man-
ner in which Jensen (1983) and his followers treat ideas such as self-interest and opportunism as simple facts of social life. If agency relations that resemble Western models are institutionalized within Sino-American joint ventures, they will have a noticeable effect on the way managers view control systems. As suggested above, the link between agency theoretic controls and satisfaction has been used to examine whether individuals appear to have personal attitudes that conform to the utilitarian axioms of agency theory. If foreign partner firms exert institutional influences on ventures independent of local culture, managers in U.S. ventures are more likely to have incorporated some of these utilitarian views. At the same time, liberal ideologies are not typical of Japanese industrial culture (Lincoln & Kalleberg, 1990) or Chinese organizations (Shenkar & von Glinow, 1994), and neither influences from Japanese parent firms nor Chinese parent companies would be likely to inculcate attitudes associated with materialism (Maruyama, 1984). Managers in Sino-American joint ventures therefore might be expected to react unfavorably to controls that deviate from the form suggested by agency theory, while managers in Sino-Japanese joint ventures might not have similar attitudes. This leads to a specific interpretation of Proposition 2:

**Proposition 2a.** Managers in Sino-American joint ventures will be less satisfied with control systems when they deviate from the patterns of programmability and monitoring suggested by agency theory.

**Proposition 2b.** The attitudes of managers in Sino-Japanese joint ventures toward control systems will be unaffected by the programmability and monitoring of their jobs.

It is important to look at both the influence of foreign parent firms on control systems within joint ventures and the attitudes of managers toward those controls. Both issues are vital to understanding the degree to which agency relations may be shaped by institutional influences. Organizational control cannot rely entirely upon coercive relationships—the concepts and attitudes of managers must be, to some degree, consonant with the structure and controls of organizations (Parsons, 1956). The essence of institutionalization lies in the creation of that type of symmetry between the views held by individuals and the practices of organizations.

**AGENCY RELATIONS AND INSTITUTIONAL EFFECTS IN INTERNATIONAL JOINT VENTURES: EMPIRICAL EVIDENCE**

The simple set of propositions outlined above provide a means of examining key questions about institutional effects on joint ventures in China. They touch on issues that are central to the examination of institutionalization: organizational systems of control and the responses of individuals to those controls. These ques-

...tions were examined empirically using survey research carried out in the PRC. Eighty-one Chinese managers employed in four Sino-Japanese and two Sino-American joint ventures in Shanghai were surveyed in the summer and fall of 1995. Following initial field interviews with senior managers in the joint ventures, a systematic survey was administered to managers at several levels in the companies. The survey was designed to provide information on both the relationship between job characteristics and controls and the views of managers toward control systems. All of the joint venture companies were manufacturing enterprises affiliated with multinational corporations.

The instrument initially was written in English by the investigators, after field interviewing—carried out in Chinese, Japanese and English—with senior corporate staff in joint ventures. The English instrument was translated into Chinese by faculty at Fudan University in Shanghai, then back-translated into English at the investigators' home institution. Translations and back-translations were checked for accuracy by native speakers of English and Chinese. The final Chinese version of the instrument was cross-checked by speakers of local Shanghai and other regional Chinese dialects to ensure standard usage of language.

The survey was administered by faculty and graduate students from Fudan University in Shanghai. Personal delivery of the instrument to managers helped to minimize response error, and more than 85 percent of all Chinese managers currently employed in the six joint ventures completed the questionnaire. The completed surveys were processed at the investigators' home institution.

The survey instrument collected data on a variety of subjects including personal demographics, characteristics of jobs and control systems, perceptions of the firm and work relations within the firm, and individual views of a number of aspects of economic life not directly related to the work life of respondents. Demographic data and some descriptive items were collected using open-ended questions, but most items were structured as closed-ended questions using seven-point Likert scales. Responses to all open-ended questions were translated from Chinese to English and checked for accuracy in translation.

The majority of variables examined in this analysis were indices formed from multiple survey items. All items used in the indices were scored on seven-point Likert scales. The control variable measuring tenure of managers in parent organizations was the only item used in the analysis that was not scaled; it was a direct report of the number of months respondents had worked in the Chinese parent organization prior to joining the joint venture. Details (in English translation) of specific questions used in the indices are reported in Appendix A.

**Operationalization of Concepts**

Sets of survey items that covered similar issues were first examined using principal components analysis. This exploratory analysis helped to identify groups of variables that were closely interrelated and potentially measured common phe-
nomina. Combinations of items identified in the exploratory analysis were scruti-
nized for content validity prior to index construction, and items that did not have
strong face validity were rejected. Factor loadings of variables that were com-
bined in indices ranged from slightly over .50 to greater than .80, with the major-
ity of items above .70. All factors had eigenvalues greater than unity and strong
factor separation. The indices were averages of standardized scores for the under-
lying survey items.

Rewards Based on Inputs

Input-based rewards—that is, controls that link rewards to inputs rather than the
economic performance of outputs—were operationalized in terms of fixed forms
of compensation such as salary and annual bonuses. An index was created with
two components: respondent ratings of the importance of fixed salary in overall
compensation and ratings of the importance of standard bonuses (annual or holi-
day) in compensation. The two items combined in a single factor with loadings of
.79 and .66 respectively. Higher scores on the index (FIXCOMP) indicated
greater importance of rewards of this type.

This strategy of measuring the importance of fixed forms of compensation by
means of respondent ratings was chosen for a number of reasons. Although
respondent reports of compensation practices cannot be assumed to be as reliable
as archival data, the use of personnel data from the companies would have been
deply problematic. Data from company records on the actual compensation of
individuals could not have been used without violation of subject confidentiality.
Respondents completed questionnaires anonymously, and identification of sub-
jects for the purposes of associating archival data with individual responses would
have destroyed that anonymity.

Field interviews also indicated sensitivity to self-reporting of the compensation
received by individuals, and serious resistance to participation in the study was
anticipated if respondents were asked to report figures for personal income. The
items used in the survey did not evoke similar sensitivities, and anonymous
self-reports of the relative importance of different types of compensation have
reasonably good face validity. The use of common scaled items for this type of
measure also improved the reliability of data pooled among organizations and
used for comparative analysis across different types of organizations.

Performance Evaluation

Managers' views about the accuracy of performance evaluation were operation-
alized in an index composed of four survey items. The items emphasized two
issues: the degree to which compensation reflects performance, and the accuracy
of criteria used for evaluation of performance (see Appendix A for details). All
items had factor loadings greater than .70, and the Cronbach alpha for the index
was .8021. Higher scores on the index (EVALUATE) indicated that respondents
felt that control systems did a good job of rewarding performance.

Monitoring

The significance of monitoring was operationalized in terms of the importance
of evaluation by supervisors. Respondents were asked to rate the importance of
supervisors' evaluations in determining rewards, including pay and promotions.
Three types of supervisory evaluation were examined in separate survey items:
evaluation of individuals by supervisors, evaluation of work groups by supervi-
sors, and evaluation of business units by supervisors. The three items combined in
a single factor with loadings greater than .70, and the factor showed strong separa-
tion from indicators of performance-based evaluation. The items were used to
create an index (MONITOR), with higher scores indicating greater importance of
monitoring by supervisors. The Cronbach alpha for the index was .7940.

Programmability

Programmability was operationalized in an index based on three general fea-
tures of jobs: difficulty of explaining a job to others, difficulty of defining an
objective measure of performance, and difficulty describing the effects of work
on the cost or quality of products. Each of these items reflects one of the necessary
conditions for programmability. The ex ante specification of tasks that is the
essence of programmability requires activities that can be codified, measured
objectively, and that have a well-defined linkage to important features of outputs
(Eisenhardt, 1989). In the exploratory analysis, these three survey items formed a
single factor with loadings ranging from .75 to .82. They were combined in an
index (PROGRAM) that was scaled so that higher scores indicate greater pro-
grammability of jobs. The alpha for the index was .7702.

Tenure in Chinese Parent Organization

Analysis of the relationship between programmability of jobs and fixed forms
of compensation was controlled for the tenure of managers in the Chinese parent
companies prior to joining the joint ventures. The discussion of institutional
effects in the first section of this paper emphasized the impact of foreign partners
on joint ventures—in part as a corrective to the tendency to treat international
joint ventures as purely local organizations. However, both foreign and domestic
partners can be expected to exert important influences on joint ventures. The use
of fixed forms of compensation is deeply entrenched in many Chinese companies
as part of the socialist heritage of state-controlled enterprises.

It is likely that institutional influences from Chinese parent companies will
have a greater effect on the jobs of managers who have spent longer periods in
those companies prior to transferring to the joint ventures. Definitions of jobs, controls, reward systems, and other structural features of organizations acquire the character of "socially-constructed, routine reproduced programs or rule systems" (Jepperson, 1991, p. 149) with institutionalization. Rule systems of this type take time to become institutionalized and they are not quickly changed (DiMaggio & Powell, 1983). Isomorphism with the Chinese parent can be expected to be stronger in situations where jobs and the incumbents of jobs have a longer history in the Chinese company. Institutional effects of this type lead to the expectation that managers with longer personal histories in Chinese parent companies are more likely to have jobs in joint ventures that reflect the practices of the Chinese companies—such as the use of fixed forms of compensation.

Controlling the analysis of programmability and fixed compensation for the effects of tenure in the Chinese parent company makes it possible to look at the separate effects of two different institutional influences on a single feature of control systems. The relationship between programmability and fixed compensation relies on the institutional influence of foreign parent firms—no similar relationship exists in Chinese state-owned companies, where fixed compensation generally has been a political imperative. The relationship between tenure in the Chinese parent company and fixed compensation relies on the institutional influence of Chinese parent companies. Examining these two variables together in a single model provides an indication of each of these institutional influences net of the other. Tenure was measured based on direct report of the number of months respondents had been in the Chinese parent firm and recorded in the variable PTENURE.

Validity

In addition to the analysis of construct validity described above, potential context effects such as common method variance were a subject of concern. The use of single-respondent self-report data is inescapable in confidential surveys, but it necessarily raises questions about artificial variance due to context effects. However, a number of steps can be taken to reduce the likelihood of context effects such as common method variance in this type of survey data. Following Harrison, Mclaughlin, and Coalter (1996), the instrument was designed to avoid the use of overly similar items or the contiguous placement of independent and dependent items. The use of multiple-indicator constructs also helps to reduce potential context effects (Harrison, Mclaughlin, & Coalter, 1996), and reverse coding of a number of scales provided a partial check on consistency effects (Podsakoff & Organ, 1986). Post-hoc analysis of validity also was carried out using Harman’s single-factor approach (Podsakoff & Organ, 1986). Independent and dependent items did not load in a common factor, suggesting that common method variance was not a substantial problem.

Institutional Influences on Organizational Control

<table>
<thead>
<tr>
<th>Table 1. Means, Standard Deviations, and Correlations</th>
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<tbody>
<tr>
<td><strong>Sino-Japanese Companies</strong></td>
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<tr>
<td>Variables</td>
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<tr>
<td>1. FIXCOMP</td>
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<tr>
<td>2. EVALUATE</td>
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<td>3. MONITOR</td>
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<td>4. PROGMA</td>
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<td>5. PTENURE</td>
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<tr>
<td><strong>Sino-American Companies</strong></td>
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<tr>
<td>4. PROGMA</td>
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<td>5. PTENURE</td>
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</tbody>
</table>

Note: Pairwise deletion is used. Number of cases are in parentheses.

Definition of Sub-populations

Before analyzing agency relations and institutional effects, it was necessary to look at a preliminary question—whether respondents could be treated as a single population for analytical purposes. The same institutional logic that drives the research also suggests that managers in Sino-Japanese and Sino-American joint ventures may be fundamentally different populations. If respondents are treated as a sample from a single population, differences between the two groups may violate basic assumptions of inferential statistics.

Tests for homogeneity of variance across the two groups indicated that heteroscedasticity was a significant issue. Homogeneity of variance for managers in Sino-Japanese and Sino-American companies was rejected at $\alpha = .07$ for the dependent measure EVALUATE using Levene’s test. The sample was split into two groups in response to this finding, and parallel analyses were run for Sino-Japanese and Sino-American managers with separate testing of the significance of statistical relationships for each group. Treating the two groups as samples from independent populations represents a conservative analytical strategy under these conditions, but it does allow evaluation of the significance of relationships within each of the two groups. Intercorrelations, means, and standard deviations for the two groups are reported in Table 1.2
Analysis

Programmability and Rewards in Joint Ventures

As noted above, the relationship between the programmability of jobs and the form of rewards used for jobs is one of the most fundamental implications of agency theory for organizational control. Jobs that are more highly programmable also tend to have compensation that does not vary with the economic performance of outputs. If agency theory accurately describes organizational control systems, a positive relationship should exist between programmability and fixed forms of compensation.

This relationship was modeled for Chinese managers in Sino-Japanese and Sino-American joint ventures as the effect of job programmability (PROGRAM) on fixed forms of compensation (FIXCOMP). The analysis was controlled for the effects of managers' tenure in Chinese parent companies prior to joining the joint venture. As indicated above, institutional effects associated with the control systems of Chinese parent companies can be expected to mitigate in favor of fixed compensation for managers with long tenure in those companies. The introduction of PTENURE into the models made it possible to examine the impact of programmability net of those effects. Separate models were estimated for Sino-Japanese and Sino-American joint ventures by regressing FIXCOMP on PROGRAM and PTENURE.

The effects of programmability on fixed forms of compensation were estimated with OLS regression. Separate models were estimated for managers in Sino-Japanese and Sino-American joint ventures, with and without control for tenure in the parent organization. Results of the regressions are reported in Table 2.

Programmability of jobs proved to be related to the importance of fixed forms of compensation in Sino-American joint ventures but not in Sino-Japanese joint ventures, as anticipated by Proposition 1a and Proposition 1b. The model was significant in explaining variance in FIXCOMP in Sino-American joint ventures, and the slope coefficient for programmability was positive and significantly different from zero (t-statistic, α = .05). The model for programmability and fixed compensation was not significant for Sino-Japanese joint ventures. These findings support the general premise of Proposition 1, suggesting that important differences may exist between the two types of organizations and that agency theory may have some applicability to control systems in Sino-American companies.

Tenure in parent organizations proved to be a significant predictor of the importance of fixed forms of compensation in both Sino-Japanese and Sino-American organizations. However, the effects of PTENURE also appeared to be independent of the effects of programmability of jobs in both cases. PROGRAM made a significant contribution to explained variance in FIXCOMP for managers in Sino-American joint ventures regardless of whether PTENURE was controlled. The introduction of PTENURE had no effect on the significance of PROGRAM for Sino-Japanese joint ventures; programmability does not appear to be related to the use of fixed forms of compensation in those companies, regardless of the effects of PTENURE.

The fact that tenure in Chinese parent organizations is a significant predictor of fixed forms of compensation reinforces the importance of institutionalization, suggesting that joint ventures are subject to important institutional effects from the local Chinese side. Control systems institutionalized within Chinese parent companies also influence practices in international joint ventures. This finding underscores the institutional complexity of joint ventures in China; they appear to represent amalgams of ideas and attitudes drawn from both parent companies.

Responses to Control Systems

The views of individual managers about controls were analyzed by modeling the effects of programmability and monitoring on attitudes toward evaluation systems. As indicated above, agency theory suggests that the combination of programmability and monitoring offers an efficient solution to problems of control, while mismatch between the two factors can create dis-utilities that reduce approval of control systems. In formal terms, this implies an interaction between programmability and monitoring. Thus, interaction effects were analyzed as well as the main effects of programmability and monitoring. Once again, separate models were estimated for managers in Sino-Japanese and Sino-American joint ventures.

The interaction between programmability and monitoring was analyzed by evaluating the significance of the product-term interaction effect for PROGRAM and MONITOR. Following methods suggested by Cronbach (1987), variables were centered to reduce multicollinearity in the model. As Jaccard, Turrisi, and Wan (1990) have pointed out, multicollinearity is the primary problem associated with the use of product term interactions in regression models and a major reason

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
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<tbody>
<tr>
<td></td>
<td>Sino-Japanese Coefficient</td>
<td>Sino-American Coefficient</td>
</tr>
<tr>
<td></td>
<td>Sino-Japanese Coefficient</td>
<td>Sino-American Coefficient</td>
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<tr>
<td>PTENURE</td>
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<td>.24**</td>
</tr>
<tr>
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</tr>
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<td>R² (adjusted)</td>
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</tr>
<tr>
<td>P (model)</td>
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<td>.04</td>
</tr>
</tbody>
</table>

Notes: Pairwise deletion is used. * p < .10, ** p < .05, *** p < .01.
for rejection of the significance of interaction effects under conditions where they may be present. The transformation suggested by Cronbach (1987) minimizes problems due to multicollinearity while retaining the statistical power of significance testing. 3

The significance of the interaction term was tested using methods suggested by Jaccard, Turrisi, and Wan (1990). The incremental contribution to explained variance in EVALUATE due to inclusion of the interaction term was analyzed, as well as the main effects and full models for both Sino-Japanese and Sino-American joint ventures.

The full model including the interaction term was significant for managers in Sino-American joint ventures (F-statistic, α = .05). The incremental contribution to explained variance associated with the interaction term also was significant (F-statistic, α = .05), suggesting that the combination of programmability and monitoring has an effect on managers that goes beyond the separate effects of the two variables. Neither full models nor main effects were significant for managers in Sino-Japanese joint ventures (Table 3).

The interpretation of regression coefficients in models using product term interactions is unlike their interpretation in simple additive models (Jaccard, Turrisi, & Wan, 1990). In the model for managers in Sino-American joint ventures, the coefficient for the main effect of monitoring is significantly different from zero, while the coefficient for programmability is not (Table 3). This indicates that monitoring has a significant effect on attitudes toward evaluation systems independent of programmability, in addition to its effect in combination with programmability. However, the effect of programmability is entirely through interaction with monitoring. The programmability of jobs does not, in itself, influence managers' views of evaluation systems.

These relationships are illustrated in Figure 1. The figure shows a plot of the relationships among programmability, monitoring, and managers' views of evaluation for Sino-American joint ventures. The surface of the function represents the interaction effect of programmability and monitoring, while each of the individual planes depicts a two-variable relationship with the third variable held constant.

If the relationship between PROGRAM and EVALUATE is examined at the point where MONITOR is equal to zero, the function will be a straight line parallel to the axis for programmability. All values of programmability will result in the same attitudes toward evaluation systems, if monitoring does not take place. However, programmability has a positive effect on attitudes toward evaluation systems at any point away from the zero level of monitoring. In graphic terms, this is the equivalent of examining a vertical cross-section of the figure parallel to the plane defined by PROGRAM and EVALUATE. Any cross-section taken at a point where MONITOR has a value greater than zero will show a positive slope for the relationship between PROGRAM and EVALUATE.

On the other hand, the two-variable relationship between MONITOR and EVALUATE will be positive for values of PROGRAM that include zero. A cross-section taken at any level of programmability—including the origin—will show a positively sloped line for the relationship between MONITOR and EVALUATE.
However, it also is noteworthy that support for agency theory could be found only within Sino-American joint ventures. No evidence could be found of similar control relationships or attitudes in joint ventures involving Japanese companies. This highlights the fact that the theory appears to have important sociocultural roots and indicates that agency theory may not provide the general analysis of exchange behavior sought by proponents of the idea of universal social and economic theories. At the same time, the research also suggests that theories of this type are not peculiar to any single locality or national society; their relevance varies among organizations operating within Chinese society as it does among organizations in Western societies. This underscores the fact that ideologies have become less firmly fixed to any group of people or place, as national boundaries have become more permeable and organizations have emerged that owe allegiance to no single society. However, these changes do not necessarily herald the type of movement toward homogenous attitudes and ideas or universal forms of economic or social relations once anticipated by work on modernization and the logic of industrialization (e.g., Inkeles & Smith, 1974). On the contrary, it appears that institutional features of organizations matter more than ever and that they are not readily encapsulated in global generalizations about people or places.

These observations are particularly important when they are viewed in the context of long-standing debates over the general or of scope of social and organizational theory. More than a hundred years ago, the methodenstreit split European political economy into warring camps around the question of whether economic relations could be understood independent of culture (Barkai, 1996; Milford, 1995). The division between sociology and economics grew out of that dispute, and the underlying issue remains a subject of contention between the fields. Similar questions have remained important throughout the history of the social sciences, helping to shape more recent debates such as the disputes between formalist and substantivist economic anthropologists in the 1960s and 1970s (e.g., Sahlin, 1972).

During the last two decades, the comparative study of organizations has emerged as the area that addresses these issues most directly. Organizational researchers have brought together ideas from cross-national research on modernization and more recent work on culture and management to formulate a broad range of questions about relationships between organizations and the societies in which they operate (Lammers & Hickson, 1979). The underlying concern about the universality of analysis of social relations remains the same, but it has been focused on specific questions about the effects of local society or culture on organizations (Cheng, 1994).

The research reported here extends the comparative approach to begin to take account of the increased complexity and variety of modern international organizations. It suggests that the equation of sociocultural influences to locality may divert attention from important features of the contemporary global economy. A broad range of international organizations now exist that may be subject to impor-
tant social and cultural influences from multiple societies, including—but not confined to—the societies in which they are located. However, the existence of these trans-societal institutional influences does not imply the type of global convergence that traditionally has been seen as the alternative to local influence (e.g., Lammers & Hickson, 1979). On the contrary, the fact that international organizations may be subject to multiple influences from local societies, foreign affiliates, and global markets suggests new levels of organizational complexity within and among societies.

CONCLUSION

The existence of institutional effects that bridge national boundaries provides a strong argument for expanding the scope of international and comparative research on management and adopting a more detailed view of international organizations. International research has been dominated by concern with the effects of national societies and local cultures (Earley & Singh, 1995), and this has favored analytical perspectives that often are less complex than the approaches used for analysis of organizations within Western industrial nations. As research in North America and Western Europe has moved away from deterministic models—and toward the view that organizations are embedded within multilayered systems of social institutions—national institutions have come to be seen as just one of many levels of social structure that shape and sustain organizations (Scott, 1987). The depth and complexity of this approach need to be more fully incorporated into comparative research.

The empirical findings described in this paper barely scratch the surface of these issues, and the research is more provocative than conclusive. The findings reported here do provoke some important questions about the generality of theories of economic organization and the nature of the categories that are used to qualify organizational theories in comparative research. A choice between universal theories of exchange and cultural balkanization inevitably impoverishes research. The decline of nationality in important segments of modern societies and the rise of international organizations have created global changes in social relations and an interweaving of norms and traditions among societies. These changes simultaneously challenge the homogeneity of local cultures and raise profound questions about the universality of social and economic theories.

APPENDIX A

Composition of Indices

FIXCOMP

Institutional Influences on Organizational Control

Survey Questions:
How important are the following factors in determining your total compensation? Please circle a number using the scale from 1 = “No Importance” to 7 = “Very Important”.
- Fixed salary (daily, weekly, monthly or annual);
- Standard annual or holiday bonuses (distributed to all employees).

EVALUATE
Survey Questions:
Do you agree with the following statements about the way performance is evaluated in your company? Please circle a number using the scale from 1 = “Strongly Disagree” to 7 = “Strongly Agree.”

- People usually are evaluated on the right criteria;
- Hard work usually is rewarded in this company;
- The company usually does a good job of matching pay to performance;
- My pay accurately reflects the work I do.

MONITOR
Survey Questions:
How important are the following forms of performance evaluation in determining the rewards you receive (pay or promotion)? Please circle a number using the scale from 1 = “No Importance” to 7 = “Very Important.”

- Individual work evaluation carried out by supervisor;
- Work evaluation of business unit as a whole carried out by supervisor;
- Work group’s evaluation carried out by supervisor.

PROGRAM
Survey Questions:
How difficult would it be to accomplish the following things related to your job in this company? Please circle a number using the scale from 1 = “Very Difficult” to 7 = “Very Easy.”

- Explain your job to other people in the company;
- Describe how your work affects the quality or cost of goods and services produced by your business unit;
- Define an objective measure of how well you have done your job.

PTENURE
Survey Question:
Length of your work in the parent company prior to working in this company (in month)?
ACKNOWLEDGMENTS

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NOTES

1. Constraints to conform to organizational models established by parent firms may be less prominent in cases where joint ventures were established to undertake innovative activities that parents are ill-suited to carry out in house—although parent firms still may experience difficulty accepting necessary levels of autonomy for their joint ventures. However, joint ventures of this type are more typical of firms operating within highly developed industrial societies than emerging economies. While some of the joint ventures examined in this study did undertake relatively sophisticated product development activities, none of the companies could be characterized as doing highly innovative work.

2. As indicated above, there were strong theoretical and statistical grounds for believing that respondents in Sino-Japanese and Sino-American joint ventures represented samples from two different populations. In consequence, the two samples were analyzed separately, and propositions about each population dealt with independently. An analysis that pooled the two different samples would have violated necessary statistical assumptions.

The fact that the respondents from Sino-Japanese and Sino-American joint ventures represented two different populations therefore precluded any direct statistical testing of differences between regression coefficients or other cross-population comparisons based on treatment of the groups as samples from a common population. However, a rough comparison was carried out using nonparametric techniques. Confidence intervals for OLS coefficients were estimated using jackknife resampling techniques on the combined group of respondents from the two samples. Jackknife estimators are robust when assumptions are violated, although the probability of rejection of the null hypothesis tends to be substantially lower.

Based on the non-parametric estimates, intervals for regression coefficients for the two populations generally did not overlap at a = .05 level, except in the case of PTENURE. For PTENURE we could not reject the hypothesis that the coefficients for Sino-Japanese and Sino-American respondents were the same. Confidence intervals for PROGRAM in MODEL 1 did not include zero for Sino-American respondents and did include zero for the Sino-Japanese respondents, thus lending support to the proposition that PROGRAM had a significant effect on FINCOMP in Sino-American ventures but not in Sino-Japanese ventures. Similar findings applied to MODEL 2: the hypothesis that the coefficient for PROGRAM was equal to zero could be rejected for Sino-American joint ventures but not for Sino-Japanese joint ventures. Findings for the analysis of EVALUATE mirrored findings for MODELS 1 and 2. In MODEL 3 and MODEL 4 it was possible to reject the hypothesis that the coefficients for MONITOR were equal to zero only for Sino-American respondents. While this additional analysis is by no means conclusive, it provides further support for the fact that the two populations have fundamentally different characteristics of the sort discussed in the text.

3. Cronbach (1987, p. 415) contrasts product term models with predictor variables that have means substantially different from zero to models where means for predictor variables have been set equal to zero. Centering variables with means equal to zero will alter the signs of below mean-observations. Relatively large values of the product term will be created by pairing of either large negative or large positive values. This will reduce the correlation between predictors and the product term and relieve problems of multicollinearity. At the same time, the sum of squares for the full models in both centered and non-centered cases will be identical. Sums of squares for the two types of models also will be identical when product terms are removed. In consequence, significance testing for the inclusion of the product term is unaffected by the transformation of the predictor variables. At the same time, the statistical power of the analysis is increased by the reduction of multicollinearity.

4. The algebraic form of these relationships can be described in relatively simple fashion. Let the product term equation have the general form:

\[ Y = a + b_1X_1 + b_2X_2 + b_3X_1X_2 \]

Assume the product term and the main effect of \( X_2 \) are significant, but the main effect of \( X_1 \) is not significant, that is, \( b_1 = 0 \). In that case, the equation reduces to:

\[ Y = a + b_2X_2 + b_3X_1X_2 \]

which can be rewritten as:

\[ Y = a + (b_2+b_3X_1)X_2 \]

When that expression is evaluated at the point where \( X_2 = 0 \), it reduces to \( Y = a \), and the effect of \( X_1 \) on \( Y \) is constant for all values of \( X_1 \). If we evaluate the expression at the point where \( X_1 = 0 \), then it takes the form:

\[ Y = a + b_2X_2 \]

and \( Y \) is an increasing linear function of \( X_2 \).

For any fixed value of \( X_2 \) greater than zero, the terms \( b_2X_2 \) and \( b_3X_1X_2 \) will be positive constants. The expression for \( Y \) as a function of \( X_1 \) can be rewritten as:

\[ Y = (a + b_2X_2) + (b_3X_1)X_2 \]

In general, the slope of the function and the intercept in the \( YX_2 \) plane will both depend on the value of \( X_2 \).

For any fixed value of \( X_1 \) greater than zero, the expression \((b_2+b_3X_1)X_2 \) will be a positive constant. As indicated above, the basic equation can be written as:

\[ Y = a + (b_2+b_3X_1)X_2 \]

Y therefore will again be a linear function of \( X_2 \). The slope of the function will depend upon the value of \( X_1 \), but the intercept in the \( YX_2 \) plane will be an invariant line parallel to the \( X_1 \) axis at \( a \).

REFERENCES


MANAGING INSTITUTIONAL AND CULTURAL CONTRASTS
THE CASE OF SANYO ELECTRIC IN THE UNITED STATES

Roger L. M. Dunbar and Suresh Kotha

ABSTRACT

This paper considers some of the issues that a Japanese firm deals with in establishing and then managing a presence in the United States. It highlights how adaptation to the United States involves understanding and responding to both cultural and competitive dynamics. Specifically, the Sanyo case suggests how these conditions co-evolved, interacted, and changed over time. The case also illustrates how foreign firms competing in the United States should not underestimate the importance of cultural and competitive dynamics and how these can co-evolve over time in unmanaged ways. These dynamics, generally not apparent at entry, can and do play an important role as a firm adapts in a foreign setting.

More generally we argue that cross-cultural research needs to explore “phenomenon in the making” in order to understand how adaptation to a foreign setting occurs. A more qualitative approach enables researchers to emphasize the impact of the foreign setting and the process by which a firm constructs a view of itself in an evolving