THE IMPACT OF FOREIGN DIRECT INVESTMENT ON CHINESE SOE PERFORMANCE: THE ROLE OF MANAGEMENT DECENTRALIZATION

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ABSTRACT

The research tests the hypothesis that centralization within a Chinese state-owned enterprise (SOE) interacts with (or moderates) industry foreign direct investment (FDI) in predicting performance. The results show that when industry FDI is low, centralized SOEs outperform decentralized and moderately decentralized SOEs. But when industry FDI is high, moderately decentralized SOEs outperform both centralized and decentralized SOEs. These results have significant implications for multinational firms doing business in China, SOE managers, and reform-minded policy makers.

INTRODUCTION

The impact of foreign direct investment (FDI) on host countries is of lasting interest to management scholars. In China, one of the largest FDI recipients in the world, evidence shows that FDI has contributed to the nation's post-1978 economic growth by augmenting resources available for capital formation, transferring advanced technologies, and stimulating export activities. FDI policy was one of the earliest and most wide-ranging elements of China's reform package (Chen, Chang, and Zhang, 1995). Foreign invested enterprises (FIEs) have had significant effects on state-owned enterprises (SOEs) by introducing modern management concepts and systems and by forcing SOEs to change their behavior to meet foreign competitors. Evidence shows that micro industrial performance (e.g., labor productivity) associates with FDI presence (Liu et al., 2001). However, research efforts need to be expanded on three fronts. First, the literature is largely limited to industry level analysis. Effort should be devoted to the firm (Zhou, Li, and Tse, 2002). Second, the literature focuses on productivity, but FDI's impact goes beyond productivity (Buckley, Clegg, and Wang, 2002). Productivity gains do not necessarily translate into market share growth or financial performance, both prime concerns to SOE long-run viability (Tan and Litschert, 1994). From 1978 to 1995, the Chinese state sector improved productivity, but lost market power (Otsuka, Liu, and Murakami, 1998). Given theoretical and political implications, it is surprising that no study has looked at SOEs' overall industry relative performance as a result of FDI. Third, most studies account for a direct association, along with other contributing factors, between FDI and local industry/firm performance, yet theory suggests that organizational structure interacts with the environment in influencing performance (Pfeffer and Salancik, 1978). Commenting on the mixed results of FDI-induced spillovers, Buckley, Clegg, and Wang (2002) argued that prior studies have omitted important variables.

The current study takes a step to fill these gaps by examining the impact of FDI on performance at the firm or SOE level in China. From the structure-contingency perspective (Lawrence and Lorsch, 1967), SOE performance should be contingent upon a proper fit between organizational structure and industry level FDI, a key environmental variable facing Chinese firms. FDI poses unique challenges to SOEs by increasing environmental uncertainty and hostility, but its ultimate performance impact may be that it moderates the effect of various firm-level attributes, one of which may be decision-making structure. We test a hypothesis that industry FDI and SOE decentralization interact in predicting SOE performance and highlight the importance of SOE internal restructuring. Other than a few exceptions (Lu and Child, 1996), progress in management decentralization *within* SOEs has not been given much attention, but it does have important implications for China's ongoing enterprise reforms.

The development of our research hypothesis relies on several literature streams, which are reviewed in the theory section that follows. We first examine the unique environmental challenges posed by FDI, as they create serious coping problems for SOEs. Drawing on the information-based view that focuses on environmental dynamism and complexity and the resource-based view, which is closely linked to hostility (Tan and Litschert, 1994), we dichotomize these coping problems as *reducing uncertainty* and *countering hostility*. We then review the literature on decentralization and discuss SOE internal decision-making, focusing on recent trends during the industrial reform period. In developing our research hypothesis, we consider the interaction between FDI and SOE decision-making structure. In this pursuit, we draw on the resource-based view (Teece at al., 1997) and consider the degree to which a firm decentralizes decision-making affords it varied abilities to cope with different environmental challenges. In terms of the two types of coping problems resulting from FDI presence,

decentralized decision-making is more effective in reducing uncertainty whereas centralized decision-making is more efficient in countering hostility. In balance, we expect that a moderately decentralized SOEs will outperform either centralized or decentralized SOEs given the current status of the institutional and enterprise development in China when FDI is higher.

THEORY

FDI Caused Environmental Challenges

Environment is a multidimensional construct in terms of complexity, dynamism, hostility, and so on, existent in multiple environmental domains including customers, suppliers, competitors, and regulators (Scott, 1987). China introduced FDI to stimulate competition and innovation. Broadly, FDI has resulted in two environmental challenges to Chinese SOEs. The first is *environmental uncertainty*. According to the information uncertainty perspective, problem non-routineness, complexity, and change affect perceived environmental uncertainty (Duncan, 1972; Tung, 1979). FDI brings about uncertainty by creating additional competition, introducing product market dynamics, and causing volatility in an SOEs' task environment. As government subsidies decrease, FIEs compete increasingly against SOEs for markets and production inputs. Since multinational firms tend to be more innovative and proactive (Roman, 1986), an FDI intensive industry may undergo frequent process and product change (Tan and Litschert, 1994). FIEs may utilize tactics and operational procedures unheard of by SOEs. SOEs may find it more difficult to anticipate the strategic moves of an FIE than that of a domestic rival since FIE strategy is to some extent influenced by the multinational parent's global strategy as well as by the local environmental context (Luo and Tan, 1998).

FDI also is a source of *environmental hostility*. Resource dependence theory considers the environment as a source of scarce resources. Firms feel threatened when facing resource

advantageous competitors (March and Simon, 1958). Advantages in technology, management

expertise, marketing know-how, strategic global capabilities, and managerial autonomy allow

FIEs to behave competitively and aggressively (Zhou, Li, and Tse, 2002; Luo and Tan, 1998).

Because of their financial strength and flexibility, FIEs may steal experienced personnel from

domestic firms (Zhou, Li, and Tse, 2002), an ultimate resource for enhanced performance. In a

high FDI environment, competition with FIEs can be severe. For example, a number of

established Chinese brands have recently disappeared in FDI intensive industries, including six

of eight soft drink brands and three of four camera film brands (Chen and Xie, 2000). In a low

FDI environment, competition between SOEs and non-state Chinese firms may be moderated by

residual government influences and personalized inter-firm networks.

The uncertainty and hostility resulting from FDI pose two distinct coping problems for

SOEs. The Chinese government is known for articulating policies to buffer damaging FDI

effects. Also, SOEs enjoy certain counteracting advantages, such as favorable regulatory

frameworks and social networks that help them survive and expand (Luo and Tan, 1998). In

addition, environmental dynamics create emerging opportunities and FDI-caused competition

can have a positive impact on local firms (Caves, 1974). Prior research suggests that

organizations adapt to environmental demands by means of policy changes and internal

structuring (Tung, 1979). In China's transition period, evidence has shown that strategy

moderates the effect of the environment on SOE performance (Luo and Tan, 1998; Lukas et al.,

2001; Tan and Tan, 2003). In general we ask: Does decentralization, a key organizational

variable, account for differentials in SOE performance with regard to FDI?

Management Decentralization

As a key dimension of organizational structure, decentralization refers to the vertical

locus of decision-making authority in a firm (Aiken and Hage, 1966). This locus may range from completely autocratic to processes that maximize employee authority (Richardson et al., 2002). The conventional terms for the two extremes are centralized and decentralized, whose appropriateness have been elaborated by the information-based and resource-based views of the firm. The information-based theory considers the environment as a source of uncertainty that is reduced by information (Galbraith, 1977). The majority of the research views decentralized structures as conducive to information processing. As the demands for information processing increase, there is a need for the creation of boundary-spanning individuals and units (Aldrich and Herker, 1977). However, decentralized structures hinder information search and utilization if a policy vacuum accompanies the decentralization (Corwin and Louis, 1982). Importantly, the distinction between information generation and implementation further indicates that the effect of centralization could be in different directions depending on whether generation or implementation is at issue. While decentralized structures are conducive to information generation activities, centralized structures tend to associate positively with organizational implementation based on information already gathered (Kohli and Jaworski, 1990).

According to the resource-dependence view, the environment is a source of resources (Pfeffer and Salancik, 1978). Organizations engage in strategies to reduce dependence on any given source. Particular organizational structures emerge to handle strategic contingencies and different structures give some actors and subunits power in the organization. Centralized organizations may be considered as the natural state of affairs whereas decentralized organizations evolve because top management has lost power due to the need for expertise, support, or other resources that can be provided by exchanging power over decisions for that resource (Pfeffer and Salancik, 1978). As for the effect of centralized versus decentralized

structures, conceptualizations and empirical evidence have been inconclusive. Recent thinking tends to consider decentralized structures as more effective as they allow for flexibility, adaptability, creativity, and responsiveness. However, decentralization may be inefficient and cause inconsistency and duplicated efforts (Adler, 1999). This inconsistency cannot be definitively resolved without taking into account contingencies. The appropriateness of a decision-making structure (e.g., centralized) may vary given challenges from different environmental segments. Moreover, Western-generated conceptualizations might be culture bound.

SOE Decision-Making Structures

Decision-making changed dramatically in Chinese SOEs during the reform period (Child, 1987; Lockett, 1988; Lu and Child, 1996). Prior to reform, SOE decision-making: (1) largely resided above the SOE in the hands of government bureaus; (2) had political overtones; and (3) was built upon personal relationships, instead of economic rationality, as the basis for coordinating and implementing decisions. Ongoing reforms have resulted in decision-making authority being: (1) delegated to SOE management cadres; (2) less influenced by politics; and (3) increasingly based on economic rationality. Pre-reform SOE decision-making was personally and politically centralized in the hands of state bureaucrats; the ongoing reforms have decentralized authority to SOEs as part of the transformation into autonomous economic entities.

Within the SOE itself, publicized government reform guidelines and SOE management policies have seemingly converged to centralized decision-making, although countervailing tendencies exist. Historically, the move toward Soviet type of bureaucracy with executive authority concentrated in the hands topmost management has been countered by the "Yan-An" tradition of mass worker mobilization with significant political influence from the Party

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committee (Lockett, 1988; Child, 1987). The Cultural Revolution in part was Mao's reaction to perceived threats from administrative bureaucracy. It led to the dismantling of the established techno-bureaucratic order in much of the state sector. Subsequently, rebuilding an administrative order became an immediate task in China's industrial reform. The government guidelines for enterprise reform call for authoritative decision-making by SOE professional managers and enhanced rule-based management systems, while reducing the influence of the Party committee (CCCPC, 1984, 1999). Reflecting the emerging environmental turbulence, decision-making within SOEs has become concentrated at the SOE top management level (Lu and Child, 1996).

At the same time, SOEs face pressures to decentralize or delegate internal decision-making. Reform measures, such as the contract responsibility system, are not simply an outgrowth of China's mass mobilization tradition in participatory management, but reflect the need for enhancing performance incentives in the state sector. Even with its narrow scope, contract responsibility systems achieved immediate success among practicing SOEs and its strength is attributed to "its ability to capitalize on investment opportunities, its quick response to markets, and above all its sharing, open, and adaptive management style" (Koo, 1990, p. 814). The perceived benefits of contract responsibility systems are thus consistent with what Western theories say about a decentralized organizational structure. However, in the early days of implementation, doubt existed about the long-run benefits of a contract responsibility system as some suspected it would fragment decision-making and lead to a loss of necessary control by headquarters, especially regarding investment decisions (Byrd, 1992). When management mechanisms are replaced with contract terms, management tasks are ignored and management efficiency is lost. In its extreme, SOE decentralization in the form of contract responsibility system has led to "management deterioration" (CEMA, 1990; Task Force, 1998).

Interaction between Industry FDI and SOE Decision-Making Structure

From the resource-based perspective (Teece et al., 1997), dynamic capabilities that integrate and reconfigure internal competencies to address shifting environments become the source of sustainable competitive advantages. We argue that efficient and effective decision-making provides firms with such a dynamic capability. Our research proposition is that the extent to which SOEs decentralize decision-making may moderate the association between industry FDI and industry relative performance. FDI creates competition, thus damaging SOEs. However, not necessarily all SOEs are equally damaged, and industry FDI may elevate SOE performance through external benefits (Caves, 1974). At issue are internal capabilities that counter negative effects while absorbing positive ones. In recognition of the concept that decentralization should be viewed along a continuum, we examine three decision-making structure archetypes: centralized; decentralized; and moderate – or between the two extremes.

In assessing the effectiveness of these archetypes, we first consider industries where FDI is low. While great progress has been made in opening China to FDI, foreign presence remains uneven across industries. SOEs dominate industries considered crucial to the national economy precisely because government policies constrain FDI and other types of competition. In these industries, the environment is most similar to the pre-reform era. It is relatively stable and genial. Since decisions in stable, less competitive environments are simpler (Mintzberg and Waters, 1985), SOE managers would see minimal need for information processing and therefore they would consider the costs and effort associated with a decentralized approach to be unnecessary (Richardson et al., 2002).

In FDI intensive industries, a centralized structure becomes inappropriate. FDI creates uncertainty, which requires increased information processing (Galbraith, 1977). As industry FDI

intensifies, the environment becomes more complex and dynamic. For instance, FDI results in rapid change in production processes and in new and rapidly introduced products. Confronting multifaceted threats, an SOE needs to mobilize units at various levels to gather information about rivals, markets, and processes in order to make sound decisions. In order for an SOE to benefit from FDI's demonstration effects (Caves, 1974), employees at different levels have to proactively search and accumulate information on foreign rivalries' technological and managerial practice. On the other hand, acting on the information gathered through subunits may require a unified command line to be efficient – that is, a centralized authority. For the purpose of efficiency, an organizational unit that gathers information is not necessarily the best unit that acts on the information (i.e., decision-making and implementation). Facing foreign rivals of greater global scale and strategic focus, an SOE needs to mobilize its human resources to perform up to potential and to function as a unified entity, instead of a collective of multiple autonomous centers, to be effective. Thus, excessive decentralization (e.g., a situation that occurs under the contract responsibility system) that is analogous to clan-like township enterprises, may inadequately deal with FIEs that possess a resource and management advantage. When rapid response is required, the time and effort devoted to decentralization may outweigh potential benefits (Wooldridge and Floyd, 1990).

When industry FDI is high, a moderately decentralized structure should outperform centralized and decentralized archetypes. Moderate structures combine decentralization to promote flexibility, adaptability, creativity, and responsiveness, and centralization to control effort duplication, enhance information implementation, and foster inter-unit consistency. In other words, in a modern, competitive, market-oriented environment, Chinese SOEs must balance the counterproductive features of excessively decentralized and excessively centralized

organizational designs. Western organizations apparently learned this lesson long ago. Taken together, we offer the following hypothesis:

Decentralization and industry FDI interact in predicting industry relative performance. Specifically, centralized SOEs will outperform others when industry FDI is low, but moderately centralized SOEs will outperform others when industry FDI is high.

METHOD AND PROCEDURE

Sample

Two data sources were used: primary data from SOE managers and secondary data from the *China Statistical Yearbook* (National Bureau of Statistics, 2000). With respect to primary data, an English language survey was translated into Chinese using conventional back-translation. Due to construct equivalence concerns, five SOE managers completed the survey in a pilot study and were interviewed by one of the authors. The instrument was provided to the Chinese Enterprise Management Association (CEMA), a state affiliated institution that monitors and disseminates information on SOE performance and trends. Several senior CEMA managers were consulted on the understandability of the Chinese survey prior to it being administered.

The sampling frame consists of the CEMA identified "Chinese SOE industrial 1000." It is not representative of the SOE population, of which over 400,000 exist. Most SOEs are small, a result of China's "two legs" policy that supports employment and the growth of autonomous enterprises able to compete globally. The "SOE industrial 1000," which belongs to the latter group, focuses on heavy, upstream and downstream sectors including mining, petrochemicals, and heavy machinery. The general manager (GM) received two surveys by mail and was asked to complete one of them. They were asked to pass along the second survey to a qualified senior manager. This yielded 231 surveys from 174 SOEs (see Table 1). CEMA then telephoned 100

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nonparticipating SOEs, resulting in 58 surveys from 46 SOEs were obtained. Because of missing

values, 17 surveys from 17 SOEs were discarded. To assess non-response bias, the telephone

surveys were compared to mail ones and no differences were found in the variables. The mail

and telephone wave surveys were combined (or 272 surveys from 203 SOEs). The response rate

is 14% for surveys and 22% for SOEs. Of the surveys, 27% were completed by GMs, 14% by

deputy GMs, and the rest by senior managers or equivalents. Most selected administration as

their area of responsibility (56%), followed by manufacturing (10%) and marketing (8%).

Annual sales averaged US $198 million (sd=$457 million) and employees averaged

9,457 (sd=14,460). Central planner strategy is evident in the 2-digit SIC distribution, developed

from the SOE's primary industry (Table 2). Fourteen SOEs are mining concerns, with the

remainder involved in manufacturing. The latter includes an abundance of chemical (n=40),

industrial machinery (n=32), and primary metals (n=24) manufacturers.

———————— Tables 1 and 2 go about here ————————

Measurement

Industry FDI was created from the secondary data source. For 1999, the year in which the

data were collected, industry FIE sales were divided by industry sales revenue (National Bureau

of Statistics, 2000, p.434, 414). FIEs include equity joint ventures, contractual joint ventures, and

foreign wholly owned subsidiaries. Industry sales revenue refers to sales by all state-owned and

non-state enterprises with annual sales over 5 million Yuan (or about $600,000). As seen in

Table 2, the level of industry FDI (or the market share of FIEs) ranges from 4.6% in non-metals

mining to 69.5% in electronic and electrical equipment.

Measures of decentralization, performance, and size (a control variable) were obtained

from the sample survey. Size was measured by the natural logarithm of the number of

employees. Following an established format, decentralization was assessed by the level with authority for making decisions in 16 areas (Miller and Dröge, 1986). Scale endpoints were 1="decision made above the chief executive – either government bureau or the board of directors" and 7="decision made by operatives at the shop level." Intermediate scale points and the 16 areas evaluated by respondents are provided in Table 3. Five items were used to measure industry relative performance (Miller, 1991). Performance was rated over the past three years on 7-point scales with endpoints of "well below industry average" and "well above industry average" on: (1) market share growth; (2) sales growth; (3) average return on investment; (4) average profit; and (5) profit growth. Perceptual measures of performance correlate well with "hard" measures and assessing multiyear performance reduces any effect caused by an unusually good or bad period.

───────────── **Table 3 goes about here** ─────────────

Reliability, Interrater Agreement Levels, and Principle Components Analysis

In 69 SOEs, two respondents were obtained. Multiple respondents reduce individual respondent bias and thus measurement error. Taking the mean in the 69 cases requires adequate interrater agreement. Interrater agreement scores (or r_{wg}) were calculated (James, Demaree, and Wolf, 1993). The r_{wg} score for the 16 decentralization items are presented in Table 3. They, along with those of the five performance items (which range between .84 and .87) exceed .70, the minimum acceptable cutoff. This justifies folding the data when two respondents exist. The data analyzed thus consists of 203 SOEs – in 69 SOEs, the mean of the two respondents is used, while in the remaining 134 SOEs, one respondent exists.

The 16 decentralization items were subjected to a principal components analysis. The number of factors to retain was based on several criteria including eigenvalue greater than one

and factor interpretability. The four-factor solution was selected as parsimoniously representing the data (see Table 3). The first factor, operations scheduling decentralization, addresses production and transportation scheduling. Strategic management decentralization, the second factor, is concerned with the types of goods produced and the volume of production. The third factor, planning & budgeting decentralization, addresses product and process R&D budgeting, facility location, and inventory planning. The final factor, labor management, is concerned with the number of workers, work allocation, and internal labor disputes. Cronbach α's reliabilities were examined. The α of the four decentralization variables, along with that of industry relative performance ($\alpha=.90$), all exceed .60 and are therefore acceptable.

Classifying SOEs on Decentralization Level

The hypothesis in part states that moderately decentralized SOEs will outperform centralized and decentralized SOEs when FDI is high. Because the mid-point of the decentralization scale is expected to yield superior performance under a specific industry FDI condition, the hypotheses cannot be tested through an interaction effect created by multiplying the overall level of decentralization by industry FDI. Rather, SOEs must somehow be classified as low, moderate, or high on decentralization and then this variable may be crossed with FDI to create a relevant interaction effect. Toward this end, the four decentralization variables were clustered using K-means. The three-cluster solution fit our aims well in that it identified decentralized, centralized, and moderately decentralized SOEs. Figure 1 presents a profile of the three-cluster solution. Centralized SOEs comprise 34% of the sample. These SOEs are low on decentralization across all four variables. Decentralized SOEs (17% of the sample) are high in all four domains. The moderate group constitutes the bulk of the sample (49%). Four univariate ANOVA models were assessed to determine whether the means of the decentralization variables

differed across clusters. The models were significant (model Fs are presented in Figure 1) and post hoc contrasts revealed that for any given decentralization variable, all pairs of cluster means differ significantly: e.g., the mean level of operations scheduling decentralization for centralized SOEs (3.29) differs from that of moderate SOEs (4.12), and moderate SOEs differ from that of decentralized SOEs (4.75). Figure 1 also presents the overall mean of the decentralization variables. Six paired difference t-tests were examined (with a Bonferroni adjustment made to α). Only one of these tests was not significant: namely, the test for the difference between decentralization in the planning & budgeting and labor management domains. Scheduling decisions are the most decentralized in SOEs (mean of 3.94, which suggests that these decisions are typically made at the functional or divisional manager level). Notice that in centralized SOEs this decision would typically be made at the deputy general manager level (mean of 3.29), while in decentralized SOEs, these decisions are typically made at the sub-department head level (mean of 4.75). Strategic operations decisions are typically the most centralized within SOEs (mean of 2.97, suggesting they are typically made at the deputy director/vice president level). Planning & budgeting and labor management decision-making tends toward the middle (respective means of 3.26 and 3.30). In addition, the industry distribution was examined for each decentralization cluster (Table 2 provides the distributions). A cross-tabs analysis was not significant (χ^2=33.26; df=28; p=.226). This assures that effects subsequently examined are not the result of product-based industry differences.

RESULTS

An ANCOVA model was then used to test the hypothesis. The dependent variable is industry relative performance. The independent variables are industry FDI, decentralization type (low, moderate, high), and the interaction of the two. As a control variable, size was modeled as

a main effect and as interaction effects with industry FDI and decentralization type. This model was significant (F=2.238; *p*=.096), but the main effect of size, and the interaction of size with decentralization type and with FDI, was not significant. These three terms were dropped from the model and a partial F-test was conducted to determine whether they collectively possess explanatory power. The nested model, which contains FDI, decentralization type, and their interaction, was significant (F=3.205; *p*=.008). The partial F-test of the difference between the full and nested models was not significant (F=1.502; df=3,194), suggesting that size plays little role in the interplay of FDI and decentralization with performance.

─────────── **Figure 1 goes about here** ───────────

The parsimonious nested model is therefore studied in greater detail to assess the hypothesis. Figure 2, Part A provides details of the nested model. Decentralization cluster (F=3.215; *p*=.042) and the interaction are significant (F=4.440; *p*=.013), but not industry FDI (F=1.241; *p*=.267). The interaction suggests that single numbers cannot summarize the performance difirences among centralized, decentralized, and moderately decentralized SOEs. Figure 2, Part B presents regression models for each decentralization cluster subgroup and Part C provides a graphical depiction of the results. For both centralized and decentralized SOEs, the greater the industry FDI, the poorer the industry relative performance, however, the model for decentralized SOEs is not significant. The opposite holds for moderately decentralized SOEs: the greater the industry FDI, the better the industry relative performance. Alternatively, when industry FDI is low (near zero percent), the most efficient organizational form is the centralized SOE. However, when industry FDI is high (near 70% -- the upper limit in the data), the most efficient organizational form is the moderately centralized SOE. Organizational structure (or decentralization) and environment (or industry FDI) thus interact in the expected direction in

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predicting performance. The hypothesis is supported.

—————————— **Figure 2 goes about here** ——————————

DISCUSSION AND CONCLUSION

What is the impact of FDI on local firm performance? A recent study shows that the impact is contingent on the absorptive capacity derived from the ownership type of a local firm (Buckley, Clegg, and Wang, 2002). According to our research, the impact may also depend upon the local firm's decision-making structure. In an "old-line," protected, FDI free industry, centralized decision-making is optimal for overall industry relative performance in terms of sales and market share growth and in terms of profit and ROI and profit growth. The advantages of organizational responsiveness and innovativeness are lessened with lower levels of environmental uncertainty and hostility, and centralized SOEs avoid efficiency loss associated with the delegation of power.

When industry FDI is high, intermediate centralization is optimal. Moderate centralization presumably combines adaptation and efficiency in an effective fashion. One domain where FDI caused change is likely to occur is product policy (Chen and Ku, 2000), which the current research demonstrated to be decisions of strategic importance to SOEs. Market-oriented and innovative FIEs often force SOEs to reshuffle their product mix and adjust product line policy. In this case, a proper balance between centralization and decentralization is clearly critical. On the one hand, incentives should be given to allow for maximum involvement of employees at different levels of the organization. On the other hand, managerial efficiency is needed because strategic decisions require coordination and have significant financial impact.

This study shows the importance of national context in understanding environment-structure-performance associations. Although SOE decision-making structure moderates the

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effect of industry FDI on performance, there is no guarantee that structure is configured to fit the environmental challenge emanating from FDI. Prior to industrial reform, contingency associations of the Western type were non-existent in SOEs (Shenkar and von Glinow, 1994). During the reform period, the restructuring of enterprise decision-making expressed "a clear contingency perspective" (Child, 1987, p. 48). Yet a multinomial logistic regression model was applied to the data with decentralization cluster as the dependent variable and industry FDI as the predictor variable. The FDI parameter estimate in the model was not significant (χ^2=3.540; df=2; p=.170), suggesting that SOEs do not "fit" decentralization to the level of FDI in their industry. If the direction of SOE decision-making structure is not geared toward FDI, then what environmental segments do SOEs "fit" decentralization to? Earlier evidence shows that among all aspects of the task environment the regulatory segment is the most influential to SOE managers (Tan and Litschert, 1994). As reforms deepen, SOEs have started to adjust equally to the emerging market forces (Tan and Tan, 2003). However, government mandates are contradictory or vague at best. The focus on managerial efficiency has led some SOEs to resort to Soviet type bureaucracy, which implicitly yet naturally is directed to centralization. On the other hand, the attention to stimulating performance incentives has resulted in a drive toward decentralization. Now that SOEs have the opportunity to adjust their organizational structures, they have to respond to contradictory mandates while at the same time adjusting to other important environmental segments (e.g., customers, suppliers, and competitors) which may or may not be given due considerations in declared government guidelines. According to the findings, a conscious decision-making delegation configuration has not occurred with regards to FIEs as an important environmental segment. SOE decision-making taking an extreme form in either a centralized or decentralized structure suffers from performance loss in FDI intensive

industries. It is the moderately decentralized structure that enables the SOEs to effectively and efficiently deal with FDI.
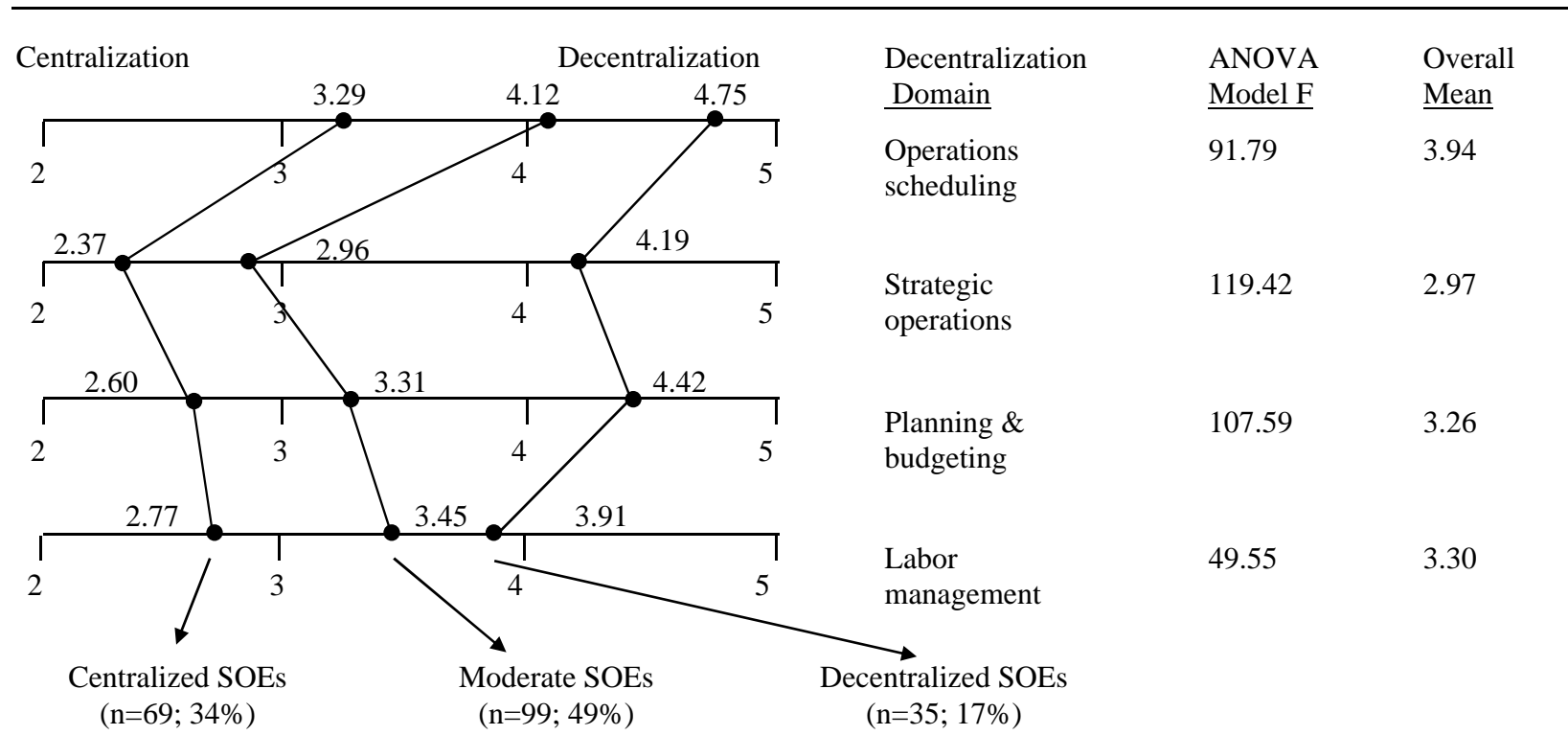
What can SOE managers learn from the research? They should take into account internal decision-making structure when formulating their overall reform and development strategies, and in doing so pay attention to external contingencies beyond the immediate regulatory environment. By and large, much Chinese industry has already opened to FDI, and preferential policy treatment will become even more unreliable in light of China's acceptance into the World Trade Organization. While disadvantaged in certain aspects, SOEs can survive and grow in a FDI intensive environment and an appropriately designed decision-making structure may help accomplish this. Facing a competitive environment, high performing SOEs are more adaptive and innovative. A centralized organizational structure, while still outperforming decentralized peers in industries free of foreign competition, hampers market and financial performance by disallowing incentive enhancing, decision quality-facilitating empowerment. Instead, a moderately decentralized SOE is more able to balance the needs for information generation and incentive enhancement and for information execution and management efficiency as a response to the FDI caused environmental challenges.

Implied in this study is a broad proposition regarding the "fit" between environmental segments and organizational structure. We suggest that an organization may selectively configure its structure to a particular environmental segment, while remaining ignorant of other segments. Unfortunately, this proposition cannot be tested in this study. Further research should examine the issue. Our findings have to be read with caution given the many constraints on SOE management. To what degree should SOEs devote attention to management structure when the seemingly more urgent task of property rights remains unresolved? To what extent does SOE

management have the freedom to adjust internal structure? Are SOE managers motivated enough to take on such tasks, and experienced enough to "handle complex multidimensional situations" (Tan and Litschert, 1994)? Timing is crucial to answer these questions (Tan and Tan, 2003). Most ongoing enterprise reform measures are designed for the transitional period and their long-run effect is still unfolding. Ultimately, SOE decision-making delegation may not be fully resolved before management systems settle on an economically rational basis and before professional managers at various levels are transformed so that they are willing and able to effectively take on decision-making responsibility (Boisot, 1994; Lu and Child, 1996).

Further studies should also expand conceptualizations to other firm and industry factors that may be involved. For example, it might be useful to distinguish between delegation and decentralization. In the former only the means are decentralized, whereas in the latter both ends and means are decentralized (Boisot, 1987). Clearly, the contract responsibility system is a form of delegation. As shown in Shougang, one of the largest steel manufacturers in China, entrepreneurial energy was unleashed successfully in a traditional army-style organization under a contract responsibility system (Nolan and Yeung, 2001). In this case, reform planners do not see any inconsistency between delegation of decision-making and enhancement of executive authority within SOEs.

Figure 1: Cluster Analysis Results

Centralization	Decentralization	Decentralization Domain	ANOVA Model F	Overall Mean
		Operations scheduling	91.79	3.94
		Strategic operations	119.42	2.97
		Planning & budgeting	107.59	3.26
		Labor management	49.55	3.30

Centralized SOEs (n=69; 34%)   Moderate SOEs (n=99; 49%)   Decentralized SOEs (n=35; 17%)

ANOVA model F: Univariate model with decentralization domain as the dependent variable and decentralization cluster as the independent variable. Post-hoc contrasts show all pairs of means differ significantly for any given decentralization domain.

Paired comparisons t-tests (with Bonferroni adjustment) shows that all pairs of overall decentralization domain means differ with the exception for the difference between planning & budgeting decentralization and labor management decentralization.

Figure 2: ANCOVA Model Results

Part A: ANCOVA model results

	F	p-value
Model	3.201	.008
Intercept	926.420	.000
Industry foreign direct investment (FDI)	1.241	.267
Decentralization cluster	3.215	.042
Industry FDI x decentralization cluster	4.440	.013

Part B: Subgroups regression models predicting performance from FDI

SOE type	R^2	Model F (p-value)	Regression model: Unstandardized parameter estimates
Decentralized	.049	1.685 (.203)	4.516 − .013 x FDI
Moderate	.032	3.192 (.077)	4.348 + .014 x FDI
Centralized	.067	4.793 (.032)	5.152 − .018 x FDI

Part C: ANCOVA

21
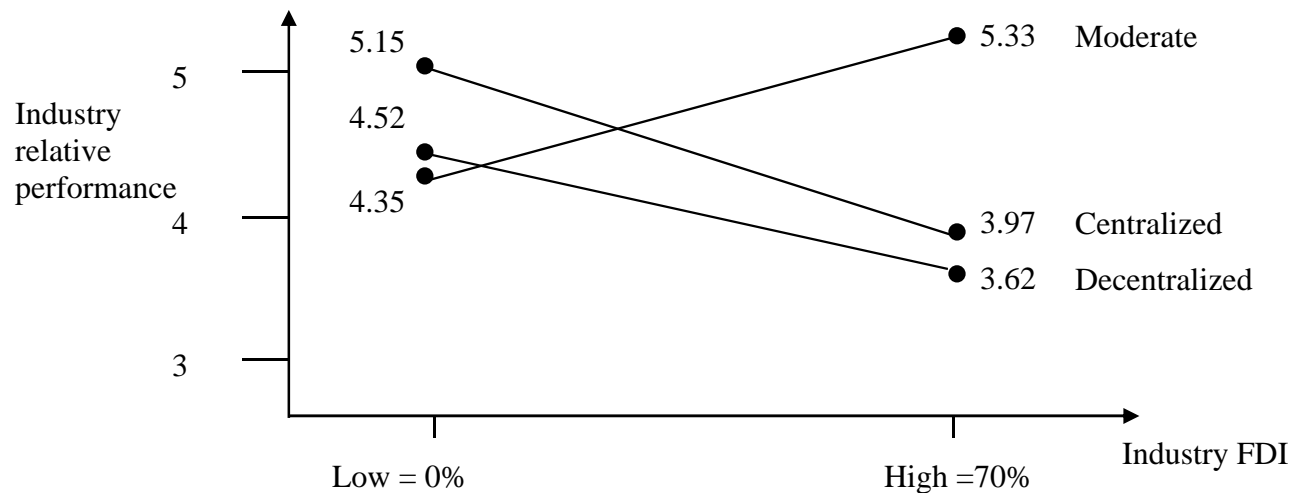
Table 1. Summary of Sampling Process

	Surveys		SOEs		Double survey firms
Initial mailing	2,000	-	1,000	=	1,000
Returned surveys	231	-	174	=	57
Telephone callback responses	58	-	46	=	12
Total returned	289	-	220	=	69
Discarded due to missing values	17	-	17	=	0
Retained	272	-	203	=	69
Response Rate:	289/2,000=14%		220/1,000=22%		

Table 2. Industry Distribution (Overall Sample and Within Clusters) and Level of Foreign Direct Investment

| 2-Digit SIC | Overall sample (%) | Decentralization cluster | | | Industry foreign direct investment |
		Decentralized	Moderate	Centralized	
10. Metal mining	6 (3.0)	0	4	2	6.4%
12. Coal mining	6 (3.0)	0	3	3	8.9
14. Non-metal mining, except fuels	2 (1.0)	0	0	2	4.6
20. Food & kindred products	6 (3.0)	1	3	2	24.0
21. Tobacco products	3 (1.5)	0	1	2	8.2
26. Paper & allied products	2 (1.0)	0	0	2	28.3
28. Chemicals & allied products	39 (19.2)	5	21	13	18.8
29. Petroleum refining & related products	22 (10.8)	8	9	5	5.4
30. Rubber & miscellaneous plastics products	5 (2.5)	2	3	0	38.5
32. Stone, clay, glass, & concrete products	12 (5.9)	3	4	5	16.1
33. Primary metal industries	24 (11.8)	3	14	7	35.5
35. Industrial & commercial machinery & computers	32 (15.8)	2	19	11	18.4
36. Electronic & electrical equipment	16 (7.9)	6	6	4	69.5
37. Transportation equipment	21 (10.3)	3	10	8	29.6
39. Miscellaneous manufacturing industries	7 (3.4)	2	2	3	22.9%
Total/mean	203	35	99	69	23.7%

Table 3. Principal Components Analysis Results of Decentralization Variables

Dimension / items	F1	F2	F3	F4	r_{wg}
Operations scheduling decentralization:					
Production scheduling	**.774**	.085	.177	.050	.88
Transportation scheduling	**.772**	-.063	.243	.183	.82
Delivery dates to customers and priorities of orders	**.722**	.246	.027	.145	.85
The selection of suppliers	**.508**	.280	.067	.200	.90
Strategic management decentralization:					
The types of goods to manufacture	.004	**.808**	.219	.092	.85
The volume of production	.118	**.681**	.034	.221	.92
Product quality levels	.383	**.619**	.249	.080	.85
Distribution service levels (e.g., fill rates)	.483	**.494**	.151	.172	.87
Planning & budgeting decentralization:					
New product design / research budgeting	.264	.262	**.784**	-.067	.87
New process design / research budgeting	-.056	.302	**.755**	.012	.91
Factory / warehouse location planning	.298	-.013	**.588**	.289	.82
Inventory planning	.215	-.012	**.489**	.351	.88
Labor management decentralization:					
Allocation of work among available workers	.135	.209	-.109	**.723**	.88
Internal labor disputes	.220	-.009	.183	**.716**	.87
The number of workers required	.001	.165	.190	**.624**	.85
Machinery or equipment to be used	.204	.328	.025	**.418**	.90
Eigenvalue	5.021	1.449	1.368	1.164	
Percent of variance explained	31.88%	9.06%	8.55%	7.27%	
Cumulative percent explained	31.88%	40.42%	48.98%	56.26%	
Cronbach's α	.74	.74	.70	.61	

r_{wg}=interrater agreement score
Decentralization scale points:
1: Decision made above the chief executive – government bureau or the board of directors.
2: Decision made at the chief executive level (general manager).
3: Decision made at the deputy general manager level (or vice president).
4: Decision made at the divisional or functional manager level (production or sales manager).
5: Decision made at the sub-department head level.
6: Decision made at first level supervisor level.
7: Decision made by operatives at the shop level.

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