

Foreign Operating Mode Selection and Performance:
An Analysis of 35 Silicon Valley High-tech Manufacturers' Venture in the Asia/Pacific Rim
(An Executive Report)

by:

Mark V. Cannice, Ph.D.
Assistant Professor of Finance and Entrepreneurship
McLaren School of Business
University of San Francisco
2130 Fulton St.
San Francisco, CA 94117
e-mail: cannice@usfca.edu
(415) 422-6587

(This report contains copyrighted material. Please do not reprint or distribute without written release from the author.)

Abstract

This report examines the factors which influence the foreign operating mode decision of a firm and the performance implications of this choice. The study addresses these questions by first deriving an eclectic model of the foreign operating mode choice. It is posited that the operating mode choice can best be studied through an integration of four separate theoretical lenses: international strategic motivations, dominant logic theory, transaction cost economics, and options theory. This theoretical integration allows the formulation of a template model and propositions which predict a firm's operating modality, and also provides for a contingency framework which links the operating mode choice to performance. This template model is then refined through an iterative multiple case analysis across 35 'high-tech' manufacturers headquartered in the San Francisco Bay Area which have recently established operations in the Asia/Pacific Rim.

The iterative case analysis allowed a refinement and validation of the template decision model. The findings of the study point to the efficacy of the adapted operating mode decision/performance model based on replication logic analysis. Further, a number of insights which emerged from the case analysis lend greater context to the final model development. To sum, it is shown through the case analysis methodology that a contingent link between operating mode decision factors and mode selection does exist and that creating a good 'fit' between these decision factors and the operating mode choice does lead to improved venture performance. Specifically, foreign venture performance is shown to be explained in part by choosing an operating mode which meets the requirements of a firm's international strategy and environmental considerations. The results indicate that a firm's international strategy is clearly the driving force in a firm's choice of a particular operating mode. Further, the operating mode selection should be chosen to meet the requirements of a firm's international strategy to facilitate good venture performance. Additionally, appropriate international strategy formulation and operating mode selection are shown to be enabled through a high decision context (high decision process comprehensiveness and high decision team heterogeneity). Finally, the results also indicate that technology transfer costs and environmental concerns are normally managed by more refined means than operating mode selection.

Motivation for the Study

Global trade and foreign direct investment (FDI) continue to surge through the 1990s. Global trade in the form of exports exceeded five trillion dollars in 1995, up 48% since 1990 (IMF 1996). Direct investment from the industrialized world in plants, equipment, and service operations in developing nations totaled \$325 billion, an increase of 46% since only 1994 (Zachary 1996). Clearly, declining barriers to international investment, and advances in transportation and communication technology have spurred this growth. Additionally, the retreat of Communism and the adoption of free-market principles during this decade have helped to set the stage for this dramatic increase in economic activity.

While technological advances and more open economic policies have allowed this growth to occur, the growing economies of the Asia/Pacific Rim, to a large degree, have acted as the engine of this growth in world trade and investment. The average annual growth in private consumption in the low and middle income economies of east Asia between 1990 and 1995 was 8.5%. This growth in consumption is more than four times the rate of consumption growth in the world's high income economies (World Bank 1997). Further, imports into the East Asian economies, excluding Japan, totaled one trillion dollars in 1995, an increase of 110% since 1990, while inward direct investment has increased 250% over the same time period.

While both international trade and foreign direct investment continue to grow, the rate of growth in foreign direct investment is more than double that of international trade (Jonquieres 1995). This is perhaps due to the effectiveness of foreign subsidiaries. While U.S. company exports totaled \$235 billion in 1994, the sales from their foreign affiliates totaled \$1 trillion (Zachary 1997).

This study examines the process by which U.S. 'high-tech' firms choose to operate (e.g. FDI or trade) in the countries of the Asia/Pacific Rim. Further, a linkage between the firm's decision process, its mode of operation (i.e. wholly-owned subsidiary, joint venture, licensing, or export) and the new venture performance is explored. This report develops an operating mode decision/performance framework through an integration of five theoretical lenses. It then refines this framework through a comparative case analysis of 35 U.S. 'high-tech' corporate ventures in the Asia/Pacific Rim. Due to its rapidly increasing relevance to U.S. political and economic interests, special attention is given to U.S. ventures in China.

China, with a rapidly growing middle class and double-digit annual economic growth, attracts a significant amount of inward foreign direct investment (\$40 billion in 1995), ranking second only to the U.S. in terms of the 1995 inflow of foreign direct investment (Brauchli 1997). This inflow of direct investment is up sharply from \$27.5 billion in 1993, and \$4 billion in 1991 (Banks 1995). Additionally, the U.S. government has identified China as the top emerging market for U.S. exports and investment (Maynard 1995). Many predict that China will have the largest economy in the world, in terms of purchasing power, by the end of the first quarter of the 21st century (Dadush and Dong 1995). Because of these trends, John Naisbett (1997) has indicated that the center of power in Asia is shifting from Japan to China.

Research Questions

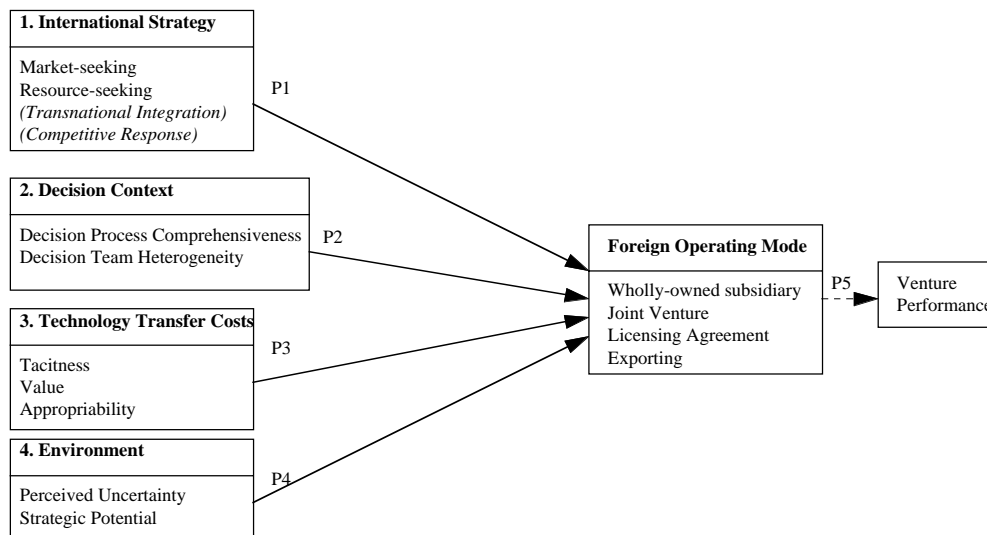
A firm's choice of foreign operating mode generally determines its amount of control over a new venture as well as the amount of resources it needs to commit (Anderson and Gatignon 1986). With unlimited resources and freedom from external constraints, a firm would rationally choose the operating mode which gave it the most control possible over venture operations. Because firms have finite resources to commit to foreign operations, a choice is forced upon them, and a tradeoff must be established between the amount of resources (capital, know-how, etc.) it can spare and the amount of control it deems necessary to succeed in the country. Because this decision is critical to the structure and long-term survival of the firm, this report provides for an analysis of the determinants of the foreign operating mode choice.

This study first examines the factors which influence how a firm decides to operate in a foreign country. Those antecedent factors and the resulting operating mode structure, are then related to the performance of the venture. Therefore, the research questions which this study addresses are the following: *What factors influence the foreign operating mode decision of a firm, and what are the performance implications of this choice?*

This report specifically examines the factors which have an impact on the decisions of U.S. companies to operate in the nations of the Asia/Pacific Rim. In this study, the discussion of the foreign operating mode choice is initially limited to a wholly-owned subsidiary (WOS), a joint venture (JV), a licensing agreement, and exporting¹. The chosen operating mode options have been selected because they illustrate a firm's choice of complete ownership, partial ownership, or no ownership of a venture. These operating mode choices, in turn, are examined as a function of four decision factors: 1) international strategy, 2) decision context (decision process comprehensiveness and decision team heterogeneity), 3) technology transfer costs, and 4) environmental potential and uncertainty.

¹ A licensing agreement here refers to arm's length licensing rather than licensing within a company's family of subsidiaries.

Template Foreign Operating Mode Decision Model



The template model can be represented by the following function.

Foreign operating mode choice = $f(\text{international strategy, decision context, technology transfer costs, and environmental uncertainty and potential})$.

Finally, the linkage between the decision factors, the foreign operating mode choice, and the venture performance is determined. The theoretical grounding from which each of the decision factors is examined allows for the prescription of an appropriate level for each depending on the operating mode chosen. It is proposed that the 'fit' between an optimal profile of the independent variables and the operating mode choice has a positive effect on the performance of the venture. Performance in this study is evaluated as perceived venture performance. This template model of venture performance can be represented by the following function.

Venture Performance = $f(\text{international strategy, decision context, technology transfer costs, and environmental uncertainty and potential}) \times \text{Foreign operating mode choice}$.

The template foreign operating mode decision model and contingency matrix are evaluated and modified through an iterative case analysis methodology (Yin 1994). In essence, the data from each case are compared with the template framework. Where the template framework adequately explains the findings of two or more cases, replication is shown and support for the template model claimed. Where the results from a case conflict with the framework, the framework is adapted to better explain the case data.

Theoretical Foundation and Anticipated Relationships

Five theoretical perspectives are applied to this study.

- 1.) International Strategy (Motivations for foreign involvement: Behrman 1972; Hill et al. 1990). A firm's international strategy is defined as the choices it makes in acquiring foreign resources and capturing foreign markets. It is posited that the international strategy which motivated a firm's venture will affect the operating mode choice.

- 2.) Decision Context (Dominant Logic Theory of the Firm: Prahalad and Bettis 1986). Because corporate decisions are often an artifact of a previous time, this study examines the impact that the decision context of a firm has in determining the firm's operating mode decision. Dominant logic theory proposes that firms develop a mindset or worldview of their businesses. This mindset is based upon the firms' past experiences. The strategic mentality of the firm, detailed by Bartlett and Ghoshal (1989), and rooted in the dominant logic theory of the firm, implies that firms will tend to initiate new foreign operations in much the same way that they initiated current foreign operations (maintaining the general strategy of the firm). This report proposes that, as the decision process becomes more comprehensive, and as the decision team becomes more diverse, the current operating mode decision is less biased by previous foreign operating mode choices. Thus, the resulting mode choice will be superior, as shown by better performance.

- 3.) Technology Transfer Costs (Transaction Cost Economics: Williamson 1975, 79, 81, 85). Transaction cost theory contends that firms develop hierarchies in order to reduce the transaction costs of dealing in a market which is not perfectly competitive. Essentially, transaction cost theory implies that the motivation for efficiencies overrides other possible motivations. As the probability of market inefficiencies rises, the firm becomes more inclined to develop a hierarchy which will internalize its transactions. In the case of foreign operating mode choices for production, excessive costs related to the transfer of a tacit and valuable technology lead to an internalization of the transaction. Kogut and Zander (1993) go so far as to say that the firm's efficiency in transferring technology dictates the amount of hierarchy perceived necessary by the firm. This report purports that the hierarchy chosen becomes more internalized, from licensing, to joint venture, to wholly owned subsidiary as the technology becomes more tacit and valuable.

- 4.) Environment Uncertainty and Potential (Options Theory: Black and Scholes 1973; Bowman and Hurry 1993). The environmental variables represent both the strategic potential and the perceived uncertainty of the foreign country operations. The estimation of the impact of the environmental determinants on the foreign operating mode choice is based on options theory. Options theory, originally developed by Black and Scholes to accurately price the value of options in securities markets, dictates that the value of an option on a security increases as both the size and the volatility of potential returns increase. In essence, an option provides the option holder the right but not the obligation to purchase or sell a stock at a future time. Bowman and Hurry show that options theory can also be applied to the valuation of organizational investments. This thesis applies options theory to value foreign operations considered by a firm. Options theory is extended in this thesis by incorporating the comparison of a foreign venture's option value to its net present value (NPV).

Also originally developed for financial valuations, the net present value (NPV) of an investment rises as the expected returns rise and as the risk of investment (hurdle rate) decreases. Similarly, the NPV of foreign operations increases with increasing potential returns and decreasing volatility. The contrast in the foreign venture's valuation criteria between NPV and

option value allows a comparison of the influence each has on the operating mode choice under multiple perceptions of uncertainty and potential. Increasing option value indicates that the firm may seek flexibility in its operating mode choice. Increasing NPV indicates that the firm may seek to internalize the market.

5.) Performance (Contingency Theory: Woodward 1965). This study's primary objective is to link the operating mode decision factors to the operating mode choice and the ultimate venture performance. Predictions of performance are based on a contingency 'fit' relationship between operating mode choice and the proposed optimal profile of contingency factors. Contingency theory proposes that when two elements of a firm match or fit well, the performance of the firm will be enhanced. For example, if a firm chooses an optimal structure to implement its strategy, the firm's performance should increase. The below table indicates the theoretically prescribed fit relationships between each entry mode and the decision factors often considered by management.

Contingency Profiles for Optimal Venture Performance

Factors Mode	International Strategy	Decision Context	Technology Transfer Costs	Environment
Wholly-owned Subsidiary	All	Comprehensive Heterogeneous	High	High NPV Value Low Option Value
Joint Venture	Resource-seeking Market-seeking	Comprehensive Heterogeneous	Moderate	Moderate NPV Value Low Option Value
Licensing or Exporting	Market-seeking	Comprehensive Heterogeneous	Low	High Option Value Low NPV Value

Fit, here, is defined as adherence to an externally specified profile (Venkatraman 1989). In this investigation, an ideal profile of decision factors is established through the preceding theoretical integration. Adherence to this prescribed profile should lead to enhanced performance, while deviation from this profile should lead to poorer performance. Because it is posited that each of these operating modes best 'fits' a particular profile of the independent factors, it is argued that performance will be enhanced when the operating mode matches the corresponding optimizing profile.

Research Design and Data Collection Procedures

This study concentrates its focus on theory development rather than theory testing. Accordingly, the research design chosen for this thesis investigation is the multiple-case study

approach.

The items most pertinent to this investigation include:

1. Interviews -- These are the most important for insightful first hand information. Three segments of interviews are used for this collection -- open ended (unstructured questions), focused semi-structured questions, and a structured survey (Bouchard 1976),
2. Archival records -- Company annual reports, 10Ks, press releases, and financial data,
3. Direct observation -- Factory floor tours, observation of the condition of the headquarters and the mood of the personnel,
4. Documentation -- Company internal administrative notes and outside newspaper articles. (These data mainly serve to corroborate and augment evidence from other sources).

While much of the theory extension and model adaptation are based on the open-ended discussions with executives from the participating companies, these remarks are validated with structured survey rating questions on many of the same topics. Further, archival records, other documentation, and direct observation are used to triangulate on what appear to be the most important issues to the operating mode decision and venture performance.

Sample Selection

The final target sample includes firms from the computer/integrated circuit, telecommunications, and medical equipment industries. All the firms are 'high-tech' manufacturers/developers. The range of investment sites studied was subsequently expanded to multiple Asia/Pacific Rim countries (Hong Kong, Taiwan, Japan, Singapore, the Philippines, and Malaysia) in addition to China. This was done in part to include some variation in the environment in which firms were investing. It was also a practical issue as not every 'high-tech' firm in the potential sample has current interests in China.

Three or four senior executives for each company were highlighted as potential contacts. Normally, the CEO, and the vice presidents in charge of manufacturing, strategic planning, marketing, sales, and international operations were highlighted. Each company was then called to both confirm the individuals listed in the 1996 data and to order company reports and other background information. These initial calls proved very useful as approximately one-third of the individuals highlighted from the 1996 company data were either in new positions or no longer with the company. In two cases the entire top management staff had been removed, once as a result of a merger/takeover and once as a result of accounting irregularities and a delisting from the NASDAQ. Through this process, two or three senior executives from each firm were confirmed to still be with the target company in jobs where their knowledge would likely lend insight to the study.

The respondents are asked to reflect upon an operating mode decision and asked to describe the most significant factors which affect their decision. Efforts are made not to influence the respondents' answers at this juncture. After the executive's discussion on his recollections I ask another script of questions about the decision on those topics he may not cover during his initial discussion. This open-ended discussion normally took about 45 minutes. The respondents are then asked structured questions from a survey format which is used to help validate the open-ended responses given in the initial part of the interview

Data Analysis

The multiple-case process is performed in order to provide a more holistic understanding of the foreign operating mode decision and its link to performance. Analysis proceeded with the

strategy asserted by Yin (1994) and Eisenhardt (1989) respectively. That is, using the theoretical framework and propositions to guide the data analysis, and using each case description to allow more insights to emerge. Within-case analysis is completed by writing up a summary of each interview discussion, as well as the observations and analysis of the discussion. Pertinent background information from each company's annual reports, 10Ks, and press releases is also included in each case summary. Separate files for each company case are maintained and referred to when necessary for additional information. The purpose here is to become intimately familiar with each case as a stand alone entity (Eisenhardt 1989). This case database allows more coherent analysis and better access for replication or re-analysis, thus increasing the reliability of the findings (Yin 1994).

Data (qualitative summary, questionnaire responses, and background information) from each company are then triangulated and summarized to a common format to better permit pattern matching to the theoretical template and cross case comparisons. The survey responses in each of the cases serves primarily to help validate the data from the open-ended discussion of each respondent. For example, if the respondent mentioned the motive of the venture was primarily to sell in the country, questionnaire items asking a numbered response on this same issue are checked to verify consistency on this issue. If a contradiction between the open-ended response and structured survey response exists, the author scrutinizes the background data, the full summary, and other observations made during the interview. Several follow-up phone calls were made to clarify specific points.

Yin (1994: 106) points out that "For case study analysis, one of the most desirable strategies is to use a pattern-matching logic. Such a logic (Trochim, 1989) compares an empirically based pattern with a predicted one (or with several alternative predictions). If the patterns coincide, the results can help a case study strengthen its internal validity." Explanation building is also pursued for each case, comparing initial propositions with the findings of each case. This allows revision or validation of propositions in accordance with each case comparison.

Further, the 'fit' between actual company actions and theoretically prescribed actions is determined for each case. Fit, here, is defined as adherence to an externally specified profile (Venkatraman 1989). In this investigation, an ideal profile of decision factors is established through the preceding theoretical integration. Adherence to this prescribed profile should lead to enhanced performance, while deviation from this profile should lead to poorer performance.

This process of profile fit determination allows either a validation of the template framework or an adjustment to it. Framework validation exists when the case data adhere to the prescribed profile and performance is good. For example, the prescribed profile of decision factor levels for a WOS would be any international strategy with a high decision context, high technology transfer costs, and a high NPV assessment. Adjustment is called for when adherence to the profile does not lead to good performance or when deviation from the profile does not lead to poor performance. Adjustment to the framework could entail the elimination of a factor or adjusting its weight of importance (Venkatraman 1989).

FINDINGS

This section provides a discussion of the primary results of the study. The main purpose of the investigation is to develop a better grounded operating mode/performance framework. This is done by using the theoretically derived operating mode framework as a template model which is validated or modified based on an iterative analysis of the data from each successive

case (Yin 1994). The iterative analysis of each case as a separate entity or experiment also leads to emergence of new insights.

Where multiple cases support the theory fully (operating mode choice and contingent link to performance), replication is claimed. High fit and high performance lead to a claim of literal replication; low fit and low performance or moderate fit and moderate performance lead to a claim of theoretical replication (Yin 1994). Where the case does not support the theory, a deeper examination is pursued to explain why it does not, or to adjust the framework accordingly.

Following the first two individual case arguments is a tabular display of all the cases which lists major issues linked to the framework development. This tabular display allows for easier cross case comparisons to determine the adaptation of the eventual operating mode/performance model. After the condensed case exhibit, the specific model adaptations are discussed as emerging from the case data. This discussion should put the final adapted framework in better context.

Three industries: computers, telecommunications, and medical equipment are represented, with most (27) firms operating in the computer/electronics industry. Firm size ranges from \$40 million in sales to over \$11 billion. The size of each firm in the sample is classified as detailed below.

Sample Description	
Primary Company Business	Number of Firms
Computer Manufacture	3
Computer Peripheral and Electronic Component Manufacture	9
Semiconductor Development/Manufacture	6
Semiconductor Processing Equipment Manufacture	7
Software Development	1
Telecommunications and LAN Development/Manufacture	5
Medical Equipment Manufacture	3
General Electronic Manufacturing Services	<u>1</u>
Total	35

Firm Size in Sales	
Sales in Millions of Dollars	Number of Firms
0 - 100	4
100 - 500	15
over 500	<u>16</u>
Total	35

The range of operating modes represented in the study is listed below.

Operating Mode Choice	
Operating Mode Choice	Number of Firms
WOS (Sales/service/liaison/hub)	17
WOS (Manufacture/Development)	6
JV (Manufacture/Development)	6
JV (Sales/Service)	1
Distributor	<u>5</u>
Total	35

The operating modes represented in the sample are fairly diverse. The WOS (sales/service/liaison/hub) offices in the sample serve a variety of functions depending on the parent company's objective and host country constraints. For example, many of the WOS offices in China are liaison offices which can not sell product directly, but can demonstrate and market their product and delegate sales to third party distributors, usually based in China or Hong Kong. These liaison offices are wholly-owned entities and require higher resource and control than strictly distributor relationships. Therefore, these are grouped with WOS (sales/service). One firm's subsidiary office serves as a regional hub to manage the distribution effort for the region. The balance of the WOS sales offices are typically staffed with between 5 - 10 sales managers and field engineers. They often provide extensive service to regional clients and usually require substantial capital to set-up and maintain. Overall, each of the 17 subsidiary offices are wholly controlled by the parent company and have little if any manufacturing capacity.

The manufacturing subsidiaries all carry out significant manufacturing or development work in the host country. The joint venture manufacturing and sales operations are all conducted with a host country firm and are typically chosen in part to satisfy some host government restrictions to ownership. (One joint venture was a three-way partnership with two U.S. firms and one Chinese firm.) The distributor modes are usually chosen by smaller companies seeking market penetration, and best represent the export option in the sample.

All exporters used intermediaries in the host country. This is most likely due to the complexity of many of the products offered by the sample firms. This complexity normally requires at least some period of set-up and training which is performed either by distributors or local support staff. A number of firms in the sample firms have recently replaced distributors with WOS sales offices as these firms increase focus on their international sales and service effort. No licensing agreements existed in the sample either. Licensing only existed within the context of a joint venture agreement. This is not surprising given the high-tech nature of companies studied. This meant a removal of that choice from the framework.

A close examination of the mode of each company and its general usage enabled a collapse of the operating mode choices to three categories: WOS, JV, and distributor. Through the case analysis it became clear that the WOS for sales/service and the WOS for manufacture could be considered together within the framework analysis. While the WOS operating choice is normally considered to be a manufacturing entity in the management literature, the executive respondents emphasized the substantial costs of operating a wholly-owned sales office versus third-party representation. They normally referred to having a wholly-owned sales office as being 'direct' in a country. Further, a WOS manufacturing presence was often established in

order to better facilitate sales in the country of manufacture. Because this study emphasizes discerning the efficacy of operating modes, (WOS, JV, etc.) rather than venture activities, it seems best to classify legal subsidiary sales/support offices along with subsidiary manufacturing subsidiaries rather than arms-length distribution which has no costs and little control.

The destinations of investment represent seven countries of the Asia/Pacific Rim. Special attention is given to China in light of its dramatic growth and huge market potential.

Destination of Investment	
Destination of Investment	Number of Firms
China	15
Hong Kong	7
Japan	6
Taiwan	2
Singapore	2
Philippines	2
Malaysia	1
Total	35

Country of Investment Data (1995)

Country	China	Hong Kong	Japan	Singapore	Malaysia	Philippines	Taiwan
GDP US\$ bn	791	140.1	5,191.7	94	81.4	74.1	260
GDP Growth %	10.2	4.7	1.4	7.0	9.5	4.9	6.0
GNP/capita US\$ bn	530	21,650	34,630	22,500	3,480	950	11,110
PPP/capita estimate US \$	2,510	n/a	21,140	21,900	8,440	2740	n/a
CPI %	16.9	8.7	-0.1	1.4	3.4	8.9	3.7
Population (Millions)	1,227	6.16	125.6	3.04	20.6	68.4	21.2
Form of Government	One Party Rule	Colonial Admin.	Represent. Democracy	Parliament. Democracy	Constitution Monarchy	Represent. Democracy	One Party Rule

(The above data, excluding GNP/capita and PPP/capita, are summarized from the corresponding Economist Intelligence Unit Country Reports of the first quarter 1997. Country GNP/capita and PPP/capita are taken from the World Development Report (1996) and reflect 1994 levels.)

Case Summaries and Arguments

The following case summaries and arguments are presented to show support for or modification to the theoretical template (Yin 1994). Framework validation is pursued through case by case analysis. The data are triangulated for each company to determine the relative levels of each factor impacting the decision, to determine each company's perception of venture performance, and to search for new insights and trends. Similar to a series of lab experiments, each case is analyzed in reference to the template theory. Where multiple cases support the

theory fully (operating mode choice, decision factors, and contingent link to performance), replication is claimed. High fit and high performance lead to a claim of literal replication; low fit and low performance lead to a claim of theoretical replication (Yin 1994). Where the case does not support, the theory, a deeper examination is pursued to explain why it does not or to adjust the framework accordingly.

No company names are given. To further protect participant confidentiality, company size is categorized as small (< \$100 million in sales), medium-sized (\$100 million to \$500 million in sales), and large-sized (> \$500 million in sales). The summary and argument for each case are derived from open-ended interview data with one or more respondents from each company, focused questions from one or more respondents from each company, questionnaire data from most (30/35) of the companies, archival data from company reports, press releases, other journals, and some internal documents. This data are triangulated for each company to determine the relative levels of each factor impacting the operating mode decision and company venture performance.

In deference to space considerations, only the final version of the framework is displayed. Cases are listed in order of completion to demonstrate the adjustment of the framework. (Case summaries and arguments are given below for the first five cases. The remaining 30 case summaries and arguments are given in Appendix E). Case 1, an example of theoretical replication, and Case 3, an example of literal replication are discussed in more detail than the remaining cases in order to demonstrate the analysis procedure and the logic of the support/adaptation claims made.

Case 1

The first company examined in the main field study is a medium-sized manufacturer of components which are inserted into integrated circuits. Essentially, this company is a supplier to integrated circuit fabricators. Its customer supplies PC makers who sell to the general public. In essence, this company is two steps down the value chain from the final customer. Firm 1 chose a distributor in Hong Kong to look for new markets in Hong Kong and China. I classified its strategy as market-seeking from the respondent's comments during the open-ended interview and focused questions, the responses from survey items 3 - 6, and the company's literature. The respondent asserts that resource constraints limit the firm's pursuit of this market to a distributor (open-ended interview and survey item 53). This corresponds to the weak cash position of the firm due to its recent acquisitions and extraordinary expenses as stated in its public reports.

The choice of a distributor to pursue a market-seeking strategy fits with the template theory; however, performance is rated as being low (open-ended interview, focused question 5, survey items 35, 36). The respondent commented that "There is a pony in China somewhere, but we have not found it yet". This company demonstrates moderate decision comprehensiveness and low decision team heterogeneity. This assessment was made both from the respondent's open-ended comments and the questionnaire items 7 - 12 on those two issues, and background data. Referencing table 3.1, moderate decision process comprehensiveness and low decision team heterogeneity indicate a low decision context. This low decision context probably impacted the strategy and operating mode selection.

Technology transfer costs are rated moderate to high. This assessment is made from the respondent's comments on the technology, the response to questionnaire items 14 - 23, and the description of the nature and application of the technology in the company literature. The theoretical template suggests that the moderate to high technology transfer costs demand higher

internalization, perhaps through a joint venture or subsidiary, and thus do not fit well with the distributor choice.

According to the respondent's discussion and questionnaire items 24 - 27, the assessment of the environment potential is high and the uncertainty moderate. This indicates a moderate NPV for the country. The moderate net present value demands a joint venture and does not fit the distributor choice. Performance, assessed by the respondent's comments and questionnaire items 35, 36, is low. The fit between the decision factors and the operating mode choice is as follows: strategy-low, decision context-low, technology transfer costs-low, and the environment-low. This indicates a low overall fit. Low performance and low fit calls for a claim of theoretical replication (Yin 1994).

It seems here that the low decision context is a significant factor in leading to a poor strategy of market-seeking where a more highly integrated sales effort is demanded due to the nature of the technology and need to fit its technology in with the potential customer. Thus, decision context is shown to moderate the international strategy choice as well as the operating mode selection.

Framework Support: Yes (theoretical case replication)

Framework Adaptation: Decision context factor moderates international strategy selection and the operating mode choice; resource constraints moderate the operating mode choice.

New Insight: Need for higher integrated sales effort for complex device supplier. Notion of a 2-step supplier -- two steps away from a final consumer.

Case 3

This company is a large firm which manufactures integrated circuits for PC makers. It entered China via a wholly-owned sales/service office in Beijing to serve northern China customers. They made this choice only after an exhaustive process over eight years to determine when the market was ready and facilities were available to set up operations (open-ended interview, focused question 5, survey items 7 - 12). This high decision process comprehensiveness and moderate decision team heterogeneity indicate a high decision context (table 3.1). The firm indicates a highly integrated sales strategy of following customers to supply comprehensive direct service. This assessment is made primarily on the respondent comments as no questionnaire items were prepared for this emerging strategy from the study.

The firm also hopes to slowly establish a brand name to attract new customers. Therefore, the WOS fits well with the strategy. This good 'fit' between its operating mode choice and strategy is probably due to the high decision context the company employs. Although, this firm has perceptions of high environmental uncertainty as noted on the open-ended discussion and questionnaire items 24 - 27, the company has been able to mitigate these fears through establishing an office in a university with a trusted core of people. The respondent commented that the "trigger was a well established core of people and their perception that the market was ready".

Technology costs are assessed as moderate based on the company literature, the open-ended interview, focused question 1b, and survey items 14 - 23. The environment was rated as low NPV based on the questionnaire items. Overall fit between the operating mode choice and the decision factors is as follows, strategy-high, decision context-high, technology transfer costs-moderate, environment-low. Overall high fit between the decision factors and the wholly-

owned subsidiary operating mode corresponded with the high assessment of performance. This correspondence allows a claim of literal replication (Yin 1994).

Framework Support: Yes (literal case replication)

Framework Adaptation: Indicates lesser role for environment in fit evaluation.

New Insight: Importance of a core group of trusted people in country that can launch operations when the market is ready. Ability to mitigate country uncertainty through staffing and location decisions rather than operating mode choice.

Analysis Discussion

The iterative case analysis against the template theory allows a development of an adapted model which should enable better operating mode choices to be taken in the context of the decision factors which firms consider most critical. Prior to the final model presentation, a discussion of various insights that emerged from the case analysis is presented to provide a context for the final model.

There emerged a new sub-category of the international strategy typology. It has been discussed earlier that basic market-seeking and resource-seeking strategies when applied in different contexts may explain what first appear to be separate strategies (e.g. transnational integration and competitive response strategies). Within the market-seeking international strategy, it has become apparent that a differentiation can be drawn between those firms which provide a highly integrated sales service with those which provide a relatively low level of sales integration. Thirteen companies indicate that their high integration sales strategy to meet customer needs and service requirements is the primary factor leading to the operating decision they took.

The high-integration sales strategy emphasizes a higher dedication to servicing customers (often existing customers now operating abroad) versus a concern on finding new customers and markets. This focus often led firms in the study to move from distribution strategies to direct subsidiaries for sales and service offices. This high-integration sales strategy seems to be a function of three factors: the design-in requirement for a company's product as a component in its customer's products, the relative value chain position of the focal company, and the desired level of service differentiation.

A number of companies emphasize the need to design their product into their customer's production system. This design-in requirement meant that a firm's sales force needs to be present at the design facility of their customer. Firm 3, a semiconductor manufacturer, states that "we must follow our OEM customers on a world-wide basis to their design/production facilities. We need to design-in our product with the OEM to make the sale, therefore we must be where the design is taking place." Firm 22, a maker of semiconductor fabrication equipment echoes this sentiment, stating that "our product is so integrated into the design of a fabrication facility that it is not important where our product is finally put in place. We must sell at the development stage of a fabrication production system."

This design-in requirement is not limited to firms dealing with semiconductor manufacturers. Firm 9, a designer of passive electronic components for various electronic OEMs, emphasizes the need to design its product into its customers products as well. The failure of its current distributor to do this led to its firing. Firm 28, a manufacturer of hard disk drive heads, indicates that a range of design-in requirements exists, stating that "for high-tech customers, design-in requirement has several stages depending on component intricacy. Highly intricate components must be designed-in at the first stage, less intricate devices may be

integrated in the second or third stage or may be forced into a production system for strategic reasons.” In sum, many of the supplier firms indicate a need to "design-in" their product into current or potential client firms’ products. This design-in requirement seems best satisfied with a direct presence (WOS) at the point of customer product design.

The point of design-in is determined to be a function of the customer company structure. Firm 34, an semiconductor equipment manufacturer states that “a multi-level sale strategy depends on the customer structure; for a centralized company (like those from Japan), design-in and sales take place at the headquarters, then each of the company’s fabrication facilities around the world implements that design. In a decentralized company (i.e. European) the design-in and sale are at the site of the facility, to allow modification for each facility.” The case analysis indicates that the supplying firm's design-in requirement and the customer company structure influence the operating mode strategy of the firm. The following table illustrates the impact of this relationship.

Operating Mode Choice =
F (Design-in Requirement and Customer Structure)

		Design-in Requirement	
		High	Low
Customer Structure	Cent.	WOS (HQ)	Dist. (HQ)
	Decent.	WOS (site)	Dist. (site)

Here, the level of design-in matched against the customer company’s structure drives the operating mode decision and the disposition of a company’s resources and sales effort. High level design-in requirement drives high-integration sales strategies (WOS for sales and service) and the customer structure (centralized to decentralized) determines the point of supplier focus (headquarters or production site). Low design-in requirement can be satisfied with third party distribution efforts at either the customer headquarters (centralized structure) or customer production site (decentralized structure). Typically, supplier firms face this requirement more than OEMs.

The importance of the customer is also seen to drive the level of sales integration. The importance of the customer seems to be associated with the relative point on the value chain of the supplier and the customer. The value chain notion was first brought to light by Michael Porter. It simply discusses the various points of value creation of a product from various suppliers to the final consumer. As shown to emerge from the case arguments, four value chain positions exists in the sample: the OEM (original equipment manufacturer) which sells to the public, the 1-step supplier (one step from the final customer) which sells to the OEM, the 2-step supplier which sells to the 1-step supplier, and the 1-step OEM which sells to a user of the product which sells services to the public.

The general public is seen as the final consumer for any product. Thus, the OEM which make computers for sale directly to the public is linked to the public. The OEM which makes final products for professionals to create products for the final consumer is seen as one step away from the public (1-step OEM). The 1-step supplier could be the integrated circuit manufacturer which supplies chips to the computer maker, or the computer peripheral manufacturer which sells its product to the computer maker. The 2-step supplier, could be the firm which manufacturers equipment needed for the creation of the integrated circuits which are then sold to the computer manufacturer. Here, greater sales-integration seems to be a function of the distance the focal company is away from the final consuming public. The following table indicates the value chain position of the sample firms:

Value Chain Position of the Sample Firms

Value chain position	Number of firms
OEM	7
1-step OEM	5
1-step supplier	14
2-step supplier	<u>9</u>
Total	35

In this sample of high tech firms there is a direct relation between the point of the value chain of the focal company and its level of sales integration. Of the nine 2-step supplier companies, six emphasize a high-integrated sales strategy as the primary determinant driving their operating mode strategy. Five of these companies rate venture performance as moderate to high. (One firm in the sample, without performance data, also judged its high-integration sales strategy as the primary determinant.) Of the other three 2-step suppliers, two indicate a low-integration sales (market-seeking) strategy as the predominant determinant of their operating mode choice and one rates technology transfer costs as the primary determinant. All three of these firms judge performance as low.

Of the 14 1-step suppliers, three indicate a high-integration sales strategy as the primary factor impacting their operating mode choice. These three firms indicate moderate or high performance. Three of the four 1-step suppliers which indicate a low-integration market-seeking factor as a primary determinant have low performance. The remaining seven 1-step suppliers indicate resource-seeking, transnational integration or competitive response as a primary factor determining their operating choice. Six of these firms have moderate to high performance. This demonstrates a distinction between resource gathering and sales type investments for operating mode choice efficacy. For 1-step suppliers focusing on sales, there is an indication that a high-integration sales strategy is more effective than a low-integration market-seeking strategy. This relationship is not as strong as for the 2-step suppliers.

Of the five 1-step OEMs, 3 indicate a high-integration sales orientation, all with moderate to high performance. One indicates transnational integration as the primary factor with moderate to high performance, and one shows market-seeking as primary with high performance. Here, the tendency for high-integration sales is still strong but its necessity to build high performance is not as clear as for the one and 2-step suppliers. Of the seven OEMs, six indicate a low-integration market-seeking focus as the primary factor. All have moderate to high performance. One OEM has a high-integration sales strategy, also with high performance. This data clearly

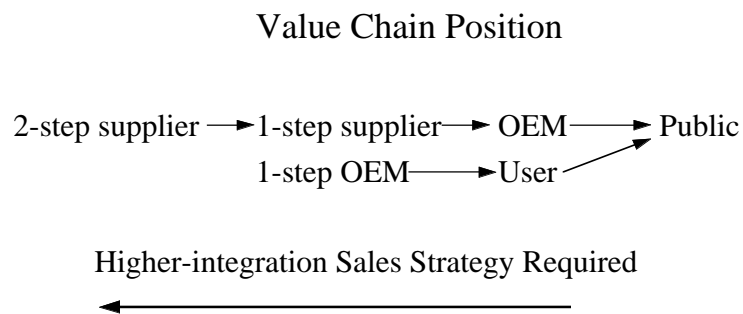
point to both a higher tendency for firms down the value chain to more often exhibit a high-integration sales strategy than OEMs and to profit from that orientation. This relationship is displayed more clearly below.

Value Chain Position	Value Chain Position, Primary Decision Factor, and Performance				
	2-step	1-step	1-step OEM	OEM	Total
Primary Factor (Good Perf.)	9	14	5	7	35
Market-seeking (low integra.)	2 (0)	4 (1)	1 (1)	6 (6)	13
Market-seeking (high-integra.)	6 (5)	3 (3)	3 (3)	1 (1)	13
Resource-seeking		4 (4)			4
Transnational Integration		2 (1)	1 (1)		3
Competitive Response		1 (1)			1
Technology Transfer	1 (0)				1

(Numbers in parenthesis indicate moderate to high performance for the venture)

Here, the incidence of a high-integration sales strategy in a general market-seeking orientation is clearly highest among 2-step suppliers and most effective for 1 and 2-step suppliers. OEMs seem to be successful with pure market-seeking emphasis. This relationship is shown below.

Sales Integration = F (value chain position)



In addition to the design-in requirement and value chain position of the focal firm, sales integration also is seen as a level of service differentiation that can serve as a competitive

advantage. Firm 20, a manufacturer of IC fabrication equipment, indicates that a direct presence shows customers more commitment and respect. Firm 24, a supplier to IC manufacturers, states that "in order to get business, we must promise the fab facility that we will be direct on site, even though the design and sale are made in the United States. Fabrication production customers want you to be direct at production site." Firm 34 emphasizes "... integrated circuit fabrication facilities cost at least \$3 billion and depreciation is the highest expense over labor and materials; therefore, they must run around the clock. They cannot afford down time. They must have fast competent direct service from the vendor".

To review, the level of sales integration is seen to be a function of 1) design-in requirement/customer structure, 2) value chain position, and 3) desired service level differentiation. The need for a higher sales integration international strategy is shown to increase with increasing design-in requirement, a value chain position further from the final consumer, and a higher level of desired service differentiation. *A high integration sales strategy is thus defined as a concentrated effort to anticipate customer needs and to provide timely tailored solutions which meet or exceed customer requirements through highly interactive direct support.* This high integration sales effort seems appropriate for many of the firms in this sample which could be considered specialty equipment producers. Daniels and Bracker (1989: 52) find that "specialty equipment producers usually need to design for and work closely with individual clients".

A high sales-integration strategy normally requires a direct presence (WOS) to bring high venture performance. Of the 12 companies in the study which indicate high integration sales effort as the primary factor driving the operating mode choice and which report performance data, 10 have WOSs - all reporting moderate to high performance. Two have JVs with moderate to high performance. None have an indirect presence of a distribution strategy. The emergence of this sub-category market-seeking strategy is subsequently incorporated into the template framework from which framework fit is tested. The resulting international strategy typology includes: market-seeking (high versus low sales integration), and resource-seeking. Transnational integration and competitive response continue to be seen as context driven strategies emanating from either market or resource-seeking motivations.

Distinguishing a high versus a low sales integration effort within a market-seeking strategy has precedent in the international marketing literature. Maintaining close integration with a customer which is expanding internationally often necessitates following that customer abroad. Terpstra and Yu (1988), studying U.S. advertising agencies, state that many service firms enter foreign markets to service the foreign subsidiaries of their domestic clients. They assert that this motive by service firms to go abroad is distinct from manufacturing firms because service firms have specific knowledge about their home country clients and can serve them better than host country firms can. Miracle (1966) argues that advertising firms go abroad primarily to keep their existing clients. This motive for foreign involvement has also been shown to exist in international banking (Khoury 1979; Nigh, Cho, and Krishaw 1986). Erramilli and Rao (1990) categorize this 'service-oriented' motive as client following versus a market-seeking motive in which the focal firm enters international markets to serve foreign customers.

Terpstra and Yu argue that the motive to follow and serve existing customers differentiates service industry foreign investment motivations from manufacturing industry foreign investment motivations. However, the high integration sales strategy and resulting client following behavior from many of the firms in this study indicate that this motive may be equally critical for 'high-tech' manufacturing firms which depend on system integration. Once

again, this client following or high integration behavior appears stronger for firms further down the value chain from the final customer.

An analysis of each case also points to the need to reclassify the operating mode choice. Here, licensing proved not to be an important alternative. Licensing was only mentioned at all as part of a joint venture deal where a technology was licensed to the daughter company. This is not surprising given the desire of ‘high-tech’ firms to avoid sharing their core technologies (Daniels and Magill 1991). The more useful categorization includes the choice of a distributor/export in addition to the wholly-owned subsidiary and joint venture. Each operating mode shows a distinct level of resource commitment (time and capital) and control. This recategorization required a simple modification to the existing contingency framework.

The importance of each factor in predicting the operating mode is also weighed. The technology transfer cost factor and environmental potential/uncertainty factor seem adequate, although neither seems to play a significant role in the operating mode determination. Projected technology transfer costs and the environment are simply issues to be dealt with within the context of the sample firms’ strategies. As shown previously, the international strategy held by the firms in this sample drives the mode choice in 34 of the 35 cases.

The only non-strategy factor that is seen to drive the operating mode decision is the estimated technology transfer costs of one firm. This company is very fearful of losing technology to a local Chinese company and as a result is delaying indefinitely greater market penetration and now rates performance as low. In every other case, technology transfer costs are seen as a factor to be negotiated and worked around in pursuing a firm's international strategy. Technology transfer costs are rated as moderate to high in 34 of the 35 firms in the study, but this fact seems to have little influence on the operating mode choice.

Technology costs are managed in other ways such as transferring older rather than newer technology, peripheral rather than core technology, and segmented rather than complete technology processes. For example, the pilot case firm, a semiconductor equipment manufacturer, ended up transferring 5-year old process technology to a Chinese joint venture in order to achieve its objective of forming a legal entity, hiring its own people and better servicing its clients. Firm 32 established an R&D facility in China to do basic research on core technology, but research is performed on only segments of that technology which the headquarters farms out to it. This activity meets Chinese government requirements and allows greater sales integration in the region. Firm 27, a semiconductor manufacturer, established a joint venture with a Chinese company to manufacture line cards in order to facilitate import of its own ICs into China. However, this line card manufacture was peripheral to its core competency and has little long term value to the company. These technology transfer management strategies are illustrated below.

Technology Transfer Management Strategies		
	Segment	Complete
Core	Partitioned core transfer	Significant core transfer
Peripheral	Minor non-core transfer	Complete non-core transfer

Previous studies analyze the costs as well as risks of international technology transfer (e.g. Kogut and Zander 1993; Kim and Hwang 1992). The notion behind these studies is that firms should keep technologies that are tacit and valuable within their own organization boundaries (i.e., wholly-owned subsidiary). This is because the costs and risks associated with

transferring a tacit or valuable technology to another organization through either a joint venture or licensing arrangement can be high. Davidson and McFetridge (1984), studying 1226 technology transfers, find that firms are more likely to internally transfer technologies that are newer and closer to the core of the firm's business. However, the choice of operating mode or organizational structure is not always available to MNEs that are expanding operations internationally.

This fact is particularly clear for investment in China. Chinese government policy classifies potential inward investments as those that are encouraged, allowed, or prohibited. A preferential status may allow a foreign investor greater latitude in choice of an operating mode. However, this may not always be the case. Investment modes and other issues are often arbitrary in emerging nations without clear investment guidelines. Further, the transfer of a technology to a foreign entity, even if that foreign entity is wholly-owned, is not without risk or cost.

The costs associated with making a firm's current domestic technology operational in a wholly-owned foreign entity can be predicted to be a function of language barriers and cultural differences. However, the risks of technology loss in a wholly-owned foreign entity can also be predicted to be higher than in a domestic subsidiary due to varying legal and regulatory environments. For example, foreign workers may not be bound by the same legal constraints of technology licensing when leaving an MNE's subsidiary for other firms. Host government regulations may also require the eventual sale of a wholly-owned foreign subsidiary to local firms.

Because of government limitations of operating mode, and uncertain legal and regulatory consequences for wholly-owned entities in foreign countries, the MNEs in this sample of firms use finer-grained strategies to manage international technology transfer risks. In particular, MNEs disintegrate a set of technology into pieces, and only transfer those that present minimum risks. By manipulating the nature (core versus peripheral) and the totality (complete versus segment), of a technology transferred to a foreign entity, firms are able to prevent critical technology transfer to foreign operating units.

Similarly, the estimation of the environment present value or options value seems to have only minor association with the operating mode choice or resulting venture performance. Firm 3, a semiconductor manufacturer, states that it follows customers on a world-wide basis wherever they operate. Firm 29, a provider of manufacturing services to OEMs, maintains an ongoing relationship with central government authorities to mitigate risk and smooth possible operating constraints. Similar to managing technology transfer costs, the firms in the sample manage environmental constraints of risk or uncertain market potential. They do this primarily through relationship building with local governments and industry officials, joint venture partner selection, regional site selection (some sites were owned by local governments or more stable foreign governments), local recruitment activities, and through exercising a high decision context. Importantly, though, the environment was relegated to a task to manage rather than a major influence on the firm's operating mode choice.

The decision context seems to help enable a good strategy formulation and operating mode selection but does not determine the specific operating mode itself. In nine of the 11 firms where a high decision context is shown, fit and performance are high or moderate. Five of the 14 firms with low context have low fit and performance. This finding supports the earlier work of Jones et al. (1992) and Bourgeois and Eisenhardt (1988) who find a positive relationship between decision process comprehensiveness and organizational performance. The relationship between decision context and performance is shown below.

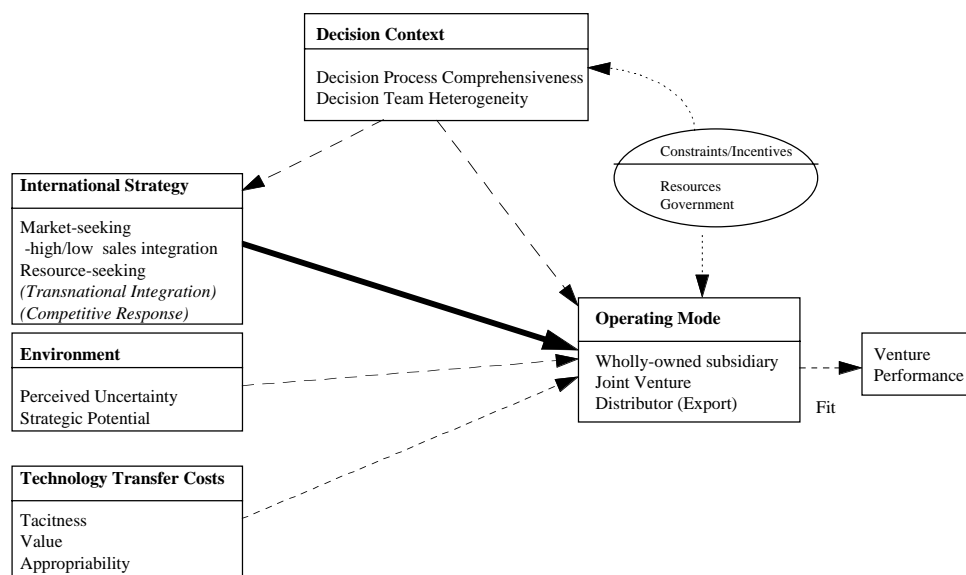
Decision Context and Performance

	High	Moderate	Low	Total # of Firms
Decision Context	11	9	14	34
Performance				
High/Moderate	10	8	9	27
Low	1	1	5	7

As shown above, 10 of 11 firms which indicate a high decision context through their decision process comprehensiveness and decision team heterogeneity demonstrate high or moderate performance. Only 9 of 14 firms with low decision context have high or moderate performance. A high or moderate decision context seems to foster better strategy, fit, and performance, but does not lead to a particular strategy or operating mode choice. Rather, it modifies the strategy selection and mode choice. Therefore, it is removed from the contingency profile and adjusted in the operating mode decision model.

Constraints also come into play in moderating the operating choice of several of the sample companies. Smaller firms in the sample often note they lack the necessary resources to pursue multiple opportunities simultaneously. Further, several firms, particularly those seeking investment in China, were made to alter plans for entry based on the imposed constraints by the Chinese government. These constraints modify both the decision context in which the decision is taken (resource constraints (e.g. Jones et al. 1992) and the operating modes available to the firm (resource and government constraints). These constraints are added to the adapted framework as well. The adaptations from the within and cross case analysis are incorporated into the operating mode decision/performance framework.

Adapted Foreign Operating Mode Decision Model



In the adapted framework, the firm's international strategy is shown to be the driving force (bold arrow) for the operating mode decision. Within the firm's international strategy, a market-seeking strategy is segmented into high versus low sales integration effort. The high and low integration market-seeking strategies are the primary drivers of the operating mode choices taken by the firms in this sample. The firm's decision context proved to be a moderating factor rather than a causal factor. The firm's decision context is shown to moderate the international strategy choice and operating mode selection. High decision context often allowed for a better international strategy and mode selection, but did not lead to a particular selection. The environment and technology transfer costs are not completely discounted but are primarily managed in ways other than the operating mode choice. Therefore, their link to the operating mode decision is weaker than that of a firm's international strategy.

Additional moderators are shown to exist in the adapted framework. Resource and government constraints and incentives moderate the decision context and the operating mode choice. Firms with more slack resources were able to spend additional time and capital in contemplating an operating mode. This ability led to a higher decision context and often a better decision. Firms also responded to resource incentives or efficiencies in their mode choice. Simply, firms pursued efficiency in their resource expenditures while attempting to satisfy their international strategy or minimize their technology transfer costs. Normally, this resource incentive or efficiency is a function of the scale of involvement. For example, a high level of sales make the fixed costs of a wholly-owned sales office more efficient than the variable costs of a distributor.

External constraints, typically from host government agencies, often restrict the choice of operating mode. This is particularly true for investment in China. These external constraints also impact the decision context, in that firms either spend less time on an operating mode choice because of external constraints or spend increased time looking for ways to maneuver around external constraints. The link to performance is given within the new contingency framework. The contingency framework is adapted from the case findings as displayed below. Here,

performance is predicted to be higher for firms where the operating mode ‘fits’ with the contingency factors. Fit between the operating mode choice and the firm’s international strategy is shown to be particularly significant.

A firm’s decision context is removed from the contingency framework as it acts as a moderator of mode selection but does not require ‘good fit’ with a particular mode choice. The order of importance of factor fit with the operating mode is shown from left to right. International strategy is predominant and must be primarily accounted for in fit estimation for high performance. Potential strategies which may be pursued by the firm are made somewhat more specific based on the results from the case analysis. The environment proves to be somewhat more important than technology transfer costs and thus is shifted to the second position. The fit of the operating mode with environment valuation and technology transfer costs is still recommended, but is of secondary importance to fitting the firm’s international strategy with the appropriate operating mode. Therefore, the environment and technology transfer cost are weighted less (Venkatraman 1989).

Adapted Foreign Operating Mode Contingency Profile

Factors Mode	International Strategy	Environment	Technology Transfer Costs
Wholly-owned Subsidiary	1) Market-seeking (high-integration) 2) Market-seeking (low-integration, high volume) 3) Resource-seeking 4) <i>Transnational Integration</i> 5) <i>Competitive Response</i>	High Net Present Value	High to Moderate
Joint Venture	1) Market-seeking (through JV partner selection) 2) Less Optimal mode for any strategy listed above, but may be necessary to meet government or resource constraints	Moderate NPV or Option Value	Moderate
Distributor	1) Market-seeking (low-integration, low volume; or resource constraints)	High Option Value	Moderate to Low

In evaluating the contingency fit/performance relationship, it is found that 18 firms demonstrate high fit with high performance, 6 firms display moderate fit with moderate performance, and 7 firms displayed low fit with low performance. Thus 18 cases provide support (literal replication) for the adapted model, and 13 cases provide support (theoretical replication) for the model. In all, 31 of the 35 cases provide support for the model. One case does not have necessary performance data to make an estimation of fit; one case involves a firm under extensive home and host government restrictions to its operations and thus was not fully analyzable; one case gave partial support with moderate fit and high performance, and one case contradicted the fit performance relationship. In that case a JV was selected for a competitive response. This choice seems appropriate given the circumstance and the model was modified to include that contingency.

Overall, 31 of 33 cases with sufficient data show full support for the model. One case

gave partial replication and one case which initially had contradictory results led to modification of the model. These results point to the strength of the contingency relationship between the operating mode decision factors and the operating mode choice.

To sum, the data indicate a strong impact of the firm's international strategy on the operating mode choice of the firm. Further, a link between the fit of the operating mode choice, decision factors and performance is shown to exist. A firm's technology transfer costs do not seem to significantly impact the operating mode decision as these estimated costs are managed in other ways. The environment of foreign operations does indicate more impact on a firm's operating mode choice than its technology transfer costs; however, environmental issues are also more often addressed using tactics other than mode choices. A firm's decision context seems to enable better strategies to be formed and mode choices taken; however, it does not appear to be a prerequisite for optimal performance of the foreign venture. Further, the decision process taken by the firm appears to have a stronger influence on the mode decision than the makeup of the decision team.

..

CONCLUSIONS

The research questions offered in this thesis are: What factors influence the foreign operating mode decision of the firm, and what are the performance implications of this choice. To answer these questions, this investigation developed a comprehensive foreign operating mode decision framework which is tightly linked to performance. It has been posited that an operating mode decision framework which is linked to venture performance will allow management to choose an operating mode which meets the demands of the factors it considers most critical and thereby enhance venture performance.

This objective was accomplished in two steps. First, a foreign operating mode decision model was developed based on the existing literature in the field and the integration of four theoretical lenses (an international strategy typology, dominant logic theory, transaction cost economics, and options theory). Each theoretical lens supported the development of propositions regarding the operating mode choice for four decision factors: international strategy, decision context, technology transfer costs, and environmental uncertainty and potential. The decision framework is then tied to performance through a contingency framework which stipulates improved performance when the operating mode choice best fits the proposed varying levels of each decision factor.

This theoretical model then served as a template model which would be either validated or adapted by case data of individual company experiences in foreign investment decisions (Yin 1994). The template model provided a focus for the data collection and analysis. Specifically, a series of cases of corporate investment into the Asia/Pacific Rim were analyzed to validate and adapt the preliminary framework. Each case was assessed separately for its fit with the framework to see if it validated the framework or pointed to weaknesses in it.

The analysis of each case as its own entity led to the adaptation of the decision model. For example, it is shown that a firm's international strategy is clearly the determining factor of a firm's operating mode choice, whereas technology transfer costs and environmental

considerations are normally managed by alternative methods. The iterative case analysis also indicate that 31 of the 33 cases with complete unrestricted data provide full literal or theoretical support for the template model.

Performance Fit	Operating Mode Fit and Venture Performance		
	High 20	Moderate 6	Low 7
High 18	18	0	0
Moderate 8	2	6	0
Low 7	0	0	7

In essence, the data of actual company experiences in the foreign operating mode decision substantiate the expected process from the adapted framework. Thus, *strong evidence of the efficacy of the framework is shown to exist based on replication logic (Yin 1994, Parkhe 1993). Therefore, support is found for the contingency relation between the operating mode choice (WOS, JV, and distributor), the decision factors, and venture performance.*

Further, a ranking of the factors which impact the firm's operating mode choice has evolved from the case analysis. The international strategy held by a firm in this sample drove the operating mode choice in 34 of the 35 cases. *A firm's international strategy is clearly the driving force in determining the firm's operating mode choice and must also be primarily accounted for in the operating mode selection, as its 'fit' seems to drive performance.* This notion supports previous research by Hill, Hwang, and Kim (1990), and Kim and Hwang (1992) in their discussion of the impact of a firm's global strategic considerations.

The impact of the environment on the operating decision of the firm cannot be completely discounted; however, it does not have nearly as great an impact on the mode choice as does the firm's international strategy. In general, *the potential and risk of the country environment in which the firm is operating is managed through means other than the selection of an operating mode.* Developing relations with government officials, careful site selection, and recruitment, and a high decision context seem to help mitigate the perceived risk in the country environments where the firm is operating.

Technology transfer costs also seem to be dealt with as a secondary issue in the context of meeting a firm's strategic objectives. Only one firm in the sample cites technology transfer costs as the primary factor which needs to be accounted for in the operating mode choice, and this firm suffered poor performance as it never realized the market penetration it had hoped for. *Technology transfer costs seem to be better managed through finer-grained strategies such as transferring peripheral rather than core technology, and transferring segmented rather than complete technology processes.*

Firms also attempt to transfer old rather than new technologies to appease host government demands and pursue their own objectives. However, most governments, from both developing and advanced countries, recognize superior technology and normally insist on it. Therefore, the firms in this study have, as a group, found more implicit ways to manage the costs and risk of technology transfer.

Within the factor of a firm's international strategy, it became clear that a further distinction needs to be made. The notion of a high-integration market-seeking strategy as distinct from a low-integration market-seeking strategy emerged from the case analysis. *The high-integration market-seeking strategy appears to be a function of a firm's design-in*

requirement for its product, its relative value chain placement, and its desired level of differentiation. Here, the high-integration market-seeking strategy is best served by a direct presence of the focal firm.

	Operating Mode (Good Performance)		
	WOS	JV	Distributor
High-integration Strategy (13)	11 (11)	2 (2)	0

The notion of relative value chain position and its demand on a firm's strategy and operations warrant close attention by corporate decision makers and further investigation by researchers. In this study, *firms further down the value chain from the final consumer normally pursued a high-integration market-seeking strategy and were rewarded for that effort.*

Value Chain Position	2-step supplier	1-step supplier	1-step OEM	OEM
High-integra. (Good Perf.)	6 (6)	3 (3)	3 (3)	1 (1)

The predominance of a firm's international strategy in driving its foreign operating mode decision supports the earlier findings of Kim and Hwang (1992) in their assertion of the role of global strategic considerations. However, it calls into question the traditional management literature which focuses on the role of technology in determining appropriate organization structure (Anderson and Gatignon 1986; Contractor 1990; Kogut and Zander 1993). Perhaps it is the increasing globalization of industry that relegates the protection of technology to a secondary status. It may also be characteristic of the 'high-tech' industry, and, specifically, the computer industry, with its shortening technology life cycles, that makes the protection of today's technology less important than selling today's technology as quickly as possible and developing new technologies for tomorrow's markets.

In a short product life cycle industry environment, firms may be well advised to trade access to current technology in order to gain access to current markets as this current technology will be out of date by the time potential joint venture partners learn how to develop it themselves. *Thus, it is conceivable that the value of accessing today's markets outweighs the value of today's technology. Firms, therefore, may consider sharing access to today's technology for access to new markets.* Firms would be betting on their capacity to continue to develop new technology to again sell in tomorrow's markets. It would then be the capacity to design, not the design itself that is critical to the firm. The value of the capacity to design is found in the human resources and slack capital that allow concentration and focus on this design capacity.

In industries where the rate of technology development is slower, this relation between technology transfer costs and organization structure and operating mode choice may be much different. This notion coincides with the velocity of industry change. High velocity industry change and the inability to protect technology effectively via patents and trademarks increases the value of current market access *vis a vis* current technology. Firms in lower velocity industries which can employ patent protection may not envision the same relationship between technology and market access. For example, pharmaceutical companies, which may patent a

drug makeup, would seemingly be far less likely to trade market access for technology access because of their ability to protect their current design as well as their capacity to design.

The predominance of the high-integration market-seeking strategy at the origin of the value chain among one and two-step supplier also indicates an increasing appreciation for design-in capability to secure market access. (Market access in this case is with the individual customer rather than the country.) The capacity to design is thus leveraged to gain individual customer access. Ready-to-fit components are becoming less abundant in industries with high velocity technological change. Thus, it is the company with a capacity to design that will capture critical customers. Firms may then leverage their design capacity to keep current customers and pursue new markets. Those firms which do not have custom design capacity or the will to exercise it may lose out.

The decision context (decision process comprehensiveness and decision team heterogeneity) in which the sample firms decided upon an international strategy and operating mode also appear to influence the operating mode decision and eventual venture performance. A high decision context seems to enable firms to break the dominant logic which could effect a foreign investment decision. *Firms with high decision context and, in particular, a highly comprehensive decision processes, typically chose more effective international strategies, operating modes, and enjoyed higher venture performance.*

Findings Specific to China

While this study has concentrated its focus on evaluating the link between a firms' operating mode choice, its decision factors, and its foreign venture performance, consideration must also be paid to the unique business environment in which 15 of the sample firms have invested.

Of the 15 cases of investment in China, five firms operated with a joint venture. Of the remaining 20 non-China cases, only two firms chose the joint venture investment mode. This tendency to joint venture in China is replete in the literature. It seems clear that the joint venture operating mode is the mode most often favored by the Chinese government. Investing firms also appear to accept this mode in hopes of learning more of the Chinese environment from joint venture partners. Restrictions to other mode of operations clearly drive this tendency. It bears pointing out that none of the five distributorships are within China. China places significant constraint on exporters where the products are not clearly needed or could otherwise be provided internally.

Of the 35 cases studied, 12 firms cite government restrictions to their investment modes. Eleven of these 12 were cases of investment in China. Clearly, government constraints do play a significant role in limiting the operating strategies available to firms pursuing investment in China. This fact makes all the more significant the finer-grained strategies of technology transfer management and environment uncertainty abatement discussed earlier. Still, even with these constraints, venture performance in China does not seem to be greatly diminished. Of the 14 firms operating in China, 11 report high or moderate performance. This rate of success is comparable to the 20 non-Chinese ventures of which 17 report high or moderate performance.

The primary factor motivating investment in China is a market-seeking strategy. Twelve of the 15 firms which pursued investment in China indicate either a high or low-integration market-seeking international strategy. The prevalence of market-seeking motivations exists despite the plentiful supply of qualified and inexpensive labor available in China. This predisposition to view China as a potential marketplace rather than a resource base may be

specific to 'high-tech' manufacturers which hesitate to develop the specific skill base necessary to support their sophisticated manufacture processes, but envision large product sales within China's massive market.

In all, the highly complex and restrictive investment environment of China emphasizes the importance of finding the most suitable operating modes available given the nature of the factors which investing firms deem most crucial. Further, while China provides an example of a highly restrictive investing environment, it is certainly not alone among nations that impose significant restrictions upon investing firms. Therefore, the generalizability of the findings specific to China should still be substantial.

Direct Implications for Management

The analysis of the theoretical framework and case data point to specific issues that may be of value to managers involved in international expansion decisions.

1. Choose a foreign operating mode which meets the requirements of the factors management considers most critical. (The contingency framework presented in chapter 5 may be a useful starting point in choosing a suitable operating mode).
2. Among other considerations, ensure the operating mode choice suits the strategy pursued for the new venture. (The case data indicate that fitting the operating mode to the international strategy for the venture is the most critical contingency in venture performance).
3. Consider using alternative methods of managing technology transfer/protection issues. These may include transferring peripheral rather than core technology and partial rather than complete technological processes.
4. Consider using alternative means of managing the environment of operations. Pursue relationship building with local officials and partnering with more experienced firms. Employ a comprehensive decision process to ensure all alternatives have been evaluated.
5. When pursuing a market-seeking strategy, evaluate whether a high-integration sales effort is called for with potential clients. The need for this high-integration effort is a function of the design-in requirement of your firm's product, your firm's relative value chain position, and the desired level of service differentiation you wish to provide. If a high-integration sales effort is called for, a WOS sales/support office is likely to be more effective than other distribution strategies.
6. Employ a comprehensive decision process with a heterogeneous decision team to help break the mold of traditional strategy formulation and enable better operating modes to be chosen and international strategies to be selected.

The preceding managerial suggestions must be taken with caution as industry and firm-specific issues will influence the relative efficacy of each point. Still, it is hoped that these points will provide a rough road map to executing superior operational mode choices in international management decisions.

Ancillary Findings and Areas of Further Research

While keeping focused on the primary questions of the investigation, some ancillary findings did emerge which deserve further attention. Beyond the choice of operating mode and the implementation of strategy, many firms emphasized that finding 'a local leader to spearhead operations and recruit the local workforce' is a critical aspect of initiating operations in a new

country. This finding supports the feelings of frustration of foreign investors in China who often have difficulty in finding and recruiting capable managers (Pan et al. 1996).

As most US firms shy away from the extended use of expatriate personnel to run foreign country operations, this finding is perhaps not too surprising. Still, the notion of seeking leadership skills in international human resource decisions seems a critical notion for organizational decision-makers. Here, the local leader was expected to competently manage the operations and aid in recruitment efforts by virtue of his reputation and skill. The significance of local recruitment is echoed in the findings of Pan et al. (1996) who find that enterprises which provide a higher scale of manager compensation tend to yield a higher level of profit.

Extending the technology transfer arguments made earlier, it seems that firms now accept that technology is transferred regardless of operating mode, as it is embodied in the local workforce, products, and customer training. Therefore, the notion of preserving current technology seems to be outdated in this era of rapidly decreasing product life cycles. The one company which focused on preserving its technology showed the poorest performance.

Other issues emerged from the research. They include the following. Some MNEs in the sample developed a tendency to partner with other entrants with some experience in a country to avoid obvious mistakes. Further, the notion of being a pioneer in a new market is mentioned frequently by some respondents. For example, most 'high tech' manufacturers are reluctant to go to a new region (even in same country) where their industry colleagues or competitors are not already present. However, some do go for labor availability and other incentives.

This aversion to pioneering is the counter point to the agglomeration effect where foreign investors tend to bunch their investment in a given country or region. A high density of foreign investors seems to add confidence to prospective investors and could feasibly also influence their mode of investment. This phenomenon is not examined in this study but warrants further investigation.

Related to this notion of pioneering is the idea of a 'hub of activity' in foreign country operations. For example, some MNE operations seem to act as magnets for other supplier firms for later entry. The case of a semiconductor fabrication facility or final OEM is a good example. Here, these operations in a region act as a hub of activity pulling in all sorts of suppliers, etc. Therefore, these 'hubs' must seem to be a most attractive catch for a host government. Finally, the need to develop relationships and trust when operating in a foreign environment also resonates among the firms in the sample.

Finally, while the iterative case analysis provides for a decision model linked to performance, a further refinement of the model is possible through larger sample statistical testing. Specifically, the current model has offered a specific profile of decision factors which should be accounted for by firms contemplating a foreign entry decision. This profile can be refined through large sample statistical testing by using a calibration sample (e.g. 10%) of the highest performing ventures and establishing an ideal profile of decision factors from that group from which the main sample would be compared (Venkatraman and Prescott 1990).

PRIMARY REFERENCES

Anderson, Erin and Hubert Gatignon (1986). "Modes of Foreign Entry: A Transaction Cost Analysis and Propositions", *Journal of International Business Studies*, Fall 17, pp. 1 - 26.

- Bartlett, C. A. and S. Ghoshal (1989). Managing Across Borders: The Transnational Solution, Hutchinson Business Books: London.
- Beamish, P.W. (1993). "The Characteristics of Joint Ventures in the People's Republic of China", *Journal of International Marketing*, Vol. 1/2, pp. 27 - 48.
- Behrman, J.N. (1972). The Role of International Companies in Latin America: Autos and Petrochemicals, Lexington Books: Lexington, MA.
- Black, F. and M. Scholes (1973). "The Pricing of Options and Corporate Liabilities", *Journal of Political Economy*, Vol. 81, pp. 637 - 659.
- Bowman, E. and D. Hurry (1993). "Strategy Through the Options Lens: An Integrated View of Resource Investments and the Incremental-choice Process", *Academy of Management Review*, Vol. 18 (4), pp. 760 - 782.
- Contractor, F.J. (1984). "Choosing Between Foreign Direct Investment and Licensing: Theoretical Considerations and Empirical Tests", *Journal of International Business Studies*, Vol. 15, pp. 167 - 180.
- Contractor, F.J. (1990). "Contractual and Cooperative Forms of International Business: Towards a Unified Theory of Modal Choice", *Management International Review*, Vol. 30, pp. 31 - 54.
- CorpTech Directory of Technology Companies (1996), 11th U.S. Edition, Vol. 3, Corporate Technology Information Services, Inc.: MA.
- Cyert, Richard M. and James G. March (1963). A Behavioral Theory of the Firm, Prentice-Hall: Englewood Cliffs, NJ.
- Daniels, John D., & Radebaugh, Lee H. (1994). International Business: Environments and Operations (Updated 6th Ed.), Addison-Wesley Publishing Company: Reading, Massachusetts.
- Economist Intelligence Unit Country Report (China), First Quarter (1997), EIU limited: London.
- Eisenhardt, K.M. (1989). "Building Theories from Case Study Research", *Academy of Management Review*, Vol. 14. (4), pp. 532 - 550.
- Fredrickson, J.W., and T. R. Mitchell (1984). "Strategic Decision Processes: Comprehensiveness and Performance in an Industry With an Unstable Environment", *Academy of Management Journal*, Vol. 27, pp. 399 - 423.
- Nutt, P. (1990). "Strategic Decisions Made by Top Executives and Middle Managers with Data and Process Dominant Styles", *Journal of Management Studies*, pp. 173 - 195.
- Parkhe, A. (1993). "Messy" Research, Methodological Predisposition, and Theory Development in International Joint Ventures", *Academy of Management Review*, Vol. 18 (2), pp. 227 - 268.

Prahalad, C. K. and R. A. Bettis (1986). "The Dominant logic: A New Linkage Between Diversity and Performance", *Strategic Management Journal*, Vol. 7 (6), pp. 485-501.

Schwenk, Charles R. (1986). "Information, Cognitive Biases, and Commitment to a Course of Action", *Academy of Management Review*, Vol. 11 (2), pp. 298 - 310.

Schwenk C.R. and Dalton, D.R. (1991). "The Changing Shape of Strategic Management Research", *Advances in Strategic Management*, Vol. 7, pp. 277 - 300.

Venkatraman, N. and V. Ramanujam (1989). "Measurement of Business Performance in Strategic Research: A Comparison of Approaches", *Academy of Management Review*, Vol. 11, (4), pp. 801 - 814.

Venkatraman, N. (1989). "The Concept of Fit in Strategy Research: Toward Verbal and Statistical Correspondence", *Academy of Management Review*, Vol. 14, (3), pp. 423 - 444.